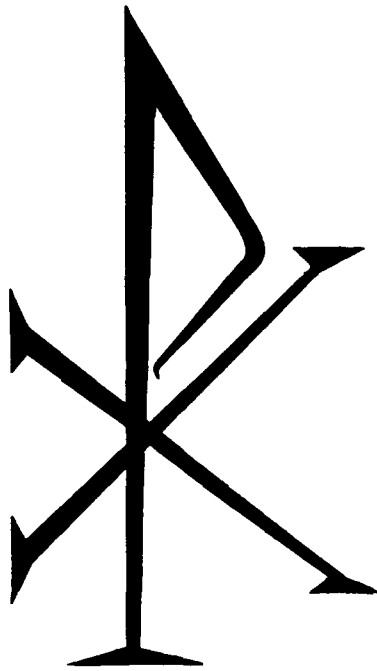


CREATION RESEARCH SOCIETY

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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Wilbert H. Rusch, Sr., 2717 Cranbrook Road, Ann Arbor, Michigan 48104.

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EDITORIAL COMMENTS

Periodically it is good to ask, "Where have we been?" and "Where are we going?" Two articles in this quarterly are aimed at answering these specific questions. Having completed a graduate dissertation on the Whitcomb and Morris book, *The Genesis Flood*, Pastor Charles A. Clough (mathematician and theologian) is in an excellent position to give us a timely view of its impact on Christian apologetics.

Some of us (the present editor included) owe a lasting debt of gratitude to Drs. Whitcomb and Morris for having boldly, yet skillfully, presented Bible Catastrophism as a viable (yet, superior) alternative to uniformitarian theory. The article by Charles Clough is a careful analysis of the Whitcomb and Morris thesis which still stands, the critics having been unable in eight years to controvert its sound Bible logic or its scientific vision.

In this same vein of retrospect, I have attempted to provide a comprehensive investigation of contemporary creationistic botany. It is a summary and a "call to arms" since much more work is needed before we can safely say that a coherent system of botanical creationism has been established.

Uniformitarian geologists claim the fossil rocks are "upside down" for vast areas of Montana and Southern Canada. There Precambrian strata (supposedly very old) lie atop "younger" Cretaceous rocks. Facing this embarrassing evidence, uniformitarian geologists say that the rocks have evidently been twisted and pushed into this unexpected sequence. They propose that there was a long thrust fault which they prefer to call "The Lewis Overthrust."

After careful field investigations in that region, however, Dr. Clifford Burdick concludes that there is no valid evidence to support the thrust-fault hypothesis. His article, "The Lewis Overthrust," asserts that the supposedly "older" Precambrian strata were actually deposited by water on top of the rocks which evolutionists believe to be much "younger"!

We are happy to present this challenging paper as it represents original research on the part of the author. It yields evidence that much of historical geologic theory is in need of drastic revision to make it fit the facts of nature.

Continuing our series of articles on colleges having the creationist view, Dr. Lammerts introduces the reader to another fine institution—John Brown University, in Siloam Springs, Arkansas. It is becoming increasingly more apparent that not all colleges and certainly not all scientists have espoused the evolution theory!

Professor Armstrong demonstrates an amazing gift for reading current scientific journals and finding whole articles or parts thereof which have real significance to creationistic studies. Whether he writes about the importance of a bullfrog's breathing process or the dating of oil reserves, Mr. Armstrong always brings us into easy contact with facts we should consider from current literature.

We hope that the wide variety of both research and review articles in this *Quarterly* will be of use to all our members and subscribers. As always, we plead for manuscripts on creationism or the Genesis flood.

GEORGE F. HOWE
Editor

OUR POSITION : WE ARE JUST OURSELVES

Only a headline or sentence about a person or organization and you have placed the individual or group in a pigeonhole. You need only a little clue and you think you know the appropriate category.

But the Creation Research Society is not to be classified by listening to those who wish to work with us. We cooperate with others who have the same aim (if this be true) but not by official connection. We have **no formal ties** with Elmer B. Sachs & Associates, the Bible-Science Association, the American Scientific Affiliation, or any other organization. In union there is strength, but in separate organization there is clarity of purpose.

We hereby make it clear that we are not a political society and do not attempt to influence legislation. We oppose the teaching of evolution because it is not as adequate an explanation of

the facts of nature which we, as scientists, have learned in our study. Furthermore we wish to keep our status as a non-profit organization so that our friends will not be taxed on gifts made to us.

Laws against the teaching of evolution are not effective and could be enforced fully only in a police state. Instructors teach what they believe. It is the prerogative of the Creation Research Society to point out to them in detail that planning and forming by an intelligent Creator is a more reasonable interpretation than the chance events which occur in nature.

Written at the direction of the Board of Directors of the Creation Research Society assembled at Ann Arbor, Michigan, May 24, 1969.

WILLIAM J. TINKLE
Secretary

COMMENTS FROM THE PRESIDENT

As this is written, many headlines are still eulogizing successful completion of the Apollo 11 mission and initial exploration of the surface of the moon by astronauts Armstrong and Aldrin. Geologists have begun their examination of the lunar rock samples and other scientists are awaiting their identification of these rocks with great interest.

The scientific achievements which have enabled America to attain this tremendous goal are certainly worthy of highest commendation. It is noteworthy that many of the space engineers and scientists who have contributed to this program have been Christians—in fact, several are members of the Creation Research Society.

Of course, there has been a tremendous concentration of technical talent and government appropriations in the N. A. S. A. complex, without which such an achievement would have been impossible. The only parallel is the similar concentration of funds and manpower under the nation's atomic energy program, which culminated in our modern nuclear weaponry.

With all due honor to the ability and dedication of the individual scientists and engineers who have worked in them, these programs, as a whole, however, may prove ultimately to be mixed blessings. Nuclear warheads, for example, though a necessary evil in today's world, can hardly be considered one of technology's best contributions to the benefit of mankind.

Many Christians experience similar uncomfortable feelings about the space program. President Nixon's enthusiastic recognition of the Apollo 11 mission as the "greatest week since creation" (ignoring even the One who "came down from heaven" and "ascended up into heaven" two thousand years ago), and Vice-President Agnew's instant advocacy of a "man-on-Mars" program (implying financial and technological concentrations many times greater than those in the lunar program) have not alleviated this queasiness.

The stated purposes of the space program have always been rather nebulous. Military advantages of lunar exploration are certainly minimal, although orbiting space platforms and I. C. B. M.'s on which Russia seems to have concentrated certainly do have military significance. Possible mineral or other resources on the moon are highly uncertain and the cost of developing them would hardly be competitive even if they do exist.

The goals, therefore, seem mainly to be cosmogonic in nature—that is, men are hoping somehow to learn more about how the moon was formed, and therefore more about the origin and "evolution" of the solar system and even of the universe. They hope even to "prove" somehow that life exists, or has existed, in other worlds! These evidently are the real goals of the space program.

Theories on these matters have been published in abundance for many years. One can safely predict that a number of additional theories will result from the analysis of the moon rock samples, and that these will be, as usual, developed around a multi-billion-year framework of slow evolutionary change. But there will always be just enough uncertainties to justify spending more billions of dollars to find a few more clues somewhere else on the moon or the planets or the stars.

I suppose it is naive to suggest to N. A. S. A. that the possibility of special creation should at least be considered! According to Scripture, "by the Word of the Lord were the heavens made; and all of the host of them by the breath of His mouth" (Psalm 33:6). "For in six days the Lord made heaven and earth, the sea, and all that in them is" (Exodus 20:11). The record of creation in Genesis indicates that the sun and the moon and "the stars also" were made on the fourth of these six days (Genesis 1:14-16). Furthermore the divine purpose for the sun and moon was that they might "give light upon the earth," and to be "for signs and seasons, for days and years."

This, of course, is all too simple and too teleological for the modern scientific establishment even to consider as a possible hypothesis. It involves the necessity of belief in a complete, mature, perfect creation of all things by an all-powerful, all-wise, all-gracious Creator. It also leads to faith in the One who, even now, "upholds all things by the word of His power" (Hebrews 1:3). And modern scientism rejects such concepts as these.

Nevertheless, the actual observed, known facts of aerospace science correlate better with the special creationist model of cosmogony than with any evolutionary model. To that small, but increasing, group of scientists who do believe in special creation, and in the integrity and perspicuity of God's revelation thereof, assuredly "the heavens declare the glory of God and the firmament sheweth His handiwork" (Psalm 19:1).

HENRY M. MORRIS,
President

EIGHT YEARS AFTER: EFFECT OF THE GENESIS FLOOD¹

CHARLES A. CLOUGH*

Because the book, The Genesis Flood, by Whitcomb and Morris has been such an outstandingly controversial call for Biblically-based historical science, criticism against it since its publication in 1961 is of direct interest to believers in the Flood as "an historic event world wide in its extent and effect." Study of its main points and logical development versus negative criticism reveals that it remains unscathed by eight years of controversy. The Christian camp is more clearly divided than before in the face of the realization that only two options are left: altering present geology or totally removing the Bible from history.

Introduction

It has been eight years since The Presbyterian and Reformed Publishing Company issued what has become one of the most passionately discussed apologetic works within so-called fundamentalist circles, *The Genesis Flood* (hereinafter referred to as *TGF*). Although previous books had promoted a world-wide catastrophic Flood^{2,3,4,5} none so stirred the emotions as this thesis by Professors Whitcomb and Morris:

Either the Biblical record of the Flood is false and must be rejected or else the system of historical geology which has seemed to discredit it is wrong and must be changed. The latter alternative would seem to be the only one which a Biblically and scientifically instructed Christian could honestly take.⁶

Many of the Christians who had strong negative reactions insisted there was no need for such a sharp "either-or." Roberts complained:

The person who is just as committed to the inerrancy of scripture [sic], but who disagrees with the Morris-Whitcomb system, thus brands himself as both Biblically and scientifically uninstructed!

LaSor, a professor of Old Testament, wrote: This is an exceedingly difficult book for me to review for while I find in it much with which I am in entire agreement, I strongly oppose the methodology and the dogmatism in which it is presented. . . . The authors begin with the conviction that the Bible teaches a planet wide flood. This conviction is immediately transferred into a dogma from which no "Bible believer" is permitted to differ.

Thereafter in the book, the question is assumed to be closed. . . . As it stands, I fear it will drive some young people further from their Bible, it will serve to divide Christians even more into two camps. . . .⁸

Fear of what *TGF* would do to the young people was also expressed by Ault:

It could lead to the unfortunate result of retarding the development of true Christian scholarship in the younger generation. . . . It will be most unfortunate if the book is accepted uncritically by Biblical scholars and teachers.⁹

Since the authors' insistence upon such an "either-or" conclusion stood upon prior logical steps,¹⁰ one would have expected negative critics to attack these, not the end product of a well developed line of reasoning. There were two basic steps involved in reaching this conclusion: (1) the Bible teaches nothing but a global Flood; and (2) such a global Flood is irreconcilable with existing historical geology. Yet even after six years of criticism, Morris could still write:

We advocate a worldwide and physically significant flood not because of science but because God's Word teaches it. Our entire argument, we feel, devolves upon the Scriptural exegesis, and *this is exactly the point which critics have seemed always to ignore.*" (Emphasis supplied)

In the text of *TGF* this claim emerged sharply: No problem, be it scientific or philosophical, can be of sufficient magnitude to offset the combined force of these seven Biblical arguments for a geographically universal flood in the days of Noah.¹²

But surprisingly, when one studies reviews of *TGF*, none include refutation of the geographical universality of the Flood on an exegetical basis. Where this leaves us eight years after will be outlined in this paper.

Universality of the Flood

In a recent study¹³ this writer showed that the three strongest arguments for the universality of the Flood presented in *TGF* were: (1) the depth-time argument, (2) the Ark size and purpose argument, and (3) the apostolic commentary in II Peter 3:5-7. These are of fundamental importance because they force the whole universality discussion onto a specific base, viz., in lieu of any serious counter argument for a local Flood engaging these three definite elements, the universality question is closed in spite of LaSor's hesitation.

*Charles A. Clough is pastor of Lubbock Bible Church, 3202 34th Street, Lubbock, Texas, 79410. He graduated from the Massachusetts Institute of Technology with a B.S. in Mathematics, and from Dallas Theological Seminary with the Th.M. degree. Also Rev. Clough has completed work (except the thesis) on an M.S. degree in Meteorology at Massachusetts Institute of Technology.

Depth-Time Argument Prior to *TGF* most discussion about universality centered upon the relative ambiguity of the Hebrew word for “all” (*kol*). But instead of grounding their argument upon *kol*, the authors of *TGF* based it upon the depth given in Genesis 7:19-20: “And the waters prevailed exceedingly upon the earth; and all the high hills, that were under the whole heaven, were covered. Fifteen cubits upward did the waters prevail, and the mountains were covered.”

If only *one* (to say nothing of *all*) of the high mountains had been covered with water, the Flood would have been absolutely universal; for water must seek its own level—and must do so quickly!¹⁴

One can further strengthen the argument by setting lower limits to the phrase, “under all the heavens.” What is the minimum area that could properly be described? Usage in Deut. 2:25 and 4:19; Job 28:24, 37:3, and 41:11; Dan. 7:27 and 9:12 shows it never refers to an area smaller than several hundred miles wide. Even in Deut. 2:25, many tens of thousands of square miles must be included (cf. Exod. 23:20-33; Deut. 11:23-25).

Given such a minimum area, where in the ancient Middle East can one place the Flood without including at least some points of land several thousand feet above sea level? And if these points must be covered, particularly for several months at the very minimum, there must have been a global inundation. Thus, even when one leans over backward granting all sorts of concessions to local floodists, the Scripture data still require a universal Flood.

Ark Size and Purpose Again an often overlooked feature is brought out in *TGF*.¹⁵ Far from the problems of too little space in the Ark there is the problem of too *much* space. Since only eight humans and only two of each animal kind (Hebrew *min*) were taken, except for the sacrificial animals, the Ark must have been built for the salvation of a tremendous section of the animal kingdom from a global Flood.

One might try to neutralize this argument in one of two ways: (1) Reduce the Ark volume by reducing the cubit scale. But there is no evidence for a reduced cubit. (2) Claim the animals were for food. But the wide spectrum of many different kinds plus the Hebrew infinitive of purpose, *lehacheyot* (“to keep alive”), in Gen. 6:19 and 7:3 must then be explained.

Apostolic Commentary in II Peter 3:5-7 Although this New Testament passage has been used to prove universality at least as far back as Thomas Burnet’s *Sacred History of the Earth* (1681),¹⁶ there has been a strange lack of treatment by local Flood proponents.

In 1955, for example, Ramm never bothered to

list this passage in his index to *The Christian View of Science and Scripture*, preferring to remark hastily, “An examination of the New Testament references to the Flood are not conclusive, one way or the other, but permit either a local or universal flood interpretation.”¹⁷ Since *TGF* resurrects this passage and since no critic ever has dealt with II Peter 3, one can presume it is a final evidence.

Some Christians still may try desperately to present the Bible as teaching a local Flood, but they do not convince even those not directly concerned with exegetical niceties. Cassel, a Christian zoologist, once reflected on how a Bible teacher will “fudge” his exegesis when dealing with passages like the Flood narrative:

I still wonder whether he’s given me more time [in the genealogies and Genesis 1] because I demand it, or because it’s really there. *The same question applies to the days of Genesis 1 and to the universality of the Noahic Flood.*¹⁸ (Emphasis supplied)

TGF authors skillfully quoted the sardonic observation of T. H. Huxley: “A person who is not a Hebrew scholar can only stand aside and admire the marvelous flexibility of a language which admits of such diverse interpretations.”¹⁹

Irreconcilability of a Universal Flood

After definitely proving the universality of the Flood, *TGF* authors next showed that it was irreconcilable with present historical geology. It was this step that generated the sharp “either-or” mentioned earlier.

One would expect critics to rebut by showing positively that a universal Flood is reconcilable with current historical geology. However, critics either flay away at the authors for daring to suggest something is wrong with historical geology or when they do harmonize they deny universality. Both rebuttals logically are irrelevant to *TGF* thesis.

Amidst criticism of the authors’ polemic and presumably, ungentlemanly style, one reads:

Those who dwell inside the house of geological science have been in the process of remodeling it continuously ever since it was built. Now Henry Morris and John Whitcomb have come along insisting in the name of the Master Architect that the whole thing is on a shaky foundation and must be bulldozed to the ground. Detailed plans for the fine new edifice which should be built in its place, they claim, were found by them in the pages of the family Bible.²⁰

Only very recently a physicist and a geophysicist while making legitimate criticism of Patten mentioned that they did accept the “possibility”

of a global flood but declined to offer a hint as to how this was possible, given the existing framework of historical geology (which they also mentioned "was basically correct").²¹

Occasionally one observes an attempt to harmonize within the present geological system such as Tanner's in 1961. This evangelical geology professor proposed that the Flood was "a disastrous river flood coupled with a rise and advance of storm driven water and an extended torrential downpour of rain."²² This, he claimed, "was the best a geologist can produce"²³ and meets "minimum Biblical requirements."²⁴ The maximum allowable depth would have been 15-20 feet and did not affect land over 100 miles away.

