

401 HISTORICAL GEOLOGY NOTEBOOK

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TABLE OF CONTENTS

1. Recommended reference books.
2. What is Science? -- R. H. Helms, 1961
3. Does Science Conflict with the Bible?
4. How Long were the Days of Creation? -- K.C. Herrmann
5. The Determination of the Genesis Kind or "Natural Species" -- K. C. Herrmann
6. Determining the Genesis Kind by Reproduction and Fertility -- K. C. Herrmann
7. Why Some Genesis Kinds Split into Separate Species -- K. C. Herrmann
8. The Question of Mutations, Hybrids and Species -- K. C. Herrmann
9. The Problem of Thrust Faults -- K. C. Herrmann
10. Disintegration of Uranium Proves Earth can be No Older Than Approximately 3 Billion Years -- K. C. Herrmann
11. How Old is the Earth? Is Radio Carbon Dating Reliable? -- R. Woods
12. The Validity of Carbon-14 Dating -- Ambassador College Science Department
13. Carbon-14 Dating Lecture -- K. C. Herrmann
14. The Potassium Argon Method of Dating -- John Lundberg
15. Theories of Descent with Change -- The New Biology
16. The Doctrine of Evolution -- Historical Geology by Dunbar
17. Basic Questions on Evolution -- H. W. Armstrong
18. The Geologic Record -- H. Mauck
19. Evolution Lacks Proof -- Miscellaneous Sources
20. Skipping of Species (Chart) -- George McCready Price
21. Seven Proofs God Exists -- G. T. Armstrong
22. Has God Eternally Existed? -- K. C. Herrmann
23. The Origin of Life -- K. C. Herrmann
24. Prehistoric Animals -- William Schelle
25. The Mighty Mammoth of Arizona -- Clifford Burdick
26. The Riddle of the Frozen Mammoths -- Ivan T. Sanderson
27. The Human Race is One -- Dr. Bachman
28. Anthropology--The Science of Man -- H. W. Armstrong
29. There were Giants on the Earth in Those Days -- Dr. Hoeh
30. Letters to an Atheist -- K. C. Herrmann
31. Letters to the Editor of the Truth Seeker
32. Glossary of Related Terms -- A. L. Stout

missing ?- NB. this is superseded or outdated!

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Plain Truth

May 30 Bible versus Evolution
Sept 53 Life Did Not Evolve

Apr 64 In the Beginning
May 64 What Kind of Faith is Req.
of Evol?

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May 56	Evolution without Miracles?	Nov 64	Adam-Man or Myth?
Nov 63	Dinosaurs Before Adam	July 65	Abraham a Scientist?
Dec 63	Proof of the Flood	Sept 65	Are We Alone in the Universe?
Jan 64	Proof of the Flood	Oct 65	Almost Create Life?
Feb 64	Living Fossils	July 66	Genesis vs Geology
Feb 64	Two Creations--Two World-wide Floods		

WHAT IS SCIENCE?

by R. H. Helms

October 23, 1961

The mature student who is about to begin the study of a science is apt to have only a vague idea as to the general nature of science. It is quite true that he uses the term freely and casually assumes familiarity with it. When impelled, by approaching enrollment in the science course, to consider its characteristics he is dismayed by the haziness of his concept of science. Nor is he alone in his haziness. Even the student who has successfully studied several science courses shares a similar view. Here, it is because he has been so intent on the particulars of the course that he has not formed a unified concept of science; he has not identified the place of science in the affairs of the intellect. Clarification of the concept may be attained by consideration of several specific questions.

1. What is Science?

Science is systematized knowledge, organized around theories and laws, by means of which accurate interpretations and dependable predictions can be made, usually of quantitative nature.

2. What is the basic assumption of Science?

The basic assumption of science is the acceptance of the principle of cause and effect: there is a recognizable natural sequence and relationship between causative circumstances and the resulting effects. Effects are not the result of operation of mere chance, nor yet of an arbitrary will. Sometimes this is referred to as the orderliness of nature.

3. What is the criterion of Science?

The criterion of Science is the submission of all questions and tentative answers to nature for verification or rejection by repeated experimentation and observation.

4. What is the method of Science?

The scientific method may be stated in six steps: (1) recognition of a problem; (2) isolation of the pertinent aspect of the problem; (3) formulation of a hypothesis in answer to the problem; (4) submission of the hypothesis to experimentation until affirmative results are attained and (6) co-ordination of the problem solution with the rest of the body of organized science.

5. What is the difference between scholarly method and scientific method?

Scholarly method consists essentially of logical study of the heritage of man as recorded in his literature. Basically it consists of compilation, correlation, reconciliation, abjuration, annotation, summarization, extension, deduction, and induction. Scientific method is based on logical study by experimentation and observation of nature rather than by study of literature. Thus the library is the work place of the scholar and citation to the literature is the mark of

his work, while the laboratory is the work place of the scientist and tabulated data is the mark of his work. The scholar submits to the judgement of the intellect as revealed by ideas of recognized authorities; the scientist submits to the authority of nature as revealed by experimentation.

It is evident that while intellectual endeavor may rely solely on the scholarly method, the use of scientific method requires scholarly procedure for the formulation of a working hypothesis, and for the final correlation with the body of science.

6. What are the stages of a scientific idea?

The stages in the development of a scientific idea may be listed as: (1) conjecture, (2) hypothesis, (3) theory, (4) law: The conjecture may be in the nature of a hunch. The conjecture having been refined, and considered as to reasonableness but not rejected, becomes a hypothesis. The hypothesis is then submitted to experimentation in every conceivable aspect and, if not rejected, in its refined form becomes a theory. The theory is then considered in the light of the rest of the body of science and upon being correctly fitted and correlated becomes a law. Either hypothesis, theory, or law may be used as a working principle in the formulation of interpretations and predictions which are the functions of science. (Popular usage assigns to theory the sense of speculation. Such usage may also consider a specific situation in the light of a single aspect rather than the whole and refer to it as theoretical. Both are to be regretted.)

A popular enumeration of the stages of a scientific idea has been stated as ! ? . § (exclamation, question, declaration, exploitation).

7. What are the goals of Science?

The goals of science are three-fold: (1) to increase man's knowledge and understanding of the universe, which is to say that the purpose of science is the attainment of more science; (2) to provide knowledge basic to non-scientific intellectual pursuits; and (3) to produce know-how and things contributing to man's needs, comforts, and luxuries. The last is called applied science, or invention and engineering in physical sciences and horticulture, husbandry, and health science in biological science.

8. What are the classes of Science?

The classes of science may be taken as pure and applied. The study of pure science is directed to the attainment of knowledge and its systemization for its own sake, with no regard for its potential use. The pure scientist supposes that others may follow and perhaps find so-called practical application; but the pure scientist will insist that nothing is so practical as knowledge itself. Applied science is directed to the use of science for satisfaction of human wants; attainment of new knowledge is secondary to economic goals and is sought as means to that end.

9. What is the difference between Science and Art?

The body of science is distinguished by its orderly cumulative nature, by its organic growth, by its articulated growth. Science pertains to knowledge; art to achievement. Science may be pure, directed to the intellect alone; or applied and directed to physical needs. Art may be fine, directed to the emotions; or practical and directed to physical needs. Neither science nor art can grow without the other. The advancement of science is by art, and each achievement of science is a work of art, sometimes a masterpiece, capable of emotional stimulation and satisfaction inherent in art. The production of a work of art requires "know-how", and implements and materials, all of which are parts and products of science.

10. What are the aspects of Science (a) to laymen? (b) to scientists?

The layman who lacks maturity and has had little formal contact with science may look upon it as a kind of magic which by the performance of some mysterious ritual can bring forth new inventions or pronouncements. Somewhat greater maturity leads the layman to consider science as an encyclopedic body of knowledge which serves as arbiter in widely varied questions. He may also look on science as the producer of new inventions and pronouncements. Still other laymen look on it as a procedure which may be invoked for the solution of perplexing problems. There are also persons who in fear and distrust consider science to be a source of evil and a threat to mankind, partly because of complications which it introduces to human living, partly because of its delving into tabooed mysteries of nature, and partly because of dangerous potentialities which it develops. Probably more serious to human society are those naive and sometimes unscrupulous persons who present science as personified in certain individuals who are thereby made to speak as with the full authority of all science.

To the scientist, and often to the informed layman, science is a fund of knowledge laboriously gained and systematized. He is apt to consider science to be a continuing search for truth. To some, science may seem to be a fellowship devoted to research, and perhaps a court which establishes the validity of the results of his research. To the devotee, science may become a faith, taking on the nature and status of religion.

11. What are the differences between empirical, rigorous, and descriptive science?

Empirical science is science only partly understood, based on observation and experimentation, but without logical derivation from the body of science. It includes hypotheses and even some theories usually of limited application. They are like outposts of science awaiting complete union with the whole of science. Rigorous science is science fully deductible and logically proven, by the rest of the body of science. It's logic resembles that of geometry. Growing science is apt to be largely empirical, rigorous science is mature. Empirical science is concerned with what; rigorous science with why; both may ask how much.

Descriptive science is concerned with what and why but gives less attention to how much. It is preoccupied with the nature of phenomena and avoids rigorous treatment.

12. What are the levels of Science?

The levels of science are aggregate and atomistic. Sometimes these are called macro and micro, in which case the terms microchemistry and microanalysis must be recognized as belonging to the aggregate, or macro level even though the amounts involved may be millionths of grams. The atomistic, or micro, level is concerned with ultimate particles: of matter, atoms and subatomic particles; of energy, photons and quanta. Atomistic science involves three principles not common to aggregate science: (1) discontinuity, (2) statistical probability, and (3) relativity. Surprisingly these principles, especially the last two, also find common application in cosmology, which is large scale study of astronomy. Aggregate, or macro, science deals with objects of commonplace size, and familiar to all persons. In biological science the micro level is concerned with viruses, and certain studies of individual cells.

13. What is the organization of Science?

Science is divided firstly in two divisions: abstract and concrete. The former is chiefly mathematics, and the latter natural science. Natural science is divided into the division which pertains to living things, and into that which pertains to inanimate things. The former is known as the biological sciences, and the latter as the earth and physical sciences. Biological science is divided into botany--concerned with plant life, and zoology--concerned with animal life; human physiology also merits separate mention. Earth sciences include geology, hydrology, and meteorology; physical sciences include astronomy, physics, and chemistry. Each of these sciences is further subdivided: thus physics includes mechanics, heat, electricity, sound, light, radioactivity, structure of substance, and structure of atoms. For any division of science there are areas of mutual concern with practically all other divisions of science. Many of these are of such importance as to have developed into sciences themselves. Thus in connection with physics there are biophysics, geophysics, astrophysics, and physical chemistry.

In addition to the natural sciences, there have been recent advances in the study of human affairs to such extent that the term social science is becoming fairly common. This field with its several branches, appears to lack the exactness common to science, and generally allows only a rationalizing explanation of phenomena, rather than concrete interpretation and certainty of prediction.

14. What is the history of Science?

At the risk of over-simplification the history of science may be divided into seven ages: (1) the period of priests and magic in which phenomena of science was used for the perpetuation and enrichment of religion and its priesthood. Our term "magic" is derived from the marvels as practiced by the priest--scientist. Religion in ancient Egypt and Babylonia offer typical instances of this era.

of science. (2) Often coexistent with the priestly era was that of the artisan's empiricism. Indeed this phase of science has persisted from man's beginnings as an intelligent being to the present. Empiricism of the artisan may be considered to have reached its peak in the countries of Asia Minor several centuries before Christ. (3) The third era of science was the Greek age of logic based on observation. No previous era had been so productive nor so near to the present nature of science. Notable achievements included the measurements of the circumference of the earth, by Eratosthenes, the measurement of the distances to the moon and to the sun by Aristarchus, and the formulation of the science of botany by Aristotle. Though first class observers and superb logicians, the Greeks were poor experimentalists, and this lack prevented firm establishment of their science. (4) Following the decline of Greek intellectualism came the age of utilitarianism and dogma which persisted throughout the dark ages. (5) With the Renaissance came renewed interest in science and an independence of thought which resulted in rejection of old dogmas and consequent opposition and persecution by the established church. In this period experimentation was firmly established as the basis for scientific reasoning. The period is therefore known for the rebirth of science. (6) Following the establishment of experimentation came the period of organization and expansion which is known as the classical period of the 18 and 19 centuries. In that period the various sciences were clearly delineated and brought to a presentable wholeness. (7) With the approach of the 20th century science invaded the fields of the unseen and modern science may be said to be the sciences of the invisible with atomistic research leading the way. These sciences give much attention to electronics, electromagnetic radiation, atomic and nuclear structure, organic molecules, cellular functioning, and cosmology.

It is significant that the mode of human living has undergone greater change since the advent of classical science than in all the centuries since the stone age, that the greater part of that change has occurred since the advent of modern science less than a century ago, and that the rate of change appears to be locked to the rate of advancement of science.

Does SCIENCE Conflict with the BIBLE?

1. Is the Bible a textbook on Science?

In college class rooms, and even high schools, instructors unable to reconcile their teachings in evolutionary "science" with the teachings of the Bible, tell students "the Bible is not a textbook on science." This is true, but they give the inference that the Bible was written by men ignorant of "science" or the laws our modern scientists have discovered, and were writing merely on "religion" and not on "science," and consequently we must not be surprised if we find statements in the Bible that are not scientifically true---or that are contrary to truth as our modern scientists teach it today.

Now we shall see that there ARE contradictions between the teachings of the Bible, and what modern instructors are teaching as "science". This is important, because their teachings are leading millions of students to believe the Bible is not true. If the Bible statements on scientific subjects are not true, then all of the Bible is not true, and all of the Bible is not given "by inspiration of God" (II Tim. 3:16). And if these parts of it are not true, how can we know those parts are true that promise eternal life thru Christ Jesus? If ALL of the Bible is not true, we cannot know that ANY of it is true. And if ALL of it is true, and if PART of it contradicts some of the teachings of modern "science", then that part of modern "science" is not true. They cannot both be true. This is important because you cannot believe both, and you will come in contact with scientific teachings, and with other young people who believe these "scientific" teachings that refute parts of the Bible, and if you are to have a sound BASIS for your faith, and be able to defend it, you must know and understand what these differences between "science" and the Bible are, and which is true, and WHY.

Here are the true facts. The Bible is NOT a scientific textbook. It does NOT deal primarily, but incidentally, with what we call "science". Why? First, because "science" deals only with the MATERIAL universe, and with organic and inorganic MATTER, while the Bible is a REVELATION from Almighty God, revealing to man what he does not know and cannot find out except by revelation from God---the TRUTH primarily about SPIRITUAL matters and ETERNAL LIFE, and only secondarily about the physical and material. The Bible deals with lost and fallen man, revealing to him God's plan of redemption. Second, because it is a REVELATION from God, and God does not reveal that which man can find out for himself; and true science is merely an intellectual study of the material things, most of which a man can find out for himself.

However, the Bible deals indirectly or secondarily with the MATERIAL, and contains many statements bearing on scientific facts. God is the Creator of all matter, force, and energy. He is the Creator of all the LAWS of the physical universe. And so it is

inevitable that we should find in the Bible a REVELATION of certain facts and truths of a scientific nature, having to do with the material universe, its laws and principles, and of life, and of organic and inorganic matter. Now keep in mind, that many of THESE statements in the Bible do disagree with and contradict many explanations and teachings of "modern science." The Bible itself claims it is the Word of God, a revelation of TRUTH from God, and that its words are TRUTH. We shall see whether the teachings of modern "science" disprove any of these Bible statements.

2. What is Science?

"Science" is a mystic word that frightens many people. Students in school are taught to believe that whatever "science" says is true, and must never be questioned. But the Bible tells us to QUESTION these things---to PROVE ALL THINGS (I Thes. 5:21). The word "science" means organized knowledge of facts, or laws and principles. It is a French word derived from the Latin "scientia," knowledge, and from the "scire," to know. And so what we call "science" seeks to KNOW, and to EXPLAIN, and to classify, knowledge of the material universe. The science called Astronomy seeks to find out, understand, and know, and explain, and classify knowledge of other planets, and suns, etc., which we call the stars, in the sky. The science we call Geology seeks to classify knowledge of the earth, its crust, strata, lakes, rivers, oceans, mountains, deserts, etc. The science we call Biology seeks to explain and classify knowledge of living organisms, both in the plant and animal kingdoms. The tools of modern science are said to be observation and reason. What is therefore classified as definite knowledge or TRUTH, and called scientific facts, is merely the conclusions man has arrived at by processes of human reasoning, in explaining things actually seen and measured. Now it is a fact that men called "scientists" are exceedingly careful and cautious and conservative and accurate in making observations and measurements. But it is also true that these same gentlemen are extremely extravagant, and prone to error, in their processes of reasoning from what they have observed and measured.

It is freely taught in schools and colleges that everything our scientists claim has been PROVED. The student is induced to accept every theory and claim of "modern science" as demonstrated and proven FACT that you must not question, but accept.

But this is not true. The men called scientists as a class are very careful and cautious in observing and measuring things---but they are very careless in their reasoning---that is, in trying to EXPLAIN, by their own reason, what they have seen and measured. So we may learn from this that, if the teachings of science deal only with actual facts that have been seen and measured, the teaching will probably be the truth. But when the teaching is an EXPLANATION of the things observed, then it is likely to be an error or a fairy tale. For instance, when they tell us that two plus two equals four, that is a FACT that can be SEEN and both plant

and animal, just sprang out of dead matter many millions of years ago, they are telling us something they have never SEEN nor MEASURED---but have only IMAGINED in their minds. Therefore this is likely to be a fairy tale. It is only a theory, not a proven fact. When they tell us, in the science of chemistry, that water is composed of two atoms of hydrogen to one of oxygen, they are telling us a definite fact they have SEEN, and MEASURED, and PROVED. But when they tell us about the Old Stone Age, and the Ice Age, and other prehistoric ages, they are telling something they have made up IN THEIR IMAGINATIONS, which no man ever SAW or MEASURED, and which can never be PROVED, and is only a theory and a supposition. We should not, therefore, accept such a statement as a proven fact, for it is not---and if it is, then the Bible is not true. Yet they teach this in all public schools as if it were an absolutely proven fact, and most people blindly accept such statements without ever thinking to question them.

Now WHY is it that our scientists are nearly always WRONG in their THEORIES and their EXPLANATIONS? It is because all scientists of international standing---all the leaders who originate the theories that come to be taught as scientific facts---are actually atheists and infidels. They may CLAIM to believe in God. But they do not. None of them believes that God is a PERSONAL BEING. None believes God is the God described in the Bible---a PERSONAL BEING who is a SPIRIT, who has a face, eyes, mouth, ears, arms and hands, feet, etc., who actually CREATED all things visible and invisible, in the heavens and the earth, and who CREATED man in His own image, and who sees and hears and knows ALL THINGS, who can THINK, and PLAN, and has KNOWLEDGE, and JUDGMENT, and WISDOM, and who brought into being every law, every force, according to a definite plan. They do not believe in a God who ever did, or does, or even can, perform miracles. Every scientist claims miracles CANNOT HAPPEN. They do not believe man is a fallen, sinful being who needs redemption thru a Saviour. They do not believe God sent His only begotten Son, Jesus Christ, into the world to be born in the human flesh of a virgin, and whose blood atones for our sins. They do not believe there ever was or ever will be a resurrection from the grave. In other words, they do not believe in the God you and I believe in---they do not believe in Christ as personal Saviour from sin---they do not believe the literal statements of the Bible. Every real "scientist" believes miracles cannot and never did happen. They believe all change has come about in a gradual, slow-moving way, according to fixed laws of a material nature, without any sudden action or change produced by a personal God. And so you can see that these scientists have done ALL OF THEIR THINKING AND REASONING FROM THIS POINT OF VIEW. They have tried to explain everything from this viewpoint. Consequently, everything in science based on this kind of REASONING is true ONLY IF THIS VIEWPOINT IS TRUE. And if it is true, then the Bible is false.

Now have our scientists ever made any mistakes? Yes, they have had to acknowledge many mistakes. In Lamarck's day, a hundred years before Darwin, it was accepted as a scientific fact that man came by

Lamarck's theory of "Use and Disuse", or adaptation to nature and environment. But in Darwin's day this became all out of date, and it was considered scientific fact that man came by Darwin's theory of "Natural Selection." But the absence of any "missing link" or connecting or intermediate species, either in fossil form or in life, has so discredited this theory that today the latest fad is to believe that man came by a series of mutations, or sudden jumps. So what was considered science 25 years ago is now all out of date. Again, 25 years ago you would have been considered as ignorant unless you believed that the earth came into being by the "Spiral Nebulae" hypothesis of La Place. But today you must believe the Crowder Chamberlain, if you are to appear to be educated. If you believe God CREATED the earth and set it turning on its axis and traveling in its course just as it does, because God thought and PLANNED it all, and had supernatural POWER to bring it about, a scientist today will call you ignorant and say that you believe in superstition.

If the Bible is the TRUTH, as it claims to be, (John 17:17), there is no conflict between the Bible and TRUE science---for SCIENCE is TRUTH. But a great part of the teachings called science are only theories and speculations of misguided men who are ignorant of TRUTH which is revealed from God, and is only "science falsely so called" (II Tim. 6:20). The scientist assumes that because his theories are contradicted by the Bible, and he calls his theories science, that this proves the Bible is not true. The only teachings of modern science which do NOT agree with the Bible are these theories and speculations of man's reasoning. The scientific viewpoint is the opposite of the truth of the Bible, so all explanations of things observed through the evolutionary concept must of course disagree with the Bible.

3. An Example of Scientific Reasoning

If we reason from PART of the facts, or from a false assumption, we arrive at a conclusion apparently PROVED---yet utterly false! Here is an example. There is a well-known law that heat expands, and cold contracts. This is a FACT. It has been seen, observed, measured. Now let us reason from this fact, as an example of arriving at a scientific conclusion. We will reason, then, that as soon as the surface of the water freezes, the ice, being contracted under the influence of the cold air, would of necessity become heavier. And so it would sink to the bottom a layer at a time. Now this is a perfectly logical conclusion, based on that particular law. A scientist, living in the hot torrid zone, who had never seen ice, but had made tests to prove that cold contracts and heat expands, might work out this conclusion, and call it a FACT of science. This is the sort of process by which most scientific facts have been worked out. But we know this conclusion is not true. It is wrong because it assumes in regard to creation. But we happen to know that just before water reaches the freezing point, a DIFFERENT LAW is suddenly brought into operation; whereby, it ceases to contract and commences to EXPAND. Hence ice does not sink, it floats, being lighter than the unfrozen water beneath it. This sudden CHANGE of law proves

Our earth is not controlled by BLIND law---but by a Wise and Intelligent LAWGIVER!

Here are three examples of where science contradicted the Bible. Several years ago Sir Charles Lyell, one of the world's great scientists, told the world of a great scientific discovery. In the Nile River in Africa, the flow of the river brings down mud which it deposits in the delta at its mouth. Scientists had carefully calculated the rate at which this mud was deposited. While boring in the delta, they discovered at a considerable depth what was evidently a piece of human-made pottery. They measured carefully from the surface to the spot where this was found. From their careful calculations, they said it must have taken 30,000 years for this quantity of mud to be deposited above it. So this "PROVED" that the Egyptians were making pottery 30,000 years ago! Now this contradicted the Bible, for the Bible chronology shows that man was first placed upon the earth about 6,000 years ago, and the ancient Egyptian civilization was not more than 4,300 years ago. At the time this was hailed as a great triumph for science, and as disproving the Bible. This marvelous piece of pottery excited great interest and was exhibited all over Europe as the latest scientific discovery. But when it was taken to be exhibited in Rome, it was found to be a somewhat modern piece of Roman pottery, that had in some unusual way gotten buried deep into the Nile delta! So this bit of science that proved the Bible false turned out to be another of the BLUNDERS of modern science. But it was the science of the day!

Some years ago a great stir was caused in the scientific world. An immense quantity of flint implements was discovered near the Delaware River in a bed of gravel said to belong to the great "Ice Age". This proved once more, of course, that man was on the earth long before the Bible says he was. Again, this proved the Bible was not true. But it was later learned that these implements were not found in the ancient undisturbed gravel at all, but among a lot of loose debris in a place where modern Indians resorted to find flint material for their implements. These "prehistoric discoveries" proved to be nothing more than the unfinished pieces which these modern Indians had rejected and left behind!

Again, for many years scientists maintained that writing was not known until long after the days of Moses. This proved, they argued, that Moses could not possibly have written the Pentateuch. Even Jesus Himself said Moses WROTE these books (Mark 10:5; John 5:46). But they said Jesus shared the ignorance and prejudices of His day! But the spade has since dug up proof out of the ground showing it was these scientists and not Jesus, which were going by ignorance and prejudice. In the British Museum today you can see the Tel-el-Amarna tablets containing writing in the cuniform said to be dated 100 years before Moses! In another part of that museum, you will now see the huge, black stone eight feet high discovered by H. de Morgan at Susa in December, 1901. It contains the written laws of King Hammurabi, said to have lived 500 years before Moses.

This gives an illustration of what was looked upon, at various recent dates, as science. We may be thankful the Bible does not agree with such science.

The Bible is a REVELATION FROM GOD. It reveals to man things he does not know and cannot find out. It REVEALS the truths thru which he may come to understand, and RIGHTLY explain what he discovers and sees and measures. The Bible, then, is not a textbook on science, but a REVELATION of truths upon which to base a TRUE SCIENCE. True science and the Bible will always agree. Next week we will take up the Science of Anthropology---or the Science of MAN. We shall consider: (1) How man came, (2) When man came, and (3) What man is. After that we shall consider the Science of Geology and of Astronomy. Actual observation and measurement in these PROVES THE TRUTH OF THE BIBLE. Yet modern scientific textbooks do not contain this truth!

How Long Were the "Days" of Creation?

Were the days of creation week "ages"? People insist that God could not set the world in order and create life forms in six literal days. Why?

by Kenneth C. Herrmann

WHY HAS doubt about creation entered Christian minds today? Why do men in this "enlightened age" reject the unmistakable meaning of the Word of God?

For over 3000 years men of God have believed the literal meaning of the account of creation recorded in Genesis 1 and 2. To them the Scripture said that in six 24-hour days God created the heavens and the earth and rested the seventh day.

Holy men of old rested on the Sabbath day believing that it had its beginning as the final day of that creation week — that it was a memorial of creation. For 3000 years righteous men have dared to take God's inspired record at face value.

No record is found of "ages" rather than days of creation in the ancient history of the Hebrews or of early Christians.

Why, then, does an "enlightened age" reject the truth of literal days of creation?

How the Idea of "Ages" Began

Since the days of Darwin a controversy has raged between the Bible "literalists" and evolutionists. The theory of evolution, a theory which remains unproven even today — and always will — became the entering wedge to separate the Bible scholars from their trust in the truth of the Scriptures.

The evolutionist looked to the evidence on hand — fossils of varying types in the earth and evidence of variation among living organisms. With his mind stubbornly set that he would not believe what could not be demonstrated before his eyes, he preached the idea to

the world that man had evolved from lifeless matter over a period of millions of years and that the Scriptural account of creation was gross superstition.

With few exceptions, religious circles denounced evolution with equal vigor. Some of these refused even to look at the facts the evolutionist presented, much less to question his faulty reasoning.

Between the two broad extremes a third group sprang up, accepting the facts of the atheist and swallowing his reasoning without question. Reverencing the Bible and not willing to give it up, *yet thinking that perhaps it didn't mean quite what it said*, this group concluded that perhaps Moses misunderstood, perhaps the record had become confused or altered. Evolution *looked* so plausible, evolutionists' arguments so sincere and the Bible so old and uncertain in meaning, so difficult to understand. "Ages" of creation became the cry of this school of thought.

That is the history of the teaching in regard with creation week. An attempt to believe contrary to Scripture and yet believe the "easier" portions of the Scripture.

What proof is there that God created the present order of things on this earth in six literal days? What difference does it make whether one believes in "ages" of creation or literal days of creation? Let's question the record and set aside doubts once and for all time.

What the Scriptural Record Really Says

Distorted interpretations of the creation record have resulted mainly from two causes: (1) *a desire to read a false meaning into the Word of God*, and

(2) *a pitiful ignorance of the account itself.*

A brief review of the account of creation is certainly in order here. Open your Bible and study the account thoroughly as you read further in this article and after reading it.

"In the beginning God created the heaven and the earth" — this tells about the original creation. The second verse of Genesis 1 refers to a destruction which came upon the earth following the sin and rebellion of Satan and the angels who followed him. (Request our free article, "Did God Create a Devil?" for details.)

