Creation Research Society Quarterly

Haec credimus:

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

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CREATION RESEARCH SOCIETY QUARTERLY

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Instructions to authors can be found in June Quarterly.

Erratum

The last sentence in the typology section (p. 89, second column, December 1990 Quarterly) should read as follows:

From the areas of providence, design and typology, it is God, not macroevolution, Who deserves frontline credit for producing the candelilla and all the *Euphorbia* members.

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Mortar and pestle found in auriferous gravel, Spanish Plat, El Dorado County, California. University of California, Berkeley designation 1-4204A.

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CREATION RESEARCH SOCIETY

History The Creation Research Society was first organized in 1963, with Dr. Walter E. Lammerts as first president and editor of a quarterly publication. Initially started as an informal committee of 10 scientists, it has grown rapidly, evidently filling a real need for an association devoted to research and publication in the field of scientific creation, with a current membership of over 600 voting members (with graduate degrees in science) and over 1100 non-voting members. The *Creation Research Society Quarterly* has been gradually enlarged and improved and now is recognized as the outstanding publication in the field.

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

Membership Voting membership is limited to scientists having at least an earned graduate degree in a natural or applied science. Dues are $18.00 ($22.00 foreign) per year and may be sent to Glen W. Wolfrom, Membership Secretary, P.O. Box 14016, Terre Haute, IN 47803. Sustaining membership for those who do not meet the criteria for voting membership, and yet who subscribe to the statement of belief, is available at $18.00 ($22.00 foreign) per year and includes a subscription to the Quarterlies. All others interested in receiving copies of all these publications may do so at the rate of the subscription price for all issues for one year: $21.00 ($25.00 foreign).

Statement of Belief Members of the Creation Research Society, which include research scientists representing various fields of successful scientific accomplishment, are committed to full belief in the Biblical record of creation and early history, and thus to a concept of dynamic special creation (as opposed to evolution), both of the universe and the earth with its complexity of living forms. We propose to re-evaluate science from this viewpoint, and since 1964 have published a quarterly of research articles in this field. In 1970 the Society published a textbook, *Biology:* A *Search for Order in Complexity*, through Zondervan Publishing House, Grand Rapids, Michigan 49506. All members of the Society subscribe to the following statement of belief:

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

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

3. The Great Flood described in Genesis, commonly referred to as the Noachian Flood, was a historical event worldwide in its extent and effect.

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

Editor's Comments

This issue completes my second year as editor of the Quarterly. I thank the authors of articles, notes, book reviews, and letters for their help. I appreciate the input of peer reviewers and the aid of many Society Board members. I would like to receive articles, notes and letters from many people on the creation model of science. Let me hear from you.

Robert Gentet discusses artifacts found in Tertiary strata in California. He makes an important point, much good field work is contained in older scientific journals that would not be in modern technical reports because of naturalistic bias. Creationists could profit by scanning older journals to determine if some evidence is available that would be of interest to Quarterly readers.

With this issue, the symposium on variation begins. One of the major points of the creation model of science is that the variation possible in nature, particularly in the biological world, is quite limited. Whereas in the evolution model of science, variation is almost infinite from molecules to man. Obviously there is a major conflict between the two models in this area. Hopefully the papers in this symposium will explore these differences and illustrate the superiority of the creation model of science. The article by the Russian scientist, Dimitrij Kuznetsov, although not in the symposium, introduces preliminary biochemical evidence that the infinite variation postulated by evolutionists is blocked at the RNA level of activity. It is hoped that you will study the various treatises in this issue and offer your comments to me.

Don B. DeYoung

DEDICATION TO PAUL A. ZIMMERMAN

The Society has added to its ranks of Fellows a very talented individual, Paul A. Zimmerman. Although trained as a theologian, he has also been an educator with a great deal of administrative experience. In addition he has received considerable formal training as a physical scientist.

Despite having served as president at three different Concordia Colleges consecutively, Paul Zimmerman also has had the ability and taken the time to write a number of books and articles on the topics of science and religion. He is well-known as a lecturer on the subjects of creation and evolution. In fact he once appeared on the Phil Donahue show, where he acquitted himself very well in a dialogue with Dr. William Meyer.

Dr. Zimmerman's most noteworthy literary contribution has been as co-author and editor of three classic works which were produced by Concordia Publishing House. The first was *Darwin, Evolution and Creation* which was published at the time of the Darwin Centennial in 1959. This publication was among the first of the creationist works which appeared in what might be considered as the Creation resurgence of the late 50s and early 60s. It was followed by *Creation, Evolution and God's Word* and a third book, *The Rock Strata and The Bible Record.*

Dr. Zimmerman was born June 25, 1918 in Danville, Illinois. After graduation from the local high school, he enrolled in Concordia College, Ft. Wayne, Indiana. After completion of the two year junior college program, he enrolled in Concordia Seminary in St. Louis, Missouri. Here he attained the B.A. in 1941 and the M.Div. in 1944. After graduation from the seminary he taught science and religion at Bethany College, Mankato, Minnesota. It was during this time that he earned the M.A. and then the Ph.D. in inorganic chemistry at the University of Illinois in 1951.

Shortly he was called as science professor in 1953 and then elected president of Concordia Teachers College, Seward, Nebraska in 1954. In 1961 he was elected to the presidency of the new Concordia College at Ann Arbor, Michigan. This school was still on the drawing boards but under his direction it was dedicated in September of 1963. After serving for 12 years, he was elected president of Concordia Teachers College, River Forest, Illinois, in 1973. In 1983, he retired and now lives in Prudenville, Michigan with his wife, Genevieve. They are the parents of a daughter and a son.

Paul Zimmerman has served on the Board of Directors of the Society from 1963 to the present. In addition to serving the cause of creation with his numerous writings on the subject, he has been able to serve the Board in an advisory financial capacity, due to his many years of adrninistrative experience. In this capacity he has given freely of his time whenever the need arises. The Society is pleased to recognize his many years of dedicated and exemplary service.

Wilbert Rusch, Sr., L. L. D.

GEOLOGICAL EVIDENCE OF EARLY MAN

ROBERT E. **GENTET***

Received 30 April 1990; Revised 23 August 1990

Abstract

In the previous century, much was written about the finding of Tertiary Man and his artifacts. This material is little noted or discussed today when Man is viewed as having an extremely short geological history. It is time to reexamine the evidence presented by competent scientists and experts of the past century, without allowing evolutionary bias to interfere.

Introduction

Much material has been written in recent years concerning fossil and artifact evidence of the earliest humans or possible human ancestors. The thrust of such material is on the most recent geological period called the Quaternary which consists of the Recent and the Pleistocene Epochs. In accordance with the geological timetable, the Quaternary is only a short 1.6 million years in length in comparison with nearly 570 million years which are thought to have elapsed since the Cambrian Period.

W. E. LeGros Clark (1964, p. 59), former professor of anatomy at Oxford, wrote: "And it was during the Pleistocene period that hominid evolution gradually proceeded toward the final appearance of the genus

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Homo and the species *Homo sapiens."* The same verdict is still generally held today. *Homo sapiens* and his remains and culture are not to be expected outside the bounds of the Quaternary, although his assumed animal roots would date in earlier geological times.

However, if one were to look back in geological writings of 100 years ago, the picture would be quite different. Then the search for Tertiary man was active around the world. The Tertiary and the Quaternary are the two geological periods of the Cenozoic Era. The Tertiary is by far reckoned to be the longest, comprising nearly 65 million years versus the mere 1.6 million years of the Quaternary. It is during the Tertiary that some scientists of 100 years ago felt that the traces of earliest man had been and would continue to be found.

American Tertiary Evidence

What are some of the previously reported fossil and artifact finds of human remains or activity in Tertiary strata? What follows is not a complete list, but rather a representation of what can be culled out of old scientific journals and books. Obviously, even then, such findings in ancient layers were highly questioned. Today, they are never mentioned seriously and are almost entirely forgotten except as filed in some ancient book or magazine report. The purpose of this article is not to attempt to demonstrate whether these reports of ancient findings of man are valid, but rather to ask the question: "Have these findings been given a fair shake, or have they rather been explained away without proper scientific reason?" Undeniably they are devastating to the commonly-held evolutionary theory of man's origin, for they would place man too far back in the fossil record.

The 1849 gold rush to the state of California was the beginning of some of the most unusual reported finds of early man in North America. The gold-bearing gravels in California are recognized as being Tertiary in age, ranging from oldest to youngest Tertiary, depending upon the exact geological setting. At the time these gravels were deposited, volcanic eruptions also laid down lava beds, often tens or scores of feet thick. This occurred a number of times, and together with much erosion since then, have now resulted in table mountains, that is, lava-capped hills where the harder lava has better withstood erosion stresses while surrounding softer material has been swept away. It is under the hard lava beds, in the gold-bearing (auriferous) gravels, where the reported human bones and artifacts were found. Such artifacts were found not just once or twice, but hundreds of times by miners during the span of time from the 1850s through the 1890s while engaged in mining operations. Findings were spread over a wide geographical area.

It is not within the scope of this article to cite all of the findings, but a few will be given so the reader will have a better estimation of what these miners of the past century reported uncovering in their diggings.

The classic report on this matter of ancient human remains and artifacts in the auriferous gravels of the Sierra Nevada in California is by none other than the California State geologist of that day, J. D. Whitney. His 569 page book *The Auriferous Gravels of the Sierra Nevada of California* (Whitney, 1880) devotes 30 pages to the question of "Human Remains and Works of Art in the Auriferous Gravel Series:"

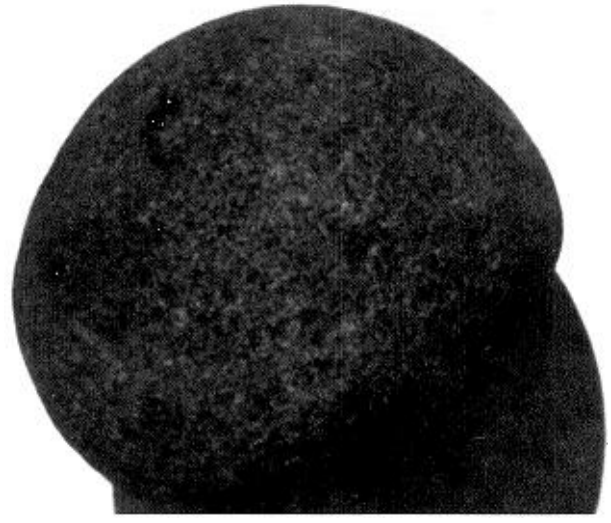

Figure 1. Stone ball found in auriferous gravel, Tuolumne County, California. University of California, Berkeley designation 1-4202.

Whitney gives a comprehensive review, county by county, of these unusual finds by miners from the early 1850s up to the book's publication in 1880. Perhaps the most spectacular entry is that of a reported find in February 1866 by a Mr. Mattison in his mine in Calaveras County of a partial human skull. It was found ". . . one hundred and thirty feet from the surface, and beneath the lava, in the cement, and in close proximity to a completely petrified oak" (p. 267). Furthermore,

> when delivered into the writer's hands its base was imbedded in a conglomerate mass of ferruginous earth, water-worn pebbles of much altered volcanic rock, calcareous tufa, and fragments of bones (p. 268).

The skull was in a "fossilized condition" with nearly all its organic matter having been replaced by carbonate (p. 269).

Whitney did extensive research on the skull and the circumstances surrounding its discovery and those who had the skull in their possession before it reached the Geological Survey. Whitney found absolutely no reason to doubt the truthfulness of any of the statements of those who had the skull in their possession prior to the time he first saw it:

> We have the independent testimony of three witnesses, two of whom were previously known to the writer as men of intelligence and veracity, while in regard to the third there is no reason for doubting his truthfulness (p. 272).

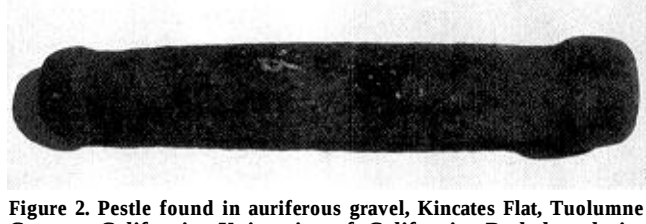

Figure 2. Pestle found in auriferous gravel, Kincates Flat, Tuolumne County, California. University of California, Berkeley designation 1-4208A.

However, since the skull represented that of a modern-type man, the idea that such a skull truly was found in such an ancient stratum was repeatedly rejected by many later scientists. And yet, Whitney, the state geologist and himself an evolutionist, one who lived at the time of the find and did the original research, summed up his findings on this skull and the many other evidences of man found in the gold-bearing gravels by concluding:

Figure 3. Cover Photograph

> That there is a large body of evidence, the strength of which it is impossible to deny, which seems to prove that man existed in California previous to the cessation of volcanic activity in the Sierra Nevada, to the epoch of the greatest extension of the glaciers in that region, and to the erosion of the present river canyons and valleys, at a time when the animal and vegetable creations differed entirely from what they now are, and when the topographical features of the State were extremely unlike those exhibited by the present surface.
>
> That man existing even at that very remote epoch, which goes back at least as far as the Pliocene, was still the same as we now find him to be in that region, and the same that he was in the intermediate period after the cessation of volcanic activity, and while the erosion of the present river canyons was going on.
>
> That the discoveries in California, and those in other parts of the world, notably in Portugal and India, present a strong body of evidence going to prove the existence, during an immensely long period, of the human race in its primitive condition,—that is to say, in the simplest and rudest condition in which man could exist and be man.
>
> That, so far as we now know, there is no evidence of the existence of any primordial stock from which man may have been derived, as far back at least as the Pliocene. Man, thus far, is nothing but man, whether found in Pliocene, Postpliocene, or Recent formations (p. 288).

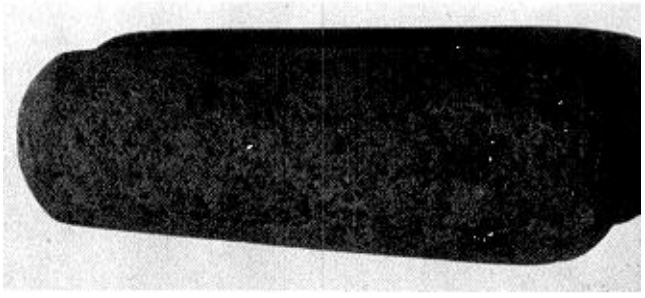

Figure 4. Pestle found in auriferous gravel, El Dorado County, California. University of California, Berkeley designation 1-4204A.

In a report entitled "Antiquities from under Tuolumne Table Mountain in California" (Becker, 1891), read by the author before the Geological Society of America on December 30, 1890, we read further of the finding of implements and human bones beneath the mreat lava-flows which cover the gold-bearing gravel deposits of California.

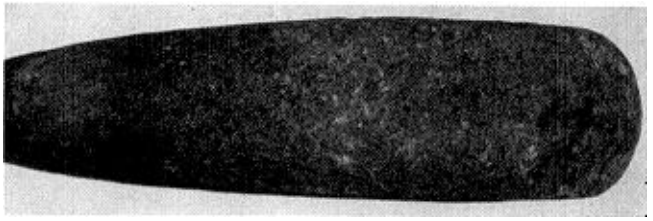

Figure 5. Pestle found in auriferous ravel, Forest Home, Amador County, California. University of California, Berkeley designation 1-4210A.

Becker's interesting report says (p. 191), in part:

> Mr. Paul K. Hubbs, once state superintendent of public instruction in California, was present in July, 1857, when a small piece of a human skull was taken from a sluice in which pay gravel was being washed at the Valentine shaft, near Shaw's flat. The gravel still adhered to this fragment when Mr. Hubbs received it, and the shaft through which the material was brought to the surface was a boarded one, so that the bone (it is believed) could not have dropped into the shaft from near the surface, where also there was no gravel. Mr. Albert Walton, one of the owners of this claim, also states that a mortar was found in the gravel. Mr. Oliver W. Stevens,

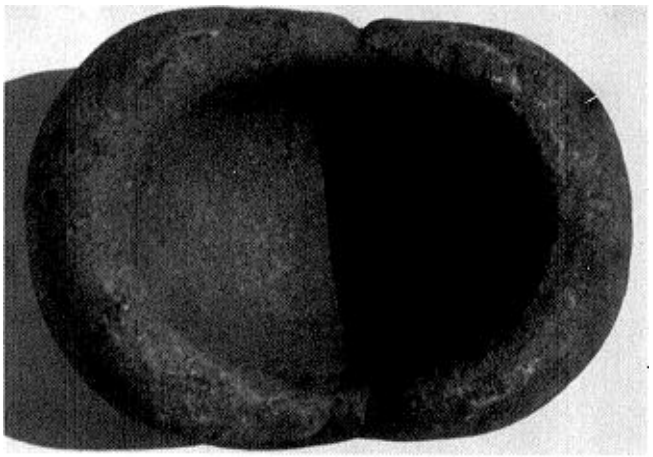

Figure 6. Mortar found in auriferous gravel, Buckeye Hill, Nevada County, California. University of California, Berkeley designation 1-4213.