Obviously, according to Tanner, the 300-400 foot mounds along the Euphrates would not have been half-covered to say nothing of the apparent 22 foot draught of the Ark being overcome. He avoided discussion of Genesis 7:19-20, II Peter 3:5-7 or Ark size. If this is "the best a geologist can produce" it would be fair to agree wholeheartedly with *TGF* authors as to the irreconcilability of the Bible and present historical geology.

Only Two Options Left

When one encounters a logical contradiction between two statements there are three things that can be done to relieve the situation: (1) alter the first statement; (2) alter the second statement; or (3) deny logical antithesis. Local Flood proponents have tried to alter the Scriptural statement of universality, but they have failed. Thus only two options remain open.

Altering Present Geology One is staggered intellectually by even considering such a thing. Whitcomb and Morris were not unconscious of this:

It is certainly recognized that not all questions have been answered or all problems resolved. A complete reorientation of all the enormous accumulations of pertinent data and interpretations would take . . . several large volumes at least, and would require the intensive efforts of a great number of specialists trained in the various areas of geology and geophysics. But the Biblical framework can at least point the way for such studies, and it provides the basic key with which all such problems *can* ultimately be resolved.²⁵

Few reviewers ever noticed this statement.²⁶ It is puzzling also to notice a stubborn reticence on the part of many scientifically trained Christians to take even the first preliminary steps in this direction. Such reluctance can only be explained by lack of appreciation of Scriptural declarations of universality or an unconscious toying with the idea of denying antithesis.

Denying Antithesis By denial of antithesis here is not meant that such people reject the logical concept of "either-or," but that they deny that Biblical statements of historical events can ever contradict scientific reconstructions of those events. There is a bifurcation of truth into two categories—Biblical truth (meaning of events) and historical truth (events in themselves). This is deeply related to modern trends in philosophy and theology.²⁷

The Flood story retold over the ages, with a gradual accretion of distorted details until it was finally cast into its present form is the position commonly taken. We are not to read details, only the meaning (however that can be determined without reference to details). Liberals have treated the Flood this way for at least 100 years.²⁸ Representative of this approach is the treatment by Prof. Rahtjen in his recent Bible guide for laymen, now being used in many liberal churches:

Those who saw the event and wrote the story knew nothing about science or natural law. They were not the least bit interested in the "how" of what happened. They were interested in the *meaning* of the event. . . . If changing or rearranging the details of the story made the meaning stand out more clearly, then the changes were made.²⁹

In a modern day example one thus might fail to notice whether the TV were on or off at a certain time because he had no awareness of how a TV works. Lack of ability to explain automatically causes sloppiness in observation. Such hypothesized observational naivete on the part of ancients, however, is wholly unfounded. Indeed the evidence is quite the other way.

Consider the tests given to false prophets in Deut. 13:1-3 and 18:20-22 and the Philistine experiment with the Ark of Jehovah in I Sam. 5-6. Reflect upon the evidence recently compiled by Forbes³⁰ and Neugebauer.³¹ Boman has vividly described the Hebrew interest in details:

When an Israelite sees an edifice, his consciousness is at once concerned with the idea of how it was erected. . . . *What interests the Israelite, therefore, is how the Ark [Noah's] was built and made.*³² (Emphasis supplied)

Observational details were important to the Hebrews.

It often is difficult to tell whether there is an unconscious entertaining of this "anti-antithesis" thinking or a lack of appreciation for exegesis that prompts Christians to insist upon the truthfulness of a current scientific model over against Biblical data. Dr. Bube wrote, for instance:

There is a case of confrontation between Biblical and scientific interpretations of a physical mechanism that scientific investigation has

elucidated, in opposition to a physical mechanism derived from an interpretation of the Biblical record; in this case the mechanism derived from the scientific approach has a high probability of being the correct one. This is because the scientific investigation of mechanism in the natural sphere is the proper area for scientific work, and because the search for physical mechanism in the Biblical record is seldom a proper activity.³³

Is this really the issue? It seems the issue is not one of mechanism versus mechanism, but of mechanism versus certain observational data, at least in the case of the Flood.

If one is serious about exegesis and refuses to deny antithesis, then certainly the observations in Genesis 6-9 of what happened, *independently* of any understanding or lack of understanding of mechanism by the Biblical writers, must be as acceptable as any other "fact" used in constructing historical models. Not to accept such data in the basic stages of model formation is tantamount to banishing the Biblical narrative from history along with the liberal deniers of antithesis.

Conclusion

Eight years after *TGF* the foreboding of LaSor has come true. Christians have been further divided into two camps.

One camp represented, but not exclusively so, by the Creation Research Society, has opted to begin the long arduous task of reappraisal of all data within a Scriptural framework of history. The other has chosen to refrain from so doing either because representatives have not yet realized the impact of the universal nature of the Flood in the Bible, or they have decided not to take seriously the historical data of Scripture.

At no point during the ensuing eight years has one critic disproved the main thesis of *TGF*, viz., "Either the Biblical record of the Flood is false . . . or else the system of historical geology which has seemed to discredit it . . . must be changed."³⁴

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- ¹²Whitcomb, *Op. cit.*, p. 35.
- ¹³Clough, *Op. cit.*, pp. 41-58.
- ¹⁴Whitcomb, *Op. cit.*, pp. 1-2.
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- ¹⁶Discussed in Haber, Francis C. 1959. *The age of the world: Moses to Darwin*. The Johns Hopkins Press, Baltimore. pp. 71-83.
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CREATIONISTIC BOTANY TODAY: A PROGRESS REPORT

GEORGE F. HOWE*

The field of creationistic botany is like a stately forest that long ago experienced fire and now has begun to sprout again. The fire in this analogy is a destructive blaze that was ignited by Charles Darwin and others over 100 years ago. In the wake of this ideological holocaust, only a few lonely voices were heard to speak a message different than the monotonous crackling of "natural selection" and "survival of the fittest." These creationistic botanists stood something like thick-bark trees that escaped the raging of the flames. Now the fire has flickered and the air has begun to clear so that a regrowth of a new and better concept is seen upon the scientific horizon.

This article is presented as a survey of the creationistic revival in scientific botany. It is like a field trip into the present landscape of theoretical science. It is intended to show at once the vigor of various research avenues, and to designate the areas that yet need to be replanted if a balanced forest of creationistic concepts is to flourish. If this essay encourages only one new person to embark upon a creationistic study of plants (to sow new seeds where soil has long lain fallow) it will have been written to some avail.

History of Botanical Creationism

It would be a worthy and lengthy topic in itself to call the roll of those who have championed creation science from 1859 to this present time. It will be enough here, however, to see some general trends and pay honor to a few key individuals.

Before evolution theory achieved popularity, the history of creationistic botany was the same as the history of plant science itself. Yet most books that present the history of theoretical biology speak largely or only of the history of evolution.

Like a cool drink in a barren waste, Frank Marsh's book, *Studies in Creationism* has bountifully supplied information on this neglected phase of science history.¹ Marsh made a major stride in providing detail of early creationist thought of churchmen and later of such giants as John Ray and Linnaeus.

It is to the discernment of John Ray that we owe the concept of the Dicotyledonae and the Monocotyledonae groups within the category of flowering plants. Ray correlated whole clusters of characteristics that were present in plants he designated as monocots—parallel veins in the leaves, one seed leaf or "cotyledon," flower parts generally in threes or multiples of three, and vascular bundles scattered throughout the stem.

He noted conversely that dicots have netted veins, two cotyledons in the seed, flower parts generally in fours or fives, and vein bundles neatly arranged in a ring near the periphery of the stem. These coherent groups are still upheld by taxonomists of our day.

Great botanist and diligent student of the Bible, Ray wrote a book which some believe to be the main force that prevented the scientific world from slipping into the abyss of evolution

for over 200 years—*The Wisdom of God Manifested in the Works of Creation*.² Of this book, John Green wrote, "Profoundly non-evolutionary in character, it was to constitute the chief obstacle to the rise of evolutionary views."

Following Ray and surpassing him in scientific genius was the Swedish botanist, Carolus von Linnaeus. This eminent scientist correctly judged that plants were formed by the Creator according to their species—more or less as we see them today. As an older gentleman of science Linnaeus envisioned minor changes in the groups of plants, but he always recognized the factual limits of variation. By attending to details and resisting imaginative fantasies, he laid the foundation for all botanical taxonomy that has followed.

Louis Pasteur was an open opponent of spontaneous generation in the origin of bacteria and his classic experiments heaped mountains of evidence against the theory. The fact that Louis Pasteur was a creationist is quite true, but not widely acknowledged in our day. A brief study of his biography indicates that he had deep faith in God as the Creator of life—particularly life in the world of little "germs" he delighted to study in his profoundly fruitful research.³

After publication of *The Origin of Species*, the thread of botanical creationism was almost obscured from vision as leading scientists scurried to apply this dogma to every realm of natural science. Few people have attended with objectivity to the records of creationistic thought between 1859 and 1920, and literature on creationism after Darwin usually centers on two specific boundary periods.

At one end of this span, around 1860, much is known of the immediate refutations to Darwinianism presented by the able geologist, Sedgwick, and others. We are indebted to Robert E. D. Clark for a penetrating analysis of the crossfire in those early days.⁴ Frank Marsh tells

*George F. Howe, Ph.D., is Chairman of the Division of Science and Professor of Biology at Los Angeles Baptist College, Newhall, California 91321.

us of the timely challenge valiantly spoken by Louis Agassiz in the face of the Darwinian onslaught—a weird variety of creationism in which many catastrophes and recreations were postulated.

Creationist Opinion Revived

At the other end of the time period, beyond the year 1920, one can find considerable data surrounding the recent revival of creationist opinion. The record of this re-growth must center on at least four scientific societies that have germinated.

First, the Evolution Protest Movement began to function formally in the year 1932 and has produced since then an unending series of pamphlets and books which report the work and ideas of creation scientists.⁵

Second, a Canadian counterpart of this group, known as the International Christian Crusade, although the society is not limited to matters of science, has prepared a priceless little handbook packed with anti-evolution arguments quoted from leading scientists. This small compendium is of such high merit and such low cost that it should be distributed widely.⁶

Third, the Creation Research Society appeared in 1962 as 10 men of science decided that an organization particularly dedicated to the publication of the creationistic data was long overdue in America. A survey of its brief history has been written.⁷ Although articles deal with many areas of natural science, all published material of the Creation Research Society supports Genesis in some way as an inerrant, scientific record. Among other things, each member of the society is committed to the propositions that:

All basic types of living things, including man, were made by direct creative acts of God during the Creation Week described in Genesis. . . . The great Flood described in Genesis, commonly referred to as the Noachian Flood, was an historic event worldwide in its extent and effect.

Although it has other fascinating projects, the Creation Research Society specializes in producing one *Annual* and three scientific *Quarterlies* each year for professional scientists and interested laymen.⁸

Fourth, the Bible-Science Association originated in 1963 as an attempt to provide laymen with a scientific basis for Bible creationism.⁹ This group publishes a valuable newsletter which features articles that relate to special creationism in particular or to Bible inerrancy in general.⁹ The Bible-Science Association has been a promotional organization also, specializing in creation seminars and creation radio broadcasts over many stations across America.

Still other societies of this type exist in America or in the world at large because creationist thought has come again into broad daylight. Some of these societies are omitted here simply because the present author is not directly informed. Other Christian scientific groups are presently disregarded because they are in no way committed as organizations to miraculous creationism as opposed to theistic evolutionism, and their publications must therefore be selected on the merit of individual papers. But the point we presently ponder is that at least four creationistic societies have emerged within the last 40 years, two of these within the last 10 years.

Specific information exists about the post-Darwinian decade and also about very recent trends of creationism, but only meager word is found about the time between. John Moore, however, has examined the literature of science and found many authors during the center decades of this 100 year span, who have either questioned evolutionary theory or come out strongly in favor of special creationism.¹⁰

George Price in his revision of theoretical geology to conform with Noah's flood has done worthy spadework on a creation viewpoint of fossil plants. Great names like Agassiz, Price, Bryan, O'Toole, Dewar, Rimmer, and others come as echos in the corridors of creationist time, but a more extensive study of the historical thread is needed.

Creationistic Plant Physiology

Plant physiology is that branch of the botanical tree which attends to the life processes. Physiologists analyze such phenomena as the movement of materials throughout the plant, or the way the plant makes its food from carbon dioxide and water in the light (photosynthesis.)

Many people who study plant physiology believe the evolution theory, but seldom mention it as a working part of their research projects. I believe this silence stems from the fact that physiologists are primarily bent on solving immediate, practical problems of plant function.

I also maintain that the evolution theory is of little real value in their work for evolutionism has made little if any vital contribution in the work-a-day world of biology. A seed germinates, grows, and develops into an adult plant despite whatever evolution theory proposes about its ancestry in ages past.

It is for this reason that evolution has had its greatest popularity among theoretical botanists while it is seldom mentioned in the experimental work of bioengineers, biochemists, physiologists, or medical doctors. Some of these same workers appear to weave the theory into their discussion now and then, apparently out of some deep sense

of loyalty or obligation, but the involvement usually amounts to a non-essential postscript.

The Bible and Plant Physiology

By the same token, however, one may ask what role creationism may play in plant physiological study? We may investigate the statements of the Bible itself and see if they square with modern knowledge of plant life and nutrition. Such comparisons invariably show absolute Bible inerrancy on the subject of plant physiology.

Consider the process of photosynthesis in which carbon dioxide gas and water from the soil combine within the plant under the influence of sunlight energy to form sugar—the basis of all plant and therefore animal nutrition. Ancient writers who lived even after Bible times held false notions about plant food. For example Vergil believed that plants take their food directly from the soil.¹¹

The Bible does not mention photosynthesis as such, but its statements about plant food are amazingly correct. The Bible indicates that sunlight plays a role in plant food synthesis, ". . . precious fruits brought forth by the sun," (Deuteronomy 33:14). Also water is essential in food synthesis according to Isaiah 44:14b, ". . . he planteth an ash and the rain cloth nourish it."

Finally, plants do not actively gather food as animals do. Plants do not even pump their food from the soil, as Vergil imagined. They simply remain in one spot under the sunlight and passively produce their sugar. Notice how exceedingly accurate Christ's words were concerning this aspect of the physiology of a lily, ". . . they toil not, neither do they spin," (Matt. 6:28). Other examples of Bible accuracy in physiological matters exist and creationistic botanists can be active in showing that true science and the Bible record have perfect fit.

The Bible and Research Problems

Creationist botanists may begin to explore some of the apparent problems that plant physiology poses for the Bible account. For example, land plants are known to die readily when submerged for long periods under water. Since no mention is made of provision by Noah for plant specimens on board the ark, how could they have survived through the flood?

One investigation of this sort was aimed at testing the ability of seeds from various plants to germinate after soaking in fresh or ocean water. After soaking for 140 days in either fresh tap water, ocean water, or a mixture of the two, seeds from three out of five species of weeds germinated quite well!¹² This would indicate that the flood posed no real problem for survival of some seed plants. Furthermore, as pointed out in

the article, seeds may have been preserved on the ark and planted or unknowingly disseminated by Noah after the flood. Further analyses are needed to see what means of survival the olive tree might have so that it could sprout after the waters abated from the land.

Physiologists and ecologists who revere the Bible may take time to portray the great cycles of nature as resting on the providence of Almighty God. Is it not "fortunate," for example, that cellular respiration in plants and animals balances out with photosynthesis in plants to maintain percentages of oxygen and carbon dioxide in the air relatively constant? Physiological evidences of God's care should be put into proper perspective.

Plant physiological studies indicate that such plants as the tomato can thrive effectively in air that has as much as 10 times more carbon dioxide than our present atmosphere. Does this indicate that possibly carbon dioxide levels before the flood were somewhat higher than at present?

Donald Patten has dealt with this whole topic in his book¹³ and elsewhere by proposing an antediluvian water vapor canopy that existed above the earth before the global flood. He assumes that the atmosphere before the flood contained about six to eight times as much carbon dioxide as our present atmosphere. He believes that burial of much vegetation to form fossil beds during the flood, together with precipitation and dissolving in colder oceans significantly modified the carbon dioxide level of the atmosphere after the flood—profoundly affecting both the density of plant life and the global climate.