Darkness was upon the face of the ocean. The renewing of our earth to a state of order followed in six days.

At dawn the first day, light penetrated the dense clouds. The clouds rose the second day and an expanse or heaven was formed, the one in which the birds fly. Thus the waters on the earth ("waters under") were separated from the clouds ("waters above"). The ocean receded, dry land appeared and grass and herbs were planted the third day. As the fourth day progressed the sun became visible through the thinning clouds. Toward evening the moon and stars appeared. (For further information on Day 1 in relation to Day 4, write for our free printed letter on the subject.)

Notice how agreeable with the laws of science this is. Birds and sea life were created the fifth day, the land animals with Adam and Eve the sixth, and a day of rest and worship for the man the seventh. Thus in one week order was restored to the earth.

But was it a literal week? Carefully notice that no close is mentioned to the

seventh day. Check this point in Genesis 2:1-3. All the other days were "an evening and a morning" but this expression does not follow the seventh day. Why?

Now if, as some teach, the seventh day hasn't ended yet, it would already be almost 6000 years long. And if it were that long couldn't the first six days be similar periods?

The Seventh Day Did End!

Here's proof not from the imagination of men but from God's Word *that the seventh day did end!*

Genesis 2:2. "He [God] *rested* on the seventh day from all his work." Not "*is resting*" from all His work!

Exodus 20:11. "The Lord . . . *rested* the seventh day."

Again Genesis 2:3. "In it [the seventh day] he *had rested*." He blessed the sabbath AFTER HE *had rested* on it.

Hebrews 4:4. "God *did rest* the seventh day from all his works." Not "*is resting*"!

The seventh day of creation is PAST, for on it God *rested*. No Scripture exists saying He *is resting* on a continuing seventh day! The seventh day of creation week did end.

Double proof of this fact is found in the scriptures telling of the WORK God has done *since* that day of rest. "My father WORKETH hitherto [even now], and I work" (John 5:17).

Jeremiah 50:25. "This is the WORK of the Lord God of hosts in the land of the Chaldeans."

Exodus 32:16. "The tables were the WORK of God, and the writing was the writing of God, graven upon the tables."

Joshua 24:31. "Joshua, and . . . the elders . . . which had known all the WORKS of the Lord, that he had done for Israel."

God has worked since that seventh day. Both the Father and the One who became Jesus Christ by flesh birth have worked since that first Sabbath day ended!

Man Still Disagrees!

Yet in the face of God's Word, men will believe "days" to be "ages" and that God is now resting and being refreshed. Thus one sect teaches, "Mea-

sured by the length of the 'seventh day,' on which God *desists* from work and *is refreshed*, each of those days was 7000 years long."

Reread the preceding scriptures: The 24-hour day upon which God rested *had passed* and has been followed by nearly 6000 years in which God has worked. Then compare the above quote with Exodus 31:17, "In six days the Lord made heaven and earth, and on the seventh day he *rested* and *was refreshed*." Not *is* (being) refreshed!

Here is the truth from which man seeks to shield himself. It was on a literal seventh day that God rested. It was a literal seventh day of the week that God hallowed for the human race. The observance of the seventh day and the origin of the week go back to Adam, not Moses!

Following that rest, God blessed the seventh day and set it apart for holy use. *The first week, creation week, had ended.*

The Witness of Nature

In the time of Moses the witness of two *men* was accepted as being the truth. Many "witnesses" have been given from *the Word of God* that these creation days were literal days and there is yet more proof. God leaves no room for doubt in the minds of those who diligently study His Word.

Consider the plants which were created on the third day. The sun did not appear until the next day. *If these "days" were each 7000 years long then these plants would have had to survive 7000 years without sunshine.* Those who believe the days to have been ages which were millions of years long are faced with an even greater absurdity.

Or consider this, plants were made the third day, insects on the sixth. How did certain specialized plants continue to exist through ages without their insect partners? The *Encyclopaedia Britannica* states that two groups of insects which include *bees, wasps, butterflies and moths could not have existed without the honey- or nectar-bearing plants, NOR COULD THESE PLANTS HAVE EXISTED WITHOUT THE INSECTS.* Without insects to pollinize them they could not bear seed.

The types of plants which require in-

sects for pollinization are those with brightly colored flowers, having an odor to attract insects and containing nectar to provide them with food. They include such common plants as the maple tree, the strawberry, the blackberry, the honeysuckle, and the poppy. *The Bible states that these plants were made on the third day and that the insects were not made until three days later. Those who claim creation days were each 7000 years long are faced with the conclusion that these original plants must have had to live 21,000 years before they could produce seed — an utter impossibility!*

People find it easier to swallow a camel than to believe the plain simple statement of scripture: "In six days God made heaven and earth." You will either have to accept God's account of creation as being true or lose your faith and trust that His Word is dependable. Evolution will not mix with the Scripture any more than iron will mix with clay. Ages and evolution must go!

What Is the Meaning of "Day"?

The word "day" in the Bible is often used to represent an indefinite period of time. In fact the Hebrew word, *Yom*, translated day is occasionally translated "time." *But in EVERY CASE where the numerals first, second, third, etc. occur, the word day is obviously and clearly referring to a natural 24-hour day as we know it.*

The Scripture speaks of the day of vengeance, the day of adversity, the day of temptation, just as we do today, meaning a time or season. Yet when it speaks of the fourteenth day of the month (Lev. 23), the seven days of Unleavened Bread or the fifty days until Pentecost, *the word "day" can mean only a 24-hour period.*

Symbolically a day may represent a "year" (Ezek. 4:6), or a "thousand years" (II Peter 3:8), but symbolic interpretations may not be applied in all cases. The three days Christ was in the grave were not 3 years or 3000 years. Neither would any symbolic interpretation fit in the first chapters of Genesis where we have proven from nature that they must have been natural days of twenty-four hours.

Another Bible meaning of the word "day" as a 12-hour period is also in

common usage today. When it speaks of the three days and three nights Jonah was in the great fish's belly or the three days and three nights Christ was in His grave, the word "day" refers to the daylight part of the 24-hour period. This "day" is by Christ's own definition 12 hours. "Are there not 12 hours in the day?" (John 11:9.)

The scripture used by many as an excuse to believe the days of creation were ages really suggests no such meaning. It is Gen. 2:4 which refers to the time of creation, "In the *day* that the Lord God made the earth and the heavens, and every plant . . . and every herb." Lacking a numeral before it, it can refer to a longer period of time than 24 hours and it does! This "day" refers to the first six days of creation week.

It takes a great deal of imagination to use this as a proof that a day means an age or even 7000 years.

The Obvious Meaning

Can the word *day* mean 24 hours in one part of a sentence and an age in another part? It would have to if one were to believe in "ages" of creation! Exodus 20:9-11: "Six *days* shalt thou labour and do all thy work: but the seventh *day* is the sabbath of the Lord thy God . . . for in six *days* the Lord made heaven and earth, the sea, and all that in them is, and rested the seventh *day*:

wherefore the Lord blessed the *sabbath day*, and hallowed it."

The word *day* occurs five times in this one sentence. Can you believe that in the third and fourth occurrences it means an age while in the other three it means a day? *Had God meant an age*, wouldn't He have used the Hebrew word *dor* to mean age as in Job 8:8, "Enquire, I pray of thee, of the former age"?

In each of these five occurrences in Exodus 20, God is obviously speaking of the same unit of time, a 24-hour day. And as the word "day" means a twenty-four hour period here *it has to mean the same in Genesis!*

If God had created light, day and night, and then *waited* 1000 years (or 7000 years) to form the heavens, He would have been resting *before* the seventh day arrived!

If He formed the heavens on a second day and then waited 1000 years to form the seas and the land, He would have been resting again before the seventh day arrived. Note the Scripture again: "For *in six days* the Lord made heaven and earth, and on the seventh day he rested, and *was refreshed*." After six days of continual labor — six days spent in bringing our earth to a state of order — God rested. He *was* refreshed on the seventh day. If that seventh day were still continuing, the Scripture would read that He is *now "being refreshed."*

As a final proof that the days of creation were literal days, reread Genesis 1:3-5, 14-19 with special attention on the words *evening* and *morning*, *night* and *day*, *darkness* and *light*. All have continued since creation. We are not confused as to what they are.

Note that the sun was appointed "to divide the light from the darkness" — to divide day from night. Does sun-down divide anything but *literal days*?

No place in the Scripture does God imply that He took anything but a natural week of ordinary days to bring life and order to the earth.

Evenings and mornings have continued, the week has continued, the Sabbath set apart for rest at creation has continued, all pointing back to that first creation week. The truth is plain and without Scriptural contradiction. There is no room to believe in the ages which evolutionists require, when you accept the Scriptures as they are, explained not in the fog of human imagination but in the light of the Word of God and in accordance with nature, the handiwork of God. □

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Determining the Genesis Kind by Reproduction and Fertility

- I. Crystals which grow on the outside, may twin or stimulate the growth of additional crystals
- II. Virus multiplication
- III. Amoeba reproduction
- IV. Parthenogenesis with ovum activated by chemicals, salt water, pinprick or centrifuging
- V. Parthenogenesis with ovum activated by a foreign sperm even from a different phylum
- VI. Hybridization with offspring born dead or miscarried earlier in pregnancy
 - A. Offspring sterile
 - B. Offspring sterile except toward a parent stock
 1. Reversion taking place in one generation
 2. Reversion taking place in several generations
- VII. Hybridization which creates a "new kind" with a differing number of chromosomes. The kind is fertile with like individuals but sterile with both parent stocks
- VIII. "Hybridization" between isolated varieties producing fertile offspring which are also fertile with both parent stocks
- IX. Reproductively isolated "species" because of different habitats, breeding seasons, scent, courtship patterns, etc.; yet normally cross fertile
- X. Artificially isolated varieties such as breeds of dogs or varieties of wheat
- XI. Nations of mankind separated by tradition and obedience to law
- XII. Wild plants, animals and nations that cross without tradition or law

HISTORICAL GEOLOGY -- The Determination of The Genesis Kind or
"Natural Species"

What units of life did God create? Separate Kinds, the male and his female, with a command to be fruitful and to multiply after that kind. A single pair of humans was created; perhaps two pair of unclean animals; perhaps seven pair of clean animals, many individuals of each fish Kind and others such as insects and microscopic forms. Numerous individuals of the plant Kinds must have been created to provide food for the animals. The "natural species", a "breeding unit", is thus the proper Genesis Kind.

How was variation to be achieved? "Peas-in-a-pod" reproduction was not intended for it would have made the identification of individuals impossible. Rather the potential for variation was built into the first pair. Some characteristics are sex linked, some are dominant, other recessive, some show incomplete dominance over the recessive characteristic. Major variations showed up in the first generations, while many minor variations are still showing up today. Many variations are, however, not those "built into" the original pair(s) but degeneration due to disease, chemicals, injury or radioactivity.

What prevents one Kind from crossing with another? Normally there is no tendency to mate but with man's intervention some Hybrids have been produced. The usual rule is a complete wall of sterility between Kinds; in some cases this wall is only partial.

Will descendants of a single Genesis Kind always mate and be fertile? No, varieties are produced which because of various physiological factors either do not normally mate or in cases if mated do not produce offspring. Or offspring might be weak and at times infertile. Yet where fertile, characteristics are traded and passed on in accord with Mendel's Law.

What might cause sterility among members of a single Genesis Kind and the development of Varieties from an original Kind? Various Physiological isolating mechanisms: a) Ecological isolation -- different habitats, b) Breeding seasons coming at different times of the year, c) Physiological factors -- scent, behavior, etc. -- (Dogs, wolves, jackals, coyotes might occupy the same territory, yet rarely hybridize in nature, but when they do characteristics are passed on in accord with Mendel's Law. Reversion does not take place. Where a Hybrid would be formed between one of these dog-type animals and a fox (which is another Kind rather than a variety), reversion and sterility are encountered.

Can animals and plants be classified into larger groups than the Genesis Kind? Will they cross? Yes, for example the horse-type

HISTORICAL GEOLOGY -- The Determination of the Genesis Kind or "Natural Species"

would include the horse, ass and zebra. Because the three are distinct Genesis Kinds, offspring produced are normally sterile. Where the Hybrid is fertile with one parent stock or the other, the phenomena of "reversion" takes place and in a single generation the characteristics of the "foreign" Kind are forced out and fertility returns, or in some cases a second or third generation. Traits are not inherited in line with the numerical pattern of Mendel's Law. In some few cases chromosomes are doubled (or added) to form a Hybrid that is fertile with itself but sterile with its two parents. Thus a true "Hybrid Kind" has been formed.

A still larger grouping is described in designating clean and unclean animals, in noting which are Ungulates, which are even-toed and odd-toed, which are ruminants. Thus while it is the Genesis Kind that is the "created unit", there are proper larger groupings; i.e. fish, birds, fruit trees, mammals, etc. Yet these larger groups have their exceptions such as the camel, the platypus, the marsupial frog, etc.

Can Fertility itself be used to determine the Genesis Kind? How?

There are four different kinds of fertility and they can be distinguished by the rule of "being fruitful and multiplying after the Kind". They are 1) normal fertility within the Kind, 2) sterile offspring (if any) between Kinds, 3) "Hybrid Kinds" formed by doubling (or adding) of the chromosomes, and 4) Parthenogenesis.

Explain Mendel's law and "being fruitful, multiplying and reproducing after its Kind? The genetic content of the Kind was built into the first pair and given dominant and recessive nature, or in cases only partial dominance. Crossing dominant brown eyes with recessive blue gives all brown the first generation, then a ratio of 3 brown and 1 blue in the second generation. When two characteristics are considered as dominant round-yellow peas with recessive wrinkled-green peas, the first generation produces round yellow peas, the second generation splits up the characteristics on a 9,3,3,1 ratio for: 1) round and yellow, 2) round and green, 3) wrinkled and yellow, and 4) wrinkled and green. With thousands of such traits considered, the number of differing offspring possible becomes astronomical.

Can Hybrid offspring between similar Genesis Kinds be produced? Normally no conception takes place; where it does the foetus (among animals) seldom develops to a live birth; those born are completely sterile with each other (except as described in the next paragraph), sometimes fertile with one parent stock or the other, and where fertile the factor of reversion takes place, the characteristics of the other parent stock being forced out almost

HISTORICAL GEOLOGY -- The Determination of the Genesis Kind or
"Natural Species"

completely in a single generation and to the extent that they are the individual is once more fertile especially toward its proper parent stock.

Hybrid offspring between very similar Genesis Kinds will very rarely result in a doubling or adding of chromosomes, forming a Hybrid which is fertile with itself but sterile with both parents. Such true Hybrid Kinds are very infrequent and from an extreme exception to the normal rule of reproduction.

How does Parthenogenesis (reproduction by the development of an unfertilized egg) occur? This occurs chiefly among insects, crustaceans and worms, but is known even in turkeys. Rabbit ovums have been stimulated to begin division by contact with salt water, resulting in the development and birth of a normal female young. Centrifuging, chemicals, even a pin prick may initiate this action. Or the activating influence of a foreign sperm (even from an individual of a different phylum) but the entire sperm nucleus is thrown out of the egg at the first segmentation division.

Are there factors other than normal "built-in" variation that might make individuals different? Yes, age, nutrition, disease, injury, genetic damage by radiation or chemicals, mental and physical training, experience, exposure to sunshine, attitude, and the few cases of hybridization described above .

HISTORICAL GEOLOGY -- Why some Genesis Kinds split into Species while others remain as a single unit, fully fertile throughout the Kind.

What does the taxonomist call a species? It is the population of individuals reproductively isolated from other populations. Common ancestry of all life forms is assumed.

Why has the human race formed no species? Why only nations? What can we learn about racial relations and proper marital ties from the patterns set by the animal world?

There are five different species of thrushes in North America. They resemble one another closely; yet they do not mate. Why? "They are kept from mating with each other by their distinctive courtship songs, which are so effective as isolating mechanisms that not a single hybrid has ever been found." Page 12 of A Guide to the Natural World, LIFE Nature Library. In a sense we have five different "nations" of thrushes separated from one another by their "languages."

Would the human race have separated into nations without God's intervention at the Tower of Babel? Nations were to be formed and preserved. Intermarriage would have destroyed these nations. We find that nations were first isolated by a language barrier, then geographically separated on earth. Each segment of the human population is important.

Why could Isaac introduce Rebecca as his sister? And why could Abraham introduce Sarah as his sister? Each had married very closely in order to retain certain characteristics for the family line of Israel. Sarah did not want Isaac marrying one of the daughters of the land. Ishmael had chosen daughters of the children of Heth (meaning terrible) to be his wives. Centuries earlier Noah had chosen a wife who was very similar to himself. So did his son Shem.

Were men intended to form "species" that would be "reproductively isolated and geographically isolated"? It would appear so. The Jewish people today might be considered such a "species." The Mennonites, the Mormons, many groups are tending to isolate themselves. We are using the term species here as a mere branch of the Genesis Kind or "Natural Species," which Linnaeus sought to discover. The Jewish people marry among themselves to preserve their customs and language. Had all men done this, the earth would now be populated with perhaps 30 or 40 distinct "species" of man.

Did Gentiles by nature follow the ways of Abraham? Some families did, most did not. Thus Gentile nations form a blend, and even

gradation from dark to light, from tall to short, a mixture of talents and features. Some Gentile nations did separate themselves from others. The Indians and Eskimos, for example, have remained separate though living in the same general area. Consider the Septre Promise to Judah. Without Jacob's marriage to Leah, Judah (also Simeon and Levi) would never have been born. Leah was able to pass on hereditary characteristics that her weaker sister Rachel could not. Jacob by nature would have chosen the wrong wife, depriving himself of becoming the father of teachers, priests, and kings. Consider the mistake Judah made in selecting a Canaanite wife for himself. The Sceptre Promise was his and to be passed on to his firstborn son. Yet he too by nature chose the wrong type of wife. Not one of his three sons qualified for kingship. But for his firstborn son, Judah chose Tamar, a wife of queenly qualities. The birth of Pharez and Zara provided the solution. By denying that third son to Tamar, Judah had placed himself in the position of "next of kin."

How are birds, dogs, and men different in their obedience to law? Only man has free moral agency. He is normally obedient to the natural law that is within him, a law of "sin and death". Abraham struggled against that natural law. He was instructed in a better way and might also have observed the example of the birds. Noah and his son Shem had followed in that way also. But all other pre-Flood families had followed the way of human nature, the way of the Gentiles.

Why have not dogs separated out into species? In a sense they have become two species. The dog is tame, the wolf is wild. They tend to remain reproductively isolated. Esau and Jacob separated for the same reason.

Couldn't the breeds of dogs also be considered species? Dogs seem to show little preference in mating. If left to themselves they would soon blend back together into a single general type of dog. Man has carefully selected out the traits he wanted. He has been able to subdivide this Genesis Kind into many different breeds. But dogs are dogs. They do not follow the careful pattern of division by "language" that we saw so effective an isolating mechanism in the case of the birds.

Then a study of dogs and birds can teach us how the nations of man ought to conduct their marital affairs? Yes, birds do not sin; neither do dogs. Yet birds by nature follow a pattern God intended man to follow by obedience. Abraham was obedient to this pattern in selecting his own wife and in selecting a wife for his son Isaac. By contrast dogs (a type of the Gentile world) show us what would happen if this separation were not practiced. All would soon blend into one general type of dog. The potential for service by the dog world is so much greater when separated out into distinct breeds.

Thus it is not merely a matter of separation of races because racial inter-marriage is wrong, but rather a matter of nations and their preservation. The tribe of Benjamin was to be preserved. Inter-tribal marriage allowed the Benjaminites to become a nation. The wives of Ham and Japheth were used to bring the genetic traits of the Negro and Oriental races through the Flood. (It could have been done in a different way.) It was intended that the pre-Flood nations be preserved. Intermarriage in both cases prevented the loss of a portion of the human family. God's elect today is interracial.

Abraham's decision to take Hagar as a wife was a human decision with the same goal of "self-preservation" in mind. The daughters of Lot were motivated by that same desire to preserve mankind, for they thought their father the only living man on earth.

How were early nations formed? Families considered each other, considered their similar traits, and decided whether they would give their daughters in marriage and accept the daughters of the other family for their own sons. Two similar nations were thus being built. A dissimilar individual such as Esau (who was even a twin) found a wife suited to him. He formed a separate nation, markedly different from Israel.

Thus we have five distinct situations:

1. Anatomically different Genesis Kinds such as the horse, cow, bear and dog which are separated by a complete wall of sterility. "The commonest barrier to interbreeding is anatomical, for most organisms are structurally too different to mate". Page 13, A Guide to the Natural World, LIFE Nature Library.
2. Anatomically similar Genesis Kinds such as the horse, zebra, ass and onager where hybrids are sterile or show the characteristics of "reversion" to one parent stock or the other. The taxonomist wrongly assumes that the horse and ass are blood relatives; and have become separated in the same way that these five different thrushes become five different species. He does not consider that God could have created four different animals after the "horse pattern". All four Genesis Kinds are similar in appearance and almost identical in skeletal structure. The wall of sterility between them is not complete. When crossed the offspring is normally sterile. If it should happen to be fertile, it is fertile with one parent stock or the other, not with a hybrid like itself. Offspring produced by these hybrids would then show the characteristic of "reversion", reverting to the parent stock usually in a single generation.

3. Reproductively isolated species within the Genesis Kind such as the five species of thrushes in North America. These species are continuing to be developed by the natural built-in tendency to vary and by various isolating mechanisms. The wolf and dog would represent a wild and tame species, isolated by their different ways of life, the wolf being in a sense a "demented" species of dog.
4. Artificially isolated breeds of dogs. These breeds or "species" have been produced by man's selection and isolation. Dogs by nature would not form separate species. Nor would any of the domesticated animals.
5. Nations of men isolated geographically and by language, taught by God's Law to be separate, yet by a law within themselves failing to achieve that full separation. Then may we consider the nations of men to represent "species" just as much as these five different species of thrushes do? Yes, though the means of achieving that reproductive isolation is different. The nations began to develop properly only after God had separated them both in language and in geographic location. By God's Law they should remain as separated as those five species of thrushes.

Can we relate the Genesis Kind to the order, family and genus of modern biology? Linnaeus began with the concept that "There are as many species as were created in the beginning". Evolutionists have drastically changed that concept till today a species refers to any branch of the Kind, whether isolated reproductively, geographically, or by geologic period. Assumed common ancestry of all Kinds has led to chaos in defining large groups. At times the genus (or even family) classification are but a single Kind, at other times two or three kinds. Linnaeus' criterion for the "Natural Species" was identical with Moses' Genesis Kind .

The question of Mutations, Hybrids and Species
by Kenneth C. Herrmann

Any brief statement is obviously going to fail to cover all conditions, yet certain principles are obviously true. What Linnaeus had in mind in attempting to classify the plant and animal kingdom was the Natural Breeding Unit or Genesis Kind. Crossfertility was to be the criterion, sterility would show that no relationship existed. Morphological characteristics would generally help, though often two distinct Genesis Kinds might have quite similar appearance.

Confusion results today because the biologist attaches the term Species to mere "varieties" that are separated geographically or separated by behaviour so they no longer interbreed freely as a unit. The geologist goes one step further and classifies identical appearing fossils to different species merely because they are found in different strata. Then going another step into confusion, he "proves" degree of blood relationship by similarity of bones. Obviously there is no chance for any crossfertility check on his conclusion. Both biologist and geologist then assume evolution in their definitions of the Species and belief concerning the origin of new Species.

The basic information from Scripture shows Genesis Kinds were to reproduce "after their kind", rather than be lost in any multiple hybridization. A study of nature bears out the truth of this record. The first rule is that of sterility between the different Genesis Kinds (yet this rule is not without exceptions). A second rule is that within the kind variation follows Mendel's Law. Dominant and recessive characteristics were designed into the original pair (or pairs in the case of clean animals and much plant life.) Complete fertility and free trading back and forth of these characteristics in crossbreeding shows that they are a single kind and should be called a single Species. Hybrid corn is an example of the crossing of two varieties within the Genesis Kind. The potential for the multiple varieties of corn was intended in the original created parent stock.

Mutations are of two general types, the first is usually merely the appearance of a recessive characteristic when the dominant one is absent. Additional situations such as complementary factors, inhibiting factors, duplicate factors, linkage, and variations in gene arrangement by physical or chemical variations point out the complexity of the intended variation within the Genesis Kind. Peas-in-a-pod reproduction was not intended. Such an assumption by evolutionists would have an intelligent Creator create a man and woman whose children would be exact replicas of them, impossible to distinguish except for age, sex, degree of nourishment, injury or genetic damage. Such a creation of life forms would hardly show any intelligence on the part of the designer, and obviously reflects upon the evolutionists who propose it.

The second type of Mutation is one of degeneration, the loss of characteristics, or the loss of control in the development of the individual. Hairless animals, albinos, hornless cattle, short-legged sheep, additional digits and other similar Mutations demonstrate this failure of the genetic code to function properly. Damage from radiation, from disease, from improper nourishment, from drugs, all can play a part in this damage to the originally designed mechanism for reproduction and variation within the Kind. True, environment and selection by man might favor the continuation of the oddity but these are hardly examples of any evolutionary advance.

What happens when Genesis Kinds are not separated by a complete wall of sterility? Normally there is no inclination to mate, yet (mainly through the intervention of man) a number Hybrids between Kinds are known.

Consider how different these results are from Hybrid corn or from Hybrids between beef and dairy cattle, where the offspring are completely fertile and characteristics traded back and forth without any barrier. The sheep-goat Hybrid dies just before birth, the chicken-guinea Hybrid is sterile, the horse-ass Hybrid (the mule) is almost always sterile, the cow-bison cross results in sterile males but with the female fertile. Doesn't this destroy the concept of the Natural Species that Linnaeus intended? Not at all. These exceptions prove the rule. The few fertile mules are not fertile with each other but can only be crossed with the horse or ass. Where such mating is successful the offspring "reverts" once more to the non-Hybrid parent almost completely in a single generation and once more becomes a fertile animal. The return of fertility varies with the degree of "reversion". Thus the Genesis Kind is preserved even where the usual wall of sterility is incomplete. Crossing of wheat and rye shows this process of reversion in a very striking and positive manner. Sterile or nearly sterile Hybrids between the Genesis Kinds are possible but they do not reproduce "after their kind".

The confusion in terms can be cleared up by using the Scriptural Genesis Kind as a Species, recognizing however that the biologist and geologist have split these Kinds into many multiple "species" to suit their own fancy. The term Hybrid also must be viewed in two ways, a cross between varieties within the Kind or a cross between kinds, completely different results being obtained in these two differing crosses. The term Mutation has a dual meaning also in that it is used to represent degenerative conditions and also to designate the appearance of recessive characteristics hidden often by multiple dominant factors. Further detailed information is available in the books After Its Kind by Byron C. Nelson and Evolution, Creation and Science by Frank L. Marsh.

HISTORICAL GEOLOGY - - - The Problem of Thrust Faults

1. The theory of continental drift is accepted by about 50% of the world's geologists today. In 1933 it is estimated that no more than 23% believed this theory true. The current view is that the continents, the ocean floor, and the upper part of the mantle are moving as a unit rather than the older idea that the continents were moving across the ocean floor. Thousands of miles of displacement are involved.
2. Glaciers have moved many hundreds of miles with embedded rocks in their undersides grinding slowly across bedrock. At times this overrides a considerable thickness of ground moraine rather than moving it forward. The point in both cases 1 and 2 is that we have actual "thrust faults" on a very large scale.
3. If the outer crust of the earth were to shift, new portions would be moved over the equatorial regions and these new portions would have to stretch to fit the equatorial buldge. Rift valleys would result from this stretching of the crust.
4. Portions of the earth's crust moving from the equatorial regions to temperate zones would find themselves too large to fit the smaller earth circumference. Thrust faulting on a scale of twenty to thirty miles could result.
5. Displacement of up to 600 miles has been measured for the San Andreas Fault. It is conceivable that wedgeshaped areas might be crowded for room and cause local thrustfaulting, or the thrust might be transferred to an area miles away. Mountains are regularly forced up along the trace of a major fault such as the San Andreas.
6. Deep focus earthquakes along the east coast of Asia show a relationship between volcanoes, deep sea trenches, and crustal movement along an oblique plane.
7. The men who discovered thrust faults were motivated by curiosity and disputed the phenomenon among themselves without any religious doctrine involved in any way. Neither evolution nor atheism was involved.
8. The religious men who immediately opposed thrust faults hoped to use "wrong order" strata and fossils to disprove the general burial sequence of fossils and thereby discredit the concept of Faunal Succession which implied evolution. Two Creations are buried in sequence, and in each "Flood" the slow moving, weaker and bottom dwelling forms are buried first. Faunal succession is merely burial order."