> about 1853; picked from a car-load of dirt at the Sonara Tunnel a mastodon tooth containing pyrite and a large perforated marble bead, which came into Professor Whitney's possession and shows that pyrite had filled the encrusted hole. Stevens made an affidavit as to this discovery. Mr. Llewellyn Pierce made a sworn statement that about 1862 he dug up a mortar in a tunnel on the Boston Tunnel Company's claim, 1800 feet from the mouth of the tunnel and 200 feet beneath the surface, the basalt cap being here over 60 feet in thickness . . . That practical jokes were in vogue in California in early days is certain, and it is unquestionable that Mr. Pierce's affidavit was taken with the express purpose of guarding against the objection that he might not be in earnest.

Becker gives account after account of discoveries in these gold-bearing gravels in California. In 1877 the

Figure 7. Flat barbed pendant found at Marysville, Yuba County, California. University of California, Berkeley designation 1-4550.

superintendent of the Montezuma Tunnel Company found "several spear-heads, of some dark rock and nearly one foot in length" (p. 192), "a small mortar three or four inches in diameter and of irregular shape" (p. 192), "a large, well-formed pestle. . . and nearby a large and very regular mortar" (p. 192), and in the statement made before a notary public on August 2, 1890, the superintendent, Mr. Neale, declared upon oath that "all of these relics were found the same afternoon, and were within a few feet of one another and close to the bed-rock" (p. 192) and that it was

> utterly impossible that these relics can have reached the position in which they were found excepting at the time the gravel was deposited, and before the lava cap formed. There was not the slightest trace of any disturbance of the mass or of any natural fissure into it by which access could have been obtained, either there or in the neighborhood (p. 192).

Becker also goes to some length to defend the power of the miners, especially the superintendents, to be well-aware of the character of the geological layers and being able to tell more readily of "salting" a claim, even more competent that the average geological visitor who

> cannot fully acquaint himself with the ground, and he is usually unfamiliar with tricks. It is therefore an argument in favor of the authenticity of implements that they have been found by miners (Becker, p. 193).

Perhaps the most significant gold-bearing gravel find was that of Clarence King, geologist and director of the Survey of the Fortieth Parallel. This particular find, because it was found by a well-known geologist of the time, has remained one of the greatest enigmas of the whole question of these most interesting California finds.

For whatever reason, Mr. King failed to publish the amazing discovery he made that spring day in 1869 while searching for fossils in the auriferous gravels southeast of Tuttletown. Years later, Dr. G. F. Becker published the discovery which, in part, reads as follows (Holmes, 1919, p. 63):

> At one point, close to the high bluff of basalt capping, a recent wash had swept away all talus and exposed the underlying compact, hard, auriferous gravel beds, which were beyond all question in place. In examining this exposure for fossils he observed a fractured end of what appeared to be a cylindrical mass of stone. This mass he forced out of its place with considerable difficulty on account of the hardness of the gravel in which it was tightly wedged. It left behind a perfect cast of its shape in the matrix and proved to be a part of a polished stone implement, no doubt a pestle. It seems to be made of a fine-grained diabase. This implement was presented to the Smithsonian Institution on January 20,1870 . . . Mr. King is perfectly sure that this implement was in place, and that it formed an original part of the gravels in which he found it. It is difficult to imagine more satisfactory evidence than this of the occurrence of implements in the auriferous, preglacial, sub-basaltic gravels. . . . That human remains are really associated with an extinct fauna in these gravels seems to me thoroughly established.

W. H. Holmes (p. 65) who does a fairly thorough treatment of the gold-bearing gravel artifacts lists as objections against the great antiquity of these artifacts, among other things, the thought that since these artifacts "duplicate modern implements in every essential respect," then, "they are such as may have fallen in from Indian camp sites or been carried into caverns by the Indians themselves."

The objection that these objects somehow found their way into the gravels from modern-day Indian cultures on the surface was used for many years against any idea that they are ancient artifacts. Yet, S. Skertchly (1888, p. 334-35) says that

> they cannot have come from the surface, for none are ever found there, and many of them have been seen by Mr. Glass with the original gravel adhering to them . . . Occasionally mortars are found on the surface in the neighboring gulches, but only where the gulch has intersected the gravels, and these mortars are clearly derived from the old white gravels.

Furthermore, Skertchly (p. 335) reports that:

> This country was inhabited by the Digger Indians until about the year 1865. My friend, Mr. Glass, was well acquainted with them, and assures me that they did not use such mortars; they hollowed out rocks ***in situ,*** and therein pounded the

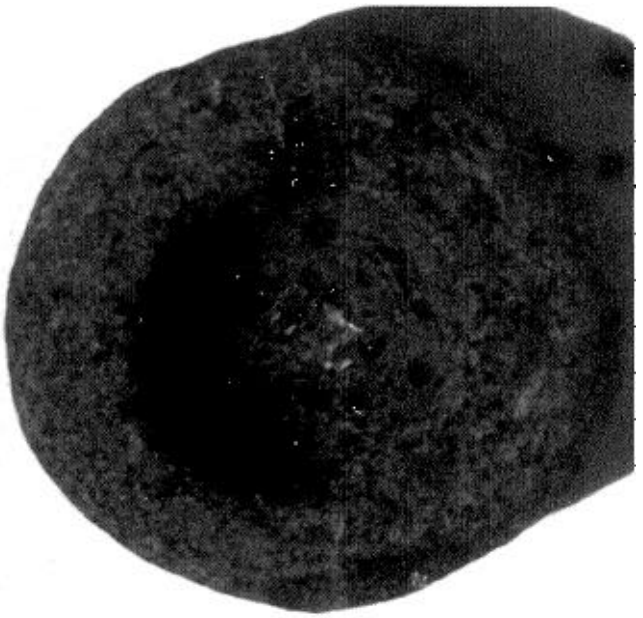

Figure 8. Small point mortar found near Georgetown, El Dorado County, California. University of California, Berkeley designation 1-4556.

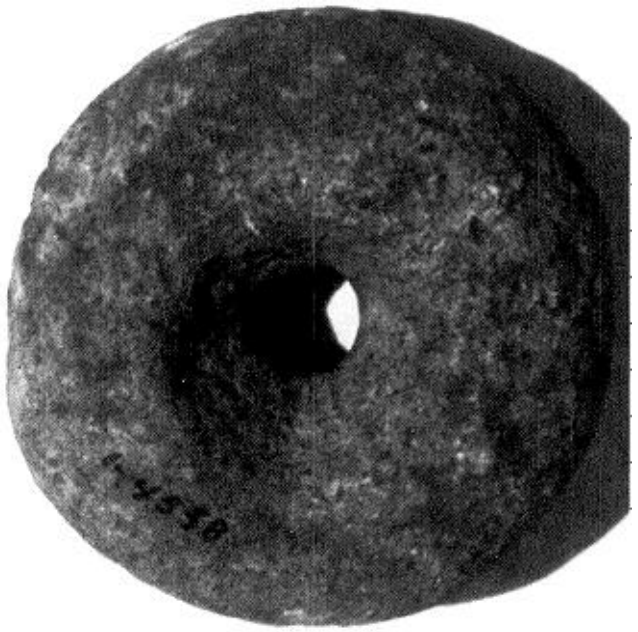

Figure 9. Object found near Crimea House, Tuolumne County, California. University of California, Berkeley designation 1-4558.

> acorns on which they so largely subsisted. They were acquainted with these mortars, but knew nothing about the makers of them, and held them in such superstitious dread that on no account could they be induced to touch one. This dread of the relics of past ages seems to be everywhere common and is of itself proof of antiquity.

A more recent book by The American Museum of Natural History (Hester, 1962, p. 178) makes the following comments regarding the earlier mentioned C. J. King find:

> If the gravels in which the pestle was found and the lava which lay just above it were indeed products of the Pliocene period which preceded the Great Ice Age, then we have to face a staggering idea. We have to believe that a strain of *Homo sapiens* originated in the New World long before Java man. We have to believe that he acquired the skills of the New Stone Age far ahead of man in the Old World, and that he then disappeared. It is easier—but not too easy—to think that the lava flowed in recent times, after glacial water had worked a pestle of early man into the gold-bearing gravels, which would push the seed-grinders of California far, far back in time. It is still easier to believe that King was out of his head. It should be noted that California Indians, except along the Colorado River, never did develop a neolithic, or agricultural, level of technology.

These implements found in the gold-bearing gravels are therefore astounding in many ways. Skertchly reports (p. 337) that 300 of them have been found. They were found by many people over a span of at least 40 years while mining operations were most active. They were found in sites distributed over a vast area of country. Their appearance is found in the gold-bearing gravels, except when it was obvious that they had been eroded out of such a gravel layer. They are not from the Digger Indians who would have nothing to do with them. They are not reported to be found on the uppermost soil layers. The implements are associated with fossil flora and fauna which is preglacial in nature.

The fact that the gravels are of such ancient age and the implements are of such advanced nature contradict the commonly held theories of human evolution. The finds, if valid, present major problems for all commonly held ideas of how and when man evolved. A recent article in *Nature* (Bray, 1988, p. 107) says that many archaeologists do not think humans lived in either North or South America until 11,500 years ago, and the serious debates concerning early man in the Americas focus on just a few sites dated between 20,000 and 40,000 years ago.

Findings of implements and fossils of early man in pre-glacial rock layers were cited by scientists of the last century not only in the gold-bearing layers of California, but around the world. But before leaving the United States for other fossil sites, it would be good to recall the so-called Nampa image found at Nampa, Idaho, in 1889. Holmes (p. 70) reports that this minute clay figurine is said to have been brought up, by an artesian well sand-pump, from late Tertiary or early Quaternary age. Laing's (1893, p. 385) more lengthy report says that the image was brought up from an Artesian well which had a lava-cap 15 ft. thick and about 200 ft. of quicksand and clays.

Laing's detailed account of the finding of the Nampa image relates how the ancient land surface now covered over by more than 200 feet of sands, clays, and lava corresponds to the California gravels in geologic age. The small, clay figurine was incrusted with grains of iron oxide like the clay balls found in the sand, which seems to bear conclusive evidence of its great antiquity.

The entire eleventh chapter of Laing's book is on the subject of Tertiary man. In it are covered not only the California and Idaho finds, but reports from around the world of Tertiary remains of man and his works.

International Tertiary Evidence

In France, Laing (p. 352) reports of flint knives "unmistakeable of the usual palaeolithic type" being found in Pliocene layers.

The 1887 book *Histoire des Races Humanines,* reports Laing (p.354), contains

> the latest summary of the evidence generally accepted by French geologists as to Tertiary man . . . [saying] that, omitting doubtful cases, the presence of man has been signalized in deposits undoubtedly Tertiary in five different localities.

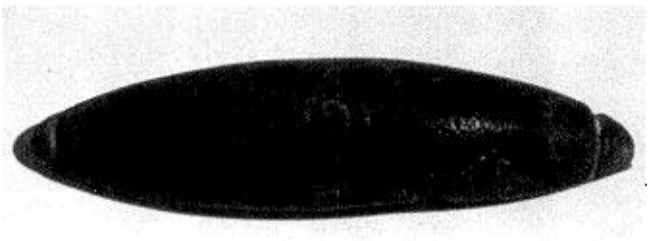

Figure 10. Double-headed stone with a convex bottom and concave (polisher?) found at Indian Gulch, El Dorado County, California. University of California, Berkeley designation 1-4559.

Figure 11. Smooth double-headed stone found at Indian Gulch, El Dorado County, California. University of California, Berkeley designation 1-4561.

These deposits range in age from Lower Miocene to Pliocene. Laing (pp. 371-72) further relates a remarkable find of some human fossils in the Lower Pliocene:

> The bones of four (sic) individuals, a woman and two children were found at Castelnedolo, near Brescia, in a bed identified by its fossils as Lower Pliocene. The excavations were made with the utmost care, in undisturbed strata, by M. Ragazzoni, a well-known scientific man, assisted by M. Germani, and the results confirmed by M. Sergi, a well-known geologist, after a minute personal investigation. The deposit was removed in successive horizontal layers, and not the least trace was found of the beds having been mixed or disturbed. The human bones presented the same fossilized appearance as those of the extinct animals in the same deposit. The female skeleton was almost entire, and the fragments of the skull were sufficiently perfect to admit of their being pieced together so as to show almost its entire form.
>
> The first conjecture naturally was that it must have been a case of subsequent interment, a conjecture which was strengthened by the fact of the female skeleton being so entire; but this is negatived by the undisturbed nature of the beds, and by the fact that the other bones were found scattered at considerable distances throughout the stratum. M. Quatrefages sums up the evidence by saying, "that there exists no serious reason for doubting the discovery, and that if made in a Quaternary deposit, no one would have thought of contesting its accuracy. Nothing can be opposed to it but theoretical *a priori* objections similar to those which so long repelled the existence of Quaternary man."
>
> But if we accept this discovery, it leads to the remarkable conclusion that Tertiary man not only existed, but has undergone little change in the thousands of centuries which have since elapsed. . . . The great objection to Tertiary man has been, that as all other species had changed, and many had become extinct two or three times over since the Miocene, it was unlikely that an animal so highly specialized as man should alone have had a continuous existence. And this argument of course becomes stronger the more it can be shown that the oldest skeletons differed little if at all from man of the Quaternary and Recent ages.

Obermaier (1924, p. 4) reports the discovery in 1871 by Carlos Ribeiro of flints and quartzite at Otta, a Portuguese Upper Miocene site. In 1973, a colleague of the author (Lain) requested more information from the Los Angeles Portuguese Consulate about this discovery of "cut flints" in this Miocene deposit under 1,200 ft. of strata which were turned up into a vertical position. The response, sent in August of 1973 and originating from the Portuguese Head-Office in Lisbon was as follows:

> The study of split silex and quartzite was made by Carlos Ribeiro in his work called 'Description of Some Split Silex and Quartzites,' which, despite the fact of being written in 1871, is considered absolutely up-to-date.

Conclusion

It is time to reinvestigate what these nineteenth century men of science found and see what light can be shed on the history of man. Many voices which sounded loud and clear then told a story quite different from what is now said about the early remains of man and his artifacts. These reports of Tertiary man deserve a modern day unbiased and comprehensive study, using all of science's latest technology to discern their true relationship to man's history, regardless of presently accepted evolutionary concepts.

Auriferous Gravel Artifacts of California

The classic book on the human remains and artifacts found in the Tertiary, gold-bearing gravels of California in the latter half of the nineteenth century was J. D. Whitney's book *The Auriferous Gravels of the Sierra Nevada of California* (Cambridge: University Press, John Wilson & Son, 1880). It was through this book that the author learned of the collection now housed at the University of California at Berkeley. These photographs were taken in April of 1973 by the author while visiting the University. Its museum staff was kind enough to allow the author, and others, to see and photograph these relics which are normally in storage. The numbers are University identification.

Figure 12. Sinkers found at Indian Gulch, El Dorado County, California, Berkeley designations 1-4584, 1-4570 and 1-4585.

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A NEUROCHEMICAL CREATIONIST CONCEPT BASED ON *IN VITRO* STUDIES OF BRAIN mRNAs OF THREE LUMBER VOLE SPECIES: *Clethrionomys glareolus, Clethrionomys frater* and *Clethrionomys gapperi*

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Abstract

*I carried out a complex comparative neurochemical study of the translation machinery functioning in the brain cells of three conventionally "phylogenetically related" species of wild lumber voles (Clethrionomys glareolus, Clethrionomys frater and Clethrionomys gapperi). 1 found that the cytoplasm of vole brain cells contains one or more oligonucleotide (oligoribonucleotide) factors with molecular weight below 1.0 KD** which are capable of the complete and highly selective inhibition of translation directed by mRNAs which are species-specific templates isolated from analogical tissue (brain) of these so-called "closely related" organisms. This phenomenon was found for the first time using a special cell-free translation system (CFTS) of very different variants of composition consisting of the following main components: (1) post-mitochondrial supernatant (PMS); (2) total cytoplasmic poly(A)$^+$ mRNA or a species-specific poly(A)$^+$ mRNA isolated from the PMS by affinity chromatography on columns with the anti- mRNA$_i$-Fab-(CNBr)-Sepharose, or purified 9S globin or 11S histone specific mRNAs, respectively, and (3) a few samples of the CFTS containing the addition of high or low molecular weight cytosolic compounds isolated from S150 fraction by ultrafiltration in Diaflo UM2 membranes with an exclusion limit of 1.0 KD. All CFTS components listed were isolated separately from the brain tissue of each organism studied.*

A new complex way for constructing and using the CFTS provided enough evidence to suggest the existence of one or more special, and as yet uncharacterized, cytoplasmic oligoribonucleotide factors which efficiently block the cytoplasmic expression of "evolutionally renovated parts" of the genome. These factors seem to be powerful enough to suppress the translation of every mRNA template that is not part of the cell type containing the cytoplasmic suppressors mentioned. Thus they would block the translation of any "novel" mRNA molecules that might have arisen as a result of spontaneous nonlethal gene mutations. This is a case in which gene expression is blocked at the level of mRNA function in the cytoplasm. The origins implications of this finding are discussed.