These and many other practical questions await those who like Donald Patten use the Bible seriously in the discipline of plant physiology.

Botany and Design

Some scientists today dwell upon the intricate engineering design manifest in plants and yet assume that chance alone has yielded these complex systems. If we turn now to the world of human literature we will find a helpful analogy. No critic would write a glowing account about a splendid novel and fail to mention the novel's author or worse yet, act as if the novel had no author. This would be classed as a gross breach of etiquette bordering on plagiarism. Similarly, scientists who scrutinize living plants should give at least a "credit line" now and then to the One who by His Decree established the orchids, the algae, or the clubmosses which they borrow for their work.

Creationistic botanists see plants as automated food factories patented by the Master Technician. More than 100 years ago the "Bridge-water Treatises" set the style for this kind of endeavor for they were written by members of

the Royal Society of London to give glory to God for His exquisite handiwork in nature.

Detailed structure of living things points definitely to design in creation in such clear manner that some who would desire another explanation are overwhelmed by the evidence. As Bolton Davidheiser reports, Charles Darwin wrote once to a friend that he had just been studying a peacock's feather and it made him sick.¹⁴ Darwin became ill because he knew that the beauty of color and harmony of organization in a peacock's tail feathers leads directly to God and creation and away from Darwin's own feeble theory of development.

In a book that is well written and delightfully illustrated, Harold Clark has reviewed the argument from design in form that both child and adult will appreciate.¹⁵ In trees, deserts, and seeds with wings, Clark shows evidence of detail planned by a Mastermind. He delves into such wonders as pollination of flowers and the balance between the yucca moth and the yucca seeds.

In his creation book, Fred J. Meldau points to leaf arrangements on a stem and to the internal structure of walnut shells as designs which demand a designer.¹⁶ He deals with the miracle of cross pollination and other teleological subjects.

John C. Monsma edited a book in 1966 which had the express purpose of showing that God is the Author of all life and that there are many unsolved riddles of design in nature.¹⁷ Many chapters deal with biology and some are units that entail design of plants, as the following:

(a) In the chapter, "Only God Can Make a Tree," wood chemist Leonard Burkart glories in the structure and function of the cambium growth layer. He wrote, "The more I delve into the fantastic complexity of wood, the more I am led to believe that there is a very wise and thoughtful Creator-God back of it all."

(b) In another chapter Paul Bartels gives credit to God for the detail of seeds and chloroplasts.

(c) Joseph Klingensmith pays tribute to the Lord for forming plants that yield sugars, oils, proteins, and cellulose in what is an apparently effortless production!

(d) Lawrence Walker redeems the domain of forest ecology by giving God the credit for the balance found in a rich forest. He sees science as "... but a feeble, blurred, and highly unsteady reflection" of the Creator's wisdom.

(e) William Vanden Born speaks of natural laws which govern plant processes as Gods laws.

Other Authors See Design

In books and papers, Evan Shute¹⁸ has dwelt on the mechanism for movement in the curious sensitive plant. He marvels at the extravagant

variation of design found in the flower parts of various orchids and concludes that such features demonstrate the virtuosity of God.

In his chapter, "Nature the First Inventor," Robert E. D. Clark points to the amazing structural design seen in a stem where bundles of high tensile strength alternate with connective tissue that allows compression.¹⁹

William Tinkle looks with amazement at the intricate petal structure of the delicate Dutchman's Breeches blossom.²⁰ Evolutionists attempt to state in generalities that flowers descended from leaves on branching stems. Yet this fascinating flower grows on a leafless stem and thereby defies evolution and testifies to the reality of a personal Creator God.

Herman Schaars has authored articles expressing praise to God for the design found in both plants and animals. His article on the golden rod flower is instructive in that it clears the record in favor of this plant as not causing hay fever but providing much pollen and nectar for hungry bees.²¹ In this same series entitled, "Nature and Nature's God," Schaars has shown the providence of God as reflected in the productivity of the olive tree.²²

Among the approaches that creationistic botanists have used, the argument for creation from Design in plants has been well stressed. Yet there is need for more of this writing. There are numerous wonderful adaptations in plants which ought also be labeled as products of God's own hand.

In the past, creationists writing about design have largely used information available to them in papers or botany textbooks already published. Perhaps in the future God will endow some gifted, creationistic botanists to report for the first time on aspects of plant structure or function which are as yet unknown, and to print the praises of God right in their original published reports! If this were so, then other interested botanists who desired to read or use such information would have to listen as creationists reveal new details of structure and also glorify their God in the same research reports.

Paleobotanical Creationism

The best direct research on the beginning of plants would be to wait and watch while they appear. Re-living the creation of trees and shrubs would settle the controversy of their origin. A good instrument for this study would be a "time-machine" of some sort, equipping our experimenter to reverse the clock!

Other than such science fiction devices, our next best form of evidence about the origin of plants is the ancient plant material which has been trapped in the layers of rock and preserved as fossil substance. Before considering such ma-

terial, we may ask what guidelines the Bible provides for reviewing a fossil world.

"Fossils" are not mentioned anywhere in the Scriptures. Such lack of information does not mitigate against the accuracy of the Bible for we know that a true book does not need to be an exhaustive one. There are many things not covered in the Bible—a fact Bible writers knew quite well (John 20:30). Omission of mention of fossils in the Scripture also means that our understanding of fossils will always be part of "science" and thus be subject to human errors of observation or evaluation.

A thorough knowledge of Genesis will equip creationistic botanists to approach their fossil studies with an appreciation for the dynamics of earth history. Secular colleagues sometimes lack this key to visualizing the buildup of the strata. On the basis of a global flood, many fossil beds were probably formed during and shortly after the deluge.

Bible botanists can question the "creeping concept" of uniformitarianism which demands vast ages for evolution and fossilization. They can challenge this human ideology which has controlled geological thought for more than 100 years, and offer a more reasonable alternative in the form of "flood geology." Creationists are free to think for themselves about fossils on the basis of God's Word and the strata alone.

Fossil Gaps

Do fossils show links of plant "evolution"? Fossils of large and small groups are recorded in the earth as if they were not related to each other or to any other living forms. One need look no further than the evolutionary writings to prove the reality of numerous gaps in the world of fossil plants, as Howe has indicated.²³

D. H. Scott aptly described the origin of flowering plant groups by asserting, "They seem to appear suddenly, in their full strength, like Athene sprung from the brain of Zeus. We know nothing of their evolution."²⁴ Creationists contend that the reason we know nothing of plant evolution is that plants never evolved!

The discontinuous character of the plants is not limited to the types of flowering plants common in our yards and gardens, but also applies to other plant groups such as ferns, mosses, hornworts, Lycopsids, and Psyllopsids—forms seldom mentioned outside the limited studies of a botany course.^{23,24,25,26,27}

In extensive studies, Heribert Nilsson has noted that there is no fossil evidence to support the evolution of any plant group.^{24,28} In a monumental treatise he asserts that plants did not evolve but "flared up" in a non-evolutionary manner.²⁸ Review papers covering this same evi-

dence have been written from a creationist theological vantage.²³

Knowing this, what might capable creationists do in the area of the "gaps"? Detailed research on fossils reported by creationist botanists is needed very much in this field. Such papers should be of obvious technical excellence, and should carry an open endorsement of the creationist model. They would be "required reading" among educated botanists because they would be original contributions.

This would go far toward publicizing the value of the creationist position in paleontology. Such a worker would eventually be in a position to author a complete book asserting the validity of miraculous creation in the origin of plant types. Until such time, the text of Heribert Nilsson mentioned above comes close to doing all of this. Prof. Wilbert Rusch, Sr., is preparing an English translation which will be of inestimable value to English-speaking creationists when completed.

Fossil Production

How were plant fossils formed? Creationists who believe in a global flood suggest that they were buried and rapidly converted to rock in the wake of the great catastrophe.^{29,30} Harold Coffin has analyzed the nature of fossil plants in the Joggins Petrified Forest of Nova Scotia with a view toward finding how the fossil beds were fashioned.³¹ In these plant deposits he found reason to believe that the material was transported and buried quickly—layer after layer—as might occur in a great flood. Coffin's approach to fossil study is unique and demonstrates a high caliber of original research.

Fossil Organization

Uniformitarians since the day of Lyell have imposed an evolutionary interpretation upon fossils. They have devised vast and separate "epochs" of earth history. For example, so-called Cambrian layers are believed to be quite old and to represent an ancient "Cambrian age."

Strata that are found beneath the Cambrian deposits are called Precambrian and are thought to be much older still. "Old" strata are supposed to lie beneath much younger strata in a layer cake series believed by evolutionists to trace the "history" of the earth.

One problem with this "geological column" in the world of human fossils is well-known.^{32,33,34} Man is supposed to have "evolved only after most of the layers had solidified. Yet good examples of human footprints pace forth from Mesozoic ("Dinosaur age") layers **and** in the strata of the Cambrian! These footprints are an embarrassment to the evolution theory and its geological sister, the principle of absolute uniformity.

Although plants do not leave footprints, they shed a mass of tell-tale pollen. Localization of

pollen grains within a geologic layer is *prima-facie* evidence that plants existed when the layer was deposited. Conifer seed plants (like pine and spruce) are not supposed to have appeared until the Permian "times"; and yet, Clifford Burdick has reported finding pollen from such plants in the Precambrian and Cambrian series of the Grand Canyon of Arizona.³³ The earth is believed (according to uniformitarians) to have had no land plants of any kind before the Silurian "age"; and yet, Wilbert Rusch, Sr., has reviewed literature that reports vascular plant spores in the Cambrian strata.³⁶

Uniformitarians teach that woody stems are supposed to have appeared no earlier than the Devonian strata, and the origin of wood is believed—in the context of evolution—to be hundreds of millions of years old. It comes as a shock then that Melvin Cook found valid wood specimens in Precambrian strata of Canada!³⁷ He also reports that Dorf and Blais found fossil wood that gave a radio-carbon date of only 4000 years but was contained in "Late Cretaceous rubble." Since Cretaceous rocks are said to be over 100 million years old, a 4000 year carbon date for Cretaceous wood presents an insurmountable obstacle to uniformitarian historical geology.

Creationist workers are on the verge of demonstrating that many fossils which "ought not be present" in a certain "time layer" nonetheless exist, having never heard about the theories which they destroy by their very presence!

Morphology: Homology and Analogy

In the world of machines and human products we often find similarities between different devices. A stapler and a paper punch have a certain likeness of form and function. An automobile has numerous similarities to cars of other brands and even to motorcycles or minibikes.

Yet no sensible person imagines for a moment that the motorcar and the motorbike had a common ancestry, or that the stapler and the paper punch are descendants of the same family tree. We recognize each item listed as a separate product of human intelligence intended for particular purposes.

Creationistic biologists can use this same reasonable approach to the field of plant and animal structure. If we find that a squid and a human being have eyes that are amazingly alike, we may accept this as the design of the Creator who fashioned each for a special purpose. The creationist is not obligated to assume (as evolutionists do) that "likeness must imply kinship." In fact, the evolutionary obsession here leads to great confusion.

Morphology is the branch of botany or zoology which deals with the form and structure of or-

gans. Some of the similarities between the organs of different species are quite deep and of underlying structural significance (as in the correspondence of finger bones in the human hand to comparable bones in the bat's wing).

Organs of structural likeness are said to be homologous, and evolution theory purports that they are good indicators of common ancestry. Yet there are some similarities that are only superficial and involve matters of appearance or function rather than basic structure—these are said to be analogous as in the case of the bat's wing compared with the wing of a butterfly.

This dichotomy of homology–analogy places evolutionists in the strange position of needing always to make metaphysical assertions as to which resemblances are really homologous (true) and thus indicators of common ancestry, and which ones are simply analogous (false, or superficial). Creationism abolishes this strange discrimination and views each similarity (deep or superficial) as a product of the Creator's handiwork and therefore quite likely of some functional significance.

A creationistic reappraisal of plant resemblances has been made.³⁸ Homologous structures of the duckweed, the palm tree, and the orchid plant would require that they all be classed among the Monocotyledonae (monocots). Evolutionary ideology must maintain that they are ultimately related because they all adhere to the monocot basic pattern of homology. Yet each is strikingly different from the other. The duckweed is a tiny, floating, aquatic plant; the palm is a stately tree; and the orchid is a showy herb!

These preposterous problems vanish when one assumes that each plant type is a "kind" formed by the Creator, and assumes that overall groups like the monocots simply trace the basic outline, pattern, or general plan which the Creator used in shaping many different plant forms.³⁹

Evan Shute has reviewed a vast volume of literature and has shown that resemblances in the realm of chemistry would place some strange "bedfellows" together as evolutionary relatives.^{18,40} He points out that animals would be directly linked to pussy willows, palms, and pomegranates in a bizarre evolutionary tree, if we used the presence of oesterone (female sex hormone) as our guide. Howe has demonstrated by the same token that we would have to place the corn plant close to both the human liver and the blue green algae in phylogenies because all three form glycogen.⁴¹

More morphological studies of plant similarities and differences will pose multitudes more bizarre and preposterous problems for evolution theory.

Problems from Pre-biologic Botany

Evolutionists have recently attempted to resurrect the defunct theory of spontaneous generation. Some believe that life somehow developed from non-living matter long ago in a primordial puddle. Most questions that cluster around these "origin of life" speculations are of biochemical nature and thus lie beyond the scope of this botanical survey. There are one or two aspects of the controversy, however, which involve the life and activity of plant cells.

The hypothetical puddle, brew, soup, or whatever it should best be called, is supposed to have yielded amino acids which then formed proteins. The same theoretical habitat is believed to have fostered nucleotide molecules which linked (somehow) to make DNA (a complex chemical which is believed to transmit the hereditary code).

Yet all of this is said to have occurred in an atmosphere that was almost completely devoid of oxygen. "Oxygen had to be absent," a devout evolutionist would argue, "because otherwise no life would have arisen." Experiments have been performed by Melvin Calvin and others showing that if oxygen is present to any extent in modern brew experiments, the yields of amino acids and other biological precursor molecules are astoundingly low!

Since the evolution theory is unalterably linked to the proposition that life had to arise naturally, some apologists assert that oxygen was absent in early times as the reserves of amino acids and nucleotides were accumulating and as life was finally arising. Oxygen must have been missing in such a scheme, or the soup theory would spring a logical leak!

How then did oxygen finally appear, according to this modern version of spontaneous generation theory? The first living cells had to be anaerobic, or able to exist where no oxygen was available. After much time, mutation, natural selection, and origin of ancient species, anaerobic cells are believed to have "evolved" chlorophyll, chloroplasts, or whatever other cellular organelles essential to the first photosynthesis reaction. This view assumes that photosynthesis, with its production of oxygen gas, "evolved" only after ages of anaerobic life had elapsed.

Botanical Fallacy Reported

A botanical fallacy has been seen here and is reported in at least one of the creationist papers.⁴² If plant cells are to produce oxygen (and indirectly ozone—O₃—which forms from oxygen primarily in the ionosphere and upper stratosphere) only after ages of evolution, then life had to evolve originally when there was absolutely no layer of oxygen or ozone to shield the earth from direct solar radiation.

Sunlight, unfiltered by ozone, is rich in the potent ultraviolet rays which rupture chemical bonds in protoplasm and thereby destroy life. Life exists on earth now only because we are shielded from direct ultraviolet rays by the blanket of ozone which our atmosphere provides. Here is the crux of a botanical dilemma facing evolutionary speculations— (1) If oxygen were present in the beginning, there would have been no evolution (remember, there is only a low yield of biological precursors in brew experiments if free oxygen contaminates the mixture).

(2) But if oxygen was absent in the early atmosphere, there would have been no evolution either, because cells would have been destroyed by ultraviolet radiation. As soon as it came close to the surface of the puddle, each "little child" of evolution would have been decimated by the raw radiation of our sun unshielded by ozone.

Following this second horn of the dilemma further, plants would never have lived—let alone evolved chlorophyll and chloroplasts to carry out photosynthesis that would yield the oxygen and ozone which presently shields us. It looks more, reasonable that both plants and oxygen gas were formed by One who established a balanced ecosystem in a Creation Week, for evolution could have occurred neither in the presence of oxygen nor in the absence of oxygen.

Other writers have reviewed this same problem and likewise sense the force of the dilemma. Thick water layers or other shielding materials would be of no ultimate protection from death by ultraviolet radiation because the evolving plant cells would be forced to "come out from hiding" and face the sun rays sooner or later if photosynthesis was to be of any survival value in natural selection.⁴³ In his review of a recent symposium on spontaneous generation, T. L. V. Ulbricht drew attention to this botanical quandry and added, "If this ozone "barrier" were now suddenly to disappear, it is doubtful if life could survive on the earth."⁴⁴

Another study that touches upon the pre-biologic origin problem is the fiasco of Haeckel's *Monera*. Ernst Haeckel and other evolutionists tried to fill the gap between matter and life by originating a group of living beings that they preferred to call the *Monera*. These little bodies were supposed to cling right on the razor's edge between life and non-life.