9. Failure of these religious writers to recognize the pre-Adamic creation as separate from the creatures made to be with Adam led them to insist on one Flood to account for all fossils. They could not distinguish Satan's world from man's. Nor do they see Satan as Ruler of today's world.
10. What appears to be very poor quality research, if not deliberate falsification of evidence and quotation out of context, is evident in the writings of a number of prominent catastrophists. In their zeal to disprove the one wrong idea of evolution, they have added a legion of errors and untold confusion to the problem that faced the Bible-believing Christian. The motivation of many a catastrophist is that of upholding the church doctrine rather than to search out the truth of the matter. Each has added his own errors to the confusion of the one before him. The quality of their research is only surpassed by the deception their leaders practice in maintaining the doctrinal errors of the particular denomination.

CONCLUSION ---Thrust Faults do indeed exist on both small and worldwide scales. They in no way support evolutionary theory, though they do support the idea of two creations and two destructions by water which buried life forms in a general sequence as the violence of the destruction increased.

DISINTEGRATION OF URANIUM PROVES EARTH CAN BE NO OLDER
 THAN APPROXIMATELY THREE BILLION YEARS

by Kenneth C. Herrmann

1. U^{238} disintegrates thru 13 intermediate transition elements (including Ionium, Radium, Radon and Polonium) to form non-radioactive Pb^{206} .
2. The rate of disintegration is constant, unaffected by heat, pressure or catalyst.
3. This rate is expressed as the half-life, i.e., the period in which (approximately half (of any given large number) of atoms will have disintegrated to form the next element in the series.
4. The life of an individual atom of radioactive substance is unpredictable.
5. Nor can we predict the time a million atoms would last. It is only possible to state that in 1590 years half of a given large number of atoms of Ra^{226} will disintegrate to Radon²²². In another 1590 years another half ad infinitum.
6. Half-life is but the result of the statistical analysis of the behavior of a large number of atoms.
7. For Radium²²⁶ this half-life is 1590 years; for Uranium²³⁸ it is 4.4 billion years.
8. Knowing the rate of radiation, the original amount of the material (which is the present amount plus all its byproducts), and the present amount, it becomes possible to determine the length of time disintegration has been continuing.
9. The ratio of U^{238} in the world to the sum of U^{238} and all its byproducts (which includes transition elements, Pb^{206} , alpha particles, beta particles and gamma radiation) is roughly 60% thus giving an age of approximately 3 billion years.

COULD THE EARTH BE OLDER THAN THREE BILLION YEARS?

1. Yes, if radioactivity were a property given to U^{238} three billion years ago.
2. Yes, if U^{238} were formed from a parent material at that time. Yet none of this supposed material remains today and U^{238} is not being formed at this time.

3. Any parent element or mechanical formation of U^{238} might put the original creation of matter at an earlier date, yet it would not evade the force of the argument that at one time 3 or 4 billion years ago (this may be stretched to 100 billion by some theories) a real creation of the basic particles of matter did take place and the inescapable conclusion that follows is that such a creation necessitates a Creator.

COULD THE EARTH BE YOUNGER THAN THREE BILLION YEARS?

1. Yes, if the U^{238} transition and final products of the series were created along with the U^{238} .
2. Yes, if the earth were made at a later date from matter created 3 billion years ago.
3. Yes, if a faster rate of disintegration took place at some earlier date.

FINAL CONCLUSION

It is most likely that the creation of matter took place approximately 3 or 4 billion years ago due to the correlation of that date with the speed of star retreat and with the age of the stars themselves from a calculation based on the H to He ratio. Other methods give similar results. The formation of the solid earth may have taken place considerable later from this original material.

N O T E: More recent calculations are putting the age of our earth and the material universe as well at 5 to 8 billion years.

THE RADIOACTIVE CLOCK

"In the cooling of a magma, the uranium (or thorium) unites with certain other elements to form one of several compounds (for example, uraninite, a complex uranium oxide, or ellsworthite) which crystallize out like other minerals. After the crystal has formed, the uranium slowly wastes away, and helium and lead accumulate. In so far as these two elements do not escape from the crystal, they form a record of the amount of uranium (or thorium) that has been transformed.

"Fortunately the rate of disintegration is very slow and is absolutely uniform under all known conditions of temperature, pressure, or chemical environment; and, also fortunately, this rate can be determined with very great precision by counting the helium atoms emitted within a given time by a measured quantity of uranium (or thorium). They may be recorded automatically by a sensitive electrical device or may be counted directly by observation. For example, if a small quantity of uranium is placed on a screen of zinc sulphide, each escaping atom of helium makes a flash as it strikes the sulphide, and under a microscope these can be seen like fireflies on a dark night and can be counted. Such counts indicate that 1 gram of uranium yields

annually $1/7,600,000,000$ of a gram of lead. At this rate U grams will produce $1 \times U \times 7,600,000,000$." (Historical Geology by Carl O. Dunbar, pg. 25-26)

GEOLOGIC TIME

"Only one means is available for estimating geologic time in years, and this method can be applied to only a very few rocks. The method is borrowed from the physicist's work on radioactive substances.

"Time measurements with the 'radioactive clock' tell us that manlike creatures appeared on the earth about 2 million years ago, that rocks with the first fossil remains of mammals are about 200 million years old, that animals with hard shells first became abundant about 500 million years ago. The oldest rocks whose ages have been determined are intrusive rocks from Karelia in Russia, roughly 1,600 million years old. These intrude metamorphosed sedimentary rocks which must be still older, but how much older is unknown.

"Figures like these are extremely valuable, for they give us an accurate idea of the immense reaches of time involved in geologic processes. But unfortunately rocks with sufficient radioactive material to make the measurements possible are scarce. Only a handful of exact age determinations have been made, for the rocks of a few isolated localities. In the general problem of correlation, measurements of radioactive substances are not very helpful." (Fundamentals of Physical Science by Konrad Krauskopf pg. 545-546)

HOW OLD IS THE EARTH?

Is Radiocarbon Dating Reliable?

By Robert W. Woods
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From Signs of the Times magazine
April 7, 1953

In recent months a great deal of publicity has been given to the new C^{14} method of dating archaeological specimens. I have followed this new method with great interest from the time of its first public announcement. It has held promise of being the most objective method to be applied toward the solution of this problem, and it is certainly worthy of study and wider understanding by fundamentalist Christians, for the measurements already made have caused archaeologists to revise downward by thousands of years their estimates of the age of man on earth .

Such research is revealing and very significant to the Christian who believes that between the word of God and the world of science there can be no contradiction. Harmony must exist between the word as expressed in revelation and the word as expressed in creation--if we can but find the integrating and harmonizing principle which will enable us to reinterpret both without doing violence to either.

Contradiction between truths is only apparent, and becomes less with the discovery of new truth. When harmony between revelation and science is discovered, it strengthens our faith in the one and our appreciation of the other.

If we accept the premises of the argument proposed by the investigators, the method using C^{14} is capable, using modern counting equipment, of measuring some 20,000 years into the past. This span of time is based on two premises:

1. The rates of formation and decay of C^{14} are the same now as they have always been.
2. Equilibrium between formation and decay was established prior to the earliest date that could be measured by the method.

These premises are in the best tradition of the philosophy of science. They are in harmony with the principle of continuity which enables an investigator to interpolate between known values or to extrapolate beyond the last established value. This problem of dating the far unknown is a problem of extrapolation, and its accuracy depends on the theory which determines the "shape of things" beyond the last established value. We must therefore look closely at the premises which essentially state that a fresh sample of carbon has always had the same radioactive content. Before doing that, however, let us summarize the results achieved by this method of dating.

There were two preliminary and exploratory experiments conducted by the dating researchers. (1.) They measured samples from many points of the earth's surface and found essential uniformity of distribution of C^{14} . This also determined the level of activity of a fresh sample of carbon. (By "fresh" sample we mean carbon from a plant or animal which, owing to the respiration of the organism, is exchanging atoms with its environment. When the tree is cut down or the animal dies, the carbon is fixed in location, and from that time on, radioactivity decreases supposedly to half the initial value in 5,000 years, to one fourth in 10,000 years, one eighth in 16,000 years, and one sixteenth in 20,000 years.) (2.) They measured the age of specimens which had been independently dated by other means; for example, by tree-ring count or by historical dating. In this study they found essential agreement between the C^{14} method and the independent dating, back some 4,500 years. Dating beyond this extension into the past is extrapolation beyond the accuracy controls of the method. These accuracy controls tell us that the method is good as far back as shortly this side of the Flood--which seems to be the practical limit of historical dating.

The dates so far determined by the C^{14} method reveal a sequence of events that is quite interesting to a fundamentalist. They run somewhat as follows:

1. Buffaloes and mammoths buried in the ice in Alaska and Siberia-- 28,000 years
2. Formation of the earliest peat bogs-- 20,000-17,000 years
3. Logs from earliest ice-age glacial moraines-- 17,000-12,000 years
4. Earliest trace of man--charcoal from a fire in a cave-- 15,000 years
5. The first appearance of man in Chile, Oregon, Northern Europe, and Near East -- 9,000

While these dates are much shorter than previous estimates, they are not in harmony with Biblical chronology. In view of this discrepancy, let us examine with care the premises of the argument.

The first premise is: The rates of formation and decay of C^{14} are the same now as they have always been. The rate of radioactive decomposition of C^{14} can be and has been very accurately determined. Its half life for the purposes of this article can be taken in round figures as 5,000 years. No method has been found to accelerate or retard the radioactive decomposition of an element. It seems to be independent of temperature, pressure, chemical combination, or any other environmental factor found in nature. Probably that part of the premise relating to the constancy of decomposition is accurate.

The method of formation of C^{14} is known, and the present rate of formation has been measured. Secondary neutrons, liberated by the action of primary cosmic rays on the upper atmosphere, are absorbed by nitrogen N^{14} , which almost immediately emits a proton, with the production of C^{14} . It is estimated that more than 90 per cent of the cosmic rays are so absorbed and that approximately 5 atoms of C^{14} are produced per second per square inch of the earth's surface. However, the assumption that this rate of formation of C^{14} has been the same for long ages past, is subject to considerable uncertainty. Such an assumption must include several other assumptions, namely: 1. The rate of cosmic-ray activity has always been the same as at present; 2. The magnetic field of the earth has always been the same as now. 3. The nature of the upper atmosphere has always been the same as it is now.

It is generally believed that a major part of the cosmic-ray activity is interstellar and even extragalactic in origin. While this origin does not preclude the possibility of variation in cosmic-ray activity, the regularities we observe in cosmic phenomena are so arresting that one would hesitate to assume any condition other than equilibrium and continuity. However, when we turn to the magnetic field of the earth we are dealing with a known variable. It is subject to diurnal variations as well as to long-term variation. Our observation covers too short a time for us to be absolutely certain of the exact nature of this observed long-term variation. Magnetic storms occur which materially affect both the direction and magnitude of the magnetic field. It may be that all these variations are periodic or fluctuate statistically about a mean, and that an average behavior of the magnetic field can be extended into the past. One is inclined to accept this proposal, but the possibility remains that the magnetic field of the earth has not always had its present value.

When we examine the third subpremise we must pause. At creation there were waters above the firmament as well as beneath. Genesis 1:7. Prior to the Flood no rain fell. Genesis 2:5,6. At the time of the great Deluge the fountains of the great deep were

broken up and the windows of heaven were opened. The resulting catastrophe placed extensive icecaps over the northern and southern hemispheres, and enough water accumulated on the earth to cover the entire surface more than a mile deep, if the surface were level. Such a change must have altered the nature of the upper atmosphere. The water which was above the firmament prior to the Flood, whether in the form of vapor, liquid, or ice, would have acted as a shield, absorbing much of the cosmic radiation and reducing the energy of its more intense components. This might have materially reduced the rate of formation of C^{14} . Furthermore, a large fraction of the C^{14} formed probably would have remained as CO_2 dissolved in the water above the firmament. When the Flood came, this dissolved C^{14} would be precipitated upon the earth's surface, and the winds and ocean currents would soon stir it as they do now to a uniform distribution over the earth.

A good theory is an intellectual abstraction which provides a framework into which all known facts fit without contradiction. The empty spaces in the framework provide stimulation to research, and hints as to the form and location of missing facts. Truth subsequently discovered must fit into the theory, or the theory must be revised or even discarded. If not all the significant facts are known, there may exist simultaneously two or more theories which fit the known facts and are thus temporarily satisfactory. Coal, petroleum and limestone show practically no radioactive carbon in their composition. This may be interpreted on the basis of the above classical premises as showing extreme age, or, accepting the story of a universal Deluge, it may simply mean that before the Flood there was little or no C^{14} in organic tissues. Since animals and plants were buried at the Flood and thus were unable to renew their carbon content by the interchanging process of respiration and assimilation, the carbon, through decay of the very small radioactive component in it to start with, shows even less activity now. From this viewpoint, coal, petroleum and limestone are not extremely old. They merely started their dating at a low level at the Flood.

The Flood was a catastrophe, a cataclismic transformation of all nature and all natural processes. It is not surprising to find evidence for little C^{14} on the earth's surface before the Deluge, and a practical equilibrium shortly after. There is some additional justification for this idea of a sudden rise in concentration of C^{14} in the carefully recorded ages of the Biblical patriarchs. One of the symptoms of slow radiation poisoning is premature old age. The rapid decrease in the life span of individual man immediately after the Flood was concurrent with the assumed rise in concentration of C^{14} . It has been observed that in the assimilation of food, animals have a tendency to favor the heavy isotopes of an element. Thus the change in dietary habits at the Flood in part may account for the shorter life span in relation to the rise of concentration of C^{14} .

The dates determined by this method and quoted above, while not in harmony with Biblical chronology, show a sequence of events that is in harmony with the Biblical chronology, show a sequence of events that is in harmony with the Biblical account. The modification of dating suggested here does not change this sequence, nor will it change the actual dating as far back as the accuracy controls of the method extend; namely, for some 4,000 to 4,500 years. But it will change the dating beyond that time. It will crown these dates together into a few decades or possibly centuries after the Flood. A date will still be determined by the intersection of two curves plotted on a time axis:

1. The curve of fresh-sample activity.
2. The curve of radioactive decay.

It should be readily apparent to the reader that if a fresh sample began its decay at a lower level of radioactivity it would appear to be older on the classical theory than it really is. For example, if 5,000 years ago a fresh sample had only half the strength of a fresh sample today, such a sample deteriorating since that time would appear to be two half lives, or 10,000 years old. Conversely, a sample which appears to be 20,000 years old may be less than 5,000 years old if it started its decay curve with a level of C^{14} content less than one eighth the strength of a fresh sample today. This if originally there was little or no C^{14} on the earth's surface and after the Flood there was an rapid rise in its concentration, a sample of prediluvian carbon would appear extremely ancient, a sample a few years this side the Flood would appear to be, say, 20,000 years old. In a few more decades a sample would appear to be 15,000 years old, then 10,000 years, not because of so long a lapse of time, but because of a rise in concentration. The crowding together of these dates provides a picture of what happened soon after the Flood, which is both reasonable and in harmony with the Scriptures. Instead of fragmentary evidence over tens of thousands of years, we have an integrated sequence of events.

1. Buffaloes and mammoths buried in the ice in Alaska and Siberia. Probably these were prediluvian creatures, caught in the Deluge and suddenly frozen. There is little evidence of decay before freezing, and it has been reported that some have undigested subtropical vegetation in their alimentary organs. How could this be except a cataclysmic destruction?

2. Formation of the earliest peat bogs. The many marshy places existing immediately after the Flood provided ideal conditions for the formation of peat bogs. Some of the vegetation may have been antediluvian; some of these rapidly growing marsh plants may have grown after the Flood. In either event the mixture would show a low C^{14} content then, and an apparent extreme age now.

3. Logs from earliest ice-age glacial moraines. Extensive glaciers formed by the freezing of Flood waters or by the deposit of snow and sleet instead of water in the higher latitudes slid on the earth's crust, forming moraines and burying postdiluvian trees in these moraines. Melting glaciers fed siltladen streams that buried some of these logs very deep.

Oceanographers believe that the oceans have been getting deeper; that 5,000 years ago the oceans were some 200 feet lower than now and consequently much less a barrier to the distribution of man.

4. Earliest trace of man--charcoal from a fire in a cave. This isolated date is from a fire that may have been built shortly after the Flood. The fire maker may even have used some prediluvian driftwood for his fire.

5. The first appearance of man in Chili, Oregon, Northern Europe and the Near East. This almost simultaneous appearance of man in several places in the world, when (according to our modified theory) the concentration of C^{14} had risen to a little more than half its present value, is a striking parallel to the Biblical story of the dispersion. This was soon after the Flood, while the concentration of C^{14} was still increasing.

Equilibrium must have been established in a relatively short time after the Flood, since dates in early Egyptian history, as determined by the C^{14} method, agree quite well with those determined by historical argument. The longevity and stature of men decreased until by David's time seventy years marked old age as it does today, and there were only a few giants left.

Discontinuity and catastrophe interrupt the smooth flow of events and make it impossible to extrapolate conditions and things that are, into conditions and things that were, across the time of the discontinuity. This difficulty is prophetically foretold in II Peter 3:5,6. "For this they willingly are ignorant of, that by the word of God the heavens were of old, and the earth standing out of the water and in the water: whereby the world that then was, being overflowed with water, perished."

For the fundamentalist, research in dating by C^{14} is significant. It will establish a sequence of events in prehistory and serve as a check on historical dating. If properly interpreted, it will aid in elucidating truth, and truth provides a reason for our faith in the God of truth.

We can be certain of this much: The doctrine of evolution and the Word of God cannot be reconciled -- weak-kneed, quavering apologists notwithstanding. To dispel any doubt of this fact, note what one of the world's leading spokesmen for modern evolutionary thought has to say. This note-worthy individual, George Gaylord Simpson, eminent paleontologist wrote in the April 1, 1960 issue of Science: "Preception of the truth of evolution was an enormous stride from superstition to a rational universe."

Simpson referred to the ignorant beliefs and practices of uncivilized people as being "the lower superstition." Then he goes on to say: "It is nevertheless superior in some respects to the higher superstition celebrated weekly in every hamlet of the United States."

Commenting on the purpose of life, a subject on which the Bible also has something to say, Mr. Simpson ventures:

"There has been disagreement and indeed confusion through the ages regarding to whom and for what man is responsible. The lower and higher superstitions have produced their several answers. In the post-Darwinian world another answer seems fairly clear: Man is responsible to himself and for himself" (emphasis ours). "A world in which man must rely on himself, in which he is not the darling of the gods but only another albeit extraordinary, aspect of nature, is by no means congenial to the immature or wishful thinkers."

Here we have the testimony of one of evolution's greats. Anyone wanting to know the real truth of man's responsibility is invited to write for the booklet "Why Were You Born?" Evolutionists certainly lack the answer.

The Rapid Rise of Evolutionary Concepts

Evolutionary theories have been extant since the days of Plato. Yet they found no popular acceptance until Darwin came on the scene. Even the greatest scientists of the Renaissance -- Newton, Da Vinci, Kepler, Galileo, and Descartes believed in a Supreme Ruler of the universe. What led to today's confusion?

It was during this period of the 16th, 17th and 18th centuries that the groundwork was laid for the later mass acceptance of the doctrine of evolution. This groundwork was laid, surprising as it may seem, not by science but by false religious leaders who had set themselves up as the official interpreters of Scripture.

Individual Bible study was often rewarded with a burning stake. Many persons were put to death for even privately owning Bibles. These self-ordained expositors set forth their own theological ideas, based on their own human carnal reasoning and dogmatic traditions,

instead of revealing the true teaching of the Bible. A reprint article "Who Should God's Ministers Be?" is available to clarify the true roll of these false teachers.

When evidence of geology, astronomy, or physics came to light that tended to contradict the religious dogmas of that day, the masses looked to the Pope and hierarchy of the Roman church as the final authority -- not to the Bible! The common people merely assumed that these and later Protestant religious leaders had based their conclusions and explanations solely on the Bible! Rather than search out truth religious leaders answered seriously posed questions with vain human reasoning -- backed-up by the bludgeoning cudgel of the Inquisition.

Some Typical Examples

To see this bigotry at its finest, take the example of Galileo. At the turn of the 17th century he had just finished some very important astronomical observations disproving the commonly held belief that the earth was the center of the universe. Galileo's work furnished the proof needed for the earlier Copernican Theory that the earth revolves around the sun and that the sun is the center of our solar system. Leaders of the Catholic Church declared his discoveries deceptions and his announcements blasphemy. He was declared a fool for even saying that the moon shines by reflected light.

An earlier professor Geordano Bruno (George Brown) had ably taught these same concepts, which are known today to be true. Bruno was betrayed to the Inquisition, imprisoned for seven years and tortured. He remained true to his beliefs and on February 17, 1600 was publically burned at the stake.

Galileo had access to Bruno's writings. Now it was Galileo's turn to face the same accusers. The ensuing struggle to crush Galileo involved an entire retinue of exasperated, vindictive priests, bishops, archbishops, and cardinals not to mention the two popes in the center of it all, Paul V and Urban VIII. Pope Paul solemnly rendered a decree that "the doctrine of the double motion of the earth about its axis and about the sun is false, and entirely contrary to Holy Scripture." Later Pope Urban, the most bitter of Galileo's attackers, declared that the Holy Scripture specifically declares that the sun and heavenly bodies revolve about the earth and to say otherwise is simply to dispute revelation.

Brought before the Inquisition, now 70 years old, Galileo was repeatedly menaced with the threat of torture and imprisonment by the express order of Pope Urban. This is thoroughly established from the trial documents themselves, which show that the Inquisition placed the whole responsibility of this matter on the papal authority itself. After imprisonment and other threats, he was at

last forced to publicly pronounce his recantation on his knees. Spared from death by being forced to swear his teachings and beliefs false, Galileo later developed cataracts on his eyes. Seven years later he was totally blind.

A Pre-Adamic World?

Questions were asked by honest inquirers about fossils and rock strata wondering if these were the remains of a possible pre-Adamic creation (which Genesis 1:1 actually describes; see the reprinted PLAIN TRUTH article "Did God Create a Devil?"). They met a similar reception and a number received treatment not altogether unlike that of Galileo. Such puerile explanations as the following were given: Fossils are really only the product of some "stone-making force", or some "formative quality," or as some said they "grew from seed."

The Aristolian doctrine of spontaneous generation was constantly used to prove that these stony fossils possessed powers of reproduction like plants and animals! Others explained that fossils were the product of "fatty matter set into fermentation by heat"; or of a "tumultuous movement of terrestrial exhalations" -- whatever that might mean.

Honest inquiry was informed that the "scientific doctrine" that fossils represent animals which died before Adam" contradicted the theological doctrine of "Adam's fall". Since a great super-structure of dogma was built on the concept of a great "fall of man" it would have been devastating to admit anything that would tend to weaken or upset these traditions. The Roman church was determined that she was to decide what was truth. No one was to have the right to question her decisions.

As a consequence these early scientists tacitly rejected the Bible without bothering to look into it for themselves, a trend which continues even today. From this time forward evolutionary ideas began to take root and flourish. Darwin came on the scene in the early 1800's and found a ready-made following. This brings us to the current chapter of man's struggle to be freed from deception.

Modern Scientific Thought

Until recently science has had no concrete means of establishing its evolutionary myth -- that man is much older than 6000 years. However, since 1945 has come the development of radiocarbon dating. This method is claimed to be practically free from error, foolproof -- and it is the only "absolute" dating method available for human fossils. Other methods such as super-position, associated plant and animal remains or human artifacts will give "relative" dating and allow a historical sequence to be established. But the Carbon-14 method has been calibrated to read an "age" in years!

Modern science, having thrown off all religious shackles, acclaimed radiocarbon dating as "one of the most outstanding scientific achievements of the decade." More at last, it was felt, is the long sought means by which man and his cultural remains of the past "2,000 to 40,000" years can be dated. The Biblical date of 4004 B.C. of Bishop Usher, has indeed not a formidable opponent. Let us examine this "foolproof" radiocarbon method in detail, and see if the exalted claims made for it are justified.

The Principles Behind Radiocarbon Dating

The earth, viewed by an observer far out in space, would appear as a huge sphere submerged in an ocean of atmospheric gases. As it hurtles through space on its course around the sun, it is constantly being bombarded by cosmic rays. Upon entering the earth's gaseous envelope, these rays undergo various transformations, one of which results in the release of neutrons which are absorbed by the nitrogen of the atmosphere to form a radioactive product Carbon-14. Ordinary carbon has an atomic weight of 12 and is very stable. This newly formed Carbon-14, on the other hand, is radioactive, giving off this acquired energy according to a definite time pattern, finally returning to its original form of nitrogen.

Disintegration of Carbon-14 takes place at a rate such that after about 5668 years, only half of the original quantity will remain. In another 5668 years the original amount of Carbon-14 would have dropped to one quarter, then to an eighth, then a sixteenth.

Newly produced Carbon-14 reacts with atmospheric oxygen to become radioactive carbon dioxide, which is distributed over the world. This carbon dioxide is taken from the air by plants and converted to carbohydrates by the process of photosynthesis. Animals feed on these plants and build tissue from the carbohydrates of the plant kingdom. This same carbon also becomes a part of man as he eats either plant or animal life. Thus the carbon in the atmosphere (both Carbon-12 and radioactive Carbon-14) becomes a part of all living tissue.

All living organisms continue to take in carbon as a result of being a part of this carbon cycle. A certain small percentage is Carbon-14. The relative abundance of these two carbon isotopes in the carbon cycle is determined by the ratio in the air. So long as the plant or animal is alive this ratio remains unchanged. However, as soon as the organism dies this ratio changes as the Carbon-14 portion slowly begins to diminish as the result of radioactive disintegration. Therefore by determining the remaining ratio of Carbon-14 to Carbon-12 in a sample of unknown age, it is possible to assign an age in years based on this radioactive "clock". This is the principle on which radiocarbon dating is based. But what is its accuracy?

Carbon-14 Dating's Loopholes

What has been described here has been a simplified picture. When we begin to face reality, many complications arise necessitating numerous assumptions in order to arrive at "acceptable" radio-carbon dates.

In order for radiocarbon dating to be of any value, it is absolutely essential that the amount of Carbon-14 available in the atmosphere of the past be the same as that today (or that any past change be known and carefully measured). But the amount available at any given time in the past must be ASSUMED! This assumption is merely the product of guesswork based on Lyell's principle of uniformitarianism -- which states that all the natural processes of the past are the same as those today.

That there has been a constant amount of available atmospheric Carbon-14 for the past cannot be proven. On the contrary, it can be easily demonstrated that there has not been a uniform supply available to plant and animal life.

Keep in mind this important fact: Unless there has been a uniform and known supply of Carbon-14 available to all living organisms of the past, radiocarbon dating is UNRELIABLE -- despite the many plaudits ascribed to it. In what ways can it have varied?

We have discussed only the availability of Carbon-14 in the atmosphere through the medium of carbon dioxide. However, surprising as it may seem, the bulk of Carbon-14 is stored in the sea. There is continual interchange between the carbon dioxide of the air and that dissolved in the sea. The balance shifts one way or the other depending on the volume, temperature and acidity of the ocean waters. If even so much as one of these three factors varies, the ratio of Carbon-14 available to plant and animal life might vary accordingly, making the dating method inaccurate to that same degree, since the method assumes that there has been no such variation. It is merely assumed no variation. It has not been proven.

Facts or Assumptions?

The reliability of Carbon-14 dating rests on a second assumption of a constant rate of Carbon-14 production over the past millenniums. This necessitates, first of all, a constancy in cosmic-ray production. If the intensity of cosmic radiation has varied for any length of time, then Carbon-14 production has similarly varied. Therefore, in order for radiocarbon dating to stand up under critical scrutiny it is necessary for its proponents to prove their claim of a constancy in cosmic radiation intensity. Is this claim justified on the basis of fact or is it merely fancy?

Notice the statement occurring on page 350 of Paul's authoritative work Nuclear Geology: "So far there is no proof independent

of this method, that the cosmic-ray intensity has remained constant, and, however reasonable it may be, we must rank this as pure assumption" (emphasis ours).

It is a well established fact that the amount of cosmic radiation entering the earth's atmosphere is governed by the strength of the earth's magnetic field. The stronger the field the less the cosmic radiation. The lower the intensity of cosmic radiation; the lower the amount of Carbon-14 produced. The less Carbon-14, the older the apparent date and the greater the error of a dated sample.