Introduction

It seems to be quite widely accepted that spontaneous mutation of nuclear DNA can lead to nonlethal or even "useful" modifications of the genome, and that such mutations yield new proteins that ultimately supply new properties to the whole organism, as steps in the ongoing pathway of evolution—see Agadzhanyan and Yatsenko (1984), McIntyre (1985 and 1987), and Gaskil and Pratt (1988).

Analyzing the numerous data which serve as a basis for such a concept of molecular evolution, we must take into account that the majority of these results were obtained by the methodology of cytogenetics and molecular genetics—see Agadzhanyan and Yatsenko (1984), McIntyre (1986), Lefebvre *et al.* (1987 **and** 1988), **and** Umada and Telashima (1988). Nevertheless, it would be a methodological error to believe that phenotypic development is governed only at the transcriptional level where RNA is synthesized from DNA in the nucleus. It is also well known that a large number of concrete pathways exist for regulation of the translation process, directed by messenger RNA-dependent factors inside the cytoplasm—Sheiness *et al.* (1975), Darnell (1978), Katinakis *et al.* (1980), Slater and Burden (1982), Brawerman (1986), Bergman and Brawerman (1987) and Hyden (1988). So, it is logical to assume that there are great possibilities (a majority of which are still unknown) for modulation (inhibition or activation) of polypeptide chain translation. This modulation is dependent upon the templates of mRNA transcribed from so-called "evolutionally origined" DNA sites, *i.e.* novel genes. More specifically, it seems to be a mistake to assume that the origin of a new, "useful," and replicable nuclear gene is sufficient in itself for the renovation of the phenotype or for the formation of a new form of life.

If a molecular mechanism for maintaining constancy of species does exist, this biochemical system must function in the cytoplasm. This is at the level of the cytoplasmic control of gene expression, the level of polypeptide chain translation on the mRNA templates.

We must begin systematic revision of the idea that a single scheme of molecular events is sufficient to cause the evolution of a "natural response" to nonlethal mutagenic spontaneous genome renovation, i.e. the mere origin of the "additional" gene alleles. It seems realistic to search for biochemical evidences where there will be complete suppression of every non-species-specific mRNA by a special organization of the cytoplasmic components surrounding the protein synthesis machinery. If such evidence is obtained, the creationist concept of the origin of the many different and harmoniously functioning forms of life, will be supported by a new argument.

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***'A key to this and other abbreviations is found in Appendix I.**

It may be a fruitful approach to analyze the translational ability of different mixtures in the CFTS consisting of mRNAs and cytoplasmic factor(s) (PMS) isolated from one and the same or from different species of wild animals such as the wild Lumber Voles: *Clethrionomys glareolus (1), Clethrionomys frater (2)* and *Clethrionornys gapperi (3).* According to some modern evolutionist views, these species are closely related phylogenetically through a common biological precursor which went extinct during former "battles for existence" (Agadzhanyan and Yatsenko, 1984), Pelshe and Jarwett (1987) and Lormski and Krawczinska (1987). I have tried to evaluate the possibility that the control of translation is either an evolutionary or an anti-evolutionary evidence.

Animals

Wild lumber voles of the species *Clethrionomys glareolus (1), Clethrionomys frater (2)* and *Clethrionomys gapperi (3)* were purchased from the Petrozavodsk State University Zoological Station. I used only male adult (130-160 g body weight) animals that were kept on a standard vitaminized diet. All animals were starved for 18 h before the experiment and then were killed instantaneously by decapitation. Just after this procedure, the separated heads were immediately placed into liquid nitrogen for 3-4 min. Then, frozen brain tissues from a number of animals of the same species were collected, chopped into thin pieces, and homogenized as described below.

Methods

Pieces of frozen brain tissue (1 x 3 to 2 x 2 mm) were homogenized in three volumes of the medium: 35 mM tris - HCl (pH 8.45), 250 mM sucrose, 50 mM $MgCl_2$, 5 mM KCl, using the Elvehjem-Potter glass homogenizer with a teflon pestle (1,500-1,800 rpm) at 0°C for 10-12 min. After filtration of the homogenate through four layers of gauze the resulting filtrate was centrifuged at 12,000g for 30 min (2°C) for isolation of the post-mitochondrial supernatant (PMS, or S12 fraction). The same portions of filtered homogenates were simultaneously used for isolation of S150 fraction (cytosol). In these cases, the filtrates were centrifuged at 150,000g for 2.5 h, (2 to 4°C).

Total RNA was rapidly and completely extracted from S12 using a guanidine thiocyanate procedure according to Stanley and Fink (1986). Quantitative RNA measurement was carried out as described by Munro and Fleck (1966); protein measurement was performed by the technique of Lowry *et al.* (1951). The resulting total preparation of cytoplasmic RNA was a source for further isolation of poly$(A)^+$mRNA by affinity chromatography on the columns of 1.0 x 8.0 cm packed with the Oligo(dT)-Cellulose using a formamide elution as described by Musajev and Kuznetsov (1988).

In all cases, mRNA samples were precipitated by addition of chemically pure, cold (2°C) ethanol and the resulting mRNA pellets were stored over five weeks (but not more than eight weeks) under a layer of ethanol at -20°C. The nativity and purity of the isolated mRNAs were controlled by ultracentrifugation of mRNA samples in linear 15-30% sucrose gradients–Kuznetsov (1981).

The CFTS on the basis of endogenous mRNAs involved free PMS and exogenous brain tissue poly-$(A)^+$mRNAs which were synthesized and used conventionally with the ATP/GTP and creatine phosphate—creatine kinase ATP-regenerating pair and ^{35}S-L-methionine as a protein labeled precursor—see Goertz (1982). The CFTS from a rabbit reticulocyte lysate cell-free translation system contained the same labeled protein precursor (^{35}S-L-methionine). I used this type of *in vitro* translation model lacking endogenous mRNA for testing the template activity of different purified mRNAs isolated in the experiment. This type of CFTS was made by means of application of a special reagent kit including a cell-free extract and ATP-regenerating system as well as the label and a full set of ^{12}C-L-amino acids dissolved in a buffer (Amersham Radiochemical Centre Kit CFT No. 90). A technique of experiments with such reticulocytic system was described in detail by Pelham and Jackson (1976). All procedures with all types of the CFTS used were conventional—Pelham and Jackson (1976), Goertz (1982) and Kuznetsov and Musajev (1988).

Conjugation of $mRNA_1$ with BSA was carried out in the medium of 2xSSC containing 3 mM tris (pH 8.45), 25 mg $mRNA_1$ per 5.0 ml of conjugation medium containing 3.5 mg BSA per the same volume (5 ml). This conjugation proceeded at room temperature with 45 min incubation under a 100 watt UV-lamp—Solvarssen and Hjerten (1974). The resulting $mRNA_1$/ BSA conjugates separated by Sepharose 6B-CL gel filtration were then additionally purified from conjugation medium components by a three-fold ultrafiltration on the YM1O Diaflo membranes followed by the dissolving of macromolecular complexes in 10 mM tris-HCl (pH 7.45), 20 mM EDTA, 10-12 A_{280} per 1.0 ml of the resulting solution—see Kuznetsov (1981).

The $mRNA_1$/BSA conjugates were used for an immunization of healthy adult male Chinchilla rabbits—Goldfarb and Zamchuk (1975). After finishing a six month schedule of multiple administration of the $mRNA_1$/BSA conjugate preparations both intracutaneously and intravenously—see Lokmediani *et al.* (1973), blood serum containing antibodies (to $mRNA_1$) was collected and defibrinated. A purified $mRNA_1$-(IgM+ IgG) fraction of $mRNA_1$ affinity was isolated using the ethanol precipitation followed by fractionation of the pellets on columns with DEAE- and CM-cellulose, according to Shatsky and Bogdanov (1984).

As a result, total $mRNA_1$-specific highly purified antibodies were obtained. These antibodies were treated with proteinase K, catepsin, pronase and chymotrypsinogen A using a special sequence of enzymatic procedures and different regimes of acetone and ammonium sulphate fractionation with the aim of isolating ab immunoglobulin fragments highly specific for mRNA—see Beaud and Chantrennes (1987). The $mRNA_1$-specific Fab-fragments were immobilized on particles of activated CNBr-Sepharose as described previously Kuznetsov and Traichev (1985). Then 1.5 x 10 cm columns were packed with this immunoaffinity sorbent and equilibrated with 30 mM tris (pH 8.90), 10 mM EDTA, 15 mM glutathione.

Samples of $mRNA_1$, $mRNA_2$, $mRNA_3$, globin 9S mRNA, histone 11S mRNA, and *E. coli* 5S rRNA were applied to these columns at room temperature (45mg

RNA per column). After the immobilization of affinity-binding sequences, all other RNA chains were easily eluted from the column by an equilibrium medium (at 22-25°C). The *immunoaffinity-binding mRNA sequences* were removed from the columns by elution with 70% formamide at 40°C, after which further purification of the templates necessary for *in vitro* translation was carried out by the routine dialysis and rapid ultrafiltration through UM2 membranes—Korn *et al.* (1985).

Thus, by means of affinity chromatography on Fab-$mRNA_1$-Sepharose columns, it should be possible to separate unique, *i.e.* species-specific, mRNA sequences from the sequences often found in mRNAs of different organisms, the so-called "regularly repeated mRNA chains" —see Kuznetsov and Dunlop (1986).

In a separate series of experiments, PMS samples isolated from vole brain tissue (PMS_1, PMS_2, PMS_3) were subjected to treatment with different hydrolyses in order to reveal the nature of the PMS *(i.e.* cytoplasmic) factors which are able to selectively and completely inhibit all similar but not species-specific mRNA-directed translation. To accomplish this, the following enzymatic procedures were performed:

(1) 75 mg Pronase per 1.0 A_{280} PMS in 25 mM tris-HCl (pH 9.10),45 mM $MnCl_2$, incubation time—1 h at 37°C;

(2) 25 mg RNase A (Bovine pancreatic) per 1.0 A_{280} PMS in 35 mM tris-HCl (pH 8.60), incubation time—20 min at 37°C;

(3) 100 units of the RNase T_1 per 1.0 A_{280} PMS in 50 mM tris-HCl (pH 8.00), 20 mM $CaCl_2$, incubation time—15 min at room temperature;

(4) RNase-free DNase–45 mg per 1.0 A_{280} PMS in 35 mM tris-HCl (pH 8.85), 20 mM $MnCl_2$, 5.0 mM glutathione, incubation time—45 min at 37°C;

(5) 200 units Hyalorunidase B per 1.0 A_{280} PMS in 50 mM tris-HCl (pH 9.00), 25 mM EDTA, 7.5 mM NaCl, incubation time—1.O h at 37°C;

(6) Proteinase K (10 mg) per 1.0 A_{280} PMS in 45 mM tris-HCl (pH 8.45), 5 mM EDTA, 2.5 mM NaCl, incubation time—1 h at 37°C;

(7) Micrococcal nuclease S (30 units) per 1.0 A_{280} PMS in 20 mM tris-HCl (pH 8.25), 30 mM $CaCl_2$, incubation time—30 min at 37°C;

(8) Salival amylase R3 (100 units) per 1.0 A_{280} PMS in 45 mM tris-HCl (pH 6.00), 30 mM EDTA, incubation time—1 h at 37°C.

After finishing each of these incubations listed, the reaction was arrested by addition of specific inhibitors for different hydrolyses from human placenta polypeptide extracts—see Walsh *et al.* (1986).

For tentative evaluations of possible inhibitory roles and LMWC of cytosol (S150) of the different animal's brain cells, all the S150 samples were subjected to a rapid fractionation by ultrafiltration using the Diaflo UM2 membrane in the MMC-lA Apparatus as described previously —Kuznetsov (1981). In all cases, the addition of purified HMWC and LMWC fractions of cytosol into different samples of the CFTS equaled 0.15-0.20 A_{280} per 1.0 ml. All these additions were made before the start of the CFTS incubation, just after the template (translatable mRNA) addition.

Radioactivity of liquid samples was measured by placing 5 ml of each into 20 ml of Unisolv-2, dioxane scintillation liquid. Radioactivity of each dry fiberglass millipore filter containing acid-precipitated pellets was determined using 20 ml of ZhS-8 toluol scintillation fluid. For all experiments, I used a Wallac 21104 Liquid Scintillation Counter. All column-developed chromatograms were examined for absorbance at 280 nm or at 254 nm using a LOMO SF48 UV-Spectrophotometer.

For statistical evaluation a non-parametric method for analysis of variance was used. All the data were processed in an HP-9815A mini-computer with a special FORTRAN/PAD program—see Shwernick and Bellinsghausen (1983). In the CFTS tests, the amount of mRNA added was 40 mg: total CFTS volume was 0.335 ml; time of incubation at 37°C was 1 h with a preincubation period of 10 min while the samples were in a warm bath at 37°C before the mRNA or pseudotemplate addition. All other procedures with CFTS samples were conventional and described previously in detail—see Pelham and Jackson (1976), Goertz (1982), and Kuznetsov and Musajev (1988).

Results

As seen in Table I, all brain postmitochondrial supernatants (PMS) used for the CFTS composition contain free *(i.e.* cytosol soluble) components which inhibited translation of mRNAs isolated from the brain of similar (so-called "evolutionally related") animals. But such inhibitors do not influence the translation directed by mRNA templates isolated from cells of distinctly different animals such as 9S globin mRNA from rabbit reticulocytes and 11S arginine-rich histone mRNA from HeLa cells. Also, the cytoplasmic free inhibitors mentioned above do not suppress translation controlled by mRNAs isolated from the very same brain tissue homogenate, *i.e.* from the same species of vole being studied. Low translation with cold CFTS incubation at O°C as well as with those treatments involving *E. coli* 5S ribosomal RNA as a pseudotemplate indicate that translation in the CFTS samples used was well above these control levels.

The preparative isolation of purified species-specific poly(A)$^+$mRNAs accomplished was by affinity chromatography of total cytoplasmic poly(A)$^+$mRNA samples on the columns involving activated Sepharose containing the immobilized species-specific mRNAs-challenged active antibody Fab-fragments. The $mRNA_2^{el}$ and $mRNA_3^{el}$ were significantly inactivated by PMS compounds isolated from the brains of similar "evolutionally related" species of lumber voles—Agadzhanyan and Yatsenko (1984). As for the homologous samples of a CFTS containing the mRNA-free PMS and poly-(A)$^+$mRNA brain tissue from the same vole species, the CFTS samples show a remarkable active translation without any signs of inhibition (Table I). The results summarized in Table II show us that the well-known test-system consisting of a post-microsomal supernatant isolated from the rabbit reticulocyte lysate of Pelham and Jackson (1976) does not contain any inhibitors for translation in a reticulocytic lysate cell-free system. This is true of vole brain, even after addition to this system of preparations of $mRNA_1$, $mRNA_2$, $mRNA_3$, $mRNA_2^{el}$.