N. A. Rupke has shown that many of the original *Monera* proved to be artifacts, or figments of an evolutionary imagination!⁴⁵ Oddly enough, this fallacious name—"Monera"—is still used by some biologists to refer to the cells of bacteria and the blue-green algae. The bacteria and the blue-greens, however, are complex, modern organisms that do not lend themselves to fill-

ing the gap between matter and life. They too appear to have been created "after their kind."⁴¹

Bible Botanical Investigation

Some direct studies have been undertaken and more should be initiated evaluating statements in the Bible as they apply to the origin and history of plants. For example, Edward Young did great theological service by showing that there is no real conflict between the record of plant creation in day three (Genesis 1:11) and the record concerning plants in Genesis 2:5 and 6.⁴⁶ Events of day three were obviously worldwide, whereas statements about plant growth in chapter 2 may very likely refer specifically to the Garden of Eden, as Walter Lang has also asserted.⁴⁷

Creationistic study of day three (Genesis 1: 11) mitigates against the origin of various plant species throughout vast geologic "ages." If there were epochs of geological time and if the modern geological column was reasonably correct, there could be no one "age" of plant creation because of the following obvious scientific reasons:

(1) Fossils of blue-green algae are known from Cambrian and Precambrian formations.

(2) Then according to the uniformity assertion, land plants appeared later in the Silurian and Devonian "times."

(3) Seed plants arrived millions of years later in Permian and Triassic ages.

(4) Flowering plants came on the scene only during the Cretaceous, which is still supposed to have come millions of years later than the seed plants.

(5) To interpret the day of plant creation as one geologic age would be quite difficult because plant creation would then span the entire geologic "timescale."

Furthermore, as Henry Morris has indicated, "The Bible states that all plants, even fruit trees, were made on the third day, while fish and other marine organisms were created on the fifth day. Geology reversed this order."⁴⁸

Many Research Avenues Open

Many avenues of possible research confront the science-minded scholar of the Bible and its languages. More botanical inquiry should pursue the possible significance of the "Fall" (Genesis 3:18) in the origin and proliferation of thorny weeds. Botanists such as Edgar Anderson look at weeds as having an aggressive genetic character and as having become "camp followers" of man. Perhaps some detailed studies of weed genetics and physiology in the light of Scripture would be informative.

Thorns in various plants resemble diverse organs—leaf thorns, stem thorns, or just epidermal thorns as outgrowths of the stem surface itself. Some creationist should do a thorough study of

these thorn organs. The idea that thorns arose independently in many different groups of plants is one point where both Creationist and evolutionist would probably agree—although the creationist stresses the importance here of the curse upon Adam.

Frank Marsh has evaluated this question and concluded that the thorns, thistles, and even disease germs are all the result of satanic activity within the permissive boundaries of God's will.⁴⁹ Although this is an interesting speculation, the Scriptures do not implicate Satan as the agency of thorns or thistles, nor as the architect of the viruses. Whitcomb and Morris have also analyzed in brief the curse upon the world of plants and have asserted that it affected not just the garden of Eden but the entire earth surface.

Genesis 10:25 possibly indicates a continental division and migration in the days of Peleg. Cook has delved into this matter of continental movement—a topic which is becoming more widely accepted in scientific circles generally.³⁷ The entire concept should be diligently applied to the study of plant geography. Could it be that forests in China or Siberia resemble parallel forests in North America or Europe because they were once closely connected?

As already suggested, thee-biological studies of various botanical problems could challenge interested students. However one caution must be given here. Although the Bible is a true book which is quite useful in the natural sciences, the worker must recognize where the words of Scripture stop and where the ideas of finite men begin. The human temptation is to read more into the Bible record than was originally intended. It is at this point that language scholars can team with scientists to produce worthy research products.

Plant Genetics

In the field of heredity, creationists have prepared significant papers. Many geneticists and plant breeders have successfully shown that there is variability within plant species and that whatever changes can occur will do so rather quickly—not requiring long periods of time.

This variability can sometimes be used for the benefit of mankind by producing roses to suit certain color choices or sweeter sugar beets to process at the mill. But variability remains within definite limits, and no really new kinds are formed when selection experiments are performed in the laboratory or the field.

Walter Lammerts (developer of "Charlotte Armstrong" and "Queen Elizabeth roses) has irradiated rose buds with a neutron beam to discover the kinds and nature of mutations that would result. Lammerts has clearly shown that although some mutations were obtained, they

were in all cases changes that reduced the natural vigor and growth potential of the plants.⁵⁰

One or two of the changes in his experiment he judged to have horticultural potential, but even these came at the expense of general stamina in the plants involved. One of Lammerts' conclusions in this original, experimental study is most instructive: "Biologically, all of the mutations were defective variations from the pattern of development characteristic of the variety radiated."⁵¹

From his studies and innovations in the field of breeding moss and miniature roses, Ralph Moore has indicated, "Miniature roses, or any new roses, are really no more than the 'old' gene material in a different combination."⁵² He shows how the scientific art of crossing various roses leads to a re-packaging of genic materials into roses that look new but that are nonetheless still roses. There has been no evolution of the kind involved at all in the rose breeder's amazing work.

William Tinkle has traced this same trend of rapid variation within fixed limits.⁵³ He points out that the first 78 years of selection in sugar beets for higher sugar content made dramatic improvement. But the sugar content climbed to a certain fixed limit thereafter and never went much higher. Once again, changes were evident but they were seen only within the confines of certain real boundaries. Incidentally, it almost goes without saying that these were still sugar beets throughout the entire period of the 124 years during which the program lasted!

DNA Is Hereditary Code

Whether we consider a plant or an animal body, DNA has come to be identified as the basis for the hereditary code. Creationistic chemists have emphasized the message of DNA as "complexity," "design," and "fixity," in living systems. Duane T. Gish has stated, "Rather than being the master chemical, DNA is the servant of the cells. Thus its operation is repressed by the cell until needed."⁵⁴ Gish believes that this very complex chemical structure of DNA should impress us more and more with the deep reasonableness of the creation concept, "In the beginning God created . . ."

Another outstanding chemist, John Grebe, has stressed the specificity of DNA as an argument supporting the creation of distinct kinds. He concludes that the "evolutionary theory has been postulated against ridiculous odds."⁵⁵

In a study of mutations at the level of molecular genetics, Walter Lammerts indicates that changes in this wondrous code are often fatal and usually harmful. His creationistic conclusion based on an analysis of DNA is worth including here: "Molecular genetics shows the DNA code

to be a marvelously complex one. Surely in studying it we are coming close to understanding how God is daily at work maintaining and preserving all creatures."⁵⁶

Since there is considerable evolutionary agreement that gene mutation is the major source of variability for the whole process, it is obvious that in the world of plants and animals there will be little or no evolution because mutations are harmful, DNA is quite stable, and natural selection is largely a screen for elimination of bad mutations.

Chromosomes and Polyploidy

In a cell nucleus, chromosomes usually come in pairs. Thus, corn has 10 different kinds of chromosomes with two of each kind, or a total of 20 in each cell. For corn the number of different kinds of chromosomes (haploid number) is 10. The total number of chromosomes in a normal cell is twice the haploid number—the diploid number (20).

However some irregular corn cells have 40 chromosomes. An abnormal corn plant which would develop from such a cell with 40 chromosomes would have four times the normal haploid number of chromosomes, and would be called a "tetraploid."

Some plants studied appear to have one, two, three or more extra sets of chromosomes present and these are known as "triploids," "tetraploids," "pentaploids," respectively and are all generically known as "polyploids." Significantly both evolutionary and creationist writers have reported that polyploids are almost always less fertile than normal strains with two of each chromosome type, and they are sometimes completely sterile. Sterility may result in part from irregular pairing among chromosomes during the early stages of the special meiosis cell division which comes in the production of plant spores.

In his creationistic book⁵⁷ and in a recent paper,⁵⁸ John Klotz has provided detailed explanations and examinations of polyploidy and its possible role in evolution. He concludes that changes in chromosome number such as seen in polyploidy are not the kind of variation required by any major evolutionary step.

Karpechenko of Russia asserted years ago that he had witnessed the production of a new biologic species by polyploidy. He claimed that a cabbage had hybridized with a radish to produce a sterile daughter plant. But in this plant he believed that there was a natural doubling of the chromosome number so that a fertile and vigorous new genus was formed. Since *Raphanus* is the genus name for radish and *Brassica* is the name for the cabbage, Karpechenko dubbed this new type *Raphanobrassica*.

William Tinkle and Walter Lammerts have

shown that the entire basis of Karpechenko's claim of a new genus is in doubt because this work has not been successfully duplicated.⁵⁹ Others have tried and have found that the polyploid hybrid plants were not fully fertile and therefore do not qualify as a new biologic species.

More work is needed on the whole question of how much variability the Creator has permitted in plant life by this means of chromosome multiplication-polyploidy. Great evolutionary claims have been made but some of these experiments should be repeated and their real value in forming new adaptive kinds should be determined.

A Final Word

We may thank God for a revival of creationist thought within the disciplines of plant biology. This report is not intended, however, to be a summary of work that is complete and adequate. It is to be a prod to challenge botanists everywhere to consider their own debt to the facts that support Bible creationism.

Creationistic botanists face a further obligation to produce research and review materials that bring the claims of Scripture right into field and laboratory studies. It is a challenge to young people who have a mind for science that they consider botany as a vineyard where one may work for God.

If we liken the whole discipline of plant biology to a farmer's field (and if we may be permitted some liberty in reading a Scripture passage), then the fields are truly white unto harvest and we must pray the Lord of the harvest that He send forth workers. If Christian botanists and theologians direct themselves to this task, and if young minds are added (minds untrampled by the heavy footwork of evolution ideology), then it is conceivable that the theoretical framework in this whole discipline can be brought back to reality by being brought back to God.

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INTERESTING PUBLICATION

"Creation: Fact or Fiction?" by Harold W. Clark. 1969. Private Publication: 600 Edgermont Avenue, Angwin, California 94508. Pamphlet: 20 cents for single copy, postpaid; 15 cents each for five or more copies, postpaid.

Because a number of Christian scholars have expressed doubt as to the validity of some of the basic concepts of "literal creationism," the author has penned a compact and concise consideration of 23 problem questions. After the first question, "What is literal creationism?", Harold Clark meets such questions as: "Is the Genesis record valid?", "Were the days of Creation real days?", "How did man originate?", "Upon what is the concept of a universal Flood based?", and "After

all, do you consider that these 'evidences' prove the Flood theory?"

In response to these typical questions the author presents simple statements of the basic truths of literal creationism. He cuts through customarily lengthy treatments of controversial subjects to bring the reader face to face with studied conclusions that literal interpretation of the Genesis record of creation and the Flood stands on firmer ground today than ever before.

This pocket-size pamphlet is easy to keep handy for parents and students alike. Thus Harold Clark has provided a convenient instrument for Bible-believing Christians to be every ready to attest to the truth-value of literal creationism.

THE LEWIS OVERTHRUST

CLIFFORD L. BURDICK*

The Lewis overthrust, famous structural geological feature, extends from Glacier National Park in Montana some 350 miles north into Alberta, Canada; is from 15 to 30 miles wide; and is believed to have been thrust eastward some 35 miles. This is often referred to in texts as a classic example of a large overthrust, but only one of many such observed throughout the world. Evidence for such overthrusting usually offered, is the inverted order of the fossil sequence in the strata, according to the assumed evolutionary advance of biological life during the geological ages, and so contained in the time-stratigraphic rock sequences from older to younger rocks.

In the case of the Lewis overthrust rock formations, the so-called "older" algal fossils are confined to the Precambrian Belt series of rocks, which lie above the so-called younger Cretaceous rocks, so correlated because of the index Cretaceous fossils they contain.

Such confidence have paleontologists and stratigraphers had in the correctness of their evolutionary hypothesis that in many cases little effort has been spent in examining the physical evidences accompanying such overthrusting.

Some field work has been performed during the summer of 1968 in attempting to overcome this deficit. So far such investigations have failed to turn up any pronounced evidence to uphold the hypothesis of a Lewis Overthrust. Photographs of contact lines indicate that the Precambrian strata were water deposited on top of the Cretaceous.

Introduction

One of the many facets of geology is the study of the structure of the earth, that is the framework on which it is built and which holds it together. Such study also deals with the forces that have acted and are acting in the earth that have produced its present structure.

Due to stresses that develop within the crust of the earth, the geomorphology (shape) of the earth's features changes from time to time. If stresses develop slowly topography may be altered through plastic flow; if stresses build up more rapidly, they may be relieved through fractures or faulting.

There are three principal types of faults: (1) Gravity, or normal faults, (2) Strike-slip faults, and (3) Thrust faults. Deep in the mantle of the earth where heat and pressure build up, deformation is more apt to take the form of plastic flow, or possibly metamorphism. Chemical reactions take place which break down some minerals and form new ones, during metamorphic movement.

Near the surface of the crust where rocks are cooler and pressures less, the usual manner of stress relief is through faulting and jointing. Both are fractures, but joints have no differential movement, while faults do.

Gravity faults or normal faults are tension fractures because they lengthen the surface. Strike-slip faults may be near vertical with one side moving in relation to the other, like the San Andreas Fault in California. Thrust faults are low angle faults as a rule with the upper limb being pushed over the lower member, thus shortening the surface. The thrust faults in the

Alps, one of the most studied thrust-fault areas in the world, are said to have shortened Europe by many miles—the Glarus overthrust being one of the most notable with net slippage of at least 20 miles.

Aside from the Alps, perhaps the most studied thrusts are in Scotland, the Ben More and the Moine. There are many other famous thrust-faults, one in the vicinity of Buffalo Mountain, Tennessee. In the Muddy Mountains of Nevada there are two major overthrusts, with a net slip of 15 miles. The Bannock overthrust in Idaho is about 270 miles in length with a stratigraphic throw of 15,000 feet (vertical displacement).

Since these field studies were completed and it was finally settled that these structural features were indeed thrusts, little field work has been performed to verify from a mechanical standpoint the authenticity of many thrusts. For example an employee in Glacier National Park, Montana, told me during a recent visit that as far as he knew no new geological work had been done in the park in the past twenty years.

But why all this special interest concerning thrusts? The basic answer is that a scientific controversy—long considered settled, buried, and forgotten—has of late been resurrected, and many scientists are once again examining the evidences for evolution. In earlier approaches to the subject conclusions were reached with greater emphasis on the paleontological and stratigraphical criteria than upon the structural and tectonic evidence, so convinced were researchers on the correctness of the macro-evolutionary hypothesis. This concept is well illustrated in a book by Nicholson:¹

It may be said that in any case where there should appear to be a clear and decisive discordance between the physical and the paleon-

*Clifford L. Burdick, Hon. Ph. D., is a consulting geologist of Tucson, Arizona.

tological (fossil) evidence as to the age of a given series of beds, it is the former that is to be distrusted rather than the latter.

Thrust-faults or overthrusts, are very common and well authenticated. However their use, without adequate physical evidence, to "explain" the wrong order of fossils in the geologic column is highly questionable. Such has been the practice of geologists with regard to the Alps and elsewhere. Billings² takes note of this in his text *Structural Geology*:

Parts of some of the great overthrusts in the Alps are so devoid of slickensides, gouge, breccia, and mylonite that they passed unnoticed and were for a time mapped as sedimentary contacts. It was only after paleontological evidence was obtained . . . that the existence of the great faults was recognized.

Re-examination of physical or structural evidence for the existence of some of these major thrust-faults is very pertinent. Three Arizona thrust faults were examined recently by Burdick and Slusher³ and the following is a report on studies made at Glacier National Park in the summer of 1968.

Lewis Thrust Fault

This is one of the largest overthrusts in the United States; however, not all of it is contained in this country for it extends northward into Canada some 300 miles. The southern exposure is well seen along the eastern front of the Lewis range in Glacier Park. The cap rock in Glacier Park is classified as Precambrian, or the Belt Series, composed of several formations such as Kintla, Sheppard, Siyeh, Grinnell, Applekunny and Altyn.

The Altyn formation is the oldest of the Belt series, and lies at the bottom of the Belt, unconformably on the Cretaceous shale. It is a sandy dolomite with a light buff color; average thickness is 2,300 feet. On top of the Altyn lies some 3,000 feet of Applekunny green argillites. Mud cracks and ripple marks are common.