Magnetic Field Variations

The February 1957 issue of Scientific American and the December 1, 1956 issue of Nature report the results of the studies of three American Geophysicists, showing that, based on magnetic field research in France, Carbon-14 production in the past has been markedly less than the present rate. Samples dated by the radiocarbon method thus appear much older than they actually should be!

Their studies showed that the total intensity of the magnetic field had dropped 65 percent during the past two thousand years. At this rate an object "dated" as five thousand years would be one thousand years younger than indicated. And this does not include other possible variations. In the research done, data was only available for the past two thousand years; taken further back only speculation could determine how much greater the error might be. Indeed Biblical chronology, the inspired record provided as the foundation for man's research, proves that it has been much greater. This comparatively recent science of paleomagnetism proves that the magnetic field has been anything but stable!

Evidence thus indicates that there has been much less "available" Carbon-14 in the past. Therefore, the older the specimen, the "older" it appears in relation to what its true age should be. For the moment, however, let us examine the implications of these Carbon-14 dates. Will they lend support to the beloved and cherished uniformitarianism principle of Lyell and to the doctrine of evolution?

The Downfall of Uniformitarianism

Long periods of time are assumed to be involved in the ice-ages of pleistocene Geology, but are based entirely on this principle of uniformity. Heretofore the only means of checking the veracity of these assumed long ages was by counting clay varves and assuming gaps of thousands of years in these annual sedimentary lake deposits. Now with the advent of radiocarbon dating, means have become available for re-evaluating these long held theories.

Until 1951, it was the considered opinion of most geologists that the last "ice age" in North America, referred to as the Wiscon-

sin Glaciation, began about 150,000 years ago and ended about 30,000 years ago. Estimates were supported by the careful counting of clay varves (and liberal estimating of "missing" thousands of varves) and by numerous supposedly reliable estimates of the age of Niagara Falls based on its rate of retreat. Pleistocene Geologists feel that the ice ages in North America and Europe were simultaneous.

On this basis the Wisconsin Glaciation in North America is considered to be the equivalent of the Würm Glaciation and its preceding interglacial period in Europe. The Cro-Magnon and Neanderthal Men are assumed to have lived during this period of the Pleistocene, according to the reckoning of LeGros, Clark, Movius, Oakley and Zeuner. Here would be an excellent opportunity for Carbon-14 dating to establish both the antiquity of fossil man and the Pleistocene Glaciation.

Tests were made and the results are in. These results indicate that the beginning of the Wisconsin ice age should be moved up from 150,000 years ago to a mere 25,000 years ago. Tests also indicated that the ice was still advancing in Wisconsin as late as 11,000 years ago. These dates require the Wisconsin glacier ice front to have moved at a rate of over two thousand feet per year. This rate is from two to nine times greater than the rate indicated by varves and annual moraines. Uniformitarianism assumed for the Carbon-14 method has led to violence in glacial movement. A correctly calibrated Carbon-14 time scale based on paleomagnetism would unveil catastrophic glacial advances and climatic changes!

The problem is discussed by Mr. Leland Horberg in an article "Radiocarbon Dates and Pleistocene Geological Problems of the Mississippi Valley Region" appearing in the Journal of Geology, Volume 63, No. 3 (May 1955). Mr. Horberg states, "Probably only time and the progress of future studies can tell whether we cling too tenaciously to the uniformitarianism principle in our unwillingness to accept fully the rapid glacier fluctuations evidenced by radiocarbon dating."

Relation to the Age of Man and the Flood

If the Wisconsin is moved up then Würm should also be moved, since they were contemporaneous. This puts fossil man within the range of 25,000 years of recent time. When we couple this with the fact that radiocarbon dates appear much older than they actually are, we can readily see that many events of the recent geological past have occurred within the past few thousand years. The eons of time for mammalian life "to evolve" have vanished.

Much of this recent evidence, along with that which has been already understood, points more and more to some great catastrophic event in the earth's recent past, bearing out the universal Deluge

described in Genesis. If modern scientists would properly evaluate the available evidence, without being biased by their preconceived notions, they would be forced to come to the recognition of a recent universal destruction by water and ice. The Pleistocene "Age" when Cro-Magnon and Neanderthal are assumed to have lived then becomes the catastrophe in which they were buried.

The following quotations from a recent book (Fossil Man by Boule & Vallois) written by the present and the preceding Director of the French Institute of Human Paleontology illustrates the problem facing archeologists. It begins describing the deposits containing the most recent human and animal remains -- the Reindeer Age (obviously post-Flood).

"The bones they contain are barely fossilized; nearly all of them belong to animals or men in every way similar to their modern representatives. But when we go back as far as the Mousterian Period (deposits containing Neanderthal and Cro-Magnon men) we observe many important changes. Here every thing bears witness to a different topography, brought about by physical forces of which impressive traces are everywhere visible: the demolition of mountain regions, the accumulation of moraine deposits over thousands of square miles, the last stages of sculpturing of the valleys, and the formation of the lower alluvial terraces; enormous deposits of silt over the land surfaces, and of clays containing bones in subterranean caves; variations in the shoreline; orogenic movements; repeated volcanic manifestations and so on."

"These physical phenomena are accompanied by appreciable changes in the fauna, particularly by the disappearance of several species of large mammals, whose bone-remains are more fossilized than those of the Reindeer Age.... Who can hope to have any accurate notion of the duration of this period?" (p.64, Fossil Men by Marcellin Boule and Henri V. Vallois, The Dryden Press, 1957.)

Yes, who can hope to know unless it is revealed by the Creator Himself? That the time element involved here was extremely short, is evidenced by the frozen remains of some of these extinct large mammals, the Siberian Mammoths. These beasts were instantly frozen with food still in their mouths. That they lived in a temperate climate is clearly proven by the type of food found in their mouths and stomachs -- buttercups and moderate-climate grasses.

A sudden climatic revolution took place burying millions of animals in an "avalanche" of snow and ice. Paleontologists are admittedly unable to explain this evidence by "uniformitarian" principles.

The Value of Carbon-14 Dates

Radiocarbon dates fall into three general groups, those reaching back to approximately 710 B.C., which follow fairly close to established historical dates; a second group covering the time from 1000 B.C. back to Noah's Flood (2370 B.C.), which show marked disagreement and frequent irregularities even when compared with the generally accepted (but incorrect) Egyptian based chronologies; and a third group which covers the actual Flood deposits themselves. Pre-Adamic fossil deposits (normally labeled Paleozoic and Mesozoic) show no measureable Carbon-14. Upper Cretaceous deposits generally belong with the Noachian disaster.

Consider each of these periods briefly in their proper chronological order. The earliest, covering the time of the Pre-Adamic destruction, was either at a time so remote that all Carbon-14 has now reverted to nitrogen, or else that reptilian world lived in an atmosphere that contained little or no Carbon-14. The giant size of some of these early creatures might be indicative of old age with little radioactivity to shorten life. Reptiles differ from mammals in that they continue to grow with age. They do not have a natural life span to limit their growth.

Next consider the world between Adam and Noah. Climate was warm even to the poles as was mentioned earlier with regard to the Siberian mammoth found frozen with buttercups in its mouth. Plentiful vegetation to support millions of mammoths and other mammals was available in this northern region. A sudden climatic change brought death to all. Since that bone chilling moment northern Siberia has continued a frozen wasteland!

Radiocarbon dates for the mammoths range around 18,000 years which might merely indicate a low ratio of Carbon-14 in the atmosphere giving these frozen beasts the appearance of extreme age. Instead of the present 15.3 disintegrations per minute from the Carbon-14 contained in a gram of modern carbon, the rate would have been in the neighborhood of 3 or 4 d/p/m. One-half life later in our present age the activity has dropped to 1-1/2 to 2 giving a deceptive age reading of 18,000 to 20,000 years. There is no scientific control, no index or guide available to calibrate the time scale unless you depend upon the historical account of the Flood itself. Science has merely assumed a uniform 15.3 d/p/m for all past time.

The Life Span Cut Short

It is interesting to note that one of the symptoms of slow radiation poisoning is a shortening of the normal life span. The near-thousand-year lifetime of the pre-Noachian patriarchs is suddenly cut in half, then diminishes slowly to the present three score and ten of the past three milleniums. The cause is not known but an in-

crease in internal beta-radiation from the assimilation of food containing a higher portion of Carbon-14 could certainly be a prime contributing factor.

Note also the reduction in size of some of the mammals today compared with the same animal when found fossil. Climatic change certainly affected the food supply. Colder weather following the Flood favored the warm-blooded mammals in their competition with the reptilian world. Many were instilled with a fear of man and became ferocious and wild in nature. The giant men and animals from the pre-Flood era have vanished today. The causes are not yet fully determined.

An increase in radiation to all cells of the body, especially to the reproductive glands could easily explain this marked decrease in life span. At the same time it would explain why Carbon-14 dates since the Noachian Deluge bear a semblance to historical reality, while those from obvious Flood deposits are five, ten and fifteen thousand years out of the way.

For older radiocarbon date readings the obvious explanation is pollution of the sample with material from the pre-Adamic world which contained little or no Carbon-14. Extreme age reading are thus found for specimens which belong with the Flood deposit or to the early post-Flood era.

Blind Faith Versus Knowledge

When all factors are taken into consideration, it becomes increasingly plain that chronology based on the radiocarbon dating method, cannot be accepted as a substitute for God's chronology revealed in the Bible. A blind faith is required to believe the assumptions of evolutionary science infallible, but it is possible to prove the existence of the Creator and Author of the Bible and then know the veracity of His Word.

Further research is needed to determine quantitatively each of the errors of the Carbon-14 dating method. While it has placed evolutionists in a dilemma by taking away the hundreds of thousands of years they had assumed for the appearance of mammals, angiosperms (flowering plants), birds and man, yet its results are neither consistent nor trustworthy. In some cases the method is going to aid in correcting previously incorrect archeological time relationships; in others it has added immeasurably to the confusion.

Man apart from the revelation of God can only reason himself astray. Carbon-14 dating is not yet established as an exact science. When all its variations have been carefully searched and measured, it will be found to be in exact accord with the revealed chronology of Scripture.

* * * * *

CARBON 14 DATING LECTURE FOR 201 SYSTEMATIC THEOLOGY

by Kenneth C. Herrmann

1. THE PROBLEM: Carbon-14 dates going back to the time of King David are reasonably reliable. They have helped put many segments of history in their proper order. But dates earlier than King David become progressively more in error. They give 10,000, 15,000 and 20,000 year ages for campfires, mammoth bones, and human artifacts. Obviously something is wrong. Why does this system of dating work for recent dates but not for the ones that deal with man's early history?
2. ARE BIBLE DATES CORRECT? This you should already know. Are these ages of the patriarchs correct? Did men live close to a thousand years? Did they keep an accurate record of time? Or did Moses write fiction? What about the six thousand years since Adam that is rapidly coming to a close? Add the millennium and you have 7000 years. Is this 7000 year cycle correct?
3. THE CONFLICT is thus between Biblical dates and Carbon-14 dates. We want to know both why Carbon-14 dating works and why it doesn't work.
4. THE CONCEPT OF HALF-LIFE: Start with 64 pennies. Flip them, throw away the tails; keep the heads. How many times would you do this before they are all gone? 64 to start
1:32 2:16 3:8 4:4 5:2 6:1 7:? Would it work out exactly that way? Suppose you started with 64,000? Very close to 1000 after the seventh flip. All radio active elements have this half-life. Carbon-14 drops to about half its original amount in 6000 years.
5. HOW DOES CARBON-14 GET INTO LIVING THINGS?
 1. Cosmic radiation
 2. Barrier of the magnetic field of the earth
 3. Nitrogen particles struck by Carbon-14
 4. Carbon-14 manufactured in upper atmosphere
 5. Upper atmosphere mixes slowly with lower atmosphere
 6. Plants absorb carbon dioxide to form sugar and starch
 7. Animals eat plants and other animals
 8. At death of the plant or animal the amount of Carbon-14 begins to drop and the clock begins to run
6. HOW DO WE MEASURE THE LENGTH OF TIME SINCE THE DEATH OF THE PLANT OR ANIMAL? we assume that he or it had the present day level of Carbon-14 at death. Why? Because the Carbon-14 dates agree with historical dates back to the time of King David and the ring counts. And have a semblance of agreement with dates assigned by Egyptian chronologers for the next 500 to 1000 years back. And they lend weight to the antiquity of man. And they disagree with the Bible Dates. This is human nature.

7. IS THERE A CHANCE THAT CARBON-14 LEVELS WERE LOWER BETWEEN ADAM AND NOAH? Yes, they have to be. If we can determine that early level we can make the clock work by correctly calibrating it. Start with a level of 4, let it drop about to 2 for a piece of wood in Adam's campfire or a mammoth hunter just prior to the Flood. Instead of 16, 8, 4, 2 for three half-life periods, with an age of 18,000 years, we have only one half-life and about 6000 years.
8. WHAT WOULD MAKE THE LEVEL OF CARBON-14 LOWER IN THE BONES OF THESE PRE-FLOOD CREATURES AND IN PLANT LIFE OF THAT TIME?
 Was cosmic radiation different? Doubtful.
 Was nitrogen in the air different? Doubtful.
 Was the magnetic field that shields the earth different? Yes, and it would control the height at which cosmic rays struck the air and with what force. Thus any Carbon-14 formed would be formed much higher.
 Was the mixing of the atmosphere, the upper and the lower any different? Yes, and since it is only the lower atmosphere that the plants breath, this could be the critical factor holding the level of Carbon-14 low prior to the Flood.
9. WHAT ARE THE MAIN PROBLEMS IN CARBON-14 DATING?
 1. Determining whether the present 15.3 level has been constant throughout the past 40 or 50,000 years. Dr. Libby had assumed that he could go to the historian and get good dates back 30,000 years. Historians have lied to us. Dr. Libby has had to depend upon Egyptian history for dates to 5000 years ago. The older dates by Carbon-14 depend upon the assumption that the present 15.3 level has been fairly constant in the past.
 2. Contamination of the sample, moss, water circulating.
 3. Correlating the sample with the event in history, How old was the wood used in the campfire? From what part of the tree did it come? Generally small new trees would be chopped down and used for campfires. What about buildings? Suppose they were rebuilt?
10. DID THE INCREASE IN CARBON-14 SHORTEN THE LIFESPAN OF MAN?
 While there is no proof that Carbon-14 was the agent, it is known that radioactive materials will cut the lifespan. Animals prior to the Flood were also larger and must have been longlived. Some natural agent such as Carbon-14 could have been used to carry out this drastic shortening of man's lifespan and that of the animals.
11. HOW DID EARLY POST-FLOOD MAN REACT TO THE SHORTENING OF HIS LIFESPAN?
 This is theory but consider what you would do if you saw yourself gray at thirty, your children gray at twenty, their children gray at ten years of age. It would seem that the end had come for the human race.

Make a B-line for Bee Balser's Birdseed store? What did they do? The body tissue ages, the germinal material is able to propagate itself without aging. Just as an amoeba created with Adam has never aged nor died. You might look at any one amoeba today and say it is the one created with Adam and is nearly 6000 years old. Those people went in for egg eating, make-up, health foods of all kinds....clean and unclean, eating blood because they knew the life was in it, sacrificing their children to appease God, experimenting with eunuchs (Castor) to preserve that boyish voice and youthful appearance, sunbathing and sunworshipping with the sun the source of life. Some portion of their action at least must have been motivated by seeing their lives cut short. Carbon-14 may have been instrumental in cutting life to 70 years.

12. HAS CARBON-14 DATING WORKED IN FAVOR OF EVOLUTION?

It has seemingly given validity to ancient dates for man whereas before, anything older than Egyptian history was just an estimate. But Carbon-14 has shown varve counts to be far too high; that more than one varve per year must form, or that as in Egyptian history some sections are counted in sequence when they should be parallel. Carbon-14 dating has also made the "Ice Ages" much shorter and the ice fronts move at catastrophic rates. Estimates of 150,000 years have had to be cut to 25,000 "carbon-14 years".

THE POTASSIUM ARGON METHOD OF DATING

by John Lundberg

Presently, the Potassium Argon method has met wide acceptance in the field of Geochronology. The complexity of the method is beyond the reach of any casual student in the field, who is not firmly based in the physical sciences. The following is therefore, a brief sketch of the problems presently noted in the Potassium Argon method complete with a listing of source material from which the student may expand his knowledge.

CONTAMINATION AND SAMPLING

The very important question of contamination and samples will now be briefly reviewed. The importance is shown by the following: "Sampling is of extreme importance in geochronology, and it took years to choose the right samples for the K/A method. Suess had consulted chemists and mineralogists who were specialists for salt mines, but they gave him samples which later turned out to have been re-crystallized in recent times. "1 To pick the correct sample for dating one must be aware of the contamination problems involved.

"Dates obtained by all radiometric methods for older geologic rocks are suspect because of the increasing probability with age of their having been subjected to metamorphic conditions with consequent diffusion losses of the radioactive and radiogenic isotopes. Dates obtained for younger rocks are suspect because of the increasing importance of contamination with decreasing age."1

Also it is important that during a crystals growth potassium-bearing crystals do not incorporate radiogenic argon present in their environment in the form of dissolved gas or in older crystals. There is also the unsolved problem of how much initial radiogenic A^{40} may occur in igneous minerals as a result of incorporation during growth in a magma containing some radiogenic argon. Gentner and Lippolt give evidence of the presence of excess initial A^{40} in several tuffs of the Eifel volcanic district of Germany, one of which yielded an age at least two million years greater than it should be based on ages of tuffs below it.²

G. H. Curtis reports that from one sample of sanidine he obtained FIVE different ages from different splits of the sample which varied from 200,000 to 700,000 years. This contradicted the C^{14} work which indicated an age of only 12,000 years.¹

We can see here there are not a few contradictions resulting from contamination of samples. Contamination occurs geologically in a variety of ways, and the amount of contamination in a partic-

ular sample can depend in part on the mode of origin of the material used. Lava flows are usually the least contaminated and derived or reworked tuffs the most contaminated.

EXAMPLES OF EXCESSIVE ARGON IN MINERALS

We will now examine a few papers of recent years concerning the problem of excess argon in beryl, pyroxenes, and other minerals.

Damon and Kulp found that, "All beryl crystals appear to contain a quantity of helium and argon in great excess over that which can be accounted for from radioactive decay. Other magmatic minerals which have structural sites suitable for large non-essential atoms, such as cordierite and tourmaline, also show this excess in variable amount." Damon and Kulp sum up their work with the following conclusions. Quote...

1. All beryl, cordierite and tourmaline studied in this work contained a large excess of both helium and argon over that required from radioactive decay. In many cases the amount of helium and argon produced within the mineral by radioactive decay was only a fraction of one per cent of the total.
2. The content of helium, argon and potassium and the alpha activity varied in crystals of beryl from the same permatite and even within a single crystal. The content of helium and argon in crystals from different localities is extremely variable.
3. The ratio of helium to argon in crystals from different permatites varied from .5 to 130 and even varied from one to five in a single crystal.
4. The three minerals, for which a gross excess of inert gas has been found, have in common an atomic structure based upon a six-membered silica tetrahedron ring.
5. There appears to be no direct relationship between the helium and argon content and the immediate environment.
6. The elemental and isotopic abundances of the inert gases are not at all similar to their abundances in the atmosphere.
7. There was a marked tendency for the oldest beryls to

contain the largest quantity of helium. The relationship is peculiar; qualitatively the helium content increases with age very much as might be expected if beryl were a radioactive mineral containing varying amounts of pure alpha emission and helium content.

It may be stated that the helium and argon content of beryl and cordierite increases with the age of the mineral and there is no relationship between this phenomenon and the alpha emission, potassium content, chemical composition or mineralogical environment of the mineral. Unquote³

Damon and Kulp also thought that amphiboles might also contain excess gas, owing to the partial vacancy in the alkalication position. In 1961, Hart investigating amphiboles and pyroxenes for use with K/A dating, found no evidence for excess argon in hornblendes. The pyroxenes were considered to be unlikely hosts for excess argon, as they do not have structural vacancies or holes, as do the amphiboles and ring silicates. But "The pyroxene samples show ages that are clearly too high. Loss of potassium at some time during the history of the samples could produce apparent ages such as this. It is considered unlikely (but not proven), that potassium could be lost without a comparable loss of argon. It is concluded that the only reasonable explanation is incorporation of radiogenic argon into the pyroxene, either during initial crystallization or during a later recrystallization."⁴

The authors go on to state that, "Under these conditions we might expect to find excess radiogenic gases in many minerals. The magnitude of this excess (relative to that in pyroxene) is quite unknown and is likely to exhibit large variations, depending on the particular mineral and its thermal and stress history."⁴

"These results clearly restrict the usefulness of pyroxenes for K/A dating. They also suggest that excess argon should be considered a possibility in other minerals, particularly in young samples from deep-seated environments."⁴

Time has not provided an answer for these questions. McDougall and Green report that, "Potassium-argon measurements on eclogites enclosed in gneisses of the Nordfiord area, Norway, show that the pyroxenes contain excess radiogenic argon, indicating the presence of a high partial pressure of argon at one or more periods during the history of these rocks."⁵

This problem is also stated by Hamilton, "In determining a potassium-argon age it is necessary to assume that there has been no loss of argon from the mineral since it was formed. In general the latter requirement is valid provided that the mineral has not been heated at a later date, or there has not been a loss of argon

through the process of diffusion."

Even the basis of the method is held in question. "The validity of the decay scheme (K^{40} branching to CA^{40} and A^{40}) has been discussed by Morrison and some uncertainty exists as to the importance of K-capture directly to the ground state of A^{40} "

At this point it would be appropriate to review the opening statement of F.G. Houtermun regarding the Potassium Argon method. "The history of the Potassium Argon method for absolute dating of minerals and rocks is full of surprises and good guesses." A few paragraphs later he states, "The next good guess is due to H.E. Stuess. This author is noted for the fact that he comes to right conclusions on very scanty evidence or no evidence at all."¹

This is only a partial listing of questions remaining to be resolved before this method of dating can be used with confidence. The source listed in the bibliography should provide ample source material, a more complete description of the method itself has been compiled by the author.⁷

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From The New Biology

Theories of Descent with Change

1. LAMARCK'S THEORY OF ACQUIRED CHARACTERISTICS (1809). Lamarck attempted to explain differences in individuals by suggesting that through disuse or use for specific purposes certain parts of an organism were under- or overdeveloped, and that such differences were later inherited by future offspring. The first part is true; use and disuse modify structures and functions; but even today we have no conclusive evidence that such or similar modifications of the body or somatic cells are inheritable.

2. DARWIN'S THEORY OF NATURAL SELECTION AS A FACTOR IN THE ORIGIN OF SPECIES (1859). Darwin observed that animals produce larger numbers of off-spring than can naturally and normally exist in any given locality, but that the total numbers of that particular species remain more or less constant or stationary.

Because of their morphologic and functional differences (or variations due to descent with change), there ensues between these offspring a "struggle for existence" and a consequent "survival of the fittest." This permits a "natural selection" of the best to survive and thus the race as a whole is changed or benefited. If there were no natural selection or survival of the fittest through the various individual struggles for existence, there would be present many of the weaker types from which future populations might arise. In other words, the stronger win naturally in their struggle with the less fit. This is a factor in the explanation of the characteristics of a group of animals.

3. HUXLEY'S THEORY OF ORTHOGENESIS (1890). The theory of orthogenesis (or definitely directed evolution) suggested that the evolution of organisms has followed a perfectly predetermined direction or pathway; that complex organisms arose through a series of directed and orderly sequences from simpler forms, much in the same way that a complex adult develops from the egg through a series of predetermined stages. This theory is on the borderline of a vitalistic or supernatural interpretation of the directive physicochemical factors which cause evolution. According to this theory, certain types of variations are naturally destined to arise, and hence determine the course of evolution not merely at random but along a definite or straight line. This theory attempts to explain the origin of many characters which arise spontaneously without visible or apparent causes.

4. DE VRIES' THEORY OF MUTATIONS (1901). De Vries suggested that the production of sudden mutations results in the appearance of profound changes and differences between parents and offspring, thereby producing new species. Natural selection operates to eliminate or retain such organisms which have mutated. Undoubtedly

some species have arisen through mutation, as shown by tailless dogs and cats, the short-legged breed of sheep (Ancon sheep) descended by mutation from a long-legged ram, the hornless Hereford cattle descended from a single calf born in Kansas in 1889.

5. WEISMANN'S THEORIES OF THE CONTINUITY OF GERM PLASM AND NON-INHERITANCE OF ACQUIRED CHARACTERISTICS. One essential feature of Weismann's doctrine is that the germ plasm (germinal material) is continuous or forms a direct path from one generation to the next and is not derived from the soma or body plasm. Because of experimental evidence, he maintained that characters acquired by the body plasm were not inheritable. He suggested that only germinal variations which might arise as a result of new combinations in the germ cells (independent of environment) were inheritable. He recognized the almost limitless number of combinations possible when the germ cells of parents fuse during fertilization. This, together with natural selection, he held to be sufficient to determine which characters might arise and perish or persist and consequently be transmitted to future offspring.

6. THE THEORY OF HYBRIDIZATION. This theory attempts to explain how evolution might occur by the appearance of characters that are new by a combination of genes of organisms of the same species or more rarely of organisms of different species. Hybridization between animals of different species rarely occurs, although an example of such a new type is the infertile mule produced by crossing a horse and an ass.

" THE DOCTRINE OF EVOLUTION "

from Historical Geology by Dunbar pp. 57-9

A thoughtful person can hardly survey the great diversity of life about him without wondering how the many kinds of plants and animals came to be. And if he contemplates the fossil record and finds that in each geologic age the Earth was inhabited by still different types of life, that question becomes more insistent. Thus far two, and only two, answers have been suggested -- the first is Special Creation; the second, Evolution.

The first theory, that of Creation, assumes that each kind of animal and plant was "molded from the dust of the Earth" and "given the breath of life" in its present form, each being a "special" and independent creation. To primitive people who knew but a few hundred kinds of animals and plants, and had no knowledge of biology, this seemed the simplest and most acceptable explanation, as natural as the belief that the Earth was flat and that it formed the center of the Universe about which Sun and Moon and stars revolved. From such early speculation this theory was incorporated in the ancient Hebrew scriptures, and so, for centuries, it exerted a profound influence on the thought of the Christian world.

The long and extensive experience of breeding domestic animals and plants suggested a different origin. It is known, for example, that all modern breeds of dog can be traced back to a single species of wild dog, that all our domestic horses have come from one or two species of wild pony, and that the many breeds of cattle have sprung from one, or at most a few, wild ancestors. If it has been possible, within a few thousand years, to change a wild dog into forms as diverse as the whippet, the bulldog, and the poodle, and if, by careful selection and breeding, it has been possible to transform the scrawny wild pony of central Asia into the sleek Arabian race horse, the toylike Shetland pony, and the ponderous Percheron, then we can only wonder if in similar fashion each kind of wild life has developed from some other by gradual change and specialization. This line of thought led to the doctrine of Organic Evolution, which is the belief that from some geologically remote, primitive form of life all the diverse kinds of animals and plants have developed, each evolving from some previous form by gradual and orderly change. According to this conception, all creatures are genetically related, like the members of a great human family, and the degree of relationship of different groups of animals and plants may be represented by the branches of a family tree.

It may be noted that evolution is no less a special Creation than that conceived in the Scriptures; it is only a different method of creation -- one that is still taking place about us and that we can hope to understand. There is still much to learn about the ways and means by which evolution is brought about, but enlightened people can no longer doubt that it is the method of creation, and it is now universally accepted as a guiding principle in all fields of biology.