The biochemical nature of the proposed cytoplasmic translation blocker(s) was revealed by determination of the fact that these factors are essentially and selec-

Table I. The Template Activity of Different Populations of Brain Messenger RNAs in a CFTS Containing the Fractions of Brain Cells Cytoplasmic Pool (PMS) Isolated from Different Species of Wild Voles, *Clethrionomys glareolus (1), Clethrionomys frater (2)* and *Clethrionomys gapperi (3).*

Composition of the CFTS	^{35}S-methionine incorporation into the acid-insoluble pool, c.p.m. per 1 mg protein (M+ SE)	Temperature of the sample incubation, °C
PMS_1 + $mRNA_1$	61,887 ± 431	37
PMS_1 + $mRNA_1$	91 ± 7	0
PMS_1 + $mRNA_1^{el}$	*none:* no mRNA was eluted from FaB-$mRNA_1$-Sepharose by a first step elution with an equilibrium medium.	
PMS_1 + $mRNA_2^{el}$	2,489 ± 96	37
PMS_1 + $mRNA_3$	55,876 ± 456	37
PMS_1 + $mRNA_2$	51,563 ± 477	37
PMS_1 + $mRNA_3$	88 ± 7	0
PMS_1 + $mRNA_2^{el}$	87 ± 8	0
PMS_1 + $mRNA_3^{el}$	5,088 ± 211	37
PMS_1 + 9S globin mRNA	47,885 ± 456	37
PMS_1 + 11S histone mRNA	50,650 ± 449	37
PMS_1 + *E. coli* **5S** rRNA	76 ± 5	37
PMS_2 + $mRNA_2$	74,665 ± 487	37
PMS_2 + $mRNA_2$	83 ± 6	0
PMS_2 + $mRNA_2^{el}$	123,887 ± 667	37
PMS_2 + $mRNA_2^{el}$	91 ± 8	0
PMS_2 + $mRNA_3$	58,905 ± 444	37
PMS_2 + $mRNA_3$	88 ± 8	0
PMS_2 + $mRNA_3^{el}$	3,076 ± 188	37
PMS_2 + $mRNA_3^{el}$	9 0 ± 7	o
PMS_2 + 9S globin mRNA	50,665 ± 488	37
PMS_2 + 11S histone mRNA	57,887 ± 674	37
PMS_2 + *E. coli* 5S rRNA	76 ± 8	37
PMS_3 + $mRNA_3$	68,903 ± 554	37
PMS_3 + $mRNA_3$	94 ± 6	0
PMS_3 + $mRNA_3^{el}$	112,877 ± 658	37
PMS_3 + $mRNA_3^{el}$	88 ± 8	0
PMS_3 + $mRNA_2$	44,760 ± 387	37
PMS_3 + $mRNA_2$	9 0 ± 7	o
PMS_3 + $mRNA_2^{el}$	2,075 ± 233	37
PMS_3 + $mRNA_2^{el}$	8 4 ± 6	o
PMS_3 + 9S globin mRNA	52,664 ± 503	37
PMS_3 + 11S histone mRNA	59,044 ± 489	37
PMS_3 + *E. coli* 5S rRNA	69 ± 6	37

Mean data from seven separate experiments are listed. For all comparative points presented P <0.05

tively sensitive to the ribonucleases A and T_1. But there is a marked resistance to the action of purified and highly active enzymes including Pronase, Proteinase K, Amylase, Hyaluronidase and RNase-free DNase. This translation inhibitor is also partly sensitive to micrococcal nuclease S (see Table III). Therefore it can be concluded that the factors mentioned are poly - or oligoribonucleotides. Further ultrafiltration of cytosol (S150 fraction) on the membrane with a 1.0 KD exclusion limit and the subsequent testing of the resulting fractions with MW more or less than 1.0 KD and in very different variants of the CFTS samples (Table IV), lead to strong support that this inhibitor, which does express its extremely powerful action only for the suppression of a ***"species-like but non-species-specific mRNAs,"*** is a short chain of oligoribonucleotide with molecular size less than 1.0 KD. As seen from this data, such factors are present in the brain cell cytoplasm of all three vole species studied—(Table IV).

Discussion

It should be clearly noted that a striking difference between the cell types used as sources for isolating messenger RNAs tested in these experiments (globin mRNA from rabbit reticulocytes, HeLa cells histone mRNA and brain mRNAs from a similar species of wild lumber voles), caused a marked resistance of non-brain 9S and 11S mRNAs to the action of the translation inhibitor of oligonucleotide nature identified in the brain cytosol (S150). Therefore, factors in the PMS fraction of the voles' brain selectively and completely suppressed the translation programmed by mRNAs from brains of similar, "potentially related," vole species (Tables I-IV). Specifically, the cytoplasm of brain cells studied contains one or more special oligonucleotide factors of MW less than 1.0 KD and with an extremely high species-associated specificity, as well as a cell-type-associated inhibitory specificity. This action seems to be very powerful and effective in all cases of ***in vitro*** translation with the cell components isolated from vole brain tissue.

High resolution preparative immunochemical isolation of purified species-specific brain poly(A)$^+$mRNAs gives a good possibility that the PMS_2 or $LMWC_2$, for instance, sharply suppress the translation directed by $mRNA_3^{el}$, unlike the 9S and 11S "non-related" mRNAs (Table I). This means that the $mRNA_3^{el}$ was completely inactivated as a species-3-specific ***(Clethrionomys gapperi)*** messenger translatable template by a selective inhibitor which contains in analogical tissue (brain) of so-called "phylogenetically related" organisms such as ***Clethrionomys glareolus*** and ***Clethrionomys frater*** (or-

Table II. The Template Activity of Different Wild Voles Brain Messenger RNAs in a Rabbit Reticulocyte Lysate Cell-Free Translation System Containing the ^{35}S-L-Methionine as a labelled Protein precursor

RNA template tested	Translation activity, ^{35}S-c.p.m. per 1 mg protein (M+ SE)	Temperature of incubation, °C	
$mRNA_1$	**55,871 ± 542**	**37**	
$mRNA_2$	**58,971 ± 556**	**37**	
$mRNA_3$	**52,663 ± 488**	**37**	p >0.05
$mRNA_3^{el}$	61,087 ± 503	37	
$mRNA_2^{el}$	57.886 ± 499	37	
9S globin mRNA	96,563 ± 678	37	p ˚0.05
11S histone mRNA	61,962 ± 652	37	
9S globin mRNA pretreated* with ribonuclease A	122 ± 11	37	
9S globin mRNA	87 ± 9	0	

***20 ug of pancreatic ribonuclease A per 1 mg mRNA, incubation medium: 25 mM tris-HCl (pH 9.0) 15 mM CaC1,/10 mM NaCl; incubation time–20 min at 37°C.**
Mean data of eight separate experiments are listed.

Table III. The Effect of Pretreatment of PMS_3 and PMS_2 by Different Hydrolyses on the Translation Activity in a CFTS Containing These Pretreated PMS Fractions.

PMS sample	Translation activity, ^{35}S-L-methionine incorporation into the *in vitro* synthesized polypeptide chains, c.p.m./mg protein (M ± SE)		
Nontreated PMS_2 + $mRNA_2$	p <0.01	76,872 ± 566	Analogical data were obtained using the PMS pretreatment with the RNase-free DNase, Hyaluronidase and the salival amylase (see Methods).
Nontreated PMS_3 + $mRNA_3$		70,099 ± 509	
Nontreated PMS_3 + $mRNA_3^{el}$		2,607 ± 188	
Nontreated PMS_3 + $mRNA_2^{el}$		2,111 ± 176	
(PMS_2 + Pronase) + $mRNA_2$	P <0.01	78,074 ± 573	Analogical data were obtained using a PMS pretreatment with Proteinase K (see Methods).
(PMS_3 + Pronase) + $mRNA_3$		69,733 ± 566	
(PMS_2 + Pronase) + $mRNA_3^{el}$		2,555 ± 211	
(PMS_3 + Pronase) + $mRNA_2^{el}$		2,650 ± 167	
(PMS_2 + RNase A) + $mRNA_2$	P >0.05	90,123 ± 432	Analogical data were obtained using a PMS pretreatment with RNase T_1 and micrococcal nuclease S.
(PMS_2 + RNase A) + $mRNA_3$		82,761 ± 603	
(PMS_3 + RNase A) + $mRNA_2^{el}$		76,888 ± 487	
(PMS_2 + RNase A) + $mRNA_3^{el}$		80,099 ± 543	
Nontreated PMS_2 + 9S globin mRNA	P >0.05	67,895 ± 564	In all cases of the enzymatic pretreatment of the PMS fraction, after the finishing incubation (see Methods), each of the enzymes used was selectively inhibited by a specific human placental peptide factor according to Walsh et al. (1986).
Mild RNase treated PMS_2 + 9S globin mRNA*		68,055 ± 542	
Nontreated PMS_3 + 11S histone mRNA	p >0.05	75,088 ± 643	
Mild RNase treated PMS_3 + 11S histone mRNA*		77,063 ± 600	

*The treatment with RNAse T_1 was pm-formed
Mean data of eight experiments are listed.

ganisms 1 and 2). The same examples of a species-specific mRNA inhibition by the cytoplasmic factor(s) from the PMS or cytosol fractions isolated from "evolutionally related" animal species (brain tissue) are listed in Tables I and IV On the other hand, the cytoplasmic components of a rabbit reticulocyte lysate CFTS do not influence the translation rate of any of the brain mRNAs studied if they were tested in the *in vitro* system, Table II.

Undoubtedly, further characteristics of the activity and physiochemical properties of cytoplasmic factor(s) mentioned as well as a knowledge of the characteristics of analogical translation species-specific blockers from different tissues, cells and species of animals from "related" and widely separated species will lead to the development of a more fundamental understanding of the cause and mechanism(s) involved in the origin of the great and wonderful diversity seen in all life forms. My research program includes a new series of experiments aimed at trying to solve these origins problems, at least in part.

Now, it is necessary to evaluate the data presented in this paper as new findings for radical criticism of the most widely accepted evolutionary concepts in biochemical and molecular genetics. First, the data indicate an extremely high probability that there exists a brain cell cytoplasmic chemical which is a complete inactivator of the mRNA templates previously transcribed from any "unusual," "strange." or unique gene. By "unusual" I mean a gene that might result from a nonlethal mutagenesis such as the spontaneous mutation process often postulated as one of the main molecular causes of biological evolution—see Griffith and Palmiter (1980), Agadzhanyan and Yatsenko (1984), O'Brien *et al.* (1985), McIntyre (1985 and 1986) and Hecht (1987).

It should be taken into account that the cytoplasmic level of genome expression may be a keystone in the objective analysis of the so-called problem of the "renovated genome." It should be noted that this term was created and frequently used by a famous authority in the field of molecular neurogenetics, H. T. Sarcar (1978). He later originated the concept that there are widespread cases of newly formed genes inside the total genome infrastructure (chromatin) just after the origin of these new genes. He thought such inactivation was the result of nonlethal chemical modification of "old" genes or as a result of some more "crude" changes during nonlethal, spontaneous, and environmentally caused mutagenesis—see Sarcar *et al.* (1984 and 1987). As for possible mechanisms for such "intragenome inactivation" of "new genes," it was assumed that the major inhibitory role was played by non-histone chromatin proteins having a non-random position inside the chromatin—see Eayrs *et al.* (1986), Hrubstein *et al.* (1986), and Farquhar and Chebeaud (1987).

Concerning the molecular genetic concept of "concealing" novel, "unusual" and "unexpectedly changed" genes it should be noted that, theoretically, this "concealing" at the level of the nucleus would not guarantee that translation of the same "changed genes"-transcribed mRNAs would be limited in the cytoplasm. It does not guarantee the absence of corresponding mRNA templates in the cytoplasm nor does it preclude the incorporation of these mRNAs into translatable polysomes. Does such a process of translation limitation exist or not? To some extent I hope to answer this question by using the biochemical approach I developed for studying the fate of mRNA templates placed into a surrounding cytoplasmic environment taken from similar but not biologically identical cells as compared to that taken from cells which were a source for isolation of the messenger RNA being tested, Tables I-IV As a whole, the first results of the application of my approach show that all "unusual" species-non-specific mRNAs from brain cells of similar but not the same organism were not translated. The genes which may be the source of such messengers in all probability would not be expressed at the cytoplasmic level. This simple consequence of molecular events does indicate

Table IV. The Effect of Addition of Low Molecular Weight Compounds (LMWC) and High Molecular Weight Compounds (HMWC) Total Fractions Isolated from Wild Voles Brain Cytosol (S150) by a Rapid Ultrafiltration on the DIAFLO UM2 Membrane into the Functionated CFTS Samples Prepared on the Basis of Wild Voles Brain PMS Lacking of Endogenous mRNAs and mRNA Preparations Isolated from the Same PMS Fractions

CFTS Composition*	Translation activity, ^{35}S-L-methionine incorporation into the acid-insoluble pool, cpm/mg protein (M ± SE)
PMS_1 + $mRNA_1$ + $HMWC_1$	68,952 ± 651
PMS_2 + $mRNA_2$ + $HMWC_2$	77,098 ± 543
PMS_3 + $mRNA_3$ + $HMWC_3$	67,776 ± 602 P >005
PMS_1 + $mRNA_1$ + $LMWC_1$	69,014 ± 574
PMS_2 + $mRNA_2$ + $LMWC_2$	78,034 ± 651
PMS_3 + $mRNA_3$ + $LMWC_3$	68,981 ± 598
PMS_1 + $mRNA_2^{el}$	2,876 ± 77
PMS_1 + $mRNA_1$ + $LMWC_1$	2,322 ± 64
PMS_1 + $mRNA_2$ + $HMWC_1$	50,887 ± 299 P <0.05
PMS_1 + $mRNA_3^{el}$	4,077 ± 321
PMS_1 + $mRNA_3$ + $LMWC_1$	3,876 ± 266
PMS_1 + $mRNA_3$ + $HMWC_1$	48,557 ± 508

*All samples of HMWC and LMWC were added into the CFTS to a final concentration of 20 A_{260} per 1.0 ml. Mean data of eight experiments are listed.

CFTS Composition	Translation activity, ^{35}S-cpm/mg protein (M ± SE)
PMS_2 + $mRNA_3^{el}$	2,650 ± 421
PMS_2 + $mRNA_3$ + $LMWC_2$	4,761 ± 322 P <0.05
PMS_2 + $mRNA_3$ + $HMWC_2$	55,889 ± 450
PMS_3 + $mRNA_2^{el}$	3,076 ± 245
PMS_3 + $mRNA_2$ + $LMWC_3$	5,876 ± 466 P <0.05
PMS_3 + $mRNA_2$ + $HMWC_3$	46,668 ± 409
PMS_2 + 9S globin mRNA	51,754 ± 564
PMS_2 + 11S histone mRNA	60,022 ± 600 P >005
PMS_2 + 9S globin mRNA + $HMWC_2$	51,000 ± 588
PMS_2 + 9S globin mRNA + $LMWC_2$	52,088 ± 459
PMS_3 + 9S globin mRNA	53,876 ± 544
PMS_3 + 11S histone mRNA	62,077 ± 578 P >005
PMS_3 + 9S globin mRNA + $HMWC_2$	54,083 ± 544
PMS_3 + 11S globin mRNA + $LMWC_3$	60,122 ± 582

Mean data of 10 experiments are listed
All samples of HMWC and LMWC were added into the CFTS to a final concentration of 20 A_{260} per 1.0 ml

that the mere existence of a new gene, a gene previously absent from the total genome, is not sufficient for complete expression of this gene since the corresponding mRNA templates may be fully inactivated by specific cytoplasmic low molecular weight soluble factors.

I am proposing that such factors exist within the cytoplasm of most cells and tissue and because of them, a known "Species Main Peculiarities Conservatism''—see Mahony *et al.* (1975)—actually occurs. Intraspecies variability is indeed a fact and this phenomenon is distinctly different from any "genuine evolutionary changes."

The mRNAs for proteins that are distinctly different from the type of cells under study (for example 9S globin mRNA within the CFTS from PMS of wild vole brain tissue) have no affinity with the inhibitory brain cytoplasmic translation control factors identified in this present study. At the same time, the appearance in the brain cell cytoplasm of one wild vole species of new or "unusual" species-specific mRNAs from similar cells is followed by complete inactivation of the latter templates by small cytoplasmic oligonucleotide factors. These serve especially to prevent the expression of mRNAs that were previously nonexistent inside this highly "balanced" system. There is a complex interrelationship of non-random components forming a mutually functional infrastructure—see Kuznetsov (1985 and 1988).

It is difficult to form fixed conclusions from the foregoing data. However, I present a hypothesis in which some soluble and as yet unidentified, cytoplasmic factor(s) controlling the translation process are responsible for the selective inhibition of the expression of messenger RNAs that have appeared as a result of spontaneous non-lethal mutation. If this hypothesis is true, the factors governing species-specific cytoplasmic translational control may be called the molecular cytoplasmic system for preservation of phenotypic constancy or conservatism. It is one of the systems for preserving the constancy of the main features of a species of living organisms. I mean that the living types which were created may undergo minor modifications but will be generally kept unchanged as long as the earth exists.