Because of their predominantly red color, the Grinnell argillites are the most conspicuous rocks in the park. This formation is also about 3,000 feet thick. Next above comes the Siyeh buff-colored limestone some 4,000 feet thick, the greatest cliff-former in the park. The Sheppard formation weathers yellow-brown, indicating ample iron, and is some hundreds of feet thick. The Kintla is another red formation and is seen only on top of the highest peaks. Purcell lava and a diorite sill form black bands around the park.

Characteristic fossils of the Belt series are various species of algae, very prominent along the highway west of Logan's pass. In fact the presence of these fossils is the main reason that

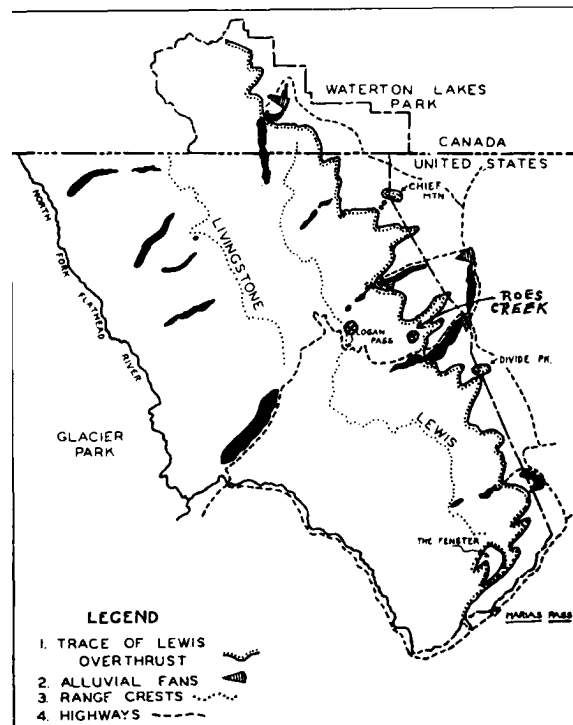


Figure 1. Map of Waterton-Glacier International Peace Park. From "The Geologic Story of Glacier National Park by James L. Dyson. Special Bulletin #3. Glacier Natural History Association in cooperation with National Park Service, U. S. Department of the Interior.

the Belt series of rocks are designated as Precambrian.

Predominant algae fossils of the Belt series are *Collenia*, *Conophyton*, and *Cryptozoon*. They bear a crude resemblance to the head of a cabbage. They are found in colonies especially in the Siyeh formation.

The Cretaceous shales and sandstones below the Belt series contain shells such as oysters and ammonites, index fossils for that period. We were able to dig out some of these fossils along Roes creek, near the Rising Sun campground on the west bank of St. Mary's Lake, a finger lake apparently gouged out by glaciers.

The dip of the presumed fault is very gentle, anywhere from nearly horizontal to 10 degrees. However, on Marias pass the dip steepens to almost 40 degrees. Actually the fault can be traced almost 100 miles south of the park. See maps in Figures 1 and 2.

To give a better background of the way orthodox geology explains the Lewis Overthrust, I quote excerpts from *The Geologic Story of Glacier National Park* by James L. Dyson, head of the Dept. of Geology of Lafayette College.⁴ He was a ranger-naturalist at Glacier Park for eight years.

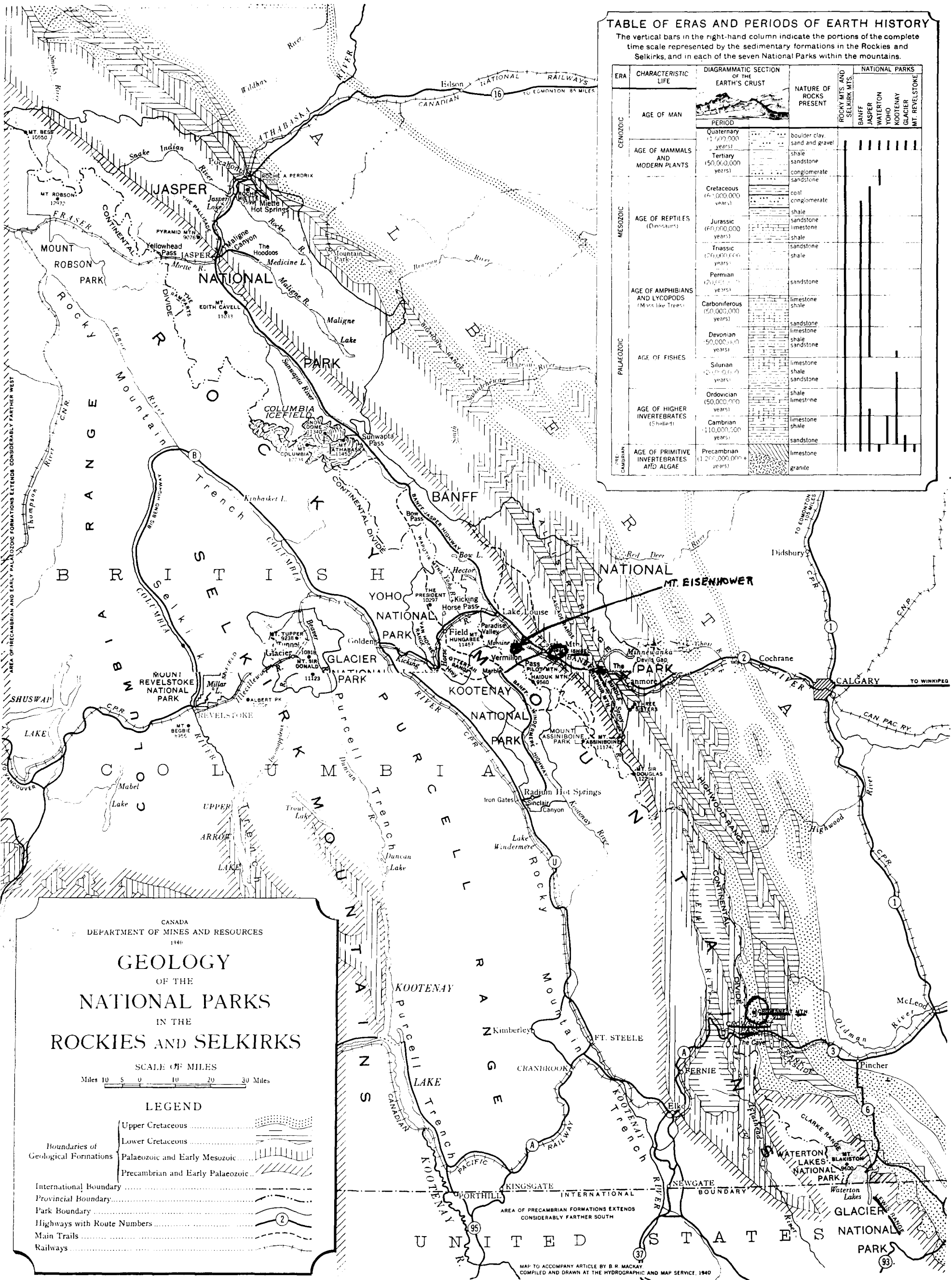


Figure 2. General area near boundary of United States and Canada. Region of Figure 1 located in lower right hand corner. From "Geology of the National Parks of Canada" by B. R. MacKay (Reprinted from *Canadian Geographical Journal*). National Parks Bureau, Lands, Parks and Forests Branch, Department of Mines and Resources, Ottawa, Canada,



Figure 3. High on Summit Mountain, Glacier National Park, Montana. At Marias Pass. The light colored rock is Altyn dolomite, Belt Series, Precambrian, overlain by Grinnell and other Belt rocks. Note unconformity between Altyn and overlying Belt Series. The Altyn dips west; the overlying Belt (Grinnell) is at right angles, indicating metamorphic movement among Precambrian series. Below Altyn lies apparent conformable contact with Cretaceous shale. No evidence of differential movement.

Toward the end of Cretaceous time tremendous crustal forces, principally from the west, were directed against the geosyncline with the result that its rocks were compressed and uplifted, converting the site of the former sea into a mountainous region. . . . Similar activity resulted in the formation of the Rocky Mountain system stretching from Mexico to Alaska. . . . Mountain building forces continued for several million years in the Glacier Park area, finally squeezing the rocks into a great fold (anticline). Continued pressure from the west overturned the fold and put additional strain on rock layers, eventually causing them to break along a great low-angle fault. The Western limb of the fold, now a great slice of the crust, was driven upward and eastward over the eastern limb, ultimately reversing the order of rock layers by placing older on top of younger ones. . . . These younger layers are Cretaceous shales and sandstones underlying the plains immediately east of the mountains. The mountains themselves have been carved by streams and glaciers from the Belt formations comprising the upper block of older rock, that slice of the crust which has been moved more than 20 miles toward the east. . . . The Lewis Overthrust comes to the surface at the base of the Altyn formation along the entire precipitous east front of the Lewis Range and can be traced nearly 100 miles northward into Canada and almost an equal distance south of the park. Within the park it is tilted very gently toward the southwest, the angle of dip seldom exceeding 10 degrees. . . . And so we see that the mountains of Glacier National



Figure 4. Wynn Mountain unconformity contact between underlying tilted Altyn Belt Series Precambrian dolomite, and overlying metamorphosed Grinnell formation, both Precambrian. No signs of movement at the contact line.

Park, unlike many of the world's great ranges, have no roots, for they rest on a base of greatly different and much less resistant material, the Cretaceous shales. Cretaceous rocks with relatively low resistance to Earth stresses, were strongly crumpled and folded during the period of overthrusting.

The Lewis Overthrust is exposed in a great number of places, but only a few are readily accessible for observation. I started my study at the Marias Pass exposure on Summit Mountain, in the southern end of the park (Figure 3). Here the exposure plainly belies the above quotation that the soft Cretaceous shales are folded and crumpled. Contact with the overlying Belt series shows a remarkably straight even surface. If this had in fact been a thrust plane, the soft Cretaceous shale would have been deformed, folded, even metamorphosed. But the Altyn limestone rests without apparent movement on the shale.

Contact between the Precambrian Belt Altyn and the overlying red Grinnell is another story however. There is a marked unconformity between the two formations. The Altyn has been eroded and gullied. Evidence of movement is not at the Belt-Cretaceous contact but rather between the Belt Altyn and Grinnell, which resulted in contact metamorphism. We were able to study this contact line at length.

Apparently the Altyn was laid down conformably upon the Cretaceous shale which appears as a straight, distinct line. Then the limestone was eroded before the Grinnell was laid down. But subsequently the Grinnell was disturbed with metamorphic movement which tore off slabs of Altyn and interfingered them with the Grinnell. There is evidence of local movement, but it is in the wrong place to uphold the overthrust concept, without which the evolutionary order of the fossils could be called in question.

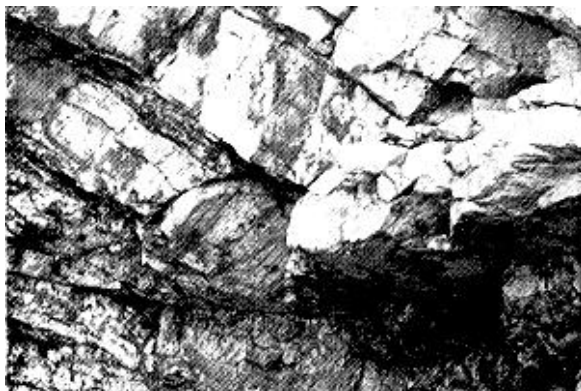


Figure 5. Wynn Mountain, unconformity contact among members of Altyn dolomite, of Precambrian Belt Series of rocks. Cretaceous rocks do not appear here.

At one point to the south of where we climbed the mountain I got a good view of the Cretaceous-Belt contact, which appeared as a sedimentary contact, with no evidence of movement.

Another very important structural feature is evident upon close observation. The Grinnell formation is flat-lying. The underlying Altyn limestone dips to the southwest at an angle of nearly 40 degrees. The adjustment between the two apparently caused the metamorphism. Strangely enough, the Altyn Precambrian and the Cretaceous shale are conformable, they dip at the same angle, thus needing no adjustment. Another indication of a sedimentary contact.

Wynn Mountain

I was informed that the Lewis Overthrust contact was in evidence on the southwestern face of the mountain in plain view of Many Glacier Hotel. As viewed from the resort the contact line runs down the mountain from left to right at an angle of about 15 degrees. Wynn Mountain is just south of Lake Sherburne along Canyon Creek.

When I arrived at the face of the cliff I found two contacts rather than one, one above another but neither one was a thrust-plane contact. They were in fact unconformities with angular discordance between the formations. Figures 4 and 5. The lower bed had been beveled off before the upper one had been deposited, but both appeared to be of the same Altyn limestone of the Belt series. Aerial photographs show up the faults around Wynn Mountain, but none crosses the mountain.

Chief Mountain

This is perhaps the most famous exposure of the Lewis Overthrust block, pictures of which have appeared in numerous texts on geology. It is a striking, majestic block of rock, standing alone, about 9,000 feet in height (Figure 6).



Figure 6. Chief Mountain, Glacier Park, Montana, composed of Altyn dolomite of Precambrian Belt Series. Unconformity near top of photo, where flat-lying Altyn dolomite overlies upright metamorphosed Altyn beds. At lower right corner small section of almost black Cretaceous shale appears. Unconformities lie within Belt Series rather than at contact with Cretaceous rocks.

Geologically it is considered an outlier or "klippe," or erosional remnant of the much larger Lewis thrust sheet, a mountain without roots, because Precambrian Altyn limestone and quartzite lie, apparently conformably, on top of Cretaceous dark shale. Much of the contact line is obliterated by talus, but where visible, it appears to be an **erosional contact**, without physical evidence of differential movement, such as gouge, mylonite, tectonic breccia or slickensides.

This prominent light-colored cliff lies a few miles south of the international boundary with Canada. The best approach to the mountain is by a road along Kennedy Creek, from where a steep climb awaits the prospector.

About two-thirds of the way up the mountain a sharp line of demarcation appears, which one at first glance might mistake for the thrust plane. On top of this plane are flat-lying Altyn Belt series Precambrian limestones. Below the contact are quartzite and deformed Altyn limestones. The quartzites denote metamorphism—movement under confining pressure; followed by erosion, and truncation of the rocks. The flat-lying Altyn beds were laid down on top of them.

Like Marias pass, the main tectonic activity shows up, not between the Precambrian Altyn and the Cretaceous shale, where the thrust-plane is supposed to exist, but within the members of the Altyn Formation itself. These evidences do not support the thrust-fault theory.

Roes Creek Contact

The contact at Roes Creek was easily seen and thoroughly identified by many scientifically trained persons. A section on page 18 in Dyson's work dealing specifically with the Roes Creek contact was used in verification:

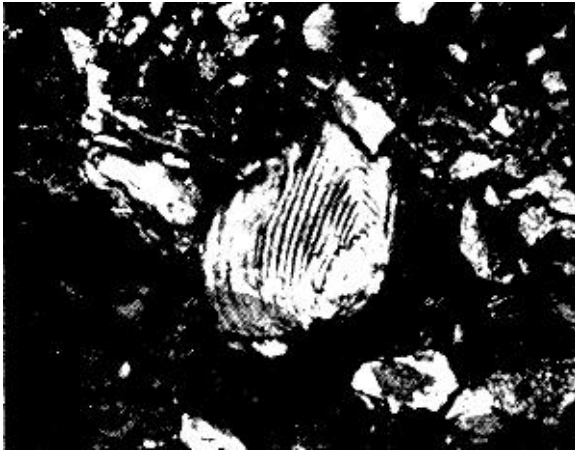


Figure 7. *Veniella*—a Cretaceous Pelecypod from Cretaceous shale at Roes Creek, below Precambrian Belt Series in Glacier Park. Burdick Photo.

Although the Lewis Overthrust is exposed in a great number of places, very few of these are easily accessible, and at only one does a trail provide a close approach to the actual contact between Belt and Cretaceous rocks. The latter site lies along Roes Creek only a few hundred yards from Rising Sun Campground. Before reaching the fault at the base of a high cliff of Altyn limestone, the trail crosses several outcrops of Cretaceous sandstone replete with fossil pelecypods (clams) and gastropod (snails).⁵

This was indeed the clearest exposure in all the park of a sharp contact between the overlying Altyn Belt Series, Precambrian limestone, or dolomite, and the underlying Cretaceous shale and sandstone. Cretaceous exposures were replete with fossils (Figure 7).

The relatively flat-lying Altyn limestone was lying atop the Cretaceous with not the slightest evidence of movement. The pieces of shale I dug from under the Altyn was compressed, but not deformed in any way as one would expect with a thrust fault or sliding plane. There was no gouge, mylonite, tectonic breccia, nor slickensides. The accompanying photographs illustrate this point (Figures 8, 9, and 10). This contact was alongside the path, which permitted close-up photographs of the exposure, and even enlarged photographs of the contact material.