BASIC QUESTIONS ON EVOLUTION

By Herbert W. Armstrong

1. Almost in its entirety the argument presented will seem logical, reasonable, plausible, and will "fit" the facts and hypotheses upon which the argument is based. This is natural, because Evolution, we all admit, is the product of highly educated and intelligent men, and such men could not have produced, and accepted so universally, a theory which was not logical, convincing, and which "fits" at every point. This, however, does not prove Evolution true, nor that these highly educated men have not made a mistake, or been misled.
2. Virtually all these numerous convincing arguments which will so forcefully appeal to your reason ARE ARGUMENTS on NON-ESSENTIAL POINTS, or are based UPON A FALSE AND ASSUMED PREMISE, treated either as established fact or as an axiom, (in which case the argument would be logically true, were the hypothesis, or premise, upon which it is based, true), or are in the nature of an analogy or comparison, which in reality proves nothing whatever.
3. The basic fundamental points which must prove or disprove the theory will be cleverly side-tracked, lost sight of, or confused, by an intricate, tangled maze of complex details on non-essential points, or based on an assumed, unproved, and usually false premise.
4. These premises upon which such elaborate detailed arguments will be based, are usually assumed--stated as a proved fact. The premise itself is the basic fundamental fact upon which proof must rest--yet you will find this stated AS FACT, taken for granted, and never discussed, or proved. For example, the premise that the Cambrian and Ordovician strata, so-called, and so-named, were deposited before, and are older than, the Pleistocene or the Miocene. IF these so-called older strata ARE older, and were deposited long ages previous to the so-called later strata, then the argument based upon this premise, that the fossils found in the Cambrian lived long ages before the fossils found in the Pleistocene, would naturally be true. But you will not find any evolutionist dwelling on the basic point, or the premise--he confidently ASSUMES this one strata to have been deposited long ages before the other, and devotes his words to an argument based upon that ASSUMPTION which will be true only provided the premise is true. HOW DOES HE KNOW that the Cambrian strata was deposited long ages before the Pleistocene? He will not answer that question--YET THAT IS THE BASIC QUESTION UPON WHICH HIS ENTIRE ARGUMENT RESTS. If you should ask him, the author would have to reply to you, "why, I know that the Cambrian strata was deposited long ages before the Pleistocene BE-

CAUSE THE SIMPLEST FOSSIL FORMS ARE FOUND IN THEM" In other words, his premise is SUPPOSED, and based upon the very assumption he is trying to prove by it! An assumption cannot be proved FACT by another ASSUMPTION based upon the first assumption!

To be truly convincing, any argument in favor of Evolution must PROVE:

1. How life itself originated out of dead matter--the actual first origin of life. Spontaneous generation, or some other form or method of origin of active life out of dead matter must be proved to have been accomplished through natural causes by RESIDENT forces of nature (which excludes the OUTSIDE power of God). This must be proved, and not assumed. Otherwise ORIGIN itself must be accepted as a direct creation of the outside force, God, or other supernatural outside forces other than the resident natural forces of nature and dead matter.
2. That one species not only can be made to change into or develop into, (even through many successive generations), another and different species, but that IT HAS DONE SO WITHOUT THE AID OF MAN'S SELECTIVE BREEDING, THE AID OF GOD, OR OTHER OUTSIDE OR SUPERNATURAL CAUSES. The change of one species into another different species must be proved, and by NATURAL RESIDENT CAUSES of nature alone. But man has never been able to affect this change or bridge this gap from one species into another, even with his selective breeding and all the skill of science. Is science ready to concede that blind nature can accomplish what science, with all its brains, skill, equipment, and power, has been unable to do? We define a species, of course, as one capable of continuous and indefinite fertile interbreeding. Crosses and hybrids do not come within the definition.
3. That, if there has been such change by such natural causes, the change has been steadily upward,--that is, from simple to complex physically, and tending toward constant improved and advancing intelligence--and that in specific instances, such as that of man and higher ape, the change has not been retrogression, or degeneration. This, I say, must be PROVED, and not simply easily assumed. Some hold it possible that the higher apes are degenerated men.
4. That, since paleontology offers the sole positive proof, if any, the so-called oldest fossils--the more elementary and simple,--have been taken from strata which can be PROVED to be the older strata--universally and without exception. And that the more complex and advanced fossils were taken from strata which must be PROVED were deposited later.

5. If the fossil contents are to be accepted as proof of the age and order of the rock strata, then it must be PROVED by evidences other than the rock strata that
- (a) the more elementary fossils lived first,
 - (b) they did not exist SIMULTANEOUSLY, and
 - (c) that they did not appear in the reverse order.
6. Since Darwin and all Evolutionists admit that the number of intermediate varieties--stages of development BETWEEN KNOWN SPECIES--must have been "truly enormous," to use Darwin's expression, and naturally much greater in number than those of well-defined distinct species, then this basic fundamental proof must be produced:
- (a) that in fossil life a great number, or a greater number of intermediate stages or varieties have been found than of true fixed species, and
 - (b) that, since evolution is continuous, vast intermediate stages or varieties exist today.

Failure to prove this basic point is failure to prove or establish the theory as fact, For,

EVEN THOUGH WE ASSUME THEISTIC EVOLUTION, (which none of the outstanding great evolutionists have assumed) AND CLAIM GOD AS THE CAUSE OF VARIOUS STAGES, AND EVOLUTION, RATHER THAN DIRECT CREATION, AS GOD'S METHOD, WE STILL MUST PRODUCE EVIDENCE OF THE VAST NUMBERS OF INTERMEDIATE VARIETIES, BETWEEN RECOGNIZED SPECIES, BOTH IN FOSSIL FORM, AND IN REAL LIFE TODAY. Isn't it, then significant, that NO ONE REAL GENUINE exhibit of an intermediate link has ever been discovered in fossil form, or in life today?--while thousands and thousands which have been discovered all adhere to the lines of well-defined species? Feathered wings first appear in fossil life FULLY DEVELOPED. And so it goes. THERE IS NO EVIDENCE. Evolutionists may cleverly cloud the issue with appealing and reasonable arguments on non-essential points, but they CANNOT PRODUCE EVIDENCE ON THESE BASIC FUNDAMENTAL POINTS. And the truth or falsity of the theory rests upon these basic fundamental points.

Embryology, comparative anatomy, etc., may look reasonable and may "fit" circumstances, but are mere comparisons or analogies, and do not establish anything further than that. They might add weight to a fact already established, but they do not establish a fact, and both are JUST AS READILY, IF NOT MORE PLAUSIBLY, EXPLAINED FROM THE STANDPOINT OF SPECIAL CREATION AS FROM THAT OF EVOLUTION. They prove one no more than the other.

G E O L O G I C R E C O R D

EONS ERAS PERIODS

- I. COSMIC: Age of Earth and Solar System
- II. CRYPTOZOIC: Phylum PROTOZOA--Single-celled, generally microscopic animals Ex: Amoeba, foraminifera, radiolaria, and many disease germs.
1. Archeozoic - Colorado River Bed in Grand Canyon
2. Proterozoic - Age of Algae
Vishnu Schist layer
- III. PHANEROZOIC:
3. Paleozoic- Invertebrata
- Phylum PORIFERA - Sponges
- Phylum COELENTERATA--Coral-like animals, lacking viscera
- Class Hydrozoa--hydroids, graptolites-water animals
- Class Anthozoa--corals and sea-anemones, tetracorals, hexacorals (flower animal 416), honeycomb corals.
- Phylum PLATYHELMINTHES--flatworms (never fossil)
- Phylum NEMATHELMINTHES--threadworms (never fossil)
- Phylum TROCHELMINTHES--rotifers, all microscopic (never fossil)
- Phylum BRACHIOPODA--brachiopods (divided into 2 sides, left to right.)
- Phylum BRYOZOA--moss animals
- Phylum ECHINODERMATA--echinoderms (divided into 5 in circular spiny skin)
- Class Asteroidea--starfish
- Class Echinoidea--sea-urchins, heart-urchins, sand dollars
- Class Crinoidea--sea-lilies or feather-stars
- Class Blastoidea--sea buds or blastoids
- a. Cambrian--Age of Trilobites and Tonto rock layer
- Phylum MOLLUSCA--mollusca (divided into two--left to right)
- Class Pelecypoda--clams, oysters, scallops
- Class Gastropoda--snails, conchs, etc. (Stomach food)
- Class Cephalopoda--squids, devilfish, nautiloids, ammonites, and belemnites (head food)
- b. Ordovician--annelida--Age of Brachiopods and Graptolites
- Phylum ANNELIDA--segmented worms, earthworms, beach worms, etc.
- c. Silurian--Age of Eurypterid
- Phylum ARTHROPODA--invertebrate animals with jointed legs

- Class Crustacea--lobsters, crabs
- Class myriapoda--centipedes, millipeds, etc.
(many feet)
- Class Arachnoidea--spiders, scorpions, euryp-
terids, trilobites. - swimmer
- Class Insecta--insects (cut into)

- d. Devonian--Age of Fish--pisces (fishes)
Temple Butte limestone layer
Phylum VERTEBRATA (CHORDATA)--animals with backbones
Class pisces--fishes (actually four classes)
- e. Carboniferous (Carbon)
Class Amphibia--salamanders, frogs, labyrinthodonts
(1) Miss.--Age of Sharks and Echinoderms
Redwall limestone layer
(2) Penn.--Age of Amphibians and Cockroaches
(3) Permian-Supai Formation
Coconino sandstone
Toroweep formation
Kaibab Limestone Formation
Rim of Grand Canyon

4. Mesozoic - Age of Dinosaurs

Class Reptilia--crocodiles, turtles, dinosaurs, ichty-
osaurs, plesiosaurs, mosasssurs, pterosaurs, snakes.
Limesozoic.

- a. Triassic-Petrified forest and Chocolate cliffs
Moenkopi layer
Shinarump and Chinle Layer
- b. Juriassic-Birds (Aves) - Age of Cycads and Zion Canyon
Kayenta-Wingate layer
Navajo sandstone layer
San rafael layer
- c. L. Cretaceous-Dakota sandstone
- d. U. Cretaceous-Mancos shale
Mesa Verde layer

5. Cenezoic - Mammalia--milk-feeding, warm-blooded animals

- a. Tertiary--Age of Man and Mammals (Wasatch Formation)
(1) Paleocene
(2) Eocene
(3) Oligocene
(4) Miocene
(5) Pliocene

GEOLOGIC RECORD (Page 3)

- b. Quaternary--Glacial Age
 - (1) Pleistocene-Loess and Till, Morains and Terraces,
and Volcanic Cones
 - (2) Recent-Modern

NOTE: The preceding is a general classification and its authenticity is subject to question and variance.

EVOLUTION LACKS PROOF

"If it really is true that (man) is merely the inevitable culmination of an improbable chemical reaction ...then the fact that he has been able... to trace himself back to it is remarkable.... That chemicals which are 'merely material' should come to understand their own nature is a staggering supposition. It is also a preposterous one?" The Great Chain of Life by Krutch quoted in Life January 28, 1957 page 28.

At the dawn of the Cambrian, life has already existed on the Earth for possibly a thousand million years. It is small wonder, therefore, that nearly all the great branches of the animal kingdom were represented, and that complex forms of arthropods, such as trilobites, held the center of the stage. Although exceedingly rare in the Pre-Cambrian rocks, fossils appear in abundance at the base of the Cambrian, revealing this highly varied life as though a curtain had suddenly lifted on a drama already in progress. Historical Geology by Dunbar, page 140.

"The many converging lines of evidence point so clearly to the central fact of the origin of forms of life by an evolutionary process that we are compelled to accept this deduction, but as to almost all the essential features, whether of cause or mode, by which specific diversity has become what we perceive it to be, we have to confess an ignorance nearly total." Bateson quoted in General Biology page 546.

Several hypotheses have been advanced to account for the origin of the Solar System, but as yet none is free of serious objections. Even so, the best of them deserve brief study because they represent the present trends of thought about one of the greatest unsolved problems of our world. Historical Geology by Dunbar pp. 77, 78.

Laplace...tried to show how a hot gaseous nebula, in cooling, would automatically develop into a solar system. This seemed a simple explanation of most of the features of our Solar System known at the time, and Laplace's hypothesis was widely acclaimed during the nineteenth century; in the light of our present knowledge, however, it has only historic interest. Historical Geology by Dunbar page 78.

Indeed, there are numerous... obstacles,...that make all present theories of the origin of the Solar System seem inadequate. Tidal disruption of an ancestral sun still appears to be the most probable starting point, but the development of the Solar System continues to offer unsolved problems." Historical Geology by Dunbar page 89.

Earth's beginning was followed by long eras that are veiled in the shadows of antiquity. Historical Geology by Dunbar page 91

"Man.....hold the truth in unrighteousness...that which may be known of God is manifest in them; for God hath shewed it unto them. For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made, even his eternal power and Godhead; so that they are without excuse:Professing themselves to be wise, they became fools...they did not lide to retain God in their knowledge, God gave them over to a reprobate mind....Romans 1:18-22,28.

"The fool hath said in his heart, 'There is no God.'" Psalm 14:1 and Psalm 53:1.

"To be carnally minded is death...because the carnal mind is enmity against God: for it is not subject to the law of God, neither indeed can be." Romans 8:6,7.

Seven Proofs God EXISTS!

This is the most vital decade of all history! NEVER has it been more urgently necessary to answer the question, "Does God Exist?" Atheists, scientists and historical geologists assume He does not! Churchgoers, some Christians assume He does! It's time to QUIT ASSUMING! It's time you saw the PROOF!

by Garner Ted Armstrong

THERE is a delusion gripping the minds of more people today than Communism! It holds them in its sway, deluding and deceiving them, making them veritable *slaves!* It is the concept of "no God."

Recently, Sir Julian Huxley, grandson of the famed evolutionist, stated: "*There is no longer either need or room for supernatural beings capable of affecting the course of events in the evolutionary pattern of thought. The earth was not created, it evolved. So did all the animals and plants that inhabit it, including our human selves, mind and soul as well as brain and body.*"

Is there "no longer any need for a concept of God"? Is the *Bible* merely a collection of Hebrew fables, or the dynamic living word of an intelligent, all-wise Creator Being?

These questions *demand* an answer! Your very life, the lives of your loved ones, and the *future of this world* hang in the balance!

Proof Number One

Need "Christians" be afraid or apprehensive of science textbooks? Is the *Bible* totally out of harmony with all science? Do modern-day discoveries in the sciences render the Christian helpless to reconcile his belief with the "enlightened age" in which he lives?

This first POSITIVE PROOF of the existence of God is so broad, so all-encompassing, so diverse in its many ramifications that it is possible only to barely scratch the surface in this brief article. However, there can be no clearer way to substantiate this proof than to quote from a typical college textbook which discards the *Bible* record. In the foreword material, the authors offer various explanations as to the origin of the earth:

"Our own galaxy, which we remember is but a tiny part of the universe, has *probably* existed a million, million years.

"But *some progress has been made* in

attempting to explain how and when the sun and its nine planets came into being. The study of the solar system gives us *at least a clue* to the origin of that part of the universe most important to us—the earth.

"The *explanation commonly accepted* today is called the *Hypothesis* of Dynamic Encounter, formulated about 1900 by T. C. Chamberlain and F. R. Moulton of the University of Chicago. In brief *it suggests* that our solar system had its birth when the sun was approached by another huge star. The latter, through the operation of the law of gravitation, detached from the sun great masses of flaming gas. The orphan masses from the parent sun gradually cooled and crystallized to become the nuclei of planets. These continued to revolve around the sun, held in their orbits by the gravitational pull of the parent body.

"The evolution of the earth to its present state was very gradual." (*Civilization Past and Present*, Vol. I, Page 31, Wallbank and Taylor.)

I quote this statement in full for a *very special reason!*

Let's go back and carefully ANALYZE what we have just read!

Notice carefully the *italicized* words in the quotation you have just read. We have such words in the opening phrases as "*probably; some progress has been made; attempting to explain; at least a clue; explanation commonly accepted; Hypothesis; and it suggests.*"

What a collection! Here are numerous "attempts" to explain, "some progress" being made, at least a "clue," and the "suggestion" of an "hypothesis"—the very word itself meaning "WE GUESS"!

Then, in very careful wording, having begun with a number of "possibles" and "perhapses" the book begins to tell of *definite* PAST OCCURRENCES which are *said to have taken place!*

But let's analyze further. Let's get to the very trunk of the tree of this very

vital FIRST PROOF of the existence of God!

Notice it!

In the very BEGINNING the writers, even though beginning with many *attempts to explain, clues and guesses*, admit the existence of our *solar system*, a "sun," another "huge star," the "operation of the law of gravitation," great "masses of flaming gas," and *admit* that these gases "gradually cooled!"

They also mention how these gases "crystallized" and then continued to "revolve around the sun, held in their orbits by the *gravitational pull* of the parent body!"

What a fantastic array! Here is a tremendous, limitless, imagination-defying expanse—an *entire universe!* Here is a whole solar system, a huge sun, the operation of certain, definite, immutable, unchangeable LAWS! Here is a supposed collision between gigantic, breathtakingly huge astral bodies, resulting in the supposed formation of our present solar system!

Think of it! All of these myriad *laws*, of heat, light, energy, motion, the rotation of astral bodies, the laws of gravity, the principle of isostasy, which demands that every orbital body must gradually assume and maintain a near-round shape, and myriad other laws, entirely too numerous to mention, are *admitted to exist!*

Yes, THINK!

Get back to the real TRUNK of the tree! Where is the place to begin? Is it an attempt to explain the existence of our present *solar system?* Decidedly not! Scientists and astronomers tell us that our solar system is only one of many such systems in our great galaxy called the "Milky Way." However, even our galaxy is only *one* of myriad galaxies, which form *only a part* of the vast, limitless expanse of the universe. Our planet, astronomers assure us, is merely a third-rate planet in a second-rate solar system,

lost in the expanses of seemingly limitless space!

Do you begin to comprehend? By what LAW did one star approach another? By what LAW did heat gradually cool? By what LAW was there a "gravitational pull"? By what LAW was there the existence of the "operation of the law of gravitation"?

Yes, there it is. In dissecting and looking carefully into the statements of some of the preposterous hypotheses which have been advanced, you begin to see that in every case the writers have begun with an *orderly*, LAW-ABIDING universe, *governed by irrefutable LAWS!*

The existence of *LAW*, unchangeable, immutable, irrevocable, unseen and yet active, absolutely DEMANDS the existence of a GREAT LAWGIVER!

"There is one LAWGIVER who is able to save and to destroy . . ." (James 4:12).

That LAWGIVER is GOD!

Proof Number Two

Before seeing this next amazing, irrefutable proof, it is first necessary to state, in simple terms, the meaning of the word "evolution." Of course, there are many processes called "evolution."

The process of development of music from simple to complex is, in a sense, an "evolutionary" process. This, as is true in all technological inventions, has perhaps led many to *assume* such a development is also true in organic, living material!

"Evolution is the gradual development from the simple, unorganized condition of primal matter to the complex structure of the physical universe; and in like manner, from the beginning of organic life on the habitable planet, a gradual unfolding and branching out into all the various forms of beings which constitute the animal and plant kingdoms." (*Organic Evolution*, p. 6, Lull.)

Notice it! Evolution theorizes *from the beginning of organic life*—already having LIFE with which to begin! It does not now show, nor has it ever shown, nor will it ever be able to show how life CAME into existence!

The theory of evolution (the word "theory" means "*we think*") states simply, that all life forms that we know today, including humankind, all plant and animal life in all of its myriad

species, have gradually *evolved* from the most simple life forms to the complex, intricate, interdependent species we see about us today, each having its own peculiar cyclical life character, each reproducing according to its own kind.

Evolution states that this life evolved in a "gradual process," by "*resident forces*" into the complexity of life today.

And herein, at the very basic *trunk of the tree* of all evolutionary thought, lies one of the *greatest* proofs of God!

Evolutionists, geneticists, biologists, scientists in any field whatsoever have never been able to demonstrate, nor to offer the slightest evidence that the *LIVING* can come into existence from the *not-living!*

It is true that certain laboratory experiments have taken place in which *supposed* "dead cells" are said to have been "revived" and brought back to life by the means of certain chemical compounds! This, however, is a far cry from "spontaneous generation."

There is a broad, gaping, yawning chasm of separation between *life* and *death*. The great gap between the not-living and the living is *so broad, so insurmountable, so unfathomable* by man, that evolutionists can only "suppose" and *guess*, offering vague, ethereal, nebulous "theories" as to how life "might have" begun!

However, on the other hand, there is an absolute, demonstrable *law* of science which comprises the second major proof of the existence of a life-giving God!

That is the law of biogenesis!

"Bio" means life! "Genesis" means beginning. This law, then, is a law concerning the *BEGINNING* of life! This law, simply stated, is the absolute law that *life comes only from life*. That the not-living can never give rise to, give birth to or produce the living.

There is perhaps no law known to science that can be any more firmly and easily demonstrated than the law of biogenesis.

The very existence of *LIFE demands a LIFE GIVER!*

God states dogmatically, "And the Eternal God formed man of the dust of the ground and breathed into his nostrils the *breath of life*, and man became a living soul" (Gen. 2:7).

Almighty God, the Life Self-Existent,

the One who has life, who IS Life, who was before all things, IMPARTED life to the first man, and set within man, the animals, and all plants, the cyclical character of life which enables them to reproduce according to certain set laws! GOD IS THE GREAT LIFE GIVER!

Proof Number Three

Many of these amazing proofs of the existence of an Almighty God "overlap."

That is, each is, to a degree, interrelated with the other. The third major proof of God can be stated quite simply from the quotation you saw under Proof Number One.

You will notice that evolutionists, in trying to substantiate their theory, always BEGIN with an orderly universe, and the existence of *matter*. Notice the so-called Theory of Evolution BEGINS with matter, laws, and "simple" life!

What is matter? Matter occupies space and has weight. It is not always necessarily seen, since certain gases, and even the air which you breathe, are also classified as "matter."

Until recently, scientists talked of the law of the "conservation of matter." However, with the discoveries in nuclear physics, and following Madame Curie's experiments with radium, scientists have now found there *is* a certain amount of "disintegration" in matter!

This *deterioration* of matter is a scientific fact! Uranium (U 238) gradually disintegrates through many intermediate stages into lead (Pb 206). Uranium, as you may well know, is radioactive and gives off energy in the form of radiation.

Gradually, over a period of seemingly limitless years, this radioactive material disintegrates into lead! *There is no new uranium coming into existence today!*

This means, simply stated, that science has *proved* that this earth is gradually running down! The earth, and the whole universe, is like a great, giant *clock*, which at one time was *wound up!* It has been gradually "running down" ever since, and is not now by any process known or observed or measured being "wound up" again!

It is as if man has arrived on the scene in the midst of an *orderly universe* which is gradually "*running down*"! Observe even the fields, mountains, valleys,

and various topographical features about you! Years ago, a man named John Powell, an early American explorer and geologist, observed the process of erosion from various streams and rivers, and was led to the conclusion that, given enough time, streams would *wear down* any land surface, *no matter how high* it had been originally, to what he called the grand *base level* fixed by the level of the ocean surface.

This process of erosion is seen about you constantly. That is, that the higher and the steeper the mountains, the more rapid is the erosion, and gradually all high areas of the earth are being lowered. The sea bottoms, river valleys and low areas are gradually becoming higher, so that eventually, *given enough time*, the earth would, should this process continue, become smoother and smoother.

This, while a totally different consideration from the disintegration of uranium, nevertheless serves to show the gradual "running down" of the earth.

Science has firmly established, then, *there has been no past eternity of matter!*

Matter must have at one time COME INTO EXISTENCE! Since matter by its very nature has had no *past eternity*, it had to have been, at one time, *brought into existence!*

Creation, then, the *very existence of things*, absolutely *demands* and *requires* a Creator! That which is made requires a Maker! That which is produced requires a Producer!

Matter, it has been firmly established, has been *made*—it did not just "happen" and has had no past eternity! Therefore, the third great proof is that the *creation* requires a great *Creator!*

Proof Number Four

The One who is quoted in the first person as being God said, "Let the earth bring forth the living creature *after his kind*, cattle, and creeping thing, and beast of the earth *after his kind*, and it was so. And God made the beast of the earth *after his kind*, and cattle *after their kind*, and everything that creepeth upon the earth *after his kind*, and God saw that it was good" (Gen. 1:24-25).

Scientists have attempted to show the evolutionary pattern by "comparative embryology"; by a study of selective

breeding, genetics, and various other aspects of biology.

However, without taking the tremendous amount of space necessary to even faintly scratch the surface of such a broad subject, suffice it to say there is an absolute, irrefutable, immutable, unchangeable LAW, which absolutely prohibits a jump from *one kind* to another *kind!* (See "After Its Kind" by Nelson.)

There are hundreds of *different varieties* within a certain species, and while there may be small, tiny dogs, such as the Mexican Chihuahua, and also great huge dogs such as the St. Bernard or the Great Dane, *they are still dogs!* They are not cats, nor horses, nor are they even beginning to show a gradual trend toward developing into *another species!* They are all of the *same kind.*

Comparative Embryology tries to point out that the beginning embryos of fish, polliwogs, and humans look very much alike. This is absolutely true! But it proves absolutely *nothing* for the case of evolution, but *does* offer a STRONGER proof of the existence of God! Scientists are *defied* to attempt to make the embryo of a fish turn out to be a polliwog, a man, or *anything other than a fish* from the *exact same kind* of fish which laid the egg in the first place!

Scientists have attempted to prove their evolutionary theories by "selective breeding" and studies in "mutations."

These do not prove evolution! They prove, rather, the existence of absolute, unchangeable LAWS governing the reproduction of all animal and plant life, and that those laws function within certain limited bounds that cannot be transcended or broken!

While we are able to breed and cultivate today *new varieties* within a great *kind*, they are still of the same KIND and *not* a new species of life!

Any farmer who labors in his fields, raising corn, wheat or other crops, knows some of the basic proofs of selective breeding.

Scientists working with guinea pigs or other animals in laboratories can arrange an absolute *pattern* of just how the genes and chromosomes are going to react in the interbreeding of certain animals according to their coloring and various characteristics.

They are able to tell in advance just *exactly* what the offspring are going to look like! Again, this does not prove anything except demonstrate the existence of an all-wise, all-powerful God who *made* these laws, and who also sustains them! The *fact* God said let the earth bring forth "after his kind," and has been enforcing and *sustaining* that law ever since is the fourth major proof of the existence of God!

In attempting to array the skeletons of an orangutan, chimpanzee, ape, gorilla, and a man, evolutionists assure us there is a definite pattern showing all have come from one common ancestor!

This is an absolute fallacy! And again, this merely serves to show another *clear proof* of God! It does *not* prove an evolutionary process, but it *does* prove, rather, if men were willing to look at the FACTS, similarity of DESIGN! It shows that the same "Architect" had the same general plan and design in mind! It shows *functional similarity*, NOT the evolution of one to the other.

This absolutely *proves*, not only the existence of a Lawgiver, but that there is, *alive, acting* RIGHT NOW, a Great *Sustainer* of all that is!

These laws are *upheld, sustained, KEPT* in action! How? By the *Sustainer*, who is GOD!

Proof Number Five

Look about you! You live in a highly complex, intricate and *interdependent* world!

It is a world of GREAT DESIGN.

You have never seen an ugly sunset! You have never seen an ugly scene in the desert, in the mountains, at sea, or anywhere on the surface of this entire earth, *unless* it were a scene made ugly by man! All is in *harmony.*

Life, as we know it, is entirely interdependent upon other forms of life. Nothing lives or dies to itself.

The question to the evolutionist is: *Which* "evolved" first, the *corn* or the *bee*? Did the bee evolve slowly for thousands, millions or billions of years *independent* of the corn stalks, the flowers and the pollens from growing things which are his life source?

Did the flowers, grasses, trees, and grains all "evolve" slowly and *gradually* over a period of millions or billions of

years independent of the little bee, upon whom they must rely for their very continuation of life?

These are *totally insurmountable*, and *unanswerable* questions to the evolutionists! The old question, "Which came first, the chicken or the egg?" is a question which the evolutionist feels worthy only of disdain. Why? *Simply because he cannot answer it!*

It is *better* from his point of view, to merely scoff, make fun of and attempt to *dismiss* such a question when he cannot answer it!

This total interdependency of all life forms—the tremendous design within this universe shows a common Beginner, one main Architect, one great *Designer* with an over-all framework of a *plan* of creation into which all life forms fit.

Nothing lives or dies to itself. Each living thing, whether plant or animal, when it dies, supplies further life for other living things. Observe a forest. A tree grows, finally dies and falls, only to become part of the fallow forest floor, supplying life-giving elements for the young trees which it had sown in its lifetime!

This great universe, and the complex, intricate earth on which you live and draw breath, is a world of *great design*. It is a world of such complex and intricate design so as to take the very breath in beginning to investigate even the minutest part.

The cleavage properties of minerals, the wings of a bird or a fly, the beauty of a sunset, the facets of a quartz crystal, and above all, the marvelous, tremendous masterpiece of all design, *the human body*, all point out that for such intricate design, THERE HAD TO BE AN ETERNAL DESIGNER!

DESIGN in the universe *proves* the existence of a DESIGNER!

Proof Number Six

This sixth proof of the existence of an

Almighty God is perhaps the most astounding of all!

It is *fulfilled prophecy!*

About one full third of your Bible is *prophecy*—and while *most* of that one-third pertains to our present day, there are many, many prophecies which *have already been* fulfilled, and which are presently BEING fulfilled!

God sent His prophets hundreds of years ago to such major cities as Babylon, Ekron, Ashdod, Askelon, Tyre and Sidon. These prophets—simple human beings who had been commissioned with a *message*—foretold the decay, fall and *particular type* of fate which was to befall each of these ancient cities!