A few additional words are needed concerning the choice of tissue types studied. It is well known that in the majority of mammalian cells not more than 7-10% of the total genome may be simultaneously involved in the state of active expression—see Gorkin *et al.* (1982) and Slater and Burden (1984). However this phenomenon is much more marked in the case of brain cells. The proportion of mammalian brain cell genes being transcribed at any time is usually no more than 3.0%—see Cupello *et al.* (1985), McLeod and Stahl (1986), Sieliwanowicz (1986), Bleachey *et al.* (1987), and Lormyck and Roostekija (1988). There are at least two points of view that have been adopted concerning the nature of this brain-specific regulation:

(1) One view takes into account that approximately 90% of mammalian brain nuclear DNA sequences are not unique chains. They code for messenger mRNAs and serve for a transcription control of the distanced DNA sites by binding with steroids, cyclic nucleotides and some other biogenic effecters—see Burden and Katinakis (1982), Barthels and Lim (1986), and Arheim-Zwieler *et al.* (1987);

(2) Another view takes into account that 30-45% of the mammalian brain cell genes are actively expressed during the early stages, as opposed to the later stages of ontogenesis. They are usually inhibited when the animal tested is mature—see Medvedev (1983 and 1986), Gornsheck *et al.* (1985), Smaller-Braudy (1986), Palatnik and Shimon (1987), Larski and Yagihl (1987) and Borquest and Piermont (1988).

These two opinions both find some experimental support. Nevertheless, the origin and biological role of the majority of DNA sequences in the total brain cell genome is still obscure and is a mystery.

The data presently listed do not exclude the possibility that these numerous, multiple, and unexpressed

mammalian brain genes are able to undergo transcription to the fullest extent but are not expressed at the translational (mRNA) level because of mechanisms discovered and partly discussed in this study. This additional hypothesis needs careful and impartial examination, and I hope to stimulate serious interest in the world wide society of researchers for this important aspect of the biological control of species constancy.

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Appendix I:

Abbreviations

$mRNA_1$, $mRNA_2$, $mRNA_3$ — total cytoplasmic poly-(A)–containing messenger RNAs isolated and purified from the brains of three tested organisms, respectively; *Clethrionomys glareolus (1), Clethrionomys frater (2)* and *Clethrionomys gapperi (3).*

$mRNA_1^{el}$, $mRNA_2^{el}$, $mRNA_3^{el}$ — mRNA preparations mentioned above after their elution from the columns packed with an anti-$mRNA_1$-FaB_1-CNBr-Sepharose by an equilibrium solution. These mRNA fractions consist of only a rare, unique, species-specific messenger RNA sequence.

CFTS — cell-free translation systems.

PMS (S12) — Post-Mitochondrial Supernatant, i.e. a special subcellular fraction resulting after a removal of mitochondrial pellets obtained by the centrifugation of a tissue homogenate.

S150 (Cytosol) — a subcellular fraction isolated directly from brain tissue homogenate by centrifugation following collection of the supernatant (S150).

PMS_1, PMS_2, PMS_3, $S150_1$, $S150_2$, $S150_3$ — PMS and cytosol (S-150) isolated from different animals of the *Clethrionomys* taxonomic group (brain tissue).

MW — molecular weight.

KD — kilodalton.

EDTA — sodium ethylenediaminotetraacetate.

HMWC and *LMWC — High Molecular Weight Compounds* and *Low Molecular Weight Compounds* which have been completely separated by a rapid ultrafiltration procedure from the S150 fractions.

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PANORAMA OF SCIENCE

Evolution: The Bitter Fruit of Dogmatism

UCLA biologist, Richard E. Dickerson has been given credit for identifying the term "creation science" as an oxymoron (Diamond, 1985, p. 92). An oxymoron has been defined as "a combination for epigrammatic effect of contradictory or incongruous words (Grove, 1981)." The problem with such a charge (for evolutionists) is that it looks back at them. One evolutionary biologist combined an empirical event with an alleged event that is non-empirical in an attempt to make the latter a logical conclusion of the former:

> Einstein's theory of gravitation replaced Newton's, but apples did not suspend themselves in mid-air pending the outcome. And human beings evolved from apelike ancestors whether they did so by Darwin's proposed mechanism or by some other, yet to be discovered (Gould, 1981, p. 35).

No less a committed evolutionist than an Emeritus Professor of Zoology at Cambridge University destroyed ". . . Darwin's proposed mechanism . . ." He further eliminated the notion of ". . . some other" mechanism:

> natural selection . . . is the only theory we have; but when judged as a working hypothesis it is disappointing to find so little advance in a hundred years. . . . No amount of argument, or clever epigram, can disguise the inherent improbability of orthodox theory; but most biologists feel it is better to think in terms of improbable events than not to think at all (Gray, 1954, p. 227).

Still, we have seen tremendous advancements in science and technology since 1954. Surely ". . . some other . . ." mechanism for human evolution must have been discovered by this time. Perhaps, but it is obvious that Gould had little or no idea what that mechanism could be by 1981 when he wrote the opinion just quoted. Yet, some discovery must have been made by this time, providing the evolutionists with a mechanism for macroevolution: "It is true that no consensus exists as to the mechanism of macroevolutionary changes, but it is sophistic to imply that macroevolution is not a fact" (Schafersman, 1987, p. 5).

Sophistry is another charge that looks back at evolutionists. No consensus exists regarding the mechanism of evolutionary changes because there is no such mechanism. Certainly the advances of true science would have provided such a mechanism by this time if one existed.

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Introduction

The *Creation Research Society Quarterly* has been published since 1964 (27 complete volumes). Many of the early Quarterlies are out-of-print, yet these past issues contain articles of continuing interest and value. In an effort to make these volumes available, the Board of Directors has incurred considerable expense to reprint them. In order that those interested in good scientific creationist articles, sound criticisms of the evolutionary hypothesis, along with the needed literature citations accompanying the treatises will have a general idea of the contents of each volume, brief synopses will be written to appear in this and future Quarterlies. See Williams, 1990a and 1990b for synopses of volumes 1 and 2.

Analysis of Evidences for Evolution

Wilbert H. Rusch, Sr., Membership Secretary for many years and recent President of the Society, wrote a detailed article (1966, pp. 4-15) examining the so-called evidences for evolution and found them lacking. After a brief discussion of the creation model, he used quotes to show that all scientists do not believe in evolution. The following "evidences" were examined:

Classification
Comparative Anatomy
Vestigial Organs
Embryology
Origin of Life
Paleontology
Incompleteness of Fossil Record
Human "Evolution"

Cataclysmal Sedimentation

An excellently detailed article was written by N. A. Rupke (1966, pp. 16-37) concerning the evidences for rapid cataclysmal sedimentation. In his introduction Rupke (1966, p. 16) noted:

> Sedimentation as it takes place today is a calm and slow process acting on a small scale—Holocene sediment is accumulating little by little in various sedimentary environments. If the greater part of the earth's sedimentary rock was deposited at this modern rate it would have required vast periods of time.
>
> However, an abundance of phenomena which appear in most pre-Quaternary rock testify to a complete uncommon mode of sedimentation which might be called "cataclysmal"; i.e. sequences of considerable thicknesses were rapidly formed during a large-scale deposition. Likely, this cataclysmal event, as evidenced by the Work of God (Nature), fell together with the Noachian deluge, as narrated by the Word of God (Scripture).

Rupke discussed the work of many early geologists such as Nicolaus Steno, John Ray, John Woodward, George-Louis Leclerc Comte de Buffon, Jean-André Deluc, James Hutton and George Fairholme. Then he offered considerable evidences to support his thesis:

Polystrate fossils
Ephemeral markings

Ripple marks
Rain prints
Trace fossils
Bird tracks

He presented his field work to support some of the above. This well-written, beautifully illustrated article should be studied by creationist geologists.

Dr. Henry M. Morris, one of the original Board members and President of the Society for several years, wrote an article entitled "Hydraulics, Sedimentation and Catastrophism" (1966a, pp. 51-54). Morris noted that water has been the primary geophysical agent in shaping the earth's crust. He then compared uniformitarian versus catastrophic sedimentation using several examples to point out the failings of the former.

Harold W. Clark proposed that the geological features of the Colorado Plateau region could be explained best within a Flood framework (1966, pp. 12-16). He concluded that the sediments were brought in from great distances, great sweeps of water were necessary to accomplish the task rather than local river action and that the various formations were deposited in rapid succession. This fine work should be carefully studied.

Paleontology

Clifford Burdick (1966, pp. 38-50) presented his epochal work on the microflora he detected in certain sedimentary layers in the Grand Canyon. He briefly discussed the geology and geography of the Grand Canyon before developing his field work, laboratory methods and finally, showing photographs of the fossil pollen grains. Later a storm would break over Burdick's head because of this fine study. Creationists are urged to read this article about the discovery of modern pollen grains entombed in "ancient" sedimentary layers of the "uniformitarian show place," the Grand Canyon.

Overthrusts

Harold Slusher wrote a brief note on a supposed overthrust in Franklin Mountains, El Paso, Texas (1966, pp. 59-60) where Upper Ordovician strata overlaid Upper Cretaceus formations. Slusher noted that there was no evidence of an overthrust but that further investigation was necessary. Dr. Walter E. Lammerts preliminarily investigated some of the supposed overthrust faults in Glacier National Park (1966a, pp. 61, 62). He realized that more study was necessary but that rather than maintain overthrusting as uniformitarian geologists do, the Flood or its aftereffects offered a better explanation for the order of the strata.

Pleochroic Halos

Robert V. Gentry published his first CRSQ article on radiohalos in this volume (1966, pp. 17-20). He felt that the halos could be interpreted more satisfactorily within a young-earth, creationist framework rather than an old-earth model. Some photographs of halos are presented with the discussion. Since that time, there have appeared other manuscripts on radiohalos, both pro and con. Gentry has ably defended his work as well as developed a detailed model (Brown, 1990; Garner, 1990; Gentry, 1968, 1986, 1989, 1990a, 1990b; Talbott, 1977; Wise, 1989). This volume of the Quarterly contains many treatises on geology from a creationist perspective.

Biology

Dr. Lammerts conducted an investigation on the Galapagos Island finches (1966b, pp. 73-79). He offered suggestions for further research and reached the following conclusions.

> If one were to remove all the species labels and arrange the Darwin finches from the largest to the smallest in body and bill size, complete intergradation would be found. The same is true of bill length and width. As mentioned above there is complete intergradation of plumage coloration although the smaller birds tend to have lighter gray feathers.
>
> The situation is exactly comparable to that of the song sparrow, *Melospiza melodia,* where one finds a comparable range in size of bird and bill. Here also the small desert forms are light gray in color. . . .
>
> It seems much more in line with reality to consider these birds as all one species, broken up into various island forms as a result of chance arrangement of their original variability potential, as regards the rather minor variation in bill and body size, skull features and plumage coloration. A Sewell Wright random variation pattern would give exactly this sort of thing. Presumably many pairs of finches from either Ecuador or even Central America happened to fly there and settle on these islands (pp. 76, 77).

Dr. John W. Klotz, a Board Member of the Society since its inception, outlined a proper philosophy of science and then discussed the weaknesses in the common ancestor concept and the evolutionary idea of convergence (1966, pp. 3-12). Other topics explored included lack of evidence for a mechanism for molecules-to-man change. Mutations and the evolution of man were also elucidated. Klotz realized that it would be foolish to reject creationism in light of the lack of evidence for macroevolution.

Fact after fact concerning highly specialized adaptations were given by Evan V. Shute (1966, pp. 10-17) with commentary to the effect that these functions had to be placed in the creatures by a Creator. Many examples of predation, defense mechanisms, water metabolism, respiration, pupation, locomotion, reproduction and specialized senses were presented. "Adaptation is too accurate, varied and purposive to be an accidental feature of Nature" (p. 17). In an enlightening study of the moss and miniature roses, Ralph S. Moore concluded that the changes observed were nothing more than the "old" gene material in a different combination (1967, pp. 12-18). Creationist botanists would enjoy reading this dissertation.

Physical Science

Dr. Morris, in another article (1966b, pp. 7-10) developed a statistical model that indicated that the human race is only a few thousand years old. He accounted for known population growth and the effects of diseases and wars. Dr. Emmett L. Williams discussed the solid state (crystals) from a statistical thermodynamic viewpoint (1966, pp. 18-24). It was noted that crystals contain defects as would be pre-

dieted by the second law of thermodynamics. Often evolutionary biologists claim that the "perfection" of crystals is a violation of the second law when, in fact, the opposite is true. Dr. Oscar L. Brauer weaves Biblical philosophy into a discussion of the universe (1967, pp. 4-11). He examined the dimensions of the universe, the existence of matter, the orderliness and design in the universe and a discussion of chance. Also touching on modern theories of cosmology, Brauer offered objections to macroevolution and evidences for a Creator.

One important feature of this volume was a complete index for volumes 1-3 (1967, pp. 25-27). Many other topics were covered in brief notes, letters to the editor and book reviews.

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An Early Christian View Of Genesis One

Naive liberalism was never a part of Christian orthodoxy in the earliest centuries of Christianity. This false claim is made in a recent (1989) attack on creationism by Forster and Marston of the London-based ICHTHUS Fellowship (1989). Just how wrong they are can be seen by studying the interpretation of Genesis one by St. Basil of Cappadocia. The word "naive," of course, simply conveys the anti-literal bias of the writer. Actually, Basil helped to consolidate Greek Orthodox thought between 360 and 390 A.D. He helped secure the final victory of the orthodox supporters of the Nicene faith. His piety and devotion won for him a place among the saints and teachers of the Church. The following quotations let Basil speak for himself (Giet, 1949):

> In order that we might learn that the world came into existence at the timeless moment when God willed it, it was said: In the beginning God created . . . which other interpreters express more clearly by these words: God made everything together, that is to say, at one time, and in a short time (p. 113).
>
> The earth was "invisible and unfurnished" says the Scripture. How? Plants, trees, fruits, colors and perfume of flowers . . . since none of these yet existed, Scripture rightly says that the earth was "unfurnished." It adds that the earth was invisible, for two reasons: either because the spectator, Man, did not exist; or because water totally covered the surface and prevented the earth being seen [Basil uses the LXX translation, which in Genesis 1:2 has 'unseen' or 'invisible.' He takes it literally.] But, the falsifiers of the truth, who will not discipline their minds to follow Scripture, twist its meaning to suit their own ideas and pretend that these words allude to matter (p. 141).
>
> So let those people [Gnostics ?] give up their mythical inventions / interpretations—people who, in their feeble reasoning, pretend to measure a power inconceivably great and infinitely beyond human expression (p. 149). They explain 'darkness' as an evil power . . . enemy of souls, cause of death . . . that's how they falsely interpret the words of the prophet (p. 155). The abyss was *not* a multitude of adverse powers, as some have vainly imagined . . . [it was] a mass of water of unfathomable depth (p. 157). So let us pass by in silence all figurative and allegorical interpretation and accept the idea of 'darkness' simply, without refinement, following the aim of Scripture (p. 163).
>
> When, with regard to God, we speak of a voice, of a word, an order, we do not imagine the divine word as a sound emitted by the vocal organs. It is, rather, the impulse due to the divine will, which the author makes more vivid to his readers by presenting it in the form of a command (p. 173).

"So there was evening and there was morning." This is to be understood as the duration of one day and one night. In the rest of the passage the author no longer speaks of day and night but uses the principal part to signify the whole. One finds this usage throughout Scripture: in measuring time, only the days are counted, never nights and days (Psalm 90:10; Genesis 47:9).

"And there was evening and there was morning: one day," Why did the author not say "the first day." but "*one* day" (p. 179)? He wished to determine the measure of a day and night, fitting together the Night / Day time-scale (in fact 24 hours are the duration of a day,—obviously comprising the night as well)—so that even if the day

or night is longer/shorter at different seasons of the year, yet the total time-spell is always the same—one day. It is as if Moses had said, "24 hours is the measure of a day" (p. 181).

Some previous commentators have said that the question here (Genesis 1:7, 8) is not of the birth of a second 'heaven,' but an explanation of the first. . . . We, on the other hand, say this: since the second 'heaven' is presented to us as having a different name, and a peculiar function of its own, therefore it differs from the one made at the beginning, both by its greater solidity and by the special function which it fulfills in the universe (p. 203).

[Basil has been refuting Stoic philosophy.] Now we must say some words against the Church authors, on the separation of the waters. Under the pretext of analogies and more elevated thoughts, they have taken refuge in allegories, saying the waters signify, in metaphorical language, spiritual and incorporeal powers . . . (p. 235). Such opinions are only tissues of dreams and old wives' fables; let us reject them. Let us understand that water is water, and let us take the division made by the firmament in the sense that I have indicated, . . . If anyone says, The heavens are contemplative powers, and the firmament active powers" . . . we accept this interpretation as a harmless fiction; but we by no means concede that it is true (p. 237).

Thus the abyss itself, which the authors of allegories have condemned to the worst destiny, has not, in fact, been disdained by the psalmist (Psalm 148:7) but has been enrolled in the general choir of creation (p. 239).

Since certain people think that it is the sun that makes the earth produce, . . . terrestrial vegetation was ordained to appear before [the creation of] the sun, so that those who have fallen into this error may cease to adore the sun as if it were the cause of life (p. 281).