Beyond all shadow of doubt, this contact was a sedimentary contact. Evidently identification of this contact as a thrust plane was made solely on the basis of fossil evidence with **total disregard** of physical evidence. However, Professor David Nelson informed me that he found a clam in the Altyn limestone. If so the classification of the Altyn as Precambrian may be in error also.

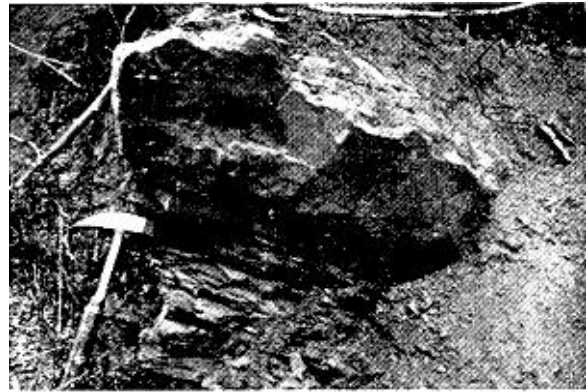


Figure 8. The Altyn dolomite, Belt Series Precambrian overlying Cretaceous shale beside Roes Creek, a few hundred yards from Going to the Sun Campground. Notice sharp contact, a depositional contact, at edge of hammer head; no signs of differential movement, or a thrust-plane. Since deposition, both formations have been tilted. No gouge, mylonite, powdered rock, tectonic breccia, or other evidence of thrusting.

Crowsnest Pass

Leaving the United States at Chief Mountain, or a little north of there, I headed into Canada, following the Rocky Mountains on the left, into Alberta, until I passed through a mining town of Franke, a coal mining settlement, with coal-bearing Cretaceous strata. The Precambrian limestones and quartzite overlying the Cretaceous sandstones and limestones are a part of the great Lewis Overthrust, hundreds of miles in length.

Franke was the site of a great tragedy some years back. A rockcreep on the face of the mountain developed into a landslide, and millions of tons of rock debris came roaring down across the coal mines and through part of the town, with the loss of many lives. A small earthquake may have loosened the slide. On the same cliff is outlined a small high-angle thrust fault.

The highway turns west across the continental divide into British Columbia, the pass being the dividing line between the provinces. At this pass is a beautiful exposure of the Lewis Overthrust, where the Precambrian Belt Series of rocks overly the Cretaceous limestones and sandstones. The contact line of the fault plane is tilted at a high angle from east to west, apparently the west limb of an anticline, indicating folding rather than thrusting (Figure 11).

Whenever pages of a notebook are folded, differential movement occurs between the leaves. Analogously, between the Cretaceous and the overlying Cambrian and Precambrian strata, evidently there has been differential movement, as evidenced by the two inch tectonic breccia layer. There is not enough of this as compared with the size of the formations, to indicate thrusting; no

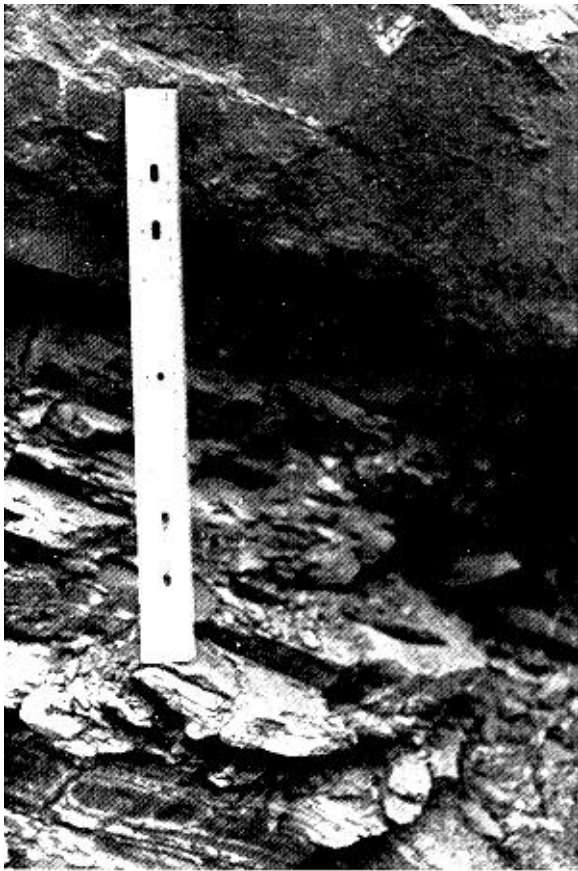


Figure 9. Apparent conformable contact (at seven and one-half inch mark), between overlying Altyn dolomite of Precambrian Belt Series, at Roes Creek, Glacier Park, Montana, and underlying Cretaceous shale. Clear-cut contact, with no evidence of movement, gouge, rock powder, mylonite, tectonic breccia, or slickensides. Underlying shale and sandstone contain Cretaceous shell fossils.

evidence of gouge (rock powder), mylonite (coarsely ground rock), or slickensides.

Crowsnest Mountain is the Canadian counterpart of Chief Mountain, with the strata slightly synclinal (like Eisenhower Mountain in Banff National Park). Crowsnest pass is one of the best places to study the so-called Lewis Overthrust contact, and provides some of the most positive evidences against the Lewis Overthrust concept.

Banff National Park

After traveling some 200 miles north of the international boundary I reached the city of Banff, one of the most beautifully situated cities in the world, nestled among such scenic peaks as Mount Rundle, Sulphur Mountain, and Cascade Mountain, with other snow-capped mountains like Assiniboine, Pilot Mountain, Eisen-



Figure 10. Close-up photo of the slab of Cretaceous shale underlying the Precambrian Belt Series Altyn dolomite. No signs of movement, such as gouge, mylonite (rock powder) tectonic breccia, or slickensides. There is evidence of intense compression however. This specimen was taken from the contact line.



Figure 11. Supposed Crowsnest Pass thrust-fault contact where Belt Series Precambrian rocks were believed to have been thrust over Cretaceous, coal-bearing limestone, near Franke, Alberta, Canada. The man and boy in the picture are at or on the contact. At the contact is a two inch thick line of tectonic breccia, evidence of movement, but is probably the result of folding. When one folds a telephone directory there is differential movement between all the leaves. The breccia line is too thin for giant thrust.

hewer, Ishbel, Three Sisters, and Haiduk Mountains not far away.

As one takes the lift to the top of Sulphur Mountain, he can get a beautiful panorama of glacially carved and chiseled snow-capped peaks in every direction, perhaps unrivaled on the North American continent, and certainly a worthy competitor of the Alps. From Sulphur Mountain one looks down on the city of Banff in the intermontaine valley formed by the Palliser Range on the east and the Continental Divide on the west.



Figure 12. Mount Eisenhower is a Precambrian syncline, with the west limb more steeply inclined than the eastern. The thrust contact is near the bottom of the picture. No close-up examination was made of the mountain, except at Ishbel Pass.



Figure 13. Mount Ishbel, showing strata tilted on edge, indicative of strong local uplift, probably the result of an intrusive pluton showing at right top of mountain. This intrusive may have been the cause of the pile of rubble on Ishbel Pass. Looking east.

Both ranges trend in a northwesterly direction and both dip, in places rather steeply to the west or southwest, suggesting block-faulting by normal or gravity faults, rather than low-angle or thrust-faults, as usually postulated. Such a conclusion is fortified by the presence of hot springs at Banff. Such springs require vertical or nearly vertical faults extending many miles down into the hot mantle or deep crust.

To present a basic picture of the geology of the area, I quote from *The Story of the Mountains in Banff National Park* by Helen Belyea:

We must assume that enormous forces, of almost inconceivable magnitude, have acted slowly on these rocks over eons of time, pushing them up as though pushed from the west over the prairies to the east . . . forces acting on the rocks first push them into rolling arches and troughs, called respectively anticline and synclines. A syncline is seen on Mount Eisenhower. . . . Long continuation of pressure on the rocks eventually forces the arches over until they break, and the rock layers on top ride forward over the underlying layers. The planes along which the layers move are called thrust-faults, or simply thrusts. . . . The ancient rocks of Mount Eisenhower were thrust eastward over the much younger rocks in the valley between it and the Sawback Range.⁶ (Mount Eisenhower is shown in Figure 12.)

The author here describes the folding of the strata due to compression from the west, deforming them into anticlines and synclines. This is apparently what happened, thus demonstrating such incompetence in the rocks that they will fold rather than submit to lateral translation as one stiff block over the many miles of terrain that the thrust hypothesis calls for.

In fact studies by Hubbert and Rubey,⁷ have clearly shown that the crushing strength of gran-

ite would have been exceeded many times before a block the size of the Lewis thrust block could be translated so many miles. Folding, faulting, then chaos or rubble is the natural sequence, but the rocks at Crowsnest Pass, Mount Rundle and elsewhere show no crushing, and very little faulting, as one would expect from block-faulting, the kind of gravity or normal faulting that produced the hot springs.

Cascade Mountain, just north of Banff, is a typical arched anticline. The Sawback range or Mt. Ishbel shows strata on end (Figure 13), that is vertical, indicating compression all right, but also shows the incompetence of the rocks, unable to withstand the pressure necessary to push a great block *en toto*, across as many miles as usually postulated.

Individual blocks of rock have been observed to have been thrust up to half a mile without crumbling; but the larger the block, the greater the coefficient of friction, and the greater the compression required to overcome the friction. Thus crushing strength of the rock is soon surpassed. There is therefore a limiting factor as to the possible size of overthrust blocks.

Mount Eisenhower

Inasmuch as the Mount Rundle thrust-fault block was so close to town, I had expected to inspect the thrust-plane; however this seemed to be well covered with soil and rock debris. The strata dip to the west at an angle of some 30 degrees, and aside from block-faulting, there appeared to be no noticeable deformation. With block-faulting, that is normal faulting, one would expect that the fractures extended downward into the hot rock belt, where ground water would become heated and rise as hot springs.

Seeking the best visible exposure of the fault-plane, I checked the pass between Eisenhower



Figure 14. Mount Ishbel Pass, where piles of rubble resulted from eastward-dipping Ishbel strata moving against westward-dipping Eisenhower Mountain strata. This chaos is mute testimony against a continuous Lewis thrust sheet moving many miles eastward. The beds are not that competent. The motive force appears to have been a granitoid intrusion that tilted the Ishbel strata on edge. Mount Ishbel to the right.

Mountain and Mount Ishbel to the east. I parked my car in a meadow at the base of the pass, and followed a trail about three miles up a good grade to the pass.

To the west appeared the upturned abutment of Mount Eisenhower where Johnson Creek had formed cliffs along the gorge. Along the pass were great piles of rock rubble, as if strata from the west had encountered movement from the east, and the result of these opposing movements was a mass of rubble. To the east the beds dipped to the east; to the west the Eisenhower beds dipped 5 to 10 degrees to west. If there had been thrusting, here was where an irresistible force met an immovable object.

Eisenhower Mountain, on the other hand, is a syncline (See Figure 12), the west end strata dipping east about 5 degrees and the east end dipping west about 10. This suggests folding and compression; if from the west, as the thrust theory advocates, then the immovable object was Ishbel Mountain, where the strata are nearly vertical. The thrust would have been stopped there if there had been a thrust, or if only folding, then either the folding was stopped there, or it uplifted the strata of Ishbel until they stood on edge. In either case the evidence demonstrated the incompetence of the rock strata to thrust as a block over the distance postulated.

The chaos of rock debris at the pass (Figure 14) suggests that the rock was not competent enough to have tilted the strata of Mount Ishbel on edge; a plutonic intrusion may have done that—in fact I did find granitoid float along Johnson Creek. In place of overthrusting, the folding of the strata that formed the syncline at Eisenhower Mountain tilted the east dipping beds

toward Ishbel Mountain to about 20 degrees. It is very possible that the granitoid intrusion at Ishbel not only tilted the Ishbel strata on edge, but pushing westward made a slight synclinal fold at Eisenhower Mountain, then the rocks crumbled at the pass and left a pile of rubble.

Conclusion

There are of course other relatively inaccessible thrust contact exposures which were not observed; however I believe that sufficient evidence was gathered from the several exposures that we studied, to throw grave doubt upon the whole overthrust theory when applied to the giant overthrusts, such as the Lewis, Bannock, Moine, and some in the Alps.

As pointed out by Burdick and Slusher in the paper mentioned above, it is relatively simple to distinguish between actual overthrusts and paleontological ones, because the true overthrusts show physical evidences of thrusting, such as gouge (rock powder), mylonite (less finely ground rock), tectonic breccia, and slickensides (similar to glacial stria). On two such thrusts in Arizona such physical evidence was found, but on the Lewis Overthrust exposures I was unable to find any such evidence.

One cannot easily dismiss the evidence that some of the giant so-called overthrusts may in fact be based merely on the order of the fossils. Engineering studies have already thrown great question marks around the large thrusting concept. I will always remember an offhand remark made by a structural geologist in a graduate class at the University of Wisconsin: "I often wonder what giant lubricator greased the underlying rocks, that enabled the thrust block to overcome the friction and slide over several miles of rock terrain?"

Evidently at least one structural geologist was somewhat less than convinced, as have been many a structural geologist since, until Hubbert and Ruby showed the impossibility of such an hypothesis.⁸ Of course they tried to substitute the theory of *pore water pressure* – the theory being that the ground water in the pores of the rock would tend to buoy up the thrust block, thus reducing the friction or drag. However, dense rock with a specific gravity of 2.75 has never been known to float in water, with a specific gravity of one. The theory has not been widely accepted*.

*Since I wrote this paragraph, an excellent paper has been published in the June, 1969 issue of the *Bulletin of the Geological Society of America*, pp. 927-952, by K. Jinghwa Hsu of the Geological Institute, Swiss Federal Institute of Technology, Zurich, Switzerland. Hsu claims that Hubbert and Rubey overlooked the *coefficient of cohesion* between blocks of a thrust. This would make giant thrusts untenable. Hsu writes, "An increase of pore pressure alone reduces only the internal

friction but not the cohesive strength as shown clearly by the experiments of Handin and associates." (Handin, John, R. V. Hager, Melvin Friedman, and J. N. Feather. 1963. Experimental deformation of sedimentary rocks under confining pressure; pore pressure tests. *American Association of Petroleum Geologists, Bulletin*, 47:717-755.) Thus a "roadblock" has been thrown up apparently against the hypothesis of large overthrust blocks.—Burdick.

Some may object by asking, how many, many professional geologists could have been mistaken so long on such a major structural phenomenon as the Lewis Overthrust? The answer is not simple; one must have felt the geologic "pulse" until he knows it like a physician; then he will not longer be surprised when authorities differ on geological propositions. David B. Kitts⁹ well expresses the situation when he says: "The view is not uncommon among geologists, that geology is as much an 'art' as a science. . . . The employment of many seemingly statistical and probabilistic generalizations imparts to geology an aspect of 'indeterminacy'." (Uncertainty).

A generation or so ago paleontologists and stratigraphers pronounced this large area of "wrong order" fossils, an overthrust. Later geologists have regarded their pronouncement so sacrosanct that scarcely anyone questioned the concept. But now at long last some geologists are taking a new, hard look and finding a basic misconception in earlier speculations; namely, the theory of the invariable evolutionary sequence of fossils throughout the geological ages.

In referring to the Heart Mountain thrust faults of Wyoming, Hubbert and Rubey¹⁰ remark that the "picture of fault blocks, separated in some as yet undetermined manner, with the fault plane exposed only briefly in the areas between the fault blocks, seems fantastic if not impossible."

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COMMENTS ON SCIENTIFIC NEWS AND VIEWS

HAROLD ARMSTRONG*

Theistic Evolution and Stories

Those who wish to subscribe to the doctrine of theistic evolution (which, to put it bluntly, is the doctrine that the world evolved, and God sat and watched it happen), often dismiss the account of creation in Genesis.

Some claim that Genesis is written as it is to benefit those to whom it was originally given, and that the people at that time could not have received the evolutionary account. But surely such a statement is nonsense.

Suppose that the account given to the ancient Hebrews had told them that in the beginning, a long time ago, God made the world, and then He made some small creeping things, and these turned into fish, and the fish turned into large creeping things, and those turned into beasts,

etc.? What evidence is there that people would have found it difficult to accept such a story? Other ancient people accepted more improbable stories.

Consider, for instance, the Greek stories in which Ulysses' men were turned into swine, and other stories in which people were turned into birds, or the Greek story of how the world was re-peopled after the Flood. (Incidentally, does anyone know how the Greeks supposed the world to have been "re-animated after the Flood?") Apparently the Greeks had no trouble in accepting these stories, at least until the time of the critical philosophers.