And without fail, in *every single instance*, exactly at the time prescribed, all these things HAPPENED!

Since we have the technical details of the fulfillment of many of these prophecies in booklet form and in order to save space, I invite you to write for Mr. Armstrong's free booklet, "*The PROOF of the Bible!*"

This attractively printed booklet will give you the *particular* fulfillments of these many prophecies. It will show you by *pictures* exactly how these prophecies were fulfilled.

You will *see* with your own eyes, how the prophecies of God have come to pass exactly as He said!

The very fact that God is able to foretell the future, and *bring it to pass*, is a *great proof* of His existence!

Proof Number Seven

This last proof is perhaps the greatest proof of all to Christians. It is the proof of *answered prayer!*

However, since the skeptics, atheists and doubters have *never prayed*, and hence have never had prayers *answered*, they continue to DOUBT!

Or take George Mueller's example.

George Mueller is dead now, but he probably was the greatest modern apos-

tle of FAITH. He founded five great orphanages and other charitable institutions in Bristol, England. He started out, as FAITH always does, with a very small work, without any financial backing, and absolutely *no* means of support, except to get down on knees and send up a *believing prayer to God*.

For nearly *seventy years* George Mueller continued that great work, and it grew into a tremendous institution until it housed THOUSANDS. Every dime for feeding, clothing, sheltering, and schooling those thousands of orphans came in only one way—as a result of *believing prayer*.

Altogether he received more than a million four hundred thousand POUNDS—that was about SEVEN MILLIONS DOLLARS—that was *sent* to him in answer to his prayers!

Real answered prayer is NOT the mere "working out of events" as a result of "concentration." Many people today seem to assume prayer is merely an accomplishment as a result of "positive thinking" or a psychological adjustment!

This is a gross error!

Real answered prayer is a direct, divine, supernatural INTERVENTION, a completely MIRACULOUS intervention and direct answer from Almighty God! It is the result of being obedient to God's *laws*, asking according to *His will*, and then BELIEVING, *in faith* until the answer comes!

These seven, irrefutable, unchallengeable PROOFS of the existence of Almighty God represent only the minutest *beginning* of the subject! They are, nevertheless, *proofs!* It's about time people quit *assuming*—it's about time they begin to really PROVE all things!

It's about time YOU should say, with Job, "For I KNOW that MY REDEEMER LIVETH, and that he shall stand at the latter day upon the earth" (Job 19:25).

Has God Eternally Existed?

Here is PROOF that nothing in the universe except God has been existing forever. He alone is without beginning of days or end of years.

by Kenneth C. Herrmann

CONSIDER for a moment. Could God be anything but eternal? He reveals Himself as the Creator of all there is: the material universe, angelic beings, light, life.

Now if God created all these, then He certainly existed before they did. His time goes back before all of them.

God continues to exist today. He promises to give us eternal life in the world tomorrow. Could He give us something He does not have? Could God give man eternal life if He were not eternal Himself? Would men exist forever in the future and God cease to exist?

Of course not. God will exist forever into the future—an eternal existence.

But has God always existed? He was first in existence. No one could be His Creator. *The One who was before all else must necessarily be Eternal.*

Consider again a moment. Can something come from nothing of itself? Could an empty room suddenly become filled with furniture without a cause? Could an empty "universe" suddenly be filled with stars, planets like our earth, plant and animal life, a planned orderly universe where a moment before there had been nothing? No. Then a Creator God was before them.

Such an event as creation could not take place without a cause. No sound mind could entertain such an idea for long.

The Universe an Illusion?

Ideas have been suggested in an effort to do away with the need of a Creator. *Suppose that the universe doesn't really exist—that it is but an imaginary thing*, just an illusion, something that seems to exist but really doesn't. Observe where this idea comes from. Modern physical science describes the universe in mathematical terms. From the tiniest particles of matter, to the motions of the stars—all can be described by mathematical equations. So perfectly and orderly has our universe been constructed that it can be represented by numerical relationships.

But does this lack of confusion in nature prove that the material world does not exist? Not at all. The mathematical equations of the scientists are based upon the existence of a material universe which the equations describe.

The mathematics is based upon matter which exists just as a house is based

upon its foundation. How can any clear thinking person claim that only the mathematics exists—that its basis does not? A house built upon sand may stand a short time, but a house that does away with its own foundation has already fallen.

The universe, the material world is no illusion! Mathematics may be used to describe it because of the orderly arrangement, but the lack of confusion does not make the world any less real.

An Eternal Universe?

A universe that had always existed would require no Creator. That is obvious. Is it possible that the universe has eternally existed? Scripture and Science cry out a united, NO! *Scripture insists that all was created* and describes the events of such a creation. *Science is anxiously assigning dates* either to events associated with creation or to creation itself.

Our moon, they say, has slowly moved away from the earth at the rate of a few feet per year. The moon is now 239,000 miles away. If time were turned back a thousand million years the moon would be very close to the earth or even joined with it. This suggests the possibility that creation may have taken place less than a thousand million years ago with the moon being created already some distance from the earth.

Other methods of dating give equally enormous figures. Uranium and other radioactive elements disintegrate at a constant rate. By measuring the quantity of disintegrated material against the original quantity of the element which existed, a date for its creation is assigned. The age of the earth according to this method is estimated to be several thousand million years—not eternal!

Notice that radioactivity points to creation, and hence to a Creator. There must have been a time when radioactive matter began to disintegrate.

Meteorites reaching us from outer space contain small portions of radioactive elements. The same method of dating is applied to them. With the aid of these radioactive elements, the meteorites show about the same age as that calculated for the earth.

These measurements prove creation could not have been earlier than several thousand million years ago. It could have been later. This is important to remember. There was a beginning!

On the other hand, the Scripture does not set a definite date for the creation of matter either. *Adam and the world of plants and animals we are acquainted with were created approximately 4000 B.C., but the heavens and earth were brought into existence at an earlier time.* They were created first of all—"In the beginning" as stated in Gen. 1:1.

Earth NOT Created in Chaos

When first created, the world was in harmony and order for "God is not the author of confusion" (1 Cor. 14:33). The condition described in Gen. 1:2 where the earth "was (or became) without form (*tohu*), and void; and darkness was upon the face of the deep" refers to a later time following a destruction of that original creation. "He (God) created it not in vain (*tohu*)." The identical Hebrew word is used here in Isaiah 45:18 as we found in Gen. 1:2. Since God Himself says the earth was not created in vain or chaotic—*tohu*, in Hebrew—then it BECAME that way afterward.

Thus creation of the original heavens and earth may have been millions of years before Adam; *while the creation he looked upon was fashioned only a few days before him.*

The heavens and earth referred to in Gen. 1:3-28 are the atmosphere of this earth and the continents. They were brought from darkness and waste to a state of order in six literal days as was explained in a previous article. The fourth commandment "for in six days the Lord made heaven and earth", refers to this same "earthly" heavens and earth (continent).

The creation of the heavens containing the sun, moon, stars, and planets (which includes the earth) took place at a time prior to this second fashioning of the earth. No word is found in Scripture giving a definite date for that original creation.

It is not a matter of great importance to the Christian way of life just when the material heavens and earth were created. *God's existence goes back eternally; forever into the past.* A billion years would not be even a fraction of God's life!

Should a study of the heavens definitely prove creation to be two or three thousand million years ago, it would only add to the glory of God. It would also bring us to the sober realization

that our three score years and ten are but a moment in the life of our Creator. We may well wonder as David did in the eighth Psalm: "When I consider thy heavens, the work of thy fingers, the moon and the stars, which thou hast ordained; What is man, that thou art mindful of him?" A study of the stars can teach us to be humble; it can bring us closer to the Creator of the universe.

David was not prejudiced against the study of the heavens. He looked up and saw that "The heavens declare the glory of God; and the firmament (the expanse of the heavens) sheweth his handywork. Day unto day uttereth speech, (Each day the heavens will teach us), and night unto night sheweth knowledge (Each night the starry skies tell us of our Creator)."

A Limited Universe?

Let's look again into the height of the heavens to see the glory of God. A thousand stars perhaps are visible to our eyes. A small telescope brings ten thousand fainter ones into view. With each increase in power the telescope makes it possible to see farther into space. Distant stars invisible to the unaided eye come into view.

Uncountable billions of them lie within the reach of the 200-inch telescope atop Mt. Palomar in southern California. 200,000 billion, billion (the number 2 followed by 23 zeros) are estimated to be within range of this huge machine. *How many times more lie beyond its range, no one would dare estimate.*

We have been looking at the heavens from man's viewpoint. Suppose we were to see this through the eyes of God. Man struggles to estimate the stars in but a section of the universe. David was inspired to write that God "telleteth the number of the stars; he calleth them all by their names. Great is our Lord, and of great power: his understanding is infinite." (Psalms 147:4, 5).

God's understanding is *infinite*, without limit. Our understanding, our ability, can not be compared with it. The number of stars God has created is a *finite* or countable thing. Numbers go on *forever*; the stars *do not*. Yet we can not count them. All the two thousand million people of the earth together could count but a small fraction of the stars in their entire lifetime. By contrast *He who made these stars knows both them and us by name*. Yes, even the hairs of our head He has numbered (Matt. 10:30).

The estimate given for the number of stars is not the total number in the entire creation but only the nearer ones.

How far out God's creation extends no man knows. *God has set it in the human heart to search out all things*, but the height of the heavens and the depth of the earth will forever remain mysteries to the mind of man. *"It is the glory of God to conceal a thing*; but the honour of kings is to search out a matter. The heaven for height, and the earth for depth, and the heart of kings is unsearchable" (Proverbs 25:2, 3).

Retreating Stars

Astronomers have discovered that all the stars appear to be moving away from *our vicinity* in the universe. Those farthest away appear to be retreating fastest. Careful calculations as to their distance and speed of retreat make it possible to conclude that they all left our approximate position an estimated two thousand million years ago.

Did creation take place at that time? *All the stars of the universe must have been gathered closely together and sent speeding out toward their present positions*. Thus another measurement of the heavens appears to point to a remote but yet definite time in the past—a moment when the universe was born.

The immense distances of stars point out the age of the universe in another manner. These distances are measured in terms of the length of time it requires the light from them to reach the earth. For instance, light from our sun requires about *eight and a third minutes* to make the trip of 93 million miles to the earth. Light from the nearest stars requires *three and four years* to reach us. But light from the farthest stars photographed so far is estimated to have left them over *a thousand million years ago* and has only reached us today. Thus we can conclude that these stars were *then in existence*.

Creation Proves God Eternal

All these figures may be somewhat unfamiliar and confusing. But the conclusions from them are important. Three definite conclusions may be drawn which in no way conflict with Scripture but rather support it and add to God's glory.

One, that the science of the heavens proves *the need* of a Creator.

Two, that creation could not have been over 4 thousand million years ago.

Three, that creation appears to have been at *least 1 thousand million years ago*. (Figures will vary on this and will change as more accurate means are available for man's search into the heavens.)

Thus it stands proven that the heavens are not eternal. No one method of calculation of its age is safe to de-

pend on. Still taken together they do point out an ancient universe—ancient in years, yet created at a definite time in that remote age. At a *definite date* in the past—perhaps between one and four thousand million years ago our earth, moon, sun and stars were created.

Compare this with the Inspired Record, "In the beginning (or first of all) God created the heavens and the earth." No time is stated for this creation but it was a *definite* event and did take place at a *definite time*. The date is not revealed but rather hidden for man to search out *to the glory of his Creator*.

How does all of this prove the eternity of God? It becomes very simple when we realize that *something or someone has to be eternal*. Since the universe is not eternal, a Being apart from it *must* be. The universe includes everything there is *except the God who reveals Himself as the Creator of it*. He then must have been existing forever in the past. No other conclusion is possible.

Who Created God?

We have shown beyond doubt from Scripture *and* from God's Creation that this universe of ours is not eternal. *It has not always been*. It had to have a date of creation and a Creator. *God existed before it*.

But who created God? Someone is certain to ask. Well, who did create God? The question is often heard. It does enter our minds. The answer is simple. *Those things which have not always been require a Creator*. But God is eternal. **GOD HAS ALWAYS BEEN**. Do you need a creator for a Being that has always been, has always existed? Of course not!

The difficulty in understanding eternity lies in our human minds. We deal in *finite* things, dollars and cents, years, miles, acres, gallons, pounds. We measure, count, and estimate in units always arriving at a *definite* quantity. Eternity is *without* beginning. It is *without end*. Eternity can not be limited to a definite number of years. Even as numbers can go on forever so does God's life into *both* the past and the future.

Things which are temporal, which have been brought into being, require a creator. But things which have always existed need no creator. The material universe was created and at a definite time in the past. Both Science and Scripture are firm on this point. Therefore the creation is temporal and had a creator. *Since all in existence except this Creator is temporal, HE MUST BE ETERNAL*. He could not have had a beginning of days! *He ALONE is eternal*.

The *ORIGIN* of LIFE

Have scientists found evidence that life evolved from dead matter? Are the first fossils simple and primitive as the theory of evolution demands?

by Kenneth C. Herrmann

YOU AND I are supposedly end products of an evolutionary process. This concept is taught as truth in almost all of our educational institutions today. But where is the *proof*?

A single simple one-celled animal, it is said, happened into existence millions of years ago. Then, slowly, gradually evolution produced our present-day life.

Spontaneous generation plus evolution supposedly produced the myriad of complex living forms of today's world. Dead matter became living matter; then living matter evolved.

Proof is supposed to be found in geology. A study of the fossil strata, they say, reveals that in the "earliest" fossil deposits simple, primitive life is found. "Later" strata contain increasingly complex life till we come to the uppermost layers in which are deposited man and present-day forms of life.

The proof of this theory is rather elusive as we shall see. We ought to examine the evidence before drawing any conclusion.

Just how did life originate?

A Course Entitled "The Origin of Life"

One of the outstanding large universities of the Los Angeles area made the error of labeling a geology course, "The Origin of Life." I say error, for when the topic came up in class, the *professor expressed openly the wish that the course had been given a different name.*

Speaking frankly, this professor, a qualified scientist, said there was **LITTLE OR NOTHING KNOWN ABOUT THE ORIGIN OF LIFE.**

This fact is important. The educators who labeled the course believed their professors capable of teaching a course on how life came into being. Yet the professor assigned to the course

indicated that *little or nothing* could be said concerning the origin of life.

Will the conclusions of scientists concerning the origin of life disagree with the Scripture?

Three Alternatives

Life does exist. No one questions this fact. No one, that is, except a few philosophers who for the sake of an argument will contend that the world might be an illusion, just a dream; and that there is really nothing that does exist. "How would one know?" they ask in idle speculation. Let's not awaken them!

The real problem is this: Life exists. Just where, when and how did it come into being?

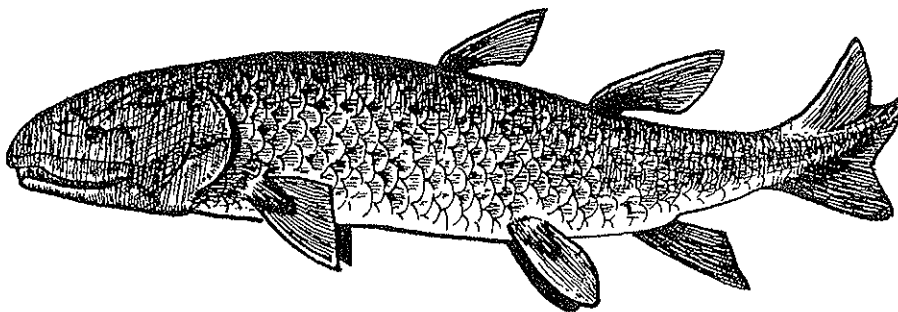
Let us examine the problem from a standpoint of hard, cold logic and apart from Biblical revelation. Evolutionists do not accept the Scriptural explanation. To answer them properly, we must examine their own conclusions and the facts upon which they are based.

Present-day theories will be considered one by one in the light of fact and logic alone. Error will be discarded. Will the *pure* science remaining agree with God's revelation? We shall soon see.

Concerning the **ORIGIN AND EXISTENCE OF LIFE** on this planet *three alternatives* present themselves:

1) "LIFE HAS ALWAYS EXISTED." This idea, scientists admit, is the weakest of the three. It is *untenable* because *the earth has not always existed!* In their estimation it has not been fit for life but for a portion of its estimated 3 to 5 billion-year existence. Some have suggested, "Perhaps life came to the earth from outer space, from the explosion of another planet in the remote regions of space. Spores of this primitive life might have been pushed along by radiation pressure from starlight or sunlight. Arriving on the earth they found an ideal place to propagate and evolve."

Thinking logically, it is *very unlikely that life could have come from another planet* or from outer space. The chance of such an occurrence and possibility of life surviving such an ordeal is extremely remote. This idea does not answer the question of the origin of life. It merely attempts to avoid facing the question by putting it beyond the reach of investigation. The real question of the origin of life remains unanswered. Since the material universe is admittedly not eternal, life had to come into being at some definite date in the



This supposedly extinct fish — the crossopterygian — has recently been found **ALIVE IN TODAY'S OCEAN.** Fossil beds containing it are said to be 300 million years old.

past. Previously scientists had believed the earth to be young, the universe old. These last few decades have seen that idea discarded. The earth in their conclusion is now *as old as the universe*. Is it strange that that should agree with Genesis 1:1? "In the beginning God created the heaven *and the earth*."

2) "LIFE CAME INTO BEING BY SOME SLOW NATURAL PROCESS." This is the *favorite* belief of the "educated" man of today. Scientists comment that this idea "can be presented plausibly" and that the arguments are "very convincing." Yet the *universal opinion* of all scientists familiar with the field is that there is "no evidence that this has ever taken place or does at this time."

Plausible presentations and very convincing arguments do *not* constitute proof. The truth of a matter cannot be determined by the cleverness or eloquence of the orator. Facts and logic (and, if they would accept it, *revealed* knowledge) alone constitute the basis of all material science.

3) "LIFE WAS SUDDENLY CREATED." This of course implies a Creator. Since neither life nor the material creation has eternally existed, this Great First Cause would of necessity have existed from eternity. This theory thus postulates the creation of life forms by an eternally existing God who had life *inherent* in Himself.

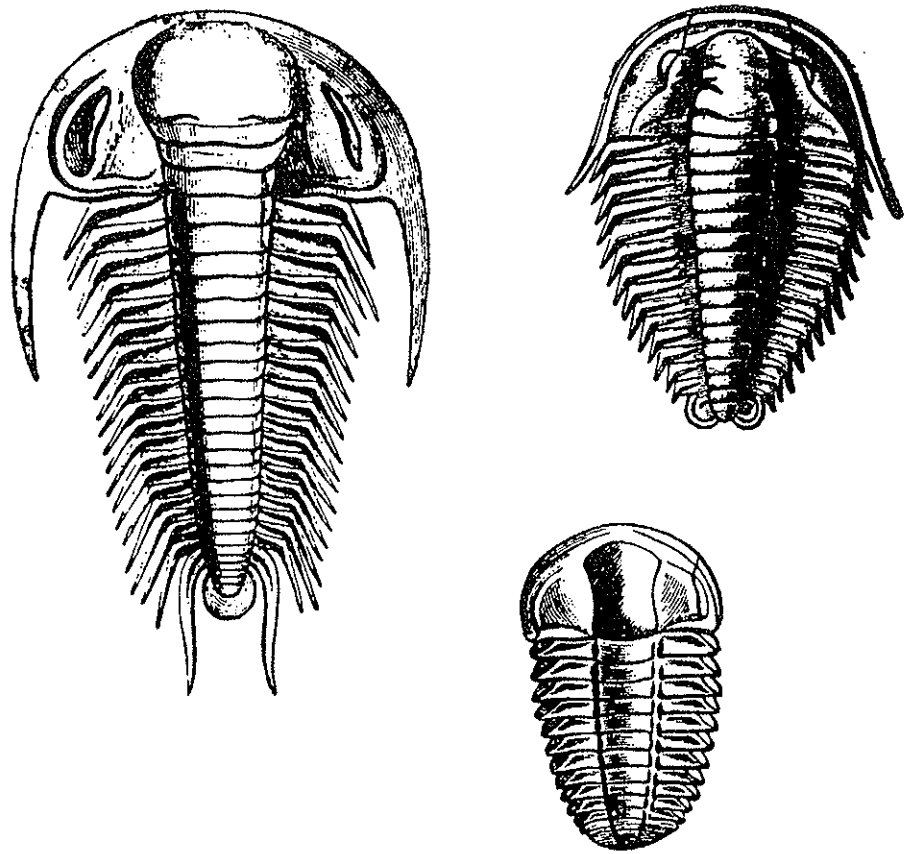
Could men of science consider this as a possibility in their search for the origin of life? They have, and here are a few of their comments: "The idea is as good as any." "Whether you care to accept the idea depends upon personal taste." "It disposes of the very great difficulty of creating living matter out of inorganic (dead) matter." "Much of our culture is based upon such a belief."

Yes, our scientists do consider the possibility of life having been created.

Reexamine These Alternatives

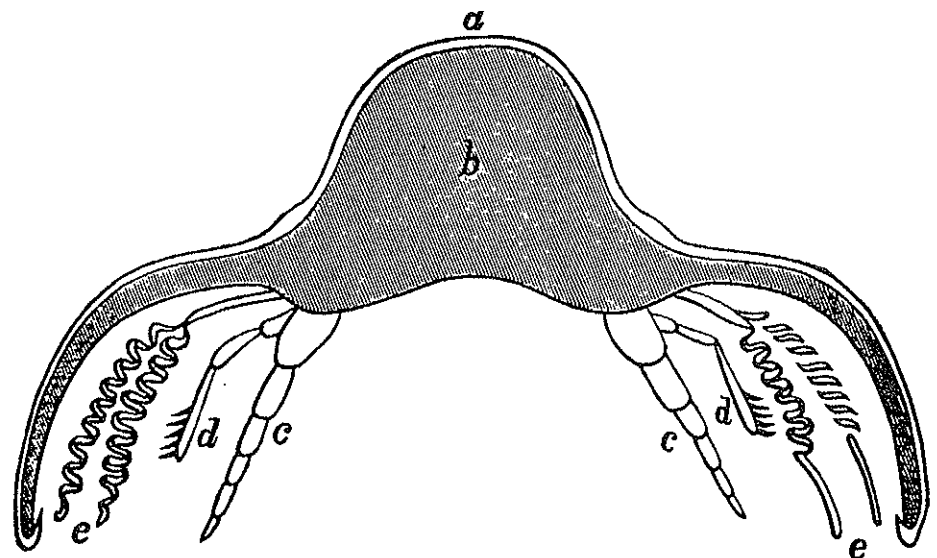
Consider these three alternatives again. The first is untenable. The SECOND is COMPLETELY LACKING IN EVIDENCE. The THIRD is *listed by science* as a possibility.

To accept the THIRD is to *believe in a Creator*. But atheists (men with a



Evolutionists are astonished at the complexity of these Cambrian Trilobites found in the **LOWEST** fossil strata. (After Le Conte).

Complex transverse section of a Trilobite (after Wolcott). a, dorsal crust; b, visceral cavity; c, legs; d, epipodite (structure to keep gills clean and maintain fresh water circulation); e, spiral gills.



remarkable faith that there is no God) prefer the second. Not because of evidence of spontaneous generation of life, but solely because they prefer the "no God" idea. To accept this SECOND ALTERNATIVE is to have *blind* faith that there is no Creator.

The facts and logic are inescapable. An atheist is a man with false faith that his Creator does not exist. He has absolutely no evidence upon which to base his faith. The atheist "hopes" to find that evidence.

So far we have considered only how the first bits of life may have come into being. Have evolutionists erred in assuming that the first life to exist was primitive, one-celled animal life?

Here is evidence and logic apart from Biblical revelation using only accepted facts and sound reasoning to test the theories presented in books on science.

We are going to search for evidence of these few, small, simple, primitive fossil specimens which supposedly are to be found in the first fossil strata. We are going to examine the foundation of the evolutionary theory. If the foundation is hypothetical the whole structure of historical geology based upon evolution will crumble.

The First Fossil Remains

THE THEORY OF EVOLUTION WOULD REQUIRE that in the earliest layer *simple* forms would be found, *few* in number, gradually *developing step by step* into present-day forms. The evidence in this first fossil layer will have a great bearing on whether you may logically believe that God created bits of life and then spent millions of years watching them evolve into present-day life. "Theistic" evolutionists have apparently never considered these facts.

Here is the evidence from the first fossil layer, the Cambrian strata:

1) *Instead of few forms of life*, 455 different species are found. There are 100 genera of trilobites alone. Of the 13 phyla (divisions) into which all animals are classified, various authorities state that 9, 12 or all 13 are represented.

Thus instead of a few forms of life, evolutionists are forced to admit "a

remarkable assemblage of animal remains." The Cambrian layer is "just teeming with all kinds of fossils," to use their own words.

2) *Instead of simple forms of life* as the theory of evolution would require, this first fossil layer contains such complex life as the chambered mollusks and the highly developed trilobite which has one set of legs for walking on the ocean bottom and another set for swimming.

"It is very interesting to observe that a *complex mechanism, the compound eye like that of crustaceans and insects of the present day*, was already developed *even* in the earliest Primordial times" (from *Elements of Geology* by Joseph Le Conte).

3) *Instead of small specimens* these so-called "early" forms were *often giants* compared to "later" forms. The "ancient" trilobite, for instance, attained a length of 27 inches. Close modern representatives in appearance are the pill or sow bugs so common today where decaying vegetation is found. The trilobite, however, was an ocean-dwelling creature.

4) *Instead of "primitive" types* a considerable number of them have identical or almost identical living representatives today.

Perhaps the most widely known example of this is the muscular-jointed fin fish called the crossopterygian *found only in Devonian strata* (3 "ages" later than the Cambrian) but also *found alive today*. Specimens have been caught in the waters off Africa much to the consternation of the proponents of evolution. Rather than admit that something is radically wrong with their faith, they cover up by publishing detailed studies on the structure of the fish, showing how it (supposedly) became the ancestor of land life by changing its fins to the jointed condition and then to legs. The missing link between the fish and land animals is thus supposedly found alive in the ocean today. These first fossils are certainly not primitive.

5) *Instead of natural deposition* such as might occur along beaches or deltas today, the fossils of this Cambrian strata show evidence of having been

buried alive by some sudden *catastrophe*. The "ages" required for a certain strata to form thus become a myth.

It is obvious that these first fossils do not fit the "few, simple and primitive" pattern demanded by the evolutionary theory. But the proponents of evolution are not through yet. Hope springs eternal in the human heart and for the evolutionist there is always the "hope" that he may find his "proof."

Pre-Cambrian Rocks

Suppose we follow the thinking of evolutionists one more step. They rationalize: Since evolution is true, the first life must be simple, and since Cambrian life is not simple, it cannot be the first life. The pre-Cambrian rocks, they contend, must hold the answer to the origin of life.