But the rose was at that time without thorns: later the thorn was added to the beauty of the flower, in order that our enjoyment of pleasure might be tinged with grief, and that we might be reminded of the sin for which the earth was condemned to produce thorns and thistles (p. 301).

"Let the earth bring forth grass . . ." This simple command was immediately a power of nature which produced the thousand varieties of plants in a movement swifter than thought (p. 321). Sun and moon did not yet exist, in order that people who do not know our God might not be tempted to call the sun the Author and Father of light and Creator of the plants that spring from the earth (p. 331).

For then [Day 1] it was the actual essence of light that was presented to us, but now [Day 4] here is the solar body prepared to serve as a vehicle of that light whose birth preceded the sun's (p. 335). . . . and let no one think that what we have said is incredible: that the brightness of light is one thing, the luminous body another (p. 337).

Reject the foolish ideas of those arrogant philosophers who are not ashamed to put their own souls and dogs' souls on the same level, and who pretend to have once been women, bushes, and sea-fish . . . they show themselves to have less sense than fishes (p. 437).

Those who do not accept the Scriptures in their ordinary, common meaning, say that "water" is not water but something else; plants and fishes they interpret as they please; the creation of reptiles and wild beasts they explain in their own way, twisting it from the obvious sense as do the interpreters of dreams—who give whatever meaning they choose to the images seen in sleep. As for me, when I hear the word "grass" I think of grass, and the same with plant, fish, wild beast, domestic animal. I take everything in the literal sense, for "I am not ashamed of the Gospel" (p. 481).

It seems to me that certain people have tried by alteration of the sense, and figurative interpretations out of their own imagination, to attribute to the Scriptures a spurious "depth." But that is to make oneself wiser than the oracles of the Holy Spirit, and under the pretense of 'exegesis' to force personal ideas into the text. Therefore let us take these oracles as they are written (p. 483).

A modern creationist could scarcely wish for stronger support than he finds in this distinguished champion of ancient orthodoxy, St. Basil, 330-379 A.D.

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QUOTE

The tree of life consists of numerous major branches—there are about 25 major living subdivisions (phyla) of the animal kingdom alone, all with gaps between them that are not bridged by known intermediates. The differences between species on different major branches are commonly profound. Furthermore it is unusual to find fossils that are the immediate common ancestors of major branches. In fact, there are no extinct fossil groups known that are the common ancestors of two or more living phyla, and the common ancestral stocks of only a few classes (out of many score) have been found. Most taxa at these high levels appear abruptly in the fossil record, and we do not know their immediate ancestors.

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KEYWORD INDEX TO VOLUME 26

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THE EYE: BY CHANCE OR INTELLIGENCE

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Abstract

This article presents some of the obstacles encountered when natural selection, acting on chance mutations, attempts to account for the origin of the organs of vision in the almost limitless number of creatures throughout nature today. Information and intelligence rather than chance were the essential ingredients in sight manifestation.

Introduction

Sight is one of man's most precious faculties and one which determines to a large extent his activities and limitations. This applies to the animal kingdom as well and indeed decides in great measure the animal's survival. It is important, then, to examine these organs of vision to answer some of the questions about their origin and function. As far as origins are concerned there are only two main contending theories: the various kinds of eyes arose by some type of chance evolutionary mechanism or they were intelligently designed to fulfill the organisms' requirements in their respective niches.

Basic Darwinism

The biological climate of the 18th and early 19th centuries was one of general belief in special creation, but there were dissenting voices which became more strident with Lyell's geological theories of gradual deposition of the rock layers as contrasted with catastrophism and the Noahic Flood. At this time Charles Darwin was forming his ideas about evolutionary processes, stemming from his observations and experiences on the five-year round-the-world voyage on H.M.S. Beagle, plus subsequent investigations in England. He was developing the basic theory of natural selection based on the survival of the fittest to try to explain how more complex creatures could arise from simpler ones. This culminated in his book, ***The Origin of Species,*** published in 1859. In it he defined natural selection as follows:

> Owing to this struggle for life, any variation, however slight and from whatever cause proceeding, if it be in any degree profitable to an individual of any species, in its infinitely complex relations to other organic beings and to external nature, will tend to the preservation of that individual and will generally be inherited by its offspring. I have called this principle, by which each slight variation, if useful, is preserved, by the term of Natural Selection (Darwin, 1979, p. 115),

Further, he described natural selection as functioning in this manner:

> It may be said that Natural Selection is daily and hourly scrutinizing, throughout the world, every variation, even the slightest; rejecting that which is bad, preserving and adding up all that is good; silently and insensibly working whenever and wherever opportunity offers, at the improvement of each organic being in relation to its organic and inorganic condition of life (Darwin, 1979, p. 133).

This somewhat anthropomorphic character of natural selection seemingly differs to a degree from Richard Dawkins' definition in his book, ***The Blind Watchmaker:***

> Natural Selection, the blind, unconscious, automatic process which Darwin discovered, and which we now know is the explanation for the existence and apparently purposeful form of life, has no purpose in mind (Dawkins, 1986, p. 5).

In living organisms the visual organs can be conveniently divided into two major categories; those of

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invertebrates which are of two general types, simple and compound, and vertebrates in which all eyes are based on the principle of the camera. When discussing organs of extreme perfection in the chapter of his book, Difficulties of the Theory, Darwin outlined how the simple eyes of the invertebrates could have come into existence by natural selection. In this category the eyes range from the light-sensitive end of a nerve fiber to those of the octopus, for example, whose eyes resemble the vertebrate plan in a number of ways. In the well-known and oft quoted statement he confesses that his idea appears to be absurd:

> To suppose that the eye, with all its inimitable contrivances for adjusting the focus to different distances, for admitting different amounts of light, and for correction of spherical aberration, could have been formed by natural selection, seems, I freely confess, absurd in the highest possible degree (Darwin, 1979, p. 217).

In spite of this he goes onto convince himself that if the slight variations are numerous enough over a long enough time scale the change from simple to complex is possible and credible. However, after mature consideration, and criticism from various quarters over the following dozen years or so, in the sixth edition of his book (1872) he abandoned natural selection as the mechanism for major change and seemed to relapse into a kind of Lamarckism (Hedtke, 1983, pp. 37-38). He was unaware of Mendel's work and stated that "the laws of inheritance are quite unknown," (Darwin, 1979, p. 76), and that "our ignorance of the laws of variation is profound" (Darwin, 1979, p. 202).

Mendel and Mutations

Mendel's work in genetics was published in 1865 but was neglected and pushed aside as Darwin's theories were in the ascendancy. As time went on, breeding experiments showed that there was no evidence of one species changing into another. The fossil record continued to exhibit a lack of intermediate forms. Mendel's views on inheritance were rediscovered and followed up by De Vries' ideas on mutations which were then seized upon as a probable mechanism for speciation. Subsequent research, including extensive work with the fruit-fly, indicated that the vast majority of mutations were lethal or detrimental. This left only a very few that were neutral or could be beneficial in special circumstances. Even so, Neo-Darwinism, depending on gradual chance mutational change, has been the accepted evolutionary theory until recently, when it became apparent that this concept lacked explanatory power in view of the fossil record which still refused to reveal the necessary intermediate forms. Punctuated equilibria has become the latest theory to try to accommodate this obvious lack but still retains the concept of natural selection. Are these theories able to account for the almost unlimited types of eyes which we see in nature today? What about the small progressively orientated upward changes, are they real or testable? Apparently not, in the view of many evolutionists such as the following:

> Natural selection, long viewed as the process guiding evolutionary change, cannot play a significant role in determining the overall course of evolution (Stanley, 1975, pp. 646, 648, 650).

> As far as I can see, statements of the type that 'Phenotype x is an adaptation evolved via the agency of natural selection' are thoroughly untestable. The necessary data to refute such an assertion cannot be gathered, and we are more or less forced to accept it as an article of faith rather than a scientific statement (Cracraft, 1981, p. 32).

> Darwin's inherent weakness is its reliance on ***a posteriori*** rationalization of presumed selective advantages which cannot, by definition, be experimentally verified (Maderson et al., 1982, pp. 282-283).

Pseudo-evolutionary Series

Professor Garrett Hardin of the University of California asks:

> How are we to account for the evolution of such a complicated organ as the eye? If even the slightest thing is wrong—if the retina is missing, or the lens opaque, or the dimensions in error—the eye fails to form a recognizable image and is consequently useless . . . since it must be either perfect or perfectly useless. How could it have evolved by small successive Darwinian steps? (Hardin, 1961, p. 71-72. See also Hamilton, 1986).

Hardin then offers an answer:

> Were all other organisms blind, the animal which managed to evolve even a very poor eye would thereby have advantage over the others. Oysters have poor eyes—many tiny sensitive spots that can do no more than detect changes in the intensity of light. An oyster may not be able to enjoy TV but it can detect a passing shadow, react to it as if it were caused by an approaching predator, and—because it is sometimes right—live another day. By selecting examples from various places in the animal kingdom, we can assemble a nicely graded series of eyes, passing, by not too big steps, from the primitive eyes of oysters to the excellent (though not perfect) eyes of man and birds. Such a series, made up from contemporary species, is not supposed to be the actual historical series; but it shows how evolution could have occurred (Hardin, 1961, p. 71-72).

In his book, ***Darwin Retried,*** Norman Macbeth, writes:

> What are the weaknesses in this statement? I will point out two although there may be more.
> 1. Doubtless one can collect samples from various species to build up a nicely graded series of eyes, but this has nothing whatever to do with the way the specific human eye was developed. Hardin admits this when he says that "such a series . . . is not supposed to be the actual historical series." Since it is the historical series we are asking for, he is giving us stones for bread.
> 2. Collecting a group of samples would actually show that nature had solved the problem in a number of different ways; but when we cannot explain even one way, the mystery only deepens when we see that nature has worked out several (Macbeth, 1971, pp. 100-101).

With regard to the immense invertebrate phyla there is no such progressive series of eyes from simple to complex as indicated by Duke-Elder:

> The curious thing, however, is that in their distribution the eyes of the invertebrates form no series of continuity and succession. Without obvious phylogenetic sequence, their occurrence seems haphazard: analogous photoreceptors appear in unrelated species, an elaborate organ in a primitive species or an elementary structure high in the evolutionary scale, and the same animal may be provided with two different mechanisms with different spectral sensitivities subserving different types of behaviour (Duke-Elder, 1958, p. 178).

Mutations can only rearrange or shuffle information already present in the genetic make-up for each individual eye. To progress from, simple to complex requires a steady, progressive increase in available genetic information, and this does not arise by chance rearrangement or shuffling of the genes in any specific genome. Intelligence and design are necessary for any increase in complexity. In the natural world we find that the eyes of creatures are eminently satisfactory for their needs, and no impulse for change is evident. With the newer knowledge of DNA in genetics and the development of information theory, the inadequacy of natural selection acting on chance mutations to account for organic evolution is becoming more and more evident:

> The central question of the Chicago Conference (1980) was whether the mechanisms of microevolution (natural selection) could be extrapolated to explain the phenomenon of macroevolution. At the expense of doing violence to the positions of some people at the meeting the answer can be given as a clear NO (Lewin, 1980, pp. 883-87).

Vertebrate Realities

When we consider the vertebrates in contrast with the invertebrates, we find that the eyes are all constructed on the principle of the camera but with modifications for functioning in different environments such as air, water, and in light and darkness. In all cases the principles of refraction are uppermost in order to produce a clear image on the retina. To appreciate the difficulties for chance evolutionary processes being operative, the words of astronomer Alfred Noyes are pertinent:

> Suppose, for instance, one of the surfaces of the crystalline lens of the eye to be accidentally altered, then I say that unless the form of the other surface is simultaneously altered in one way out of millions of possible ways, the eye would not be optically improved. An alteration in the two surfaces of the crystalline lens, whether accidental or otherwise, would involve a definite alteration in the form of the cornea, or in the distance of its surface from the centre of the crystalline lens, in order that the eye might be optically better. All these alterations must be simultaneous and definite in amount, and these definite amounts must co-exist in obedience to an extremely complicated law . . . my apprehension, then, that so complicated an instrument as the eye should undergo a succession of millions of accidental alterations is no less improbable than if all the letters of the *Origin of Species* were placed in a box and on being shaken and poured out . . . should at last come out together in the order in which they occur in that fascinating work (Shute, 1969, p. 129).

Even William Paley (1743-1805) long before Darwin's time, speaking about the eyes of fish, says that the laws of light:

> . . . require in order to produce the same effect that the rays of light, in passing from the water into the eye, should be refracted by a more convex surface than when it passes out of air into the eye. Accordingly we find that the eye of a fish, in that part of it called the crystalline lens, is much rounder than the eye of terrestrial animals. What plainer manifestation of design can there be than this difference (Shute, 1969, p. 129).

Another great obstacle in deriving the vertebrate eye from any invertebrate eye involves the structure of the retina in each division. In the invertebrates it is upright while in the vertebrates it is inverted with no intermediate forms. Again in quoting Duke-Elder there does not seem to be any solution to this enigma:

> It would seem therefore, that despite the considerable amount of thought expended on the question, the emergence of the vertebrate eye with its inverted retina of neural origin and its elaborate dioptric mechanism derived from the surface ectoderm is a problem as yet unsolved. Indeed, appearing as it does fully formed in the most primitive species extant to-day and in the absence of transitional forms with which it can be associated unless by speculative hypotheses with little factual foundation, there seems little likelihood of finding a satisfying and pragmatic solution to the puzzle presented by its evolutionary development (Duke-Elder, 1958, p. 247).

Jack H. Prince states:

> There is no concrete evidence that any known kind of invertebrate eye has definitely been associated with the development of the modern vertebrate eye, although there may be grounds for assuming connections between some of them and the discarded vertebrate third eye (Prince, 1956, p. 354).

A further problem occurs when chance mutational changes are supposed to be responsible for the very considerable alterations in eyes of water dwelling vertebrates when they left the sea to dwell on land in an entirely different environment. Again precise refractive changes were obligatory as well as anatomical refinements, and a means of lubrication (tears) had to be provided, all of which require new genetic information in the DNA. Chance genomic mutational changes would be entirely inadequate for the task (Hamilton, 1988, pp. 117-20).

Conclusion

In this brief survey a number of difficulties have been mentioned which plague evolutionary theories with respect to the eye and which natural selection acting on chance mutational change cannot explain. Natural selection has been termed a tautology, even by some evolutionists, and while it may have some validity in minor genetic variation it is totally powerless in

macroevolution. It is evident that present concepts of organic evolution have not and cannot account for the remarkable design and ability of the organs of vision from the light-sensitivity of the amoeba to the perfection of the eagle's eye.

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CRSQ—Creation Research Society Quarterly

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SYMPOSIUM ON VARIATION—I

POSSIBLE VARIABILITY IN LIVING ORGANISMS— A REVIEW OF *CRSQ* WRITINGS

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Abstract

A selected bibliography and brief discussion of creationist writings on limited variability in the biological world is presented.

Introduction

One of the major points of difference between the creationist and evolutionary models of science is that of the possible variation in the natural world. Generally an evolutionist believes in infinite variation that allows "nature" to start with "simple particles and molecules" and evolve upward to man. Whereas creationists in general believe in a limited variability. The Creator designed and quickly brought the various types into being. The only variation allowed, which is considerable but not unlimited, is within the gene pool of these original types.

These postulates affect the research and field work attempted by the two different groups of scientists. The evolutionist continually looks for links between living organisms, between living organisms and fossil remains and between various fossils. No lack of success will deter his search for the "chain" and similarities that connect all of the "evolved" creatures. Creationists will study both similarities and differences in organisms and will not overrate the former to the neglect of the latter. They generally view similarities as a solution to a common design "problem" and visualize the Creator repeating a pattern He has employed in His creative acts. The differences often are explained within a framework of different functions for various organisms or a different type of created kind.

Adaptation is viewed by the two opposing philosophies in different ways. Evolutionists feel that nature (natural selection) operates on an organism and it evolves a solution to an environmental problem and survives in a particular niche of the natural world. A creationist believes that an organism present in a harsh natural environment is "preadapted" to survive. The omniscient Creator designed the particular creature to be successful in its intended niche. These few examples illustrate the repercussions of the different philosophies in the area of variation and fixity in nature.

In providing a recent creationist history for the concept of variability of living organisms, a review of *Creation Research Society Quarterly (CRSQ)* articles was attempted. The ideas developed by various creationist scientists can be studied in detail by reading their works. I offer these brief reviews as an introduction to this symposium. The references are collected according to author. I make no claim of completeness for I may have overlooked some contributions to the subject unintentionally.