And we find accounts of other weird and wonderful transformations among other ancient people, and among primitive people to this day. (It might be remarked, though, that Aristotle, in another connection, saw the absurdity of the supposed transformations; he said that to suppose

*Harold Armstrong is a faculty member of the Queen's University, Kingston, Ontario, Canada, and holds a Masters of Science degree from Queen's University.

that a man's soul could work in an animal's body is like supposing that the art of carpentry could be carried out with flutes.)

The Old Testament, on the other hand, is free from such stories of transformations; things remain "after their kind."

The phrase: "a long time ago" was used above. Apparently this would have satisfied ancient people; consider the vagueness about time in the Greek and other stories; it is only in Genesis that we get any real chronology.

All the above shows, then, that the argument of "accommodation" through theistic evolution is false; and, moreover, that Genesis is unique among accounts of the beginnings. And a unique account, we maintain, is evidence of a unique Author.

Hydrocarbons on Venus or Not?

Readers will be acquainted to some extent with I. Velikovsky's work, and will know of him as a man who holds quite unorthodox opinions in cosmogony and related subjects. What makes his views more than just curiosities, however, is the fact that his predictions made on the basis of his theories have often come true.

One of his suggestions was that Venus might be surrounded by a cloud of hydrocarbons. Some evidence seems to indicate that this suggestion, unlike many of the others, is not coming true. A recent article reports some studies of Venus in the infra-red. Almost all likely hydrocarbons show absorption in the infra-red around 2.4 microns, but there is no evidence of any such absorption in the radiation reflected from Venus.¹

Of course, this is not final proof that Velikovsky was wrong on this point. It may be that evidence of the hydrocarbons will be found later. But it is a piece of evidence.

Our feelings on this will be mixed. Many of us have sympathy with Velikovsky. On the other hand, he seems to take such a light view of Scripture that we can hardly count him as an ally. Yet, even in so far as his work has served to cause people to hunt up facts that might otherwise go unnoticed, it is worth our while to keep in touch with his position.

Incidentally, is there perhaps another point regarding which these studies of Venus might be useful to us? Is it possible that conditions on (or over) Venus are somewhat like those on the Earth when a canopy may have existed? If so, we might obtain some useful suggestions by considering information about Venus as reported.

Decay of Alcohol and Time

Decay of radioactive elements, e.g. radioactive carbon, is widely considered as a good measure of the age of rock samples, and so forth. It is

strange, then, that the decay of other things is often explained away, if it would indicate ages shorter than are desired.

Some recent studies of oil shale in Germany found, in the shale, isoarborinol, a pentacyclic unsaturated alcohol.² According to the usual time scale, the shale was about fifty million years old, and it appeared never to have been buried deeper than about 300 metres.

The isoarborinol is sensitive to oxidation, reduction, and acidic conditions. Thus, it seems very strange that it should have lasted for so long. Maybe it would be easier to believe that it has been there for only four to five thousand years—the time since the Flood.

It is remarked also that so far isoarborinol has been isolated only from tropical plants, and that the fossil flora and fauna found in the oil shale are near relatives of the recent flora and fauna of South East Asia. This again fits in well with Flood geology: either flora and fauna were very widely distributed before the Flood or the remains were scattered widely by the Flood (or both).

Time Measure and Inconsistencies

A while ago this column mentioned some evidence that the method of dating by argon and potassium may give results much too large, especially for igneous rocks which have been deposited under water. Some more evidence of this fact has appeared.³

A way has been developed, which is supposed to determine the ages of certain glassy rocks by fission tracks. Apparently there is no reason why this method should not be as reliable as the other ones. The present point is that in some comparisons the potassium and argon indicate ages much greater than those indicated by the fission tracks.

We can conclude from this first that there is more evidence that the method of potassium and argon may often not be reliable. In the second place, we must note that we are not compelled to believe the ages indicated by the fission tracks either. For here again we must consider that the world was created—with some appearance of age, as has been pointed out often.

Questions on Breathing

A study of the breathing of the bullfrog (*Rana catesbeiana*) may be of some interest to creationists. The frog does not breathe as we do, but, rather, "... the frog fills the buccal cavity with air, then blows the pulmonary contents through the buccal cavity, and finally closes the nostrils while pumping the buccal contents into the lungs."⁴

The whole process reminds me greatly of the scavenging of a two-cycle internal combustion

engine. We wonder, however, whether it is likely, if breathing "evolved," that two different methods would have developed. If, on the other hand, one method developed first, why, since it apparently works well enough, should it "evolve" into another method?

A Comment in Quotation

. . . when we say that things were not eternally produced by God, we do not mean that an infinite time has preceded in which God ceased from acting, and that after a determined time He began to act. Rather we mean that God produced time and things together in being after they were not. And so we need not consider that the divine will willed to make things not then, but afterwards, as if time already existed. Rather we need only consider that He willed that things and the time of their duration should begin to be after they were not.

If, however, one asks why He willed this, without doubt it must be said that He did this for His own sake. For just as He made things for His own sake so that a likeness of His goodness would be manifested in them, so He wills them not always to be so that His sufficiency would be manifested in this, that when all other things do not exist, He has within Himself every sufficiency of beatitude and of power for the production of things.⁵

Good Ideas in Old Covers

Recently, I happened to look at the old book, *Luck, or Cunning*, by Samuel Butler, originally published in 1887. The argument is that Charles Darwin's "Natural selection" means nothing but luck, and that luck here is manifestly unable to accomplish what it is supposed to have done.

Butler argues for "cunning," i.e., that living beings somehow directed their own development. His views, in fact, as he grants, are close to "evolution" according to such men as Erasmus Darwin, or Lamarck. In fact, he maintains that Charles Darwin introduced his "natural selection" through luck just in order to have something different from what his predecessors had had; and then, after Darwin committed himself to such a doctrine, he was unable to let it go.

This book is of mainly historical interest, and probably the same is true of several other books which Butler published on the subject. For there are now objections to Lamarck's theories which were not known eighty or so years ago. Still, the arguments against "luck" may still be useful, and the book is close enough to be called contemporary with Charles Darwin's work, thus having a viewpoint which it is not easy to get this much later.

Creationists shall not find Butler much of an ally; but, then, we have had to learn to call on hostile as well as friendly witnesses, and to get something from both. And in that sense we might find something useful in this work. Though probably out of print now, this book is in the library of Queen's University, and can be borrowed through the interlibrary loan.

Another Comment in Quotation

. . . it should not be said that sometimes there is motion and sometimes there is not, as Empedocles and Anaxagoras maintained. (Or as in the theory of the "big bang"?—H. L. A.) For to say what they said is comparable to fiction, because they held this without reason. Everything which is held without reason or without divine authority seems to be fiction. Divine authority, however, prevails over human reason much more than the authority of a philosopher prevails over some feeble argument which is offered by a boy.

What we hold through faith is not to be compared to fiction, even though we believe without reason. For we believe on divine authority, which is attested to by miracles, that is, by those works which only God can perform.⁶

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- ⁶*Ibid.*, Lecture 3, p. 487.

ERRATUM

Editors call attention to the fact that the degree identified with Clifford Burdick on p. 49 of the *Creation Research Society Annual*, 1969, is an honorary degree. Therefore the designation

"Hon. PhD." should have been used, as will be found in the footnote identifications of Mr. Burdick in this issue.

UNIVERSITIES AND COLLEGES HAVING THE CREATION POINT OF VIEW

WALTER E. LAMMERTS*

Introduction

A voting member of Creation Research Society has criticized write-ups of colleges having the creationist viewpoint on the ground that there is no guarantee that the college will continue to hold this position. As evidence for his concern, he pointed to certain colleges which once were creationist, but now are evolutionistic in their point of view.

I must admit that it is most certainly true that colleges like individuals can and do change. Write-ups in this regular column can only be reports of conditions as they exist *at the time* the university or college is specially featured. Prospective students interested in attending any one of them will of course have to check upon the continued adherence to creationist concepts.

However, by clearly defining their position and going on record in a general publication, there is less chance of future change for a given institution. Also, in union there is strength, and as more colleges are added to the growing list, each one will be encouraged to be vigorous in promotion of creationist concepts. In fact, it is my hope that in the near future an association of creationist colleges may be formed, holding annual meetings in conjunction with the Creation Research Society.

For this issue I am very happy to feature John Brown University. Data regarding this institution were sent to me by Donald O. Acrey, geophysicist for the Graham Plow, Inc., P. O. Box 2050, Amarillo, Texas 79105. His information was supplemented by a fine letter from Dr. Irwin Wills of John Brown University, giving details as to courses taught, reference rooms, and method of treatment of the theory of evolution.

John Brown University

John Brown University was incorporated in the State of Arkansas in 1919 and, after many years of continuing study and appropriate refinements in curriculum, faculty, and facilities, accreditation through membership in the North Central Association of Colleges and Secondary Schools was accorded the institution in 1962. Coincident with this achievement, a new program of long-range institutional planning and campus development was inaugurated, holding forth the promise of increased beauty and utility for the institution.

Affiliated with John Brown University is the Southern California Military Academy at Long Beach, California. This school stresses a strong

academic program in a Christian atmosphere and is operated the year round.

John Brown University is located at Siloam Springs, Arkansas, in the northwestern portion of the state, and situated in the foothills of the beautiful Ozarks. Continuing improvements in its physical plant have provided a notably attractive campus for the school. At its center stands the beautiful Cathedral Group composed of the Science Hall (Figures 1 and 2), the Library, and the Cathedral of the Ozarks which contains classrooms, music studios, and a spacious sanctuary.

Recent construction includes new laboratories and engineering department facilities, along with remodeling and expansion of residence halls. New dormitory facilities for single men and women, new housing units for married students, a new physical education building (Figure 3), and a new studio and office building for the school's radio station have been completed.

Tuition, room, and board cost \$850.00 per semester. Student financial aid is available through scholarship and loan funds. Enrollment is approximately 1000 students.

It is the objective of John Brown University to send forth, at graduation, young people whose lives reflect the love of Christ; who possess intellectual integrity and an enthusiasm for continued, directed self-development; who are eager and able to perform a share of the world's work; who make worthy contributions to their communities.

Personal View of Dr. Irwin Wills

Testimony as to the creationist position at John Brown University is given by the following splendid statement of scientific principles and belief submitted by Dr. Irwin A. Wills, who holds a Ph.D. degree from the University of Iowa, and is Chairman of the Division of Natural Science and Professor of Biology:

"Which from the beginning of the world hath been hid in God, who created all things by Jesus Christ." (Ephesians 3:9b).

As a Christian, I am compelled to accept the record of the Scriptures and in particular the account of Genesis as the creative work of God the Father, the Son and the Holy Spirit. The Genesis record of creation is God's revelation to man of His work and plan of the universe. In Genesis we find God preparing the universe for the habitation of man, who is God's special object of love and grace even to the extent that Christ is the "Lamb slain from the foundation of the world." (Rev. 13:8)

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

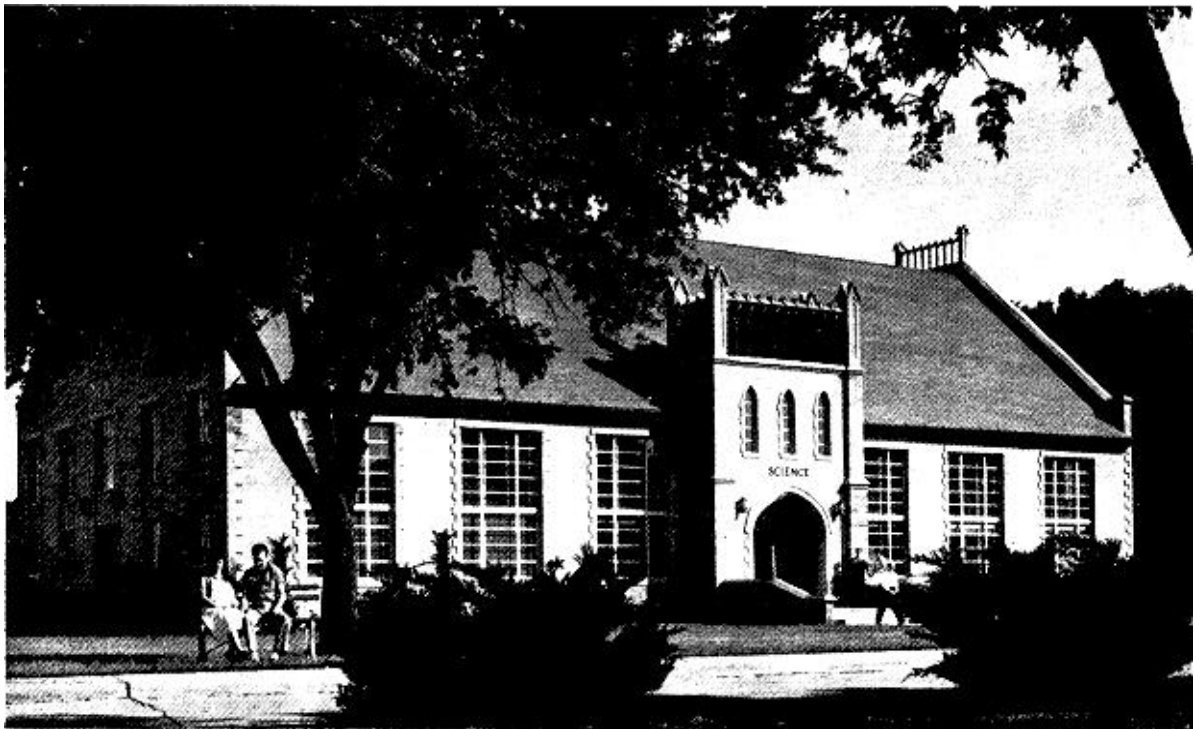


Figure 1. Science Building.

As a biologist, I recognize life as coming from life, and as a Christian I recognize God as the Creator of all life. God's record is that He created life, and not that life came spontaneously upon the earth when the conditions for the appearance of life were suitable in the far distant past. Such theories are without establishment of facts in support of them.

Present day theories as to the origin of life spontaneously in the geological past are built on many guesses and unsupported assumptions. There is an enormous series of gaps between synthesis of amino acids from inorganic substances to the formation of a living cell which recent research has shown to be a very complex, highly organized entity.

The Genesis record is true for we have not found any facts to discredit it. The difficulty between science and the Scriptures is the interpretation of both. Genesis was not written to be a textbook of science, and thus there are many details concerning science which God chose not to reveal in this revelation to man. Man is expected to have an inquiring mind and search out the wonders and mysteries of the universe.

As a Christian biologist, I cannot accept the development of organisms by chance, which is the common philosophy (organic evolution) of a large number of biologists; nor can I ac-

cept the teaching of some other biologists that God created the organisms we see today by evolution (Theistic Evolution). I must also recognize the operation within limits of God's laws of variation and chance. God created the organisms with the ability to adapt to the changes in environment, but not to make a large change as from a cat to a dog.

Classification of organisms into various groups and the designation of species is artificially done by man and does not represent the groupings used by God or spoken of in Genesis. These groups are kinds or "baramins" rep-

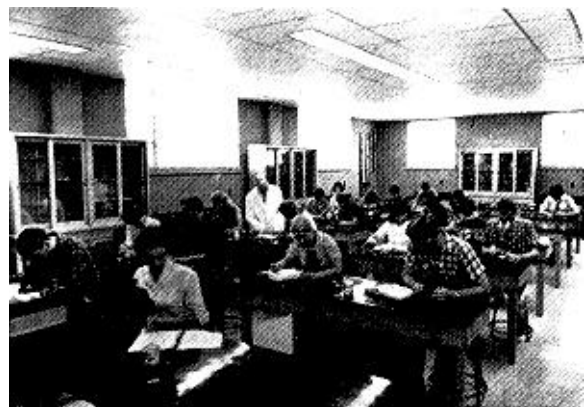


Figure 2. Science Laboratory.