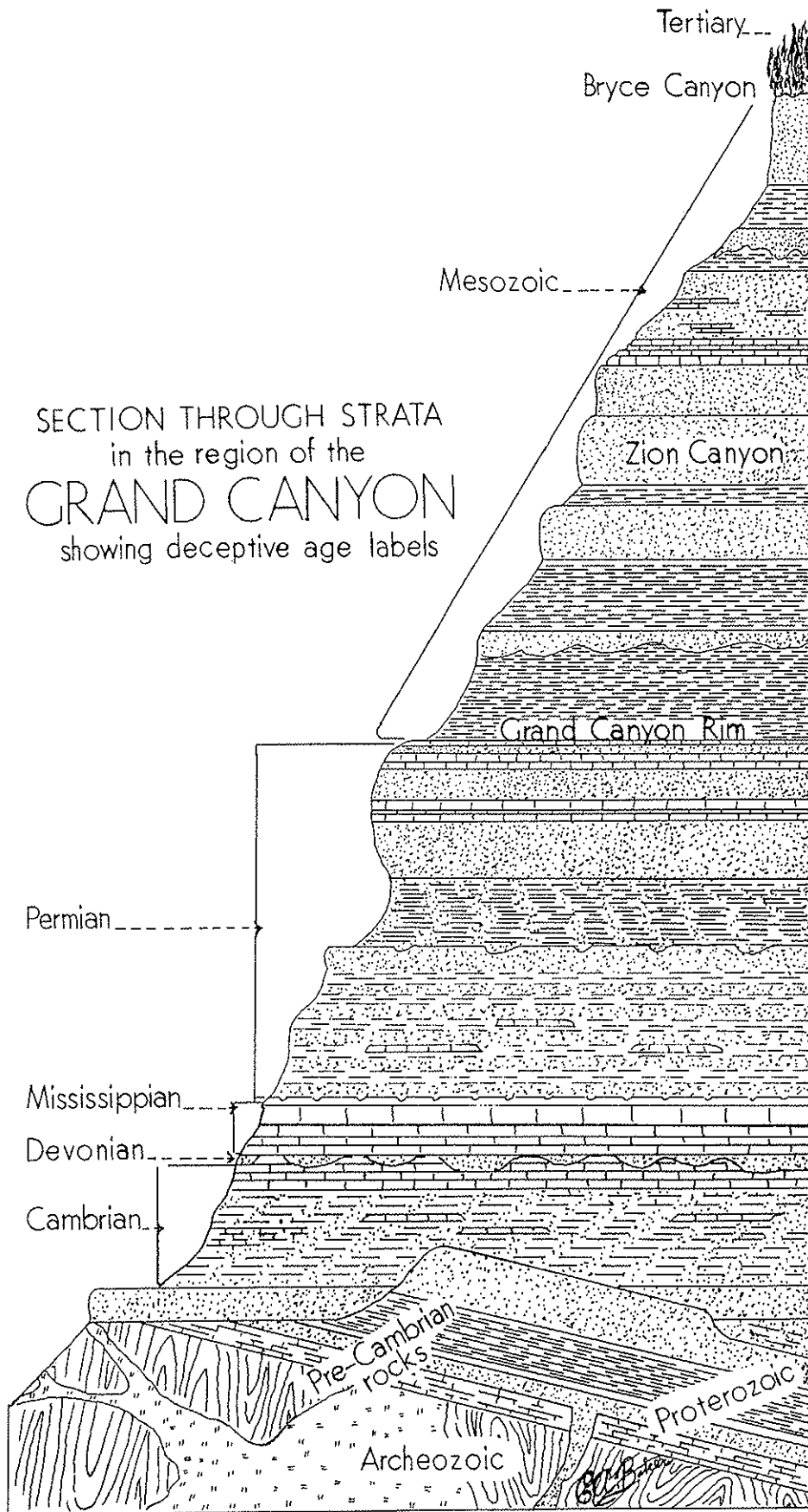
A thorough search of the pre-Cambrian rocks reveals the following facts: IN ALL ROCKS TERMED PRE-CAMBRIAN, the sum total of fossils found amounts to *a few worm burrows*, one or two *broken shells* which may be *brachiopods*, some *algae*, fragments of *sponge spicules* and A LOT OF WISHFUL THINKING. The wishful thinking is that of evolutionists and the *expression* that of an evolutionist.

How they wish they could find a fossil layer with a "few, simple, primitive" forms of life to establish their dogged faith in evolution. The pre-Cambrian layer fails to give them evidence.

The list of fossils for this layer is probably incorrect. Another source just as reliable, yet just as anxious to prove evolution, thought the term "*The Agnostozoic*" (meaning "we don't know whether there was life during it") would be quite fitting for this pre-Cambrian layer. In his opinion, the sample of algae he passed around to his class may or may not have been algae and he spoke of the "NEARLY INSURMOUNTABLE PROBLEM of the *sudden appearance of complex life* IN THE CAMBRIAN ROCKS."

The conclusion from these facts ought to be easy. In the Cambrian layer is complex life; in a supposedly earlier layer, a few fragments of the same thing or perhaps nothing. (Remember

SECTION THROUGH STRATA
in the region of the
GRAND CANYON
showing deceptive age labels



After McKee, von Engel and Caster

also that a layer is identified by the fossils in it and thus *these fragments might be Cambrian.*)

YOUR CONCLUSION: If this complex life of the Cambrian layer were deposited over a long period of time, then life must have been *suddenly created* near the beginning of the period. If deposited quickly, a creation of complex life is still implied and a *destruction by a flood is a certainty.* But men of science struggle on without the scriptures to guide them.

The Lost Interval

Retreating from the facts, the evolutionist must now resort to theory to preserve his religion. We have come this far, we may as well continue in pursuit. All reason is dropped and rationalization takes over completely.

The evolutionist comes up with an idea. Since no life is found in some layers, which they therefore term pre-Cambrian, and complex life is found in the simplest layer they have discovered, supposedly an enormous period of time between these two layers existed. Names like "*The Lost Interval*" and "*The Lipalian Interval*" are given to make the case seem more authentic. The DESTRUCTION OF THE SUPPOSED RECORD of these intervals is termed the *Kilarneyan Revolution* or the *Penokeean Revolution.*

Was there ever an earlier record? How could such a worldwide record be destroyed?

Five Rejected Theories

Evolutionists claim their record is destroyed. Yet, true men of science among them have inadvertently given us the following facts. They list FIVE THEORIES for the *lack of preservation* of the life *which they believe existed* in the pre-Cambrian — then they take each in its turn and disprove it.

We ask: Why are there no fossils in the pre-Cambrian rocks? They answer with a theory and then give objections which disprove the theory.

Here are their theories and their objections.

THEORY No. 1) All life was destroyed by the metamorphism of the

rocks in which they occurred. *Objection:* 90% of pre-Cambrian rocks are schists, gneiss and marble, distorted by heat and pressure, but the remaining 10% are not. *The remaining 10% should contain fossils if evolution were true.*

THEORY NO. 2) Life only existed in those areas which were metamorphosed. *Objections:* This would be very fortunate for the theory of evolution but is most improbable due to the widespread occurrence of the unmetamorphosed areas which were *certainly accessible to ocean life and thus ought to contain fossils.*

THEORY NO. 3) The oceans were too acid for calcium to be used for shells and thus no trace of the animal was preserved. *Objections:* The oceans were more likely fresh to begin with. Also, *siliceous and chitinous skeletons could have been formed and preserved apart from the calcium requirement.* Such types are found in the Cambrian rocks.

THEORY NO. 4) There wasn't enough calcium in the ocean for the animals to have shells. *Objection:* Limestone layers 50,000 feet thick were deposited in this early strata showing *an abundance of calcium.*

THEORY NO. 5) Life forms lived only in the upper zones of the ocean at first and had no hard parts. Either they became lazy, grew hard parts, and being heavier settled to the bottom, or else they found the ocean bottom first, then became lazy in their new environment and grew hard parts. Thus the sudden appearance of fossils. *Objections:* For life to spend many millions of years in the uppermost portions of the ocean *without finding shore, shallow water or ocean bottom* is nothing short of ridiculous. Even after accepting such an idea the problem remains as to why suddenly many forms of life should take on *complete skeletons with no intermediate "evolutionary steps."*

No transitional forms are found. Each species thus learned to develop its hard shell *suddenly!*

A great number of species occur together with hard shells in the lower Cambrian. *All must have "learned" the*

secret of hard shell development *simultaneously.*

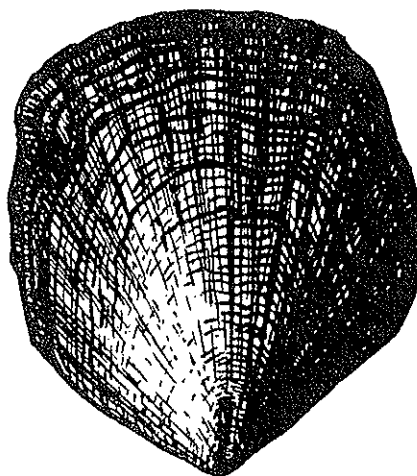
Thus this fifth theory is also completely lacking in facts, logic and plain good judgment.

Why Men Can't See

Thus at present *scientists have left themselves without an explanation* for the complex, numerous "advanced" life forms of the Cambrian rocks and the complete absence of life in the layer usually beneath it. In rejecting the Scriptural account (Genesis 1) as evidence they find themselves without any explanation.

THE CORRECT CONCLUSION you ought to have drawn from the evidence presented is that in the beginning *life forms were created complex* as we find them; then at a later date they were *buried in the rocks by catastrophic upheavals of earth and water.* They did not evolve to that complex stage as the evolutionary theory demands.

Since the days of Darwin, men have clung tenaciously to the theory he published but never proved, *even to himself.* Why? Because to believe otherwise would in the end lead to the acknowledgement of the Creator revealed in the Bible. To acknowledge this Creator would be to consent that



Do you know the mystery of this little creature? Here is evidence that each creature produces after its own kind — that it doesn't become a different, more advanced kind.

Sir Archibald Geikie, F.R.S., ardent evolutionist, admits that though "Brachiopod species of the genera LINGULA [which you see above] are the oldest known molluscs . . . [they] are still represented by living species in the ocean. They have persisted with but little change during the whole of geological time, from the early Paleozoic periods downward, for the living shells do not appear to indicate any marked divergence from the earliest forms." From GEOLOGY by Geikie.

certain obligations might be due Him. It would also put these educated men in the rather uncomfortable place of having *a rival whose knowledge was as far superior to theirs as wisdom is to foolishness.* Intellectual pride would have to vanish.

Man's mind, the carnal mind he is born with, is *enmity* against God (Romans 8:7). It will not think rationally when faced with the Biblical facts proving the existence of the Creator who has revealed Himself to man through the Scriptures.

It is quite possible that *had no Bible ever been written* proclaiming the existence of our Creator, that the efforts of scientists in every field would have quickly discovered the facts of creation. *Had no floods ever been described in the Scriptures,* historians and archaeologists alike would have discovered the evidence, reasoned correctly with it and arrived at the correct historical account of the earth. Geologists would have studied the fossil strata and held forth the truth to the world with fervor equal to that with which they now propagate the godless doctrine of evolution.

But the human mind is rebellious against God; it will not willingly subject itself to the law of God; neither will it acknowledge that a revealed history of the earth and life forms is correct.

Evolution thus becomes *the opiate of the atheist* to distort his vision and keep him from seeing his God.

The carnal mind cannot accept God. It must cling to this "*favorite belief*" that life came into being by some slow natural process.

Where Is the Evolutionary Tree?

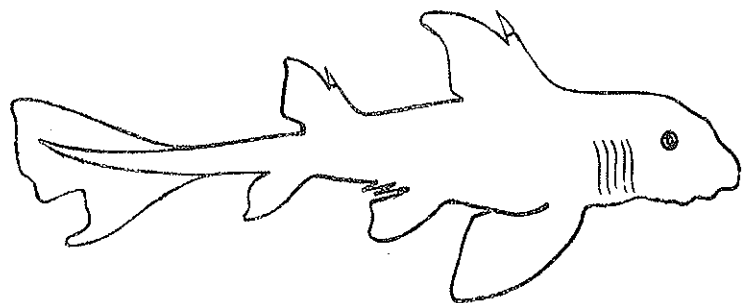
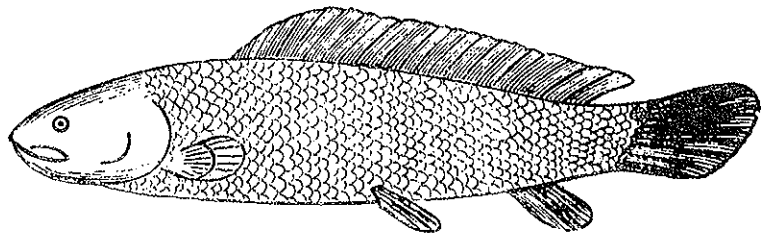
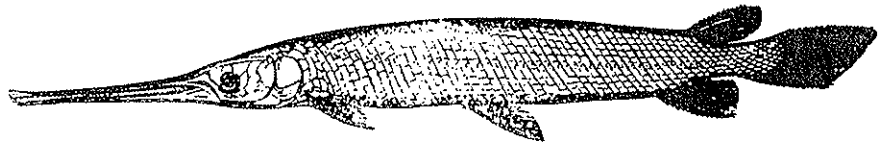
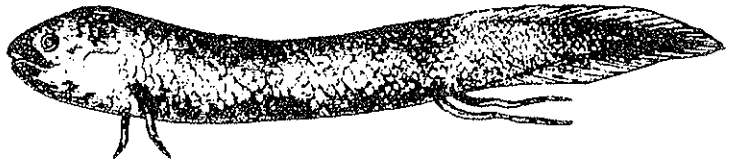
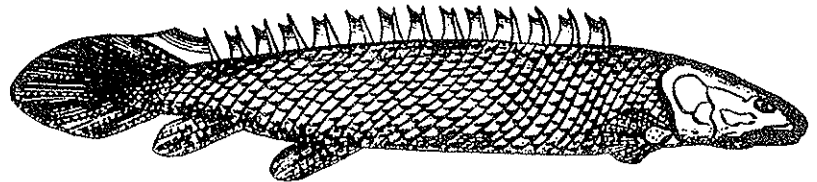
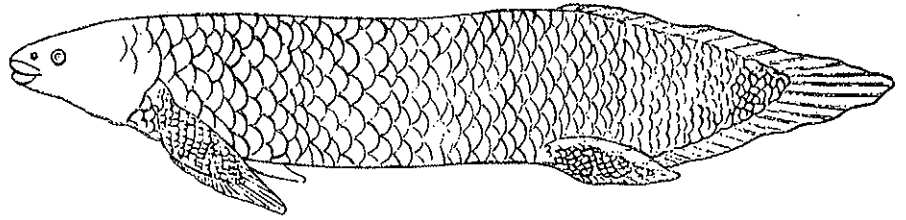
The *roots* from the tree of evolution disappear in our search for the evolution of life from dead matter. The *stump* vanishes when we ask for those

“few, simple, primitive” life forms. The *thirteen great branches*, the thirteen phyla into which all animals are classified, fade away when we find all represented in the earliest fossil strata. Even the *smaller branches* vanish when we see this Cambrian life “already evolved” into classes, orders, genera, and species.

It’s about time to ask, “Where is the tree?” The roots, trunk and branches are gone. Only the twigs remain.

Blood relation between individuals and many so-called species of the Cambrian strata is certain. Further speculation is in the realm of philosophy, not true science.

This tree of evolution is thus shown to be but a dream in the minds of men, and like a dream it will disappear for them when their eyes are opened.



Many fish living today ARE IDENTICAL WITH or little different from the fish pictured here, which evolutionists say evolved, lived, and BECAME EXTINCT hundreds of millions of years ago. (After Le Conte.)

January 29, 1962

PREHISTORIC ANIMALS

by
William A. Scheele

BRACHIOPOD
brack.e.o.pod
armlike foot

CORAL
core.al
little stone

TRILOBITE
try.low.bite
having three lobes

CEPHALOPOD
seff.a.lo.pod
head-footed

AMMONITE
am.mon.ite
Egyptian god, Amon

EURYPTERID
you.rip.ter.id
broad-winged

SCORPION
score.pee.yun
barbed whip

MEGANEURON
meg.a.nur.on
great nerve

CEPHALASPIS
seff.a.lasp.is
head shield

BIRKENIA
burr.keen.ya
Birkenhead, Burn
Scotland

PTERASPIS
ter.asp.is
winged shield

CLIMATIUS
cly.mat.ee.us
steep slant of the
face

COCCOSTEUS
ko.kahs.tee.us
seed bone

DINICHTHYS
dy.nick.this
terrible fish

CLADOSELACHE
klad.o.sell.a.key
sprout shark

CHEIROLEPIS
care.o.leep.is
scaled hand

HOLOSTEAN and
SUBHOLOSTEAN FISH
ho.lah.stee.an
entire bone

LEPTOLEPIS
lep.tow.leep.is
thin-scaled

PORTHEUS
por.the.us
the ravager

EUSTHENOPTERON
yews.then.op.ter.on
strong fin

DIPTERUS
dip.ter.us
two-winged

DIPLOVERTEBRON
dip.lo.ver.ta.bron
double vertebra

EOGYRINUS
ee.o.jy.rin.us
first tadpole

DIPLOCAULUS
dip.lo.call.us
double membrane

ERYOPS
ear.ee.ops
drawn-out eye

CACOPS
kay.kops
bad eye

SEYMOURIA
see.more.ee.ya
Seymour, Texas

ARCHELON
ar.kel.on
ruler turtle

ICHTHYOSAUR
ick.thee.o.sawr
lizard that looks
like a fish

PLEISIOSAUR
pleez.yo.sawr
near-lizard

RHYNCHOCEPHALIAN
rink.o.sef.ale.yan
beak-headed

MOSASAUR
mo.sa.sawr
reptile from the Meuse

PALAEOPHIS
pay.lee.o.fis

THECODONT
thee.co.dont
teeth in sockets

PHYTOSAUR
fy.tow.sawr
plant reptile

RHAMPHORHYNCHUS
ram.for.ink.us
prow beak

PTERANODON

tear.an.o.don
winged, but without
teeth

HESPERORNIS

hes.per.orn.is
western bird

TYRANNOSAURUS

ty.ran.no.sawr.us
tyrant lizard

STEGOSAURUS

steg.o.sawr.us
roofed lizard

DIATRYMA

dy.a.try.ma
through a hole

PARASAUROLOPHUS

par.a.sawr.all.lof.us
beside the lizard with
a crest

PALEOSCINCUS

pale.e.o.skink.us
ancient lizard like
a skink

PHORORHACOS

for.or.hock.us
ragged thief
horned face

ARCHAEOPTERYX

ark.ee.op.ter.ix
ancient wing

DIPLODOCUS

di.plah.do.cuss
double-beamed

PROTOCERATOPS

pro.tow.ser.a.tops
forerunner of the
horned face

ARCHAEORNIS

ark.ee.orn.is
ancient bird

BRONTOSAURUS

bron.tow.sawr.us
thunder lizard

STYRACOSAURUS

sty.rack.o.sawr.us
spiked lizard

ICHTHYORNIS

ick.thee.orn.is
fish-eating bird

ORNITHOLESTES

ornith.o.less.tees
bird stealer

TRICERATOPS

try.ser.a.tops
three-horned face

ALLOSAURUS

al.o.sawr.us
other lizard

STRUTHIOMIMUS

stroc.thee.o.mim.us
ostrich mimic

DIMETRODON

dy.met.ro.don
double-measure teeth

CYNOGNATHUS

sign.no.naith.us
dog-jawed

RIDDLE OF THE FROZEN GIANTS

What killed the prehistoric mammoths found preserved in the arctic? Here is a new explanation of the eerie catastrophe that may have claimed them.

by: IVAN T. SANDERSON

A cartoon appeared in this magazine some years ago showing two scientists staring at a small pile of dust in the middle of a laboratory bench. This was captioned, "Of course, nobody really wanted a dehydrated elephant, but it's nice to see what we can do."

Nobody, as far as I have been able to ascertain, wants to quick-freeze an elephant, but the idea has begun to interest some people in the frozen-foods industry since I started asking if they could tell me how to do such a thing. The reason for my question is simply that we already have lots of frozen elephants; the flesh of some of them has retained its full flavor, and I want to know how the job was done. There is one corpse in particular that is exceptionally irksome. This is the famous Beresovka mammoth that was thawed out of Northern Siberia just after the turn of this century.

Some years ago I wrote an article which was rather blithely titled "The Riddle of The Mammoths" (The Saturday Evening Post, December 7, 1946), just as if these poor creatures had, by becoming extinct, presented us with but a single puzzle. On rereading this, I am not a little disturbed, for just about everything said therein has, during the intervening years, been almost completely reversed. Far from being a mere riddle, mammoths have dumped a seemingly endless parade of conundrums in our scientific lap. Now I would like to make a fresh start.

About one seventh of the entire land surface of our earth, stretching in a great swath round the Arctic Ocean, is permanently frozen. The surface of some of this territory is bare rock, but the greater part of it is covered with a layer, varying in thickness from a few feet to more than 1000 feet, of stuff we call muck. This is composed of an assortment of different substances, all bound together with frozen water, which becomes and acts as a rock. While its actual composition varies considerably from place to place, it is usually for the most part composed of fine sand or coarse silt, but it also includes a high proportion of earth or loam, and often also masses of much of the last is there on occasion that even strong men find it almost impossible to stand the stench when it is melting. This muck is spread all across northern Asia and is

exceptionally widespread in Northern Siberia. It appears again in Alaska, and lies right across the top of Canada almost to Hudson Bay.

The list of animals that have been thawed out of this mess would cover several pages. It includes the famous woolly mammoths and woolly rhinoceroses, horses like those still existing wild in Asia, giant oxen and a kind of huge tiger. In Alaska it also includes giant bison, wolves and beavers, and an apparently quite ordinary lion as well as many other animals now extinct and some which are still in existence, like the musk ox and the ground squirrel. The presence of the extinct species provides us with a fine set of riddles, and of those that are not extinct, with another set; and the absence of still others, like man, for instance, with a third set. The greatest riddle, however, is when, why and how did all these assorted creatures, and in such absolutely countless numbers, get killed, mashed up and frozen into this horrific indecency?

There was a time when there hardly seemed to be any real mystery here, apart from the preservation of animals long since extinct in what was sometimes a perfect state. When western science first became aware of the matter, they summarily dismissed it in the classic statement that "the animals fell into the ice." And, for quite a time this suggestion seems to have proved quite satisfactory to most people; those who murmured that one cannot fall into ice were hushed by dismal accounts of Swiss mountaineers falling into crevasses in glaciers.

It came to light, however, that there are not--and never were--any glaciers in Siberia except on the upper slopes of a few mountains, and that the animals are never found in mountains, but always on the level plains and only a little above sea level. Further, it was pointed out that no bit of one has ever been found in ice. They are all in the muck.

These facts indicated water as the agency which engulfed the creatures. It was explained that they fell into rivers and were then deposited miles away in deltas and estuaries under layers of silt. This sounded splendid at first, but then the next lot of riddles appeared. These animal remains were not in deltas, swamps or estuaries, but were scattered all over the country. Almost without exception, they were stuck in the highest levels of the curious, flat, low plateaus that occur all over the tundra between the river valleys. It was also pointed out that the whole of Northern Asia, Alaska and Western Canada could never have been one vast delta, nor could their rivers have wandered about all over this higher land, depositing muck uphill. But last, and worst of all, many of these animals were perfectly fresh, whole and undamaged, and still either standing or at least kneeling upright.

A M B A S S A D O R C O L L E G E
Pasadena, California

Office of the Registrar

November 1, 1966

Editor of the Scientific Truthseeker
The Truth Seeker Company
Box 2832
San Diego, California 92112

Dear Mr. Johnson:

Thank you for your letter of October 29. With regard to the leaflets, we are using them and after giving some thought to it I would rather let the two dollar cost ride as is. I have made effective use of the material. No, we would not care to print atheistic literature. What I was "plaguing" you about was the rather obvious nickel grabbing on your part which is the very thing your magazine accuses the clergy of doing. So often when we find ourselves accusing others, we are guilty of the very crime.

I would say that the clergy is entitled to it's nickel collection plate. I think you would agree that many are blind leaders of the blind. Certainly they have wages coming for the task they are performing. I would not deny them their wages. To an extent they do exercise government over these people and often do a fair job of teaching them the last six commandments. It is the first four that cause them trouble. Why? Is it that they have never known the God of Abraham? Ask your ex-preacher friends.

Contrast all your complaints about religious money raising policies with the policy of the Radio Church of God. I believe you are a subscriber to the Plain Truth. It's free as are all our booklets. If you sent two dollars for a year's subscription it would be sent back. If you insisted on donating, I think it is a sum of \$5 or \$10, twice in a year, you would receive a letter questioning whether you wanted to become a Co-Worker and receive letters asking for help when we needed it. What fairer way could there be? None of your complaints apply to us.

You find yourself in the position of having burned your fingers on some counterfeit U.S. silver dollars, recognizing the fraud and now proclaiming that neither true silver dollars nor the U.S. Government exist. Yes, many religions are headed by pretenders.

Now that \$1000 I hope to earn. To be fair to yourself you must make a reasonable search for the existence of a supernatural God. Such an Individual is hardly going to be presented to you on a pillow at your request. I thought my postscript was as fair a

A mammoth falling into a river filled with melt water is not going to be carried along in an upright position and deposited thus miles away. Also, elephants are the very best swimmers in any case, and, owing to the huge amounts of vegetable matter they must keep in their stomachs at all times and which develops much gas, it is well-nigh impossible to sink them. Before this can be accomplished they have to be in an advanced state of decomposition or even to have burst. Then their remains would be shoved, bumped and probably rolled over and over along the bottom of the river before coming to rest in their final silty graves. But these standing animals were perfect, not burst, and with their fur coats in good order; they were not decomposed. On the contrary, their flesh was perfectly preserved--the water theory had to be abandoned.

Next, mud became popular. There are certain kinds of clays found on the tundra only a few inches of which are sticky enough to hold a man by his feet; and so some intrepid Russian scientists suggested that, given a few feet of this substance, it could hold a mammoth till he froze to death. Despite the fact that no such substance has ever been found either holding or lying under any frozen animal, this idea at first came almost as a relief and was heartily adopted by almost everybody. But there are always, it seems, some spoilsports in mammoth hunting; they pointed out not only the above fact but also that this hypothetical "goo" would have had to be unfrozen at the time, and that this could only mean that the temperature of the air was well above freezing. The animals must therefore have been frozen after death--probably by starvation--in which case they would have fallen over and started to decompose. Two emendations were therefore proposed.

The first was the idea that the animals fell into gulches, breaking down the banks as they fell and being engulfed in mud, and that then a sudden drop in temperature took place and they were frozen, upright. The other was that after they got stuck a gigantic blizzard blew up and froze both them and the goo forever. Both theories sounded possible, but both were immediately shown to be impossible. It was particularly this Beresovka specimen that proved this.

The Beresovka mammoth was discovered by a Siberian tribesman around the turn of the century. It was sticking headfirst out of a bank of the Beresovka River, a tributary of the mighty Kolyma which debouches into the Arctic Ocean. This man axed off the tusks and took them for sale to the nearest trading post, at Yakutsk, and he there told the Cossack who bought them about the rest of the animal. Now there was a ukase promulgated by the Czar, in force at that time, stating that all mammoth or other frozen-animal discoveries were to be reported to the government. This the Cossack did, and a scientific expedition was sent by the National Academy of Sciences from St. Petersburg. The members of this company built a shack over the corpse and lighted fires within to thaw it out. They then dismembered it carefully, packed up the parts, refroze them in the air outside and sledged them to the Trans-Siberian Railroad.

This corpse was sort of squatting at the back end, but was raised on one foreleg in front, with the other held forward as if about to salute. Much of the head, which was sticking out of the bank, had been eaten down to the bone by local wolves and other animals, but most of the rest was perfect. Most important, however, was that the lips, the lining of the mouth and the tongue were preserved. Upon the last, as well as between the teeth, were portions of the animal's last meal, which for some almost incomprehensible reason it had not had time to swallow.

This meal proved to have been composed of delicate sedges and grasses and--most amazing of all--fresh buttercup flowers. The stomach contained many more quarts of similar material. This discovery, in one fell swoop, just about demolished all the previous theories about the origin of these frozen animals and set at naught almost everything that was subsequently put forward. In fact, it presented a royal flush of new riddles.

First, the mammoth was upright, but it had a broken hip. Second, its exterior was whole and perfect, with none of its two-foot-long shaggy fur rubbed or torn off. Third, it was fresh; its parts, although they started to rot when the heat of the fire got at them, were just as they had been in life; the stomach contents had not begun to decompose. Finally there were these buttercups on its tongue.

Perhaps none of these things sound very startling at first, but if you will examine them one at a time, employing simple logic and good, common horse sense, you will immediately find that they add up to an incredible picture. Let us take the points in succession.

That the animal had a broken hip shows that some very strong force must have been exerted upon it either before or after death. By the position of the corpse it would at first seem that this was caused before death by the animal's falling into one of the famous gulches and then having struggled to get out with its forefeet. However, there is no reason why the fracture could not have taken place after the animal was dead and be due to some great weight placed upon it while loose material remained beneath it. The animal may, indeed, have slipped and injured itself, though from what or into what there is absolutely no evidence. It had obviously not been either inundated or washed away by a flood, and it had not been drowned. Third and very importantly, it was not only frozen but perfectly so, and here is where we come to the first of the more vital points.

Freezing meat is not quite so simple a process as one might think. It will jell once you drop the temperature below freezing, and it will then theoretically remain forever, provided its contained moisture does not melt. So also will a whole corpse. However, the frozen-food technicians have discovered two vital facts. The first is that simply freezing meat is not sufficient, because it loses its flavor and finally becomes unfit for human consumption after a time if only just frozen. To preserve it properly, temperatures of minus-

twenty degrees Fahrenheit or lower are needed. The second and more important point is that to preserve it at all it must be frozen very rapidly, and the faster the better. The slower the job is done, the larger are the crystals that form in the water and other liquids contained in its cells; the faster the process, the smaller they are. Above a certain size, these crystals burst the cells. The meat then becomes dehydrated on being unfrozen, and loses all its flavor.

The flesh of many of the animals found in the muck must have been very rapidly and deeply frozen, for its cells were not burst and, although one mammoth has been found by the radiocarbon dating method to be just over 10,000 years old, the flesh of these animals was remarkably fresh and some was devoured by the explorers' sledge dogs.

At minus-forty degrees Fahrenheit, it takes twenty minutes to quick-freeze a dead turkey and only thirty to preserve a whole side of beef. But these are mere bits of meat, not live animals clothed in fur and containing blood, internal organs and food, at a living temperature of about ninety-eight degrees.

The problem is to extract all the heat from the whole beast, but this can only be done from the outside and by working inward. Unless we have tremendous cold outside, the center of the animal--and notably its stomach--will remain comparatively warm for some time, probably long enough for decomposition to start in its contents, while the actual chilling of the flesh will be slow enough for large crystals to form within its cells. Neither event occurred with the mammoths.

Here we must digress for a moment to consider a related riddle--namely, how these animals were all killed so suddenly. Temperatures of lower than minus-100 degrees Fahrenheit have recently been recorded in Antarctica, and the air customarily registers much less than zero over wide areas of the earth, yet very large numbers of animals live happily at such temperatures. Sled dogs burrow into the snow to sleep in Antarctica and thereby obtain some protection, but they also stand about in the open for hours, even when a near hurricane is blowing--and moving air has a much greater chilling effect than still air. Men, though admittedly well clothed, have been out in temperatures of minus-100 degrees for up to half an hour--and in a roaring blizzard to boot--without their lungs freezing; but much more amazing were the little Shetland ponies that Scott took on his ill-fated dash to the South Pole in 1911. He got these to the dome of the Antarctic icecap, and they had to stand out in the open all the time, yet they survived as long as their food supply lasted. In fact, it takes a very great deal of cold to kill a warm-blooded animal, and especially one that is already somewhat inured to it.

It now transpires, from several studies, that mammoths, though covered in a thick underwool and a long overcoat--and in some cases

having quite a layer of fat -- were not specially designed for arctic conditions; a little further consideration will make it plain that they did not live in such conditions.

That they did not live perpetually or even all year round on the arctic tundra is really very obvious. First, the average Indian elephant, which is a close relative of the mammoth and just about the same size, has to have several hundred pounds of food daily just to survive. For more than six months of the year, there is nothing for any such creature to eat on the tundra, and yet there were tens of thousands of mammoths. Further, not one trace of pine needles or of the leaves of any other trees were in the stomach of the Beresovka mammoth; little flowering buttercups, tender sedges and grasses were found exclusively. Buttercups will not grow even at forty degrees, and they cannot flower in the absence of sunlight. A detailed analysis of the contents of the Beresovka mammoth's stomach brought to light a long list of plants, some of which still grow in the arctic, but are actually much more typical of Southern Siberia today. Therefore, the mammoths either made annual migrations north for the short summer, or the part of the earth where their corpses are found today was somewhere else in warmer latitudes at the time of their death, or both.

Here is a really shocking--to our previous way of thinking--picture. Vast herds of enormous, well-fed beasts not specifically designed for extreme cold, placidly feeding in sunny pastures, delicately plucking flowering buttercups at a temperature in which we would probably not even have needed a coat. Suddenly they were killed without any visible sign of violence and before they could so much as swallow a last mouthful of food, and then were quick-frozen so rapidly that every cell of their bodies is perfectly preserved, despite their great bulk and their high temperature. What, we may well ask, could possibly do this?

Fossils of plants requiring sunlight every day of the year--which is far from the condition pertaining about the poles--have been found in Greenland and on Antarctica. This alone proves that at some time in the past either the poles have not been where they are now, or those portions of the earth's surface that lie about the poles today were once elsewhere. Astronomers and engineers concur in stating that the axis of the earth cannot ever have shifted because the earth is a vast fly-wheel, and even if any force great enough could be found to so shift it, it would therefore fly apart.

Ergo, the crust of the earth must have shifted. Whether it did so in bits and the bits then shifted around reciprocally as suggested by Wegener, or whether it moved as a whole as recently propounded by Hapgood (The Saturday Evening Post, January 10, 1959),

cannot be debated here. The latter seems the more probable at present, but in either case, if the crust does from time to time come unstuck from the central body of the spinning earth, it will start to move and new parts of it will drift in under the poles. However, the circumference of the earth as measured north and south through the poles. This means that any portion of the crust heading for the equator is going to have to stretch by twenty-one miles, while any moving toward a pole will have to contract by the same amount. And what must then happen?

The crust of the earth is estimated to be variously between twenty and sixty miles thick. This is really very little compared to the whole earth, being only about as thick as the outer skin of an onion. Its rocks are to some extent plastic, but are like taffy in that they can be stretched slowly, but will break if pulled too fast. Therefore, if a part of the crust goes up over the rise of the equator too fast, it will crack open and form vast rockbergs, while the material from the layer beneath it will come welling up to fill these cracks and sometimes even to flow out in great sheets such as are found all over the earth. Also, both about the equator and toward the poles, where the crust is being squeezed, every available volcano will be set off.

Now volcanoes, when in eruption, not only spew out lava and hurl out rocks but also eject masses of just particles, steam and other gases. Some of the dust may be shot into the upper atmosphere and then drift all around the earth. After the Indonesian island of Krakatoa blew up in 1883, there were magnificent sunsets all over the earth for several years because of this dust. Other great volcanic eruptions have actually affected the rainfall because moisture gathers around small particles, and the gases-- notably carbon dioxide, if present--have a marked effect upon the content of the atmosphere. It has been estimated that if only twenty major volcanoes went off at the same time, all manner of positively terrifying things could happen to our old earth and thus also to both us and mammoths. In fact, this may be the answer to most of our riddles. This theory is buttressed by the fact that great layers of volcanic dust have been found interlarded with the muck in Alaska.

A sudden mass extrusion of dust and gases would cause the formation of monstrous amounts of rain and snow, and it might even be so heavy as to cut out sunlight altogether for days, weeks, months or even years if the crustal movements continued. Winds beyond anything known today would be whipped up, and cold fronts of vast lengths would build up with violent extremes of temperature on either side. There would be forty days and nights of snow in one place, continent-wide floods in another, and roaring hurricanes, seaquakes and earthquakes bringing on landslides and tidal waves in others, and many other disturbances. But perhaps most important may have been the gases which would probably have been shot up highest of all. What would happen to them?

And this is where we get back to quick-freezing mammoths, for the frozen-food experts have pointed out that to do this, starting with a healthy, live specimen, you would have to drop the temperature of the air surrounding it down to a point well below minus-150 degrees Fahrenheit. There are two ways of freezing rapidly--one is by the blast method, the other by the mist process; these terms explain themselves. Moreover, the colder air or any other gas becomes, the heavier it gets. If these volcanic gases went up far enough they would be violently chilled by the "cold of space," as it is called, and then as they spiraled toward the poles, as all the atmosphere in time does, they would begin to descend. When they came upon a warm layer of air, they would weigh down upon it and pull all the heat out of it and then would eventually fall through it, probably with increasing momentum and perhaps in great blobs, pouring down through the weakest spot. And if they did this, the blobs, would displace the air already there, outward in all directions and with the utmost violence. Such descending gases might well be cold enough to kill and then instantly freeze a mammoth.

Consider now our poor mammoth placidly munching away in his meadow, perhaps even under a warm sun. The sky need not even cloud over, and there need not even be a dust haze where he is living, which would appear to have then been about where Central Asia is today. All of a sudden, in a matter of minutes, the air begins to move in that peculiar way one may experience today at the end of the arctic summer when the first cold front descends and the temperature may drop sixty degrees in an hour.

All the mammoth feels is a sudden violent tingling all over his skin and a searing pain in his lungs; the air seems suddenly to have turned to fire. He takes a few breaths and expires, his lungs, throat, eyeballs, ears and outer skin already crystallized. If he is near the center of the blob, the terrible mist envelops him, and in a few hours he is a standing monument of what is virtually rock. Nor need there be any violence until the snow comes softly to pile up on him and bury him. And here we leave him for a moment and turn to his distant cousin chewing away in Alaska, just outside the area where the blob descends. What happens to him?

The sky here probably does cloud over, and it may even start to snow, something he has not before encountered in September, when he is in the north on his summer migration. He starts to pad off for cover. But then comes a wind that rapidly grows and grows in fury and explodes into something unimaginable. He is lifted off his feet and, along with bison, lion, beaver from ponds and fish from rivers, is hurled against trees and rocks, torn literally to bits and then bowled along to be finally flung into a seething caldron of water, mud, shattered trees, boulders, mangled grass and shrubbery and bits of his fellows and of other animals. Then comes the cold that freezes the whole lot, and finally when the holocaust is over, the snow to cover it all.

This is exactly the state of affairs that we find in Alaska, where the mammoths and other animals, with one or two significant exceptions, were all literally torn to pieces while still fresh. Young and old alike were cast about, mangled and then frozen. There are also, however, other areas where the animals are mangled, but had time to decompose before being frozen; and still others where they decomposed down to bones and were then either frozen or not. Beyond these again, there are similar vast masses of animals, including whole families or herds, all piled together into gulleys and riverbeds and other holes, but where only bones remain.

Here may be the answer to our riddle of why we find mammoths with buttercups in their teeth in one place, shredded but still-edible mammoths in another, rotting mammoths in a third, and mammoth boneyards somewhere else. The animals were frozen whole where the blobs of cold air descended before the winds began, shredded and frozen where the winds came before the cold had spread out, and reduced to bones where the animals had time to decompose before the cold reached them or the moving crust carried them north.

The remains, if still sticking out of the ground where the middle of the blob occurred, would have been safely sealed in when the snow came, as the Beresovka mammoth probably was. This would seem to be additional proof, for a true icecap never formed in Siberia, because the crust was still shifting. There is evidence that one once started to grow there, but that it soon died away, and as it did so, vast floods of melted water brought great quantities of silt down from the south--which is the direction the rivers flow in Siberia--and deposited it upon the compacted snow. This froze in the fall, but melted in the spring, and since a dark material absorbs more heat, it gradually, year by year, dissolved the snow below and descended upon and eventually enveloped the quick-frozen mammoth by the slow substitution of chilled silt for compacted snow.

Nobody, as we have said, particularly wanted frozen elephants in the first place. Now there are starting to be many who are more than grateful for their existence, because they may help us solve a thousand other riddles, some of which are of the most vital importance to our own well-being and future. At the same time, they may be a warning of most unpleasant things to come--if a similar convulsion of nature should occur again.

The Human Race Is One by Dr. Bachman

quoted from Creation's Testimony to Its God by Thomas Hagg pp. 320-1 Charles Griffin and Company 1873

In every important, every essential, structural particular, the human race is one. Dr. Bachman sums up the marks of unity in the following sixteen particulars:

1. That all the varieties evidence a complete and minute correspondence in the number of teeth, and 208 additional bones con-
2. That in the peculiarity in the shedding of the teeth, so different from all other animals, they all correspond.
3. That they all possess the same erect stature.
4. That they are perfectly alike in the articulation of the head with the spinal column.
5. That they all possess two hands (not "four").
6. That there is universally an absence of the intermaxillary bone.
7. That they all have teeth of equal length.
8. That all have smooth skins on the body, and heads covered with hair.
9. That all the races have the same number and arrangement of muscles in every part of the body, the digestive and all other organs.
10. That they all possess organs of speech, and the power of singing.
11. That they are all omnivorous, and capable of living on all kinds of food.
12. That they are capable of inhabiting all climates.
13. That they possess a slower growth than any other animal, and are later in arriving at puberty.
14. That in every race there is the same peculiarity in the physical constitution of the female, differing from all other mammalians.
15. That all the races have the same period of gestation, on an average produce the same number of young, and are subject to similar diseases.
16. In which, most of all, they differ from every other creature-- that they all possess mental faculties, a conscience, and a hope of immortality.

A N T H R O P O L O G Y

The SCIENCE OF MAN

Under this Science, we shall consider,

1. How man came;
2. When man came;
3. What man is.

We shall see what actual proved Science has to say to the Scripture record on these important points.

In the present lesson, we shall begin the study of,

1. How man came.

Where did man come from? How does he happen to be living on this earth? How did he come to be formed as he is? Where did his life come from, and how?

There are just two theories--only the two possibilities. They are called "Special Creation," the teaching of the Bible, and "Evolution", the teaching of our modern Scientists.

We shall carefully examine both theories. "Special Creation" says that there is a personal, living God, who is a personal being--an actual Supreme Personality--having supreme Mind, and unlimited power--and that this Almighty living God PLANNED the whole universe, brought all things into existence out of nothing, actually created the heavens, including the stars, sun and moon, and also the earth, and all that in them is, "Special Creation" teaches that this Supreme God CREATED man, after His own image, and gave him the breath of life, within the space of a literal 24-hour day--the sixth day of the first week of this earth's existence, known as Creation week. This teaching we shall study carefully from the Bible, after we have studied, first, the theory of Evolution.

What Evolution Teaches

The modernly accepted theory of Evolution teaches:

1. That this earth, and all life upon it, came by some method or form of continuous progressive change, by natural causes (that is, NOT by supernatural power of God), according to fixed natural laws, and brought about only by resident forces.

Let us explain that in simpler language. "Progressive change" means a constantly IMPROVING change. This means that the material substances that form the earth have, over periods of millions of years, been continuously CHANGING, by only the power of force and energy,

and that the change has always been an IMPROVEMENT and an ADVANCE. It has come about purely through NATURAL CAUSES--not by the supernatural power of a Creative God. It has been according to fixed natural laws that no man or God could interfere with--such as the law of gravity, the law of inertia, etc. And it has been brought about by RESIDENT forces--not by a God in heaven, but forces that are natural, and that are HERE.

2. That the earth came by what is known as the Planitesimal Hypothesis of Prof. Thomas Chrowder Chamberlain. We need not explain this, for it is merely Chamberlain's theory of the MANNER in which the earth came, as explained in (1) above. However, 40 years ago, scientists claimed the earth came by the "Spiral Nebular Hypothesis" of La Place, and you would have been considered "IGNORANT" unless you believed it. But now that has been found wrong, and is out of date. This is an example of some of the mistakes "science" has made.

3. Man came according to Darwin's theory of "Natural Selection", a fixed natural law of variation of species--a law of the survival of the fittest--which means nature selects the fittest for survival, the weaker and the unfit, and the more unintelligent being exterminated in the struggle for existence. Therefore, progress is ever upward.

4. That the first life upon the earth came by "spontaneous generation", or by "electro-chemical action", or some unknown process, many millions of years ago, in the warm ocean sline. Thus, it is the theory of evolution that LIFE sprung out of DEAD MATTER--that the living came from the not-living.

The first active life was a single-celled protoplasmic mass, which they have named an "amoeba". It was so small it could not be seen except through a high-powered microscope. This single-celled bit of protoplasm generated, of itself, into additional cells. These cells developed, and multiplied, until the oceans became peopled with vast swarms of worms. These worms, evolution says, are our ancestors.

These worms developed, grew, multiplied, advanced, gradually changing into entirely different forms of life. Some of these supposed early sea forms gradually took to land, developing lungs as well as gills for breathing, becoming what are called amphibians. Some of them stayed on the land altogether, and ultimately their lungs replaced their gills, and their gills disappeared. They developed into land animals. The amphibians continued to live both in water and on land, continuing to use both gills and lungs. The purely sea forms remained in the water having gills and no lungs.

From these early forms there gradually developed, through a fixed natural law of variation of species (which means one species or form, or kind of life gradually takes on new characteristics, and varies progressively--that is, toward the more complex physical form and toward advancing intelligence--until it has become changed into another and totally different species, or kind of animal) there gradually developed in this way reptile forms, and then mammals, (animals having a spinal column, whose female suckles its young). This process of progressive development, and change from one species or kind to entirely different and higher species or kinds, continued through the millions of years, branching off into different life forms until, among other forms, came some resembling the monkey of today, then the anthropoid ape, or a species similar, and, finally, changing and developing into MAN. Man was a GRADUAL TRANSITION from some lower animal similar to the anthropoid ape--so gradual that it would be impossible to tell at just what stage it ceased to be ape, and became man. Thus there was no one first man, called Adam, as the Bible claims. The first men were the most unintelligent savages. But the mind gradually developed, and character began to form, and MAN HAS BEEN GETTING CONSTANTLY BETTER AND BETTER. The savage of today is what our ancestors once were, as all high school students are taught in Ancient History.

So evolution teaches that man has just developed, by slow and gradual progressive change, over a period of millions of years, through all these various stages. It teaches that the CHANGE is always for the BETTER. From lowest, unintelligent savage, part ape and part man, we have developed and improved and progressed up to our present complex civilization and standard of intelligence. Evolution teaches that man's present state is the highest, noblest, most advanced, and most perfect he has ever attained. And he is still advancing, and constantly getting better and better.

Differences Between the Two Teachings

Let us now come to a clear and plain understanding of the DIFFERENCES BETWEEN THE THEORY OF EVOLUTION, and the teaching of the Bible.

Both teachings admit man has come, or descended, from a common ancestor. Evolution says this common ancestor was the tiny single-celled piece of protoplasm, called an amoeba. It claims this amoeba was the common ancestor of every living thing--both plant and animal life--of the fishes, the birds, the snakes, the elephants, the monkeys, and of man. But the BIBLE tells us that the common ancestor of man was NOT the common ancestor OF any other kind of life--but just of man only. And the BIBLE tells us this common ancestor of man was a MAN, created suddenly whole and complete AS a man, created PERFECT in the very beginning (Gen.1:31 and I Cor. 15:45), and that this man's name was ADAM, and that Adam lived exactly 930 years to the very DAY--from the very DAY

he was first created (Gen. 5:5). So the first difference is that evolution says our ancestor was an amoeba, and the Bible says our first ancestor was ADAM. Evolution says our first ancestor was the most IMPERFECT living organism that ever existed, and all life has advanced and gotten better and better ever since, but the BIBLE teaches that our first ancestor was made PERFECT, after the very IMAGE OF GOD (Gen. 1:27), and that this perfect first man SINNED AND THAT man is now helpless and lost, and needs a REDEEMER so that he shall once more be MADE perfect. According to Evolution, man needs no Saviour and no redemption, for he has never fallen but has been getting better and better, and is now better than he ever was. So in this respect the two teachings are exactly CONTRARY.

Secondly, both teachings admit CHANGE has taken place. Now some, who do not thoroughly understand what evolution teaches, believe that any mere CHANGE is evolution. But the word CHANGE is not synonymous with evolution. Evolution teaches that this change is CONTINUOUS, and PROGRESSIVE, until the bounds of the original species, or kind of plant or animal, has been outgrown. In other words, evolution teaches that one species, or kind, CONTINUES to CHANGE, until it has become an entirely DIFFERENT species, or kind, altogether. Thus, MAN has come by progressive CHANGE from lower forms of animals, like the ape. The ape came from a still lower and less intelligent form like the monkey. And the monkey came from a still lower and less intelligent form, and so on, back to the amoeba. But the Bible claims that each kind, or species, of life, reproduces ONLY after its own KIND! Thus, "And God said, Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, WHOSE SEED IS IN ITSELF, upon the earth, and IT WAS SO." (Genesis 1:11.) "And God created great whales, and every living creature that moveth, which the waters brought forth abundantly, after their kind, and every winged fowl after his kind: and God saw that it was good." (Genesis 1:21) "And God made the beast of the earth" (not after some LOWER kind of species, but) "AFTER HIS KIND, and cattle after their kind, and everything that creepeth upon the earth after his kind." (Genesis 1:25) And the Bible does not say God made man after the KIND, or species of some lower, less intelligent animal like the ape, but "God created man IN HIS OWN IMAGE, in the image of God created He him; male and female created He them." (Genesis 1:27, 1 Corinthians 15:39).

So, if the Bible is true, and man was first created AFTER THE IMAGE OF GOD--then man "came", or "descended" direct from GOD. And when evolution teaches that man "came" or "descended" direct from some lower animal like an ape or monkey, THEY DELIBERATELY PUT THIS LOWER APE-LIKE ANIMAL IN THE PLACE OF GOD--and surely this is AN INSULT TO ALMIGHTY GOD! Do you not think so?

Thirdly, evolution teaches that the first LIFE came by some

NATURAL PROCESS, out of DEAD MATTER--that the living came from the not-living, and by NATURAL LAWS. On the contrary, the Bible claims all life has come from GOD, as the CREATOR. "For as the Father hath life in Himself, so hath He given to the Son to have life in Himself." (John 5:26.) "In HIM was life. All things were made by Him." (John 1:4,3) "Seeing HE giveth to all, life, and breath, and all things." (Acts 17:25) "For in HIM we live, and move, and have our being" (Acts 17:28). "And the Lord God formed man of the dust of the ground, and breathed into his nostrils the BREATH OF LIFE" (Gen. 2:7). This does not say God formed an amoeba in the warm ocean slime, and gave it life, and it grew, by progressive change, INTO a man. What God formed was not formed in the warm ocean slime, but OF THE DUST OF THE GROUND. What He formed was not a single-celled amoeba, but a MAN. And the Bible distinctly says it was the MAN--not the amoeba ancestor of a man--that God put the breath of LIFE into.

So, to sum up, evolution teaches 1st, that the amoeba is the common ancestor of all living plants and animals, while the Bible teaches adam, created PERFECT, was the first ancestor of all men. Second, evolution teaches one species, or kind, changes into and becomes an entirely DIFFERENT species, or kind, but the Bible teaches that all change is confined WITHIN each species or kind. Third, evolution teaches that life originated by natural laws OF DEAD MATTER, while the Bible teaches all life has come from GOD, and by His supernatural power. These are the three outstanding differences between the two teachings. One or the other is FALSE. Both cannot be TRUE.

What Men of Science Say About It

Evolution originated in pagan, infidel minds, Darwin, Huxley, Lyell, Spencer, Haeckel--the fathers of evolution--atheists, every one. CREATION is the very PROOF of GOD. The atheist must explain creation WITHOUT God, or he must believe in God and give up his infidelity! So these infidels INVENTED the theory of evolution in their imaginations.

The Century Dictionary and Encyclopedia defines evolution as "opposed to Creation." Huxley said it was "directly antagonistic to Creation," adding, "evolution makes it impossible to believe the Bible." Sir Oliver Lodge says, "Taught by science, we learn that there has been no fall of man; there has been rise." Another frank evolutionist, Carl Vogt, says: "Evolution turns the Creator out of doors."

And yet, in high schools and colleges, many teachers and professors are teaching students that there is no conflict between the Bible and evolution. They teach that you can believe BOTH. Some try to teach that evolution was God's METHOD of creation,

and try to harmonize the first chapter of Genesis with the theory of evolution! This is merely crafty, cunning, lying deception, which is deceiving millions of students. They are then taught the "evidences" of evolution, they accept it, and soon become atheists before they realize it!

Two

SCIENTISTS DISCOVER

"There WERE Giants on Earth in those Days"

**The most astonishing geologic discovery in 15 years—
dumbfounding the skeptics! Recently discovered
remains of HUMAN BEINGS BIGGER THAN THE GORILLA
—more healthy, more robust, more perfectly formed
than puny, sickly man today—prove the Biblical record
true.**

by Herman L. Hoeh

THE TIME—late in 1941.
The place—the island of Java
in the East Indies.

The discoverer—G. H. R. von Königswald, a young German scientist, who had been invited by the Dutch to continue geologic work in support of man's assumed evolutionary development. But the discovery was NOT any "missing link"!

Confounding the Skeptics

Von Königswald's work was merely routine—until one day, late in 1941, when he received from one of his collectors an enormous human jaw. It was unmistakably human. The young German scientist could hardly believe his eyes.

What he had in his hands were the jaw and teeth of a GIANT!

Von Königswald made a cast of the huge jaw and teeth. He shipped it to his co-worker, Weidenreich, in New York. To this astounding shipment he attached the name "giant man of old Java"—*Meganthropus paleojavanicus*.

Then came the bombing of Pearl Harbor and World War II closed the door to Java. Von Königswald disappeared for four long years.

Meanwhile, Weidenreich began to assemble numerous previous discoveries hitherto remaining unclassified and misclassified—because they did not properly fit into the evolutionary pattern of man's supposed development. He recalled the giant teeth from China—called *Gigantopithecus*—which von Königswald had shipped him a number of years before. They, too, were obviously not teeth of apes, but of human beings—men of GIANT proportions!

Of Weidenreich's arduous research work we read: "By comparing the teeth and bones with those of living animals

and from careful anatomical measurements he decided that the Java giant was much larger than any living gorilla, and the Chinese giant was one and a half times LARGER STILL. That would have made him twice as large as a male gorilla! The Biblical words came inevitably to mind: "There were giants in the earth in those days" (Genesis vi, 4)."

You may find this quotation on page 251 of the worthwhile book *Man, Time, and Fossils* by Ruth Moore.

Healthier Than Man Today

Yes, "There WERE giants in the earth in those days" (Gen. 6:4)—some translations, such as Moffatt's, read, "It was in these days that the Nephilim giants arose on earth." They were not malformed, diseased human beings suffering from glandular trouble, as you might see in a circus sideshow—but robust, enormously powerful human beings with healthy teeth and broad jaws that make the cavity-filled, misshapen teeth of modern civilized man appear sick by contrast!

Weidenreich quickly recognized that the GIANTS of old had well-proportioned jaws and teeth; whereas modern freakish giantism due to glandular imbalance produces ill-proportioned teeth about the same size as those of ordinary individuals, but in gigantic jaw bones.

These findings—which add one more link to the undeniable evidence confirming the inspiration of Scripture—Weidenreich published in 1946 in his immensely intriguing book *Apes, Giants and Man*.

Revising the Theory of Evolution

This discovery, coupled with many previously unexplained finds, radically alters the theory of evolution. Those giants of old had a brain capacity much greater than modern man—yet the big-

gest gorilla has a brain only one half the size of the average human being today. How could the brain of early man have SUDDENLY become many times larger than a gorilla's?

Certainly NOT by a process of evolution, which presupposes immense vistas of time for gradual development.

Besides, those giants of old are found buried with remains of animals and of men of present-day size in a twisted and mangled state due to "great natural forces," says Ruth Moore on page 251.

What kind of "natural forces" could have buried such an array of life in a mangled state?—the Scripture tells us! Catastrophic forces of a gigantic flood of waters—"Noah's flood"—that dwarfed into insignificance the local floods which even today entirely wash away cities and destroy unprotected thousands!

Notice! "And the waters prevailed exceedingly upon the earth; and all the high mountains that were under the whole heaven were covered . . . And all flesh perished that moved upon the earth"—and that included the giants (Genesis 7:19-21).

Exactly as the Scripture states, the remains of giants, and multitudes of other human and animal bones have been found buried throughout the world as a result of raging torrents of waters.

From Europe came the disturbing discovery decades ago of the immense Heidelberg jaw—always an enigma to evolutionary science.

And from Africa have come very recent discoveries of giants. Said Dr. Robert Broom, the Scottish discoverer of the South-African giant, "It almost seems to confirm the view of the noted paleontologist Dr. Weidenreich that there were giants on the earth in those days!"

Even nature is filled with proofs of inherited giantism today—giant sun-

flowers, zinnias, primroses, chickens, to name a few—the result of mutations from original parent stock. Giant mutations *were*, and to a limited extent still *are*, inherent possibilities which merely *vary* within the bounds of the original kinds created by the Almighty Himself.

Did Adam Live 930 Years?

The latest discoveries are but the climax to a *whole series of discoveries of robust human beings* who were LARGER and STRONGER and LONGER-LIVED than humanity today.

Caves of Europe are filled with such evidence. The Cro-magnon race of France—though not a giant race—was of great stature, some skeletons approaching seven feet in height and affording evidence of immense muscular development.

One of the chief characteristics of all these remains is the EXTREME LONGEVITY characteristic of the skeletons! The massive proportions of the body, the great development of the muscular processes, the EXTREME WEARING of the teeth—without our characteristic amount of decay—the OBLITERATION OF THE SUTURES OR SEAMS BETWEEN THE VARIOUS BONES OF THE SKULL, the indications of SLOW OSSIFICATION of the ends of the long bones all point to the inevitable conclusion that the earliest man matured slowly and attained great length of life—just as Genesis declares. *Such characteristics of the skeletal frame are totally absent from modern degenerate man.*

That those ancient men did attain great age is demonstrated by the further fact that their remains are usually found with fragmentary skeletons of youths and babies not exhibiting those characteristics.

Still More Discoveries!

While in England last summer I had the opportunity to view the artifacts or tools of ancient European man. Some of the fist axes were