Frank L. Marsh

Dr. Marsh probably has written more on the subject of variation than any other modern creationist. His writings likely have had a greater impact in this area than anyone else in recent years. He has done considerable research and writing on the kind concept and been very influential in its acceptance.

1. Marsh, F. L. 1964. The Genesis kinds in the modern world. *CRSQ* 1 (Annual):30-38. The author presented a history of the kind vs. species concept from both science and Scripture. He pointed out the confusion over kind and species in the literature. It is noted that there are limits to variation.

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2. _____ 1968. Fixity among living things. ***CRSQ*** 4:121-24. Historical discussion on how the early church handled the Genesis account of creation was developed. The development of theistic evolution in the fifteenth through seventeenth centuries was noted. The extreme fixity in created kinds in the seventeenth through nineteenth centuries and its implications were presented. Fixity is not at the species or individual level, but at the kind level which is taught in Scripture.

3. _____ 1969. The form and structure of living things. ***CRSQ*** 6:13-25. The observed discontinuity among both living and fossil forms constitutes evidence for the creation of basic kinds. Variation has never been known to accomplish more than the production of a new variety of a basic kind already in existence. Topics covered were origin of form and structure, resemblances and genetic kinds, common ancestor concept, homologous structures, convergence and adaptive radiation.

4. _____ 1973. The Genesis kinds and hybridization: has man ever crossed with any animal? ***CRSQ*** 10:31-37. The reported supposed crosses between plants and animals and man and beasts were examined. The importance of DNA studies was elucidated noting that basic types of animals have different DNA's. The uniformity of life principle since creation was presented. Adam and Eve are the parents of the human race.

5. _____ 1973. Book review. ***CRSQ*** 10:125-27. Marsh reviews" H. R. Siegler's book, ***Evolution or Degeneration—Which?*** and recommended it to those who wish to determine what living organisms can vary, hybridize, etc. Also a creationist classification system was developed in the book,

6. _____ ***1974.*** Variation and fixity in nature. ***CRSQ*** 11:60-68. The amazing variation possible in living organisms was discussed and compared to the fixity of species in vogue during Darwin's time. Although there is diversity, there is discontinuity in variation. New variants are always within basic types and DNA in the genetic systems of living organisms leads to stability, not unlimited change. A review of a book with the same title written by Marsh is given in Armstrong (2). This book is distributed by CRS Books (outside back cover).

7. _____ 1978. Variation and fixity among living things: a new biological principle. ***CRSQ*** 15: 115-18. Two classes of variation were developed:

a. nonhereditary (environmental, nongenetic)
b. hereditary { recombination of genes; mutations; chromosomal aberration }

The principle was stated as follows: Processes of biological variation can go no farther than to produce new variants within basic kinds already in existence.

8. _____ 1979. Creationism and taxonomy. ***CRSQ*** 16:189-90. "Two recent ***CRSQ*** articles were discussed in relation to the possibility of identifying genus with kind.

9. _____ 1981. Have Genesis kinds ever crossed? ***CRSQ*** 18:164-67. The author answered no to the title and then discussed possible variations.

10. _____. 1982. Genetic variation, limitless or limited? ***CRSQ*** 19:204-206. The examination of both living organisms and fossil remains proves the possibility of genetic variation within kinds (micro-evolution) and discontinuity between basic types.

Walter E. Lammerts

The founder of the Creation Research Society and world-famous rose breeder has determined first-hand many of the limits of variation in his extensive field work on plant hybridization, etc. Much of his studies have been published in the Quarterly. Synopses of some of his papers are given below.

1. Lammerts, W. E. 1964. Discoveries since 1859 which invalidate the evolution theory. ***CRSQ*** 1 (Annual):47-55. A brief section (pp. 48-49) in this paper concerns biological variation. Variation is limited, not unlimited as Darwin thought. Dr. Lammerts discussed the work of Darwin on the giraffe, Lamarck's concept of use and disuse and Mendel's crossing of various strains of peas.

2. _____ 1965. Planned induction of commercially desirable variation in roses by neutron radiation. ***CRSQ*** 2(1):39-43. The author developed the limits to variability in certain types of roses. He prefers a creative design or prepattern to explain variation.

3. _____. 1969. Does the science of genetic and molecular biology really give evidence for evolution? ***CRSQ*** 6:5-12, 26. Beans, corn and roses were used as examples to show that variation is limited. Other topics presented were the possibility of serial beneficial mutations, the resistance of certain bacteria to penicillin and the resistance of house flies to DDT. Translocation, inversions and polyploidy in the genetic systems of organisms was discussed as was chromosome doubling and recombination.

4. _____ and G. F. Howe. 1974. Plant succession studies in relation to micro-evolution. ***CRSQ*** 10:208-28. Extensive field studies were conducted on five California wildflower plant species populations—***Eschscholtzia californica*** (California poppy), ***Lupinus succulentus*** (lupine), ***Salvia carduacea*** (thistle sage), ***Orthocarpus purpurascens*** (owl's clover) and ***Viola pedunculata*** (yellow pansy). In the years of the research program, there were variable temperatures, amounts of rainfall, etc. Some years were "lean" for plant variation whereas in the "good" years, plant variation was extensive. The authors concluded that natural selection restricted the amount of variation to bring populations back to a typical or normal form.

5. _____. ***1974.*** Does nature really select selection? ***CRSQ*** 11:168-69. Several recent genetic experiments on living organisms were presented and the author suggested that many characteristics have no survival value. He believes that the Creator may have created certain species for the sake of variety to make the world interesting for man.

6. _____.1975. Acceptance of evolution theory can result in costly errors in basic breeding emphasis. ***CRSQ*** 12:68-69. The experiments on dwarf varieties of wheat were outlined. The induced mutation technique can lead to false data. Increasing mutations by radiation will not improve a species.

7. _____ 1975. Concerning the natural vs. supernatural: a reply to Henry M. Morris. ***CRSQ*** 12:75-77. Lammerts explained his theory of super-

natural changes in organisms since creation. In answer to this theory, see Akers, Jr. H. 1976. On allelic differences and sizes of population *CRSQ* 12:218-19.

8. _____ 1976. A note on speciation in *Ceanothus* and *Adenostoma CRSQ* 12:190-91. Variation within these two plants was elucidated and the creationist implications were offered.

9. _____ 1984. Plant succession studies in relation to micro-evolution and the extinction of species. *CRSQ* 21:104-108. Summary of previous Lammerts and Howe (4) work plus suggestions for further research was offered.

Arthur J. Jones

This British zoologist wrote a series of articles for the Quarterly in which he developed a creationist classification system for living organisms that deserves serious study by creationist taxonomists.

1. Jones, A. J. 1972. A general analysis of the Biblical "kind" *min. CRSQ* 9:53-57. Dr. Jones examined the term *min* with regard to its etymology, form and usage. He used Hebrew words within the clean and unclean concept to form a general classification system of beasts, land swarmers, water swarmers, winged fliers and man.

2. _____ 1972. Boundaries of the *rein:* an analysis of the Mosaic lists of clean and unclean animals. *CRSQ* 9:114-23. Detailed and exhaustive lists of the genera covered by each Hebrew name were given.

3. _____ 1973. How many animals in the ark? *CRSQ* 10:102-108. Using his classification system, Jones reached the conclusion that the number of animals in the ark did not exceed 2000. Rapid speciation occurred after the animals left the ark.

4. _____ 1973. Reply to Mr. Abraham *CRSQ* 10:182 and Abraham, E. W. 1973. Food laws. *CRSQ* 10:182. Exchange of letters about whether ducks, geese and swans are considered clean or unclean.

5. _____ 1982. The genetic integrity of the "kinds" (baramins); a working hypothesis. *CRSQ* 19: 13-18. The author discussed a creationist model of genes and heredity as well as created patterns and speed of variation in living organisms. Original genetic potential was outlined.

6. _____ 1982. A creationist critique of homology. *CRSQ* 19:156-75. This treatise contains detailed discussion of how evolutionary arguments for homology misuse the evidence. Jones explained the evidence within a creationist model developing the limitations on variability. Convergence and parallelism were handled nicely. Creationist patterns were optimal from the start.

7. _____ 1983. Corrections and clarifications. *CRSQ* 20:122. Further comments were offered on the preceding paper (6).

Hilbert R. Siegler

H. R. Siegler, former Chief of Game Management and Research, Fish and Game Department, State of New Hampshire, brought his vast experience together for a series of articles on a creationist taxonomy. Likewise he authored a book (see Marsh [5]) which should be studied.

1. Siegler, H. R. 1974. The magnificence of kinds as demonstrated by canids. *CRSQ* 11:94-97. There are 118 different breeds of domestic dogs, seven true wild dogs, four different species of jackals, five different species of wolves (gray wolves and coyotes are known to occur in a large variety of races) and 13 different species of foxes. All four major categories of canids have been known to crossbreed. Siegler felt that these varieties have developed from superior created canids but within the boundaries of *min* (kind).

2. _____ 1976. Fleming Jenkin's critique of Darwin's *Origin of Species. CRSQ* 13:111-14. Jenkin noted that selective breeding first demonstrated considerable variability. However the rate of variation in a given direction constantly diminishes, tending toward a limit. No single case for macro-evolution exists.

3. _____.1977. A creationist' taxonomy. *CRSQ* 15:36-38, 11. A creationist taxonomy was developed using swans, ducks and geese as an example. Since crossbreeding has been reported, the kind would be above the family level.

4. _____ 1980. Equating species with kind. *CRSQ* 16:231. Species cannot be equated with kind.

5. _____ 1983. Some thoughts on kinds. *CRSQ* 20:122-23. The author issued a challenge for continuing work on a creationist taxonomy.

Colin Brown

This British creationist has contributed several smaller selections on the subject of the limits to variation.

1. Brown, C. 1982. The monotremes. *CRSQ* 18:187-89. The monotremes are not links between mammals and reptiles. They offer no support for evolutionary theory.

2. _____.1982. Variation and the fourth law of creation. *CRSQ* 19:100-103. Limited variation within kinds was discussed.

3. _____.1982. The first seven basic biological laws of creation. *CRSQ* 19:187-88. The author proposed seven "laws" of creation in which the fourth and fifth deal with variation limits in living organisms.

4. _____ 1983. Further remarks on the fourth law. *CRSQ* 20:62-63. Possible genetic changes were elucidated.

George F. Howe

As a botanist, Dr. Howe, has contributed invaluable insights in the development of the modern creationist model of science. Some examples are given below.

1. Howe, G. F. 1964. Paleobotanical evidences for a philosophy of creationism. *CRSQ* 1 (Annual):24-29. The author noted that "modern" forms are frequently identical to "remote" fossil specimens implying the lack of infinite variation. Specifically changes in nonvascular plants (e.g. fungi and algae) throughout the geologic strata have been only slight. Frequently extant algae are quite similar to the fossil types. Extant forms of mosses and liverworts are similar to the fossil entities. The genus *Lycopodites* of the Paleozoic is like the *Lycopodium* or "ground pine" of today. Plants with fan-shaped foliage like the modern ginkgos have been found from the Upper Devonian to the present.

2. _____ and W. E. Lammerts. 1980 Biogeography from a creationist perspective: II. The origin and distribution of cultivated plants. *CRSQ* 17:4-18. A creationist model of possible variation was developed

for the origin and distribution of cultivated plants from the standpoint of a rapid creation, the Fall, the Flood and a post-Flood dispersion from the area of Asia Minor using corn, wheat, roses, strawberries and apples as examples.

3. _____.1982. Postfire strategies of two chaparral shrubs (chamise and *Ceanothus)* cast light on origins. *CRSQ* 19:3-10. Variation possibilities within two California shrubs using fire as a natural selector was discussed.

William J. Tinkle

Dr. Tinkle contributed some very pointed shorter selections to the Quarterly in relation to variation.

1. Tinkle, W. J. 1976. Selection: artificial and natural. *CRSQ* 13:131-33. Actual variations in living organisms were discussed. Changes because of environmental effects (acquired characteristics), presence or absence of certain genes and mutations were brought to bear on natural and artificial selection. The author claimed that Darwin misapplied and misunderstood heredity factors for change.

2. _____ 1977. Genetics favors creation. *CRSQ* 14:155-56. Using acquired characteristics, latent genes, groups of diverse genes and mutations, Tinkle discussed the limits on variation using fruit flies and sugar beets as examples.

3. _____.1981. Let us reason together. *CRSQ* 18:25-26. The thesis of this note was that changes in nature are rare.

Various Authors

1. Armstrong, H. L. 1973. Rapid variation within the kind. *CRSQ* 10:69-70. Rapid variation in aphids was presented. Millions of years were not needed to accomplish the changes and yet the organisms were still aphids after the changes.

2. _____ 1977. Book review of *Variation and Fixity in Nature* by Frank L. Marsh *(CRSQ* 13:222) is given in its entirety. This book is available from Creation Research Society Books (see p. 160).

> In the world of living things, there are two complementary aspects: *continuity,* in that, for instance within one kind of animal, such as dogs, many varieties are to be found; and *separation,* in that there is a gap, which anyone can recognize, between dogs and cats. Indeed, much the same could be said of dead things; the evolutionist makes much of the alleged continuity of the fossil record; but for all of that the gaps are still there to his perpetual embarrassment.
>
> The same dichotomy exists as things are followed through time. There is variation: many breeds of horse have been developed. But there is also fixity: no breed of horse has ever looked like cows.
>
> The author investigates these complementary aspects of living beings. Subjects considered include the physical basis of heredity, which could be called the basis of stability or fixity; and the causes of variation, since variation within limits from generation to generation undoubtedly occurs. But the key words are: "within limits." There is no evidence for limitless variation.
>
> As for the fossil record, Marsh shows that it is evidence, not for continuous change, but rather for great stability (as is shown especially by the persistence of the so-called living fossils) along with limited variability.
>
> The author has been well known for his investigations into the nature and extent of the Genesis kinds. So it is not surprising to find some space devoted to the question: "What were the original created kinds?" Scripture rarely deals with such details. The conclusion is that, for the most part, the kinds are recognized by "the true instinct of mankind, " as Aristotle wrote.
>
> Experiments in breeding may throw light onto doubtful cases. If different animals, such as the bison and the cow, can cross, they belong to the same original kind. But if not, that does not prove that they belong to different kinds. For there are varieties of *Drosophila* which are mutually sterile.
>
> Incidentally, it is shown that hybridization, and related phenomena, could not have anything to do with alleged macro-evolution. For such processes are merely a re-shuffling of existing characteristics; and result in nothing really new. As a matter of fact, many reports of unlikely crosses have to be received with great caution. For the whole matter is full of hoaxes and errors. As for mankind, all of the evidence goes to show that man never has crossed and cannot cross with any other creature.
>
> The book concludes with a chapter, "Thoughts to Ponder," in which the author summarizes the conclusions reached. Marsh concludes that the doctrine of limited variability inside of created kinds, which is the scriptural one, is in best accord with the facts. There is also a very useful glossary. Many references to the literature are given.
>
> In summary, this book gives a very readable account of the scriptural doctrine of creation according to kinds, and shows the doctrine to be a reasonable one.

1. Klotz, J. W. 1972. Flora and fauna of Galapagos Islands. *CRSQ* 9:14-22. The adaptive potential of finches, mockingbirds, tortoises, cacti and iguanas was developed. Created organisms have considerable potential for variation but macroevolution was not proven. Klotz noted that Darwin's belief in fixity of species misled him.

2. _____.1986. Book review of *The Natural Limits to Biological Change* by Lane P. Lester and Raymond G. Bohlin (CRSQ 22:201) is given in its entirety. The book is available from Zondervan Publishing House.

> This book is one of the most significant contributions to the creation/evolution controversy that has appeared in recent years. It is a thoroughly objective review of Neo-Darwinism and punctuated equilibrium together with the suggestion that there is "another alternative"—creationism with its suggestion that there are limits to the amount of biological change.
>
> The authors avoid emotional pleading. They freely admit that their approach is conditioned by what the Scriptures say but do not argue in sup-

port of their point of view from the Scriptures; rather they present scientific evidence to support their position.

It is very clear that living things change. The idea of a static creation is a straw man that those who oppose creationism set up, a caricature of what creationists hold. The authors recognize that there is a grain of truth in what evolutionists have built their theories on—that there is variety, that there is change, and that there is adaptation to the environment. These are certainly recognized today by all creationists.

It is the main thesis of the book that Neo-Darwinism and punctuated equilibrium fail because genetics, which must supply the mechanism for the changes which these theories demand, does not do so. In both evolutionary theories the conclusion must be so far as a mechanism is concerned "no evidence. " Indeed as the authors point out the very opposite is true; the evidence from a study of possible mechanisms is entirely negative.

The authors also discuss the reasons why punctuated equilibrium has become so popular—the obvious failure of Neo-Darwinism to explain how the wide variety of living things has developed. At the same time they make it quite clear that those who support Neo-Darwinism and punctuated equilibrium are still committed evolutionists. Their attack on these theories has not led them to a repudiation of evolution.

The authors suggest the use of the term "prototype" to substitute for the concept of "kinds" in Genesis. They feel that "kinds" is too general a term and they point out that "species" is not the equivalent of the "kinds" in Genesis. In a "Response" V. Elving Anderson expresses the opinion that this term probably will not catch on, and I am inclined to agree with him. This reviewer does not believe that it is possible to develop a better term than "kind" or that it should be equated with any of our present taxonomic categories.

The book is a careful objective evaluation of the two currently advocated theories of evolution, Neo-Darwinism and punctuated equilibrium. An unbiased reader will conclude that there is as much evidence for the other "alternative," a limit to the amount of biological change, as there is for the two evolutionary theories.

1. Mehlert, A. W. 1988. A critique of the alleged reptile to mammal transition. *CRSQ* 25:7-15. This Australian creationist has contributed many excellent articles and book reviews to the Quarterly. He discussed the major problems involved in presenting cynodonts as transitional forms which they are not. Variation was shown to be definitely limited.

2. _____ 1988. Reptiles and taxonomy. *CRSQ* 25:99-100. The author suggested that reptiles be placed in the class Reptilia since they have no evolutionary relationship to other mammals.

1. Williams, E. L. 1976. A creation model for natural processes. CRSQ 13:34-37. A model for changes in nature based on the first two laws of thermodynamics was developed. As conservation (first law) processes and degeneration (second law) processes "vie with each other" in nature, change is guaranteed to develop. Over a period of time the created order is eroded. Conservation processes, the stronger of the two, operate more effectively under favorable conditions. Struggle does not improve organisms and intelligence can aid conservation processes. This article is also a chapter in *Thermodynamics and the Development of Order* offered by Creation Research Society Books (see p. 160).

2._____ 1986. A reevaluation of the English" peppered moth's use as an example of evolution in progress (Osborne). *CRSQ* 23:27-28. This article was a review of an Institute for Creation Research Master's thesis. The conclusion drawn is that the melanism in the English peppered moth is a very poor illustration of evolution. This thesis should be consulted by anyone interested in the use of this moth as an example of evolution in progress.

Custance, A. C. 1974. The Lebzelter principle: a generative idea. *CRSQ* 11:157-59. When man lives in large conglomerates, race tends to be stable while culture becomes diversified. When man lives in small isolated groups, culture is stable but diversified races evolve. Variability and inbreeding were discussed within the main thesis of the article. The human race is descended from a single pair and was scattered some time after the Flood are the postulates from which the arguments were developed.

Davidheiser, B. 1976. "Darwin's mistake." *CRSQ* 13:115-16. Variation is limited, a fact Darwin failed to comprehend.

Harper, G. H. 1979. Limited variability, an old idea. *CRSQ* 16:81-82. An history of the concept of limited variability was presented citing the writings of many British scientists. The steady state theory of species was discussed.

Heyes, G. B. 1985. Extrapolation's implications. *CRSQ* 22:25-33. This article contains a section on variability and evolutionary extrapolation.

Lubenow, M. L. 1980. Significant fossil discoveries since 1958: creationism confirmed. *CRSQ* 17:148-60. A model for phylogenetic origins was offered. No transitional forms are found in the fossil record which illustrates the creationist postulate of limited variability in nature.

Moore, J. N. 1976. Documentation of the absence of transitional forms. *CRSQ* 13:110-11. Since there are no transitional forms, there is a definite limit to variation.

Moore, R. S. 1965. A study of moss and miniature roses. *CRSQ* 3(4):12-18. Successful development of everblooming moss roses after many years of painstaking work has afforded an excellent example of progress in rose breeding. Yet the result is not due to slow accumulations of minute differences which might be expected according to evolutionary theory. Evidently nothing new has been added, only changes in the DNA message that allow different expressions of already existing genetic material.

Rodabaugh, D. J. 1976. Probability and missing transitional forms. *CRSQ* 13:116-19. The author used statistics to demonstrate that evolution could not occur through micromutations if limited variation is assumed. The conclusion was that transitional forms could not exist.

Schopp, G. M. 1976. Dogs provide no evidence for evolution. ***CRSQ*** 12:220. Dogs provide no evidence for infinite variation.

Smith, E. N. 1985. The role of creation research in modern biology. ***CRSQ*** 22:105-107. The research needed to develop the kind concept was outlined.

von Fange, E. A. 1989. The Litopterna—a lesson in taxonomy: the strange story of the South American 'false' horses. ***CRSQ*** 25:184-90. A historical and scientific review of the supposed evolution of the horse. A reader can detect the failure of the infinite variation postulate again.

Conclusion

Considerable creationist literature is available that illustrates the truth of limited variability in nature. Hopefully creationists will continue to do research on this topic and improve the creation model of science.

SYMPOSIUM ON VARIATION—II

WHAT IS A SPECIES?*

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Abstract

A ***number of examples are given to show that there is no definition of the term "species" applicable to resolve questionable cases. Taxonomists disagree among themselves and change their minds as to what is a species and how many there are in various genera. As an evidence of evolution, taxonomy has a problem with gaps similar to the problem in the fossil record. Hereditary changes within species may represent "natural selection" but not evolution. Since the term species cannot be adequately defined it is not proper to say that creationists believe each species was created separately.***

Introduction

What is a species? Dr. James Fisher (1940) of the London Zoological Society said, "Two animals belong to the same species if such is the opinion of a competent taxonomist." But recognized taxonomists frequently disagree. Charles Darwin recognized the problem and wrote in his ***Origin of Species,*** "From these remarks it will be seen that I look at the term species as one arbitrarily given, for convenience. . . ." No definition of species can be applied to resolve questionable cases—it is a matter of opinion.

There is a popular misconception that if animals or plants can be crossed and produce fertile offspring they belong to the same species, otherwise not. This no longer is recognized as an adequate criterion by most scientists. Dr. Fisher (1940), for example, says,

> Two animals do not necessarily belong to the same species if they interbreed in the wild. There are many examples of distinct species which have increased their range . . . so as to overlap. In this region of overlap they may interbreed, producing a mixed or hybrid population. Nevertheless this does not mean that they are the same species.

Professor Michael F. Guyer (1948) of the University of Wisconsin wrote,

> Ordinarily individuals of the same species are entirely fertile when inbred, and individuals of different species cannot or will not reproduce with each other, but there are so many exceptions to this rule that it cannot be used as a satisfactory distinction.

Species Differences

Sometimes species are separated on the basis of trifling physical differences. Ernst Mayr (1942, pp. 272-73) tells of two species of European birds called brown creepers which differ in that one has a long, nearly straight claw on the hind toe while the other has a short, curved claw. They occur together but are said not to interbreed. He also mentions two species of flycatchers. One has a longer tail than the other, but the difference is so slight that the species cannot be told apart unless the birds are caught and the tails measured.

There are species that are distinguished by detailed internal anatomy. Dr. Carl Heinrich (1956) of the Smithsonian Institution says of moths of the family Phyctidae, "Anyone wishing to identify phyctids must resign himself to a tedium of dissection and slide making." According to Robert W. Pennach (1953) of the University of Colorado, there are some annelid worms in which:

> . . . identification depends on internal details of the reproductive system, and though careful dissections are often adequate, it is frequently necessary to make stained serial sections of the segments containing the reproductive structures. Usually cross sections are sufficient, but some workers advocate longitudinal sections in addition.

Some species are identified physiologically, This is frequently the case in bacteria, where distinct morphological characteristics may be difficult to find. Two species of the single-celled green alga *Chlorella* are identified by measuring their average rates of respiration.

Another phenomenon which may cause trouble for the taxonomist is alternation of generations. In some animals each generation is very different from the one which preceded and like the one before that. The

***Editor's note: This article is an excerpt from the author's book,** *Evolution and Christian Faith.* **1969. Presbyterian and Reformed Publishing. Phillipsburg, NJ.**

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classic examples occur among the jellyfish, but it is found also among some insects and other creatures. Dr. E. P. Felt (1923), state entomologist of New York, said,

> One of the most striking and well established is the well-known alternation of generations in gall wasps, a divergence so marked that alternate generations up to within a few years ago were regarded as belonging to different genera.

There are species of the water flea *Daphnia* in which individuals exist in a single morphological form from October to March, but the rest of the year their offspring look like a multitude of different species.

Number of Species

Birds have been studied from a taxonomic standpoint more thoroughly than any other class of animals. Professor Ruggles Gates (1948, p. 389) of Rutgers University says that the number of species of birds has been reduced, through changes of opinion as to what is a species, from 27,000 to 8,500.

In 1876 Jordan's list of fishes of North America contained 670 species. During the following 10 years 125 newly discovered species were added. That makes a total of 795 species. But during those 10 years 196 species were dropped from the list because it was decided that they were not species after all. So in spite of the discovery of 125 new species the number of recognized species was less by 71.

Mayr (1942, p. 28) mentions that the freshwater clam *Anadonta* was formerly classified in 251 species, but later this was reduced to a single species. In 1931 Swarth studied the ground finches of the Galapagos Islands, and as reported by Julian Huxley (1939) he classified them into five genera and 317 species and subspecies, but confessed it would be as logical to put them all in a single species. David Lack (1947) of Cambridge studied these finches and in his much-quoted book *Darwin's Finches* reduced the genera to four and the species to 14. This seems to have stabilized as Dr. Peter Grant (1986) of Princeton retains the same number in his thorough study. *

It is generally agreed that living human beings all belong to the same species, *Homo sapiens,* but it has not always been so. Professor Gates (1948, p. 406) tells that he with Professor Henry Fairfield Osborn would divide living man into a number of species, while Professor Franz Weidenreich (1946) includes fossil forms within our species. In recent years the Neanderthals have been graduated from *Homo neanderthalensis* to our species, *H. sapiens. Pithecanthropus erectus* and *Sinanthropus pekinensis* have graduated to our genus, *Homo erectus.*

One more example of many may be considered, the case of the despised "poison ivy," which is not an ivy. It belongs to the Cashew Family. From American specimens sent to him Linnaeus separated *Rhus radicans* and *R. toxicodendron* on the basis of whether they climbed or grew as a shrub. Later it was discovered that they are the same thing, which climbs if it has something upon which to climb and otherwise grows as a shrub. Of those who consider it a single species, some call it *R. radicans* and some call it *R. toxicodendron.* One author applied the name *R. toxicodendron* to a different species that grows only along the Atlantic coast from New Jersey southward. Generally four species are recognized, including the "poison oak" of the West, which is not an oak.

*Editor's Note: See Lammerts, W. E. 1966. The Galapagos Island finches. *CRSQ* 3(1):73-79.

Classification

Professor Hooton (1938) of Harvard said, "I am convinced that a zoological classificationist may be as dissolute as a lightning-rod salesman." In more erudite language Professor Mayr (1942, p. 4) wrote,

> Systematics is in a more difficult position than other sciences . . . we have an almost unlimited diversity of opinion in answer to such questions as: What is a species? How do species originate? Are systemic categories natural? [That is, do they show evolutionary relationships or are they merely arbitrary arrangements?] And so forth. There is no uniform point of view among taxonomists; in fact, in regard to many of these questions there may not be even a majority opinion.

New Species

That animals and plants can be classified into various categories because of similarities and with increasing complexity is claimed as an evidence of evolution. But as in the case of the fossil record, there are the glaringly embarrassing gaps. Speciation, if it occurs, does not bridge the gaps and is not the answer. Hence Goldschmidt's lucky monster theory and Gould's punctuated equilibria have been offered.

Have any new species come into existence in historic times? Certain hybrids have been claimed a new species and even a genus, *Raphanobrassica,* a cross of radish and cabbage. It has a top like a radish and a root like a cabbage and it is difficult to maintain. A hybrid merely has a combination of parental genes, and as to evolution it is a blind alley leading nowhere.

The case which has been most widely used to sell evolution to the public is that of the light and dark moths in England. The natural state of tree trunks covered with lichens is a perfect background to conceal the light moths as they rest on the trees in the daytime. The dark moths stand out in contrast and are more easily seen by predatory birds, with the result that there are more light moths in the population. But in industrialized areas the trees have been darkened by contaminants, and the situation with the moths is reversed. Dr. Kettlewell (1959) investigated this and called it "Darwin's missing evidence"! It does illustrate "natural selection," but there is no evolution. The moths are still moths and they are even still moths of the same species. They are not becoming anything else. It is not uncommon for evolutionists to tell students and the public that cases like this represent evolution, and having convinced their audience that this is so, they switch definitions to include what really could be evolution.

Creationists and Species

Another common practice in college textbooks is to say that creationists believe every species was separately created. Since it is evident that specialists in

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

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SYMPOSIUM ON VARIATION—III

IS MORE THAN GENE ACTION REQUIRED TO ACCOUNT FOR VARIATION?

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Abstract

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

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

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

Introduction

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

The Second Factor

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

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

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

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

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

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

It Requires More Than Genes

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

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

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

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

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

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

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

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

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

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

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

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

A Paradigm

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

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

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

Origins

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

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

Variations

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

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

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

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

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

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

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QUOTE

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

Dudley J. Benton

BOOK REVIEWS

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

Reviewed by Wilbert H. Rusch, Sr.*

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

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

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

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

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

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

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

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

Reviewed by Jerry Bergman*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Reviewed by Don B. DeYoung*

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

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

*Don B. DeYoung is Editor of the Quarterly.

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

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

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

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

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

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

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

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

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

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

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

Reviewed by Clifford L. Lillo*

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

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

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

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

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

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

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

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

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

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LETTERS TO THE EDITOR

Article By John Byl

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

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

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

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

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

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

Reference

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

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Yucaipa, CA 92399

Australian Creationist Journal

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

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

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

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

Readers elsewhere can write to me.

Andrew Snelling
Creation Science Foundation
PO Box 302, Sunnybank, Qld 4109
Australia

QUOTE

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

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

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HELP US ESTABLISH THE CREATION MODEL OF SCIENCE

QUOTE

Today's revolt against reason is being fed from several secondary sources, and these in turn stem from a root cause; this latter being the world view of Mechanistic Materialism which has seeped into the Western mentality during recent centuries. Let *me* describe the philosophy called Materialism.

The Materialist is one who professes to have analyzed and assessed the contents of this universe without finding anything genuinely real except material particles. Materialism maintains that, at the primary level, there is no such thing as mind; mental activity is a secondary function of matter. Basically, nothing is real except things which can be weighed, measured, and counted. Materialism is the prevailing ideology, explicit in the Communist world, implicit elsewhere.

Opitz, Edmund A. 1978. The uses of reason in religion. *Imprimis* 7(2):3. Hillsdale College, Hillsdale, MI.

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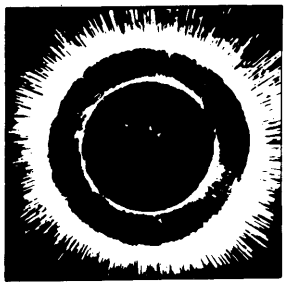

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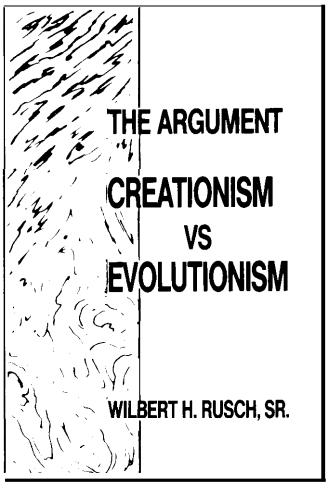

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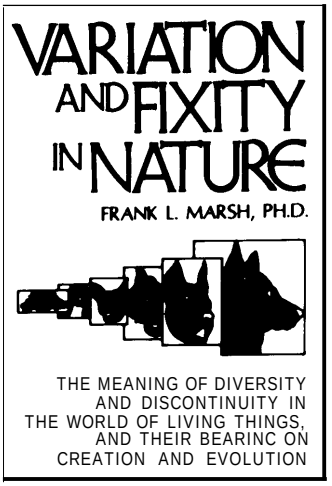

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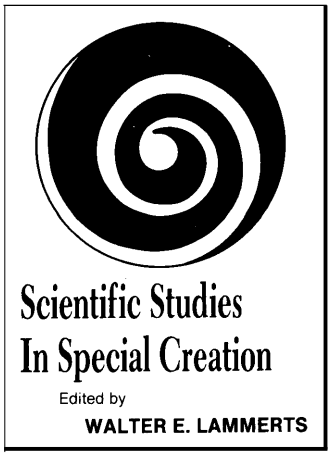

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