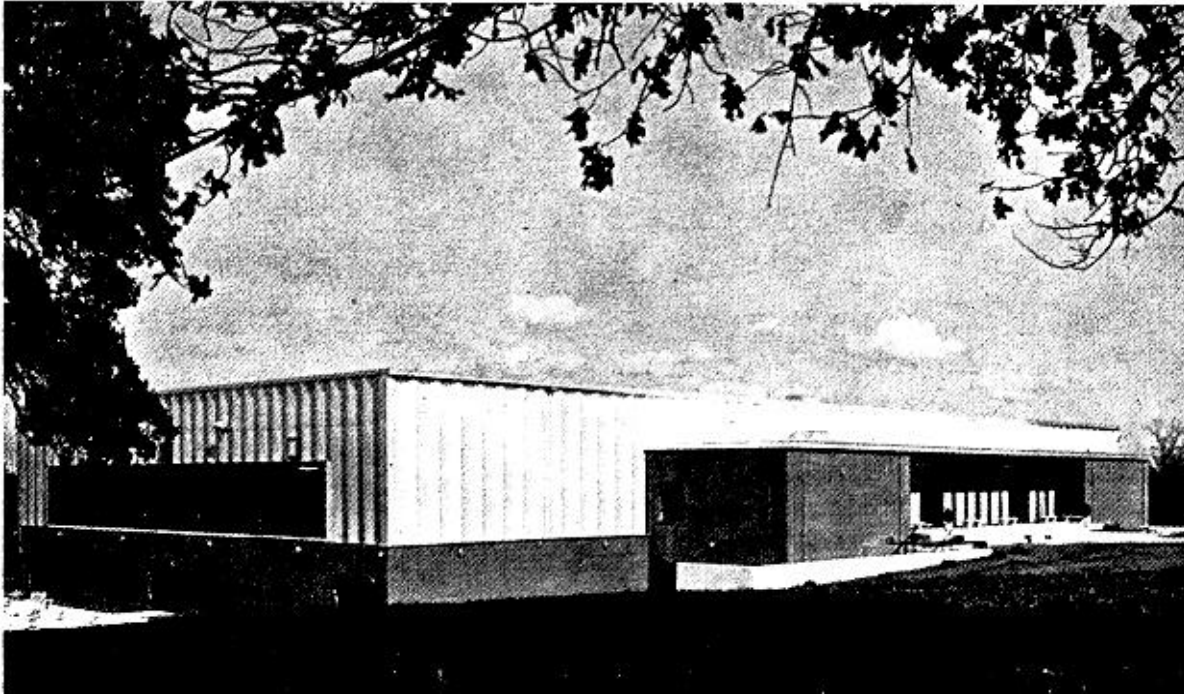


Figure 3. New Physical Education Building.

representing families and classes in the biologist's scheme of classification. There is not a "fixity" of species as "Species" is defined by modern biologists, but variation according to the laws of heredity within the limits of the created kinds of Genesis. Variation is not evolution.

In order that Christians may defend the Scriptures against the attacks of atheists, agnostics and evolutionists, a knowledge of true science, and biology in particular, is desirable. Every Christian student should equip himself with knowledge which will enable him to give a "reason for the faith that is within him." The study of biology guided by a study of the Scriptures and by the Holy Spirit will assist in acquisition of this knowledge.

In personal correspondence, Dr. Wills states, "Concerning the other members of the staff; namely, Dr. Dorothy Woodland, Mr. Stanley Wolfram, and Mr. Earl Williams, they are all creationists; in fact this is one of the things we are concerned about in the employment of our staff members. This was also one of the considerations in the employment of a new member,

Miss Helen Foster, for the coming school year." Dr. Woodland earned her Ph.D. degree from Ohio State University, majoring in chemistry.

The Division of Natural Science consists of the departments of Biology, Chemistry, Home Economics, Mathematics, and Physics. The Bachelor of Arts degree is offered in Biology, Chemistry, Concentration in Science and in Mathematics-Physics concentration. Many students are in the concentration in science program and, more recently, in a Medical-Technology program. These students are preparing for dentistry, medicine, and medical-technology. Also offered is a two-year program of pre-nursing, after which the student may transfer to the University of Arkansas Nursing School and complete her degree in Nursing in two years.

Besides the A.B. degree, students are preparing to teach in the science area. These students receive the Bachelor of Science in Secondary Education. The teaching fields are: Biology, Chemistry, General Science, Mathematics and Physics.

REPORT OF BOARD OF DIRECTORS MEETING

As in former years, the annual meeting of the Board of Directors of the Creation Research Society was held at Concordia Junior College, Ann Arbor, Michigan. The meeting was called to order by the president, Dr. Henry Morris, at 6:10 P. M., May 23, 1969. Silent, individual prayer was given by the members present, asking God's guidance in our deliberations.

Three new members were introduced: Larry Butler, Harold Armstrong, and Emmett Williams, and a visitor, Clifford Burdick. Other members present were Thomas Barnes, Duane Gish, George Howe, Richard Korthals, Walter Lammerts, Karl Linsenmann, John Moore, Henry Morris, Wilbert Rusch, Sr., Harold Slusher, and William Tinkle. The next morning two more board members, John Klotz and Paul Zimmerman, were in attendance. Thus only two, John Grebe and Frank Marsh, were absent.

The treasurer's report was given by Richard Korthals with full itemization of details. A part-time secretary, working at her own home at \$2.00 per hour, has been very successful, and a great help to the Membership Secretary, Wilbert Rusch, whose many duties threatened to overwhelm him. Through this secretary a more complete followup of dues, membership lists, and requests is accomplished. The financial books have been audited and a letter of verification is on file. Circulation of the *Quarterly* now is 1600; library subscriptions have been a valuable source of revenue. Our growth has been gratifying.

Volume I of the *Quarterly* is now completely sold out. Individual copies will not be sold, since this breaks up the series, making it impossible to fill larger orders. Dr. Lammerts reported that an anthology of leading articles published during our first five years, will be published soon in book form, probably by Craig Publishing Co.

The Empire Mountain research project of Harold Slusher and Clifford Burdick was reported and discussed in detail. It was reported in the 1969 *Annual*, and the Board gave approval and thanks. Actual field and laboratory expenses were reported. New research requests should be submitted to the newly appointed head of the Committee on Research, Dr. Larry Butler, 315 North Chauncey, West Lafayette, Indiana.

Next morning, May 24, the Board met and again engaged in silent, individual prayer. The Board confirmed election of members which had been conducted by mail, at which slightly more than 100 ballots were cast and all the nominees of the Board were elected, although some names were written in.

The Board gave thanks to the Textbook Committee for completing the book, *Biology: a Search*

for Order in Complexity, and authorized negotiation of a contract with the Zondervan Publishing House of Grand Rapids, Michigan. The outlet for secular schools is Walker and Co. of New Jersey. To supervise the printing of this book, Harold Slusher has been appointed editor and John Moore assistant editor.

In view of inquiries which have been received, the Board reaffirmed standing policy of concentration on research and publication, not holding meetings of the whole Society at present. The policy of holding closed and open sessions of the Board is to be decided in accordance with the agenda.

Feeling the need of bylaws and possibly changes in the constitution, a committee was appointed to suggest such changes to the next annual meeting. The committee appointed consists of John Klotz, Duane Gish, and Karl Linsenmann.

Morris and Tinkle mentioned the fact that last summer officers of the American Scientific Affiliation suggested that the Creation Research Society meet with them, but at a meeting of their Board the invitation was withdrawn.

Since meetings are held infrequently and each one is important, Lammerts moved and Gish seconded that a member who is unable to attend a meeting shall send an explanation to the Secretary. If he misses three meetings without explanation he will not be renominated. The motion passed.

Following the instruction of the Board, your secretary has written Elmer B. Sachs of Denver, Colorado, that the Creation Research Society does not wish to involve itself in seeking "A Creation Account Equal Teaching Law." This Society is a scientific organization and according to its constitution may not involve itself in political activities. Further, the Society requested that Mr. Sachs publish a statement to this effect in his subsequent literature.

The Board is interested in the need for a textbook in general science for the eighth grade, specializing in the physical sciences. Inquiries or appropriate information should be sent to Harold Armstrong, who raised the matter for discussion. His address is 4 Couper Street, Kingston, Ontario, Canada. Also an elementary level biosciences text was discussed. Anyone interested in such a project should contact Prof. Wilbert Rusch, Sr., 2717 Cranbrook Rd., Ann Arbor, Michigan.

Reluctantly resignations of Drs. Frank Marsh and Paul Zimmerman were accepted. The fol-

lowing replacements were nominated to be voted upon: Wayne Frair, Clifford Burdick, Robert Whitelaw, and Harold Coffin. Elected as officers for the coming year were, President, Henry Morris; Vice President, Larry Butler; Secretary, William Tinkle; Treasurer, Richard Korthals; Membership Secretary, Wilbert Rusch, Sr. George Howe is Editor of the *Annual* and *Quarterly*, assisted by John Moore as Managing Editor. The Committee on Research consists of Larry Butler,

Chairman; Harold Slusher, and Emmett Williams.

As usual the meeting was marked by full and free discussion followed by votes which were almost if not wholly unanimous. For our progress we thank the Lord. We plan to meet at Ann Arbor, 5 P. M., May 22, 1970.

Respectfully submitted,
WILLIAM J. TINKLE
Secretary

LETTERS TO THE EDITOR

We are pleased to send you the following comment on Robert L. Whitelaw's contribution "Radiocarbon and Potassium-Argon Dating in the Light of New Discoveries in Cosmic Rays" published in the *Creation Research Society Annual*, 6(1):71-73.

We are confident that there is no disagreement between the data obtained from radioisotope investigations and the testimony given by Moses concerning the history of this planet, when both are rightly understood. Every effort to find a viewpoint which harmonizes the data from these two sources should be commended. We hope that the following comments will aid other readers in making a fair evaluation of Professor Whitelaw's suggestions.

Most of the fossil organic material available for our analysis (coal, oil, and natural gas) and many of the most deeply buried shell, bone and vegetable fiber specimens have "infinite" radiocarbon age. Analysis of specimens which have been reliably dated by independent methods (dendrochronology and historical records) indicates that the relative amount of radiocarbon in earth's atmosphere has varied less than 10% over the 4,000 years preceding A.D. 1950.

Investigation of the transition between conditions which produced "infinite" ages and conditions which produced 4,000 year radiocarbon ages should offer the greatest promise for finding harmony between radiocarbon ages and specifications provided in the Book of Genesis.

Uncertainties introduced into Potassium-Argon (K-Ar) age determinations by atmospheric argon contamination have been carefully investigated throughout the development of K-Ar dating techniques. If, during a significant portion of the time a specimen has absorbed argon from the atmosphere, the relative amount of atmospheric A^{36} has been less than it is at present, the atmospheric A^{40} correction will be insufficient, an overly large amount of A^{40} will be attributed to K decay, and an excessive K-Ar age deducted.

Since photons are not trapped by a magnetic field, the gamma radiation in the Van Allen belts is limited to the general cosmic background level. The present cosmic photon flux is incapable of producing a significant enrichment of atmospheric A^{36} even throughout the entire duration usually assumed for geological time.

The 300,000 year half-life of Cl^{36} would prevent any significant build up of A^{36} over the past 6,000 years by processes involving Cl^{36} as an intermediate step. The direct contribution from the A^{36} (and also A^{40}) component of the present primary cosmic radiation which penetrates the upper atmosphere would also be undetectable over a period of time many orders of magnitude greater than 6,000 years. Volcanic activity contributes A^{40} enriched argon which has the effect of reducing, rather than increasing, the relative amount of A^{36} in the atmosphere.

Present knowledge of nuclear structure, nuclear reactions and isotopic abundance systematics indicates that one may expect A^{36} to be principal component of primordial argon. Therefore there is no secure basis for assuming that the relative amount of A^{36} has increased in recent time as a result of nuclear reactions now going on in the earth's atmosphere or crust.

Investigation of the A^{40} which may have been included at the time of solidification, subsequent loss of potassium through contact with water, and retention of argon may be the most fruitful avenues of approach for resolving problems presented by K-Ar ages of deposits which contain or overlie fossil material.

Cordially yours,
R. H. BROWN
and
D. E. HALL
Walla Walla College
College Place, Washington 99324
June 6, 1969

(See next page for reply)

A REPLY

I have just a few comments on some of the principal points found in the letter by Professors Brown and Hall:

1. They say, "Most of the fossil organic material . . . have 'infinite' radiocarbon age." A quick glance through the 15,000 dates published to date in the ten annual volumes of *Radiocarbon*, yields the fact that there is an ample quantity of dates *specifically* identified as fossil peat, fossil bone, fossil shells, fossil soil, fossil wood, coal and petroleum and deeply buried shell material—all of which is organic material.

What is more, in most cases, a genuine recognition is expressed, and *even concern* that these datings—all relatively young—are in violation of established geological age notions. Yet nowhere in these volumes—and this is most significant—do the investigators relieve their anxiety by saying that these are rare exceptions, and that most such samples have shown "infinite" dates. Nor are even the dates of such fossil material, Carboniferous material, and identified Pleistocene material, mostly in the "greater than 40,000 years" category. Many are antediluvian, but some are even within the Christian era.

The absolutely inescapable conclusion on the basis of perusal of this wealth of data is that radiocarbon dating has left Lyellian geology (and evolution) without a single straw to grasp,

and such geologists are just waking up to the disaster that has befallen them.

2. About dendrochronology and atmospheric C-14. My best response here is to refer to the remarkable article by Stuiver and Suess in *Radiocarbon*, Vol. 8 (1966), "The relation between radiocarbon and true sample dates." What is more it should be observed that dendrochronology, by its very nature, cannot give exact agreement or good correlation to radiocarbon dating. The former tells us how long a tree lived; the latter tells us (approximately) how long since a *given sample* out of one tree ring ceased exchanging carbon with its environment!

3. The comment (fourth paragraph) about the effect of A-36 in K-Ar age determination has unfortunately missed the point completely. The atmospheric A-40 in a given sample taken today is arbitrarily assumed to be 295.6 times the A-36 present. If however, when the specimen absorbed argon from the atmosphere, the A-36 content was only 1/1000th the A-40 content, then 1,000 times the A-36 present would represent atmospheric A-40, the remainder due to K-40 decay would be smaller, and the specimen would be younger, *not* older.

ROBERT L. WHITELAW,
Virginia Polytechnic Institute, Box 223,
Blacksburg, Virginia 24060.

INTERESTING PUBLICATION

"The Monkey's on the Run (Yes, It's about Evolution)" by D. Lee Chesnut. 1969. Private Publication: 2301 West Shadyglen Avenue, Phoenix, Arizona 85023. Paperback: 75 cents for single copy, postage paid.

Using an intriguing semblance of a court trial, D. Lee Chesnut raises strong questions concerning Darwin's theory of evolution and the Neo-Darwinian concept of evolution. He states early, "All that is called evolution is not the same kind of evolution," Then the author moves relentlessly, but fairly, to a point where the reader encounters a "brief" for the defense and for the prosecution in such a manner that he may successfully be judge and/or jury to reach a clear verdict in favor of creationism over evolution.

This is a very readable examination of popularly accepted theories of evolution in the light of newer scientific discoveries. Supporting evi-

dence for the ancient Biblical account of Creation is such that the reader will find himself required to rethink accepted ideas which he has taken for granted for years. Excellent presentation of criticisms of the fossil record is found in the middle part of the book. Near the close the author shows how his evidence converges against evolution and modern ideas on the origin of life.

This newly prepared book answers the question of evolution in relation to scriptural concepts. It is readable, accurate, and most up-to-date. Many people in 26 states and three Canadian provinces will recognize D. L. Chesnut as a speaker under the auspices of the Christian Business Men's Committee International, who has presented biblical texts along-side principles of nuclear physics to show that "The Atom Speaks—and Echoes the Word of God."

Our Society of research scientists representing various fields of successful scientific accomplishment is 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. Beginning in 1964, we are publishing an annual yearbook of articles by various members of the Society and thereafter a quarterly review of scientific literature. Our eventual goal is the realignment of science based on theistic creation concepts and the publication of textbooks for high school and college use.

1. The Bible is the written Word of God, and because it is inspired throughout, all its assertions are historically and scientifically true in all the original autographs. To the student of nature this means that the account of origins in Genesis is a factual presentation of simple historical truths.
2. All basic types of living things, including man, were made by direct creative acts of God during the Creation Week described in Genesis. Whatever biological changes have occurred since Creation Week have accomplished only changes within the original created kinds.
3. The great Flood described in Genesis, commonly referred to as the Noachian Flood, was an historic event worldwide in its extent and effect.
4. We are an organization of Christian men of science who accept Jesus Christ as our Lord and Saviour. The account of the special creation of Adam and Eve as one man and woman and their subsequent fall into sin is the basis for our belief in the necessity of a Saviour for all mankind. Therefore, salvation can come only through accepting Jesus Christ as our Saviour.

Dues are \$7.00 (Foreign, \$8.00 U. S.) per year and may be sent to Wilbert H. Rusch, Sr., Membership Secretary, 2717 Cranbrook Road, Ann Arbor, Michigan 48104. Voting membership is limited to scientists having at least a Masters degree in a natural science. Sustaining non-voting membership is open to those who subscribe to the above statement of belief at \$7.00 (Foreign, \$8.00 U. S.) per year and includes subscription to Annual and Quarterlies. All others interested in receiving copies of these publications may do so at the rate at the subscription price for all issues for one year: \$10.00 (Foreign, \$11.00 U. S.).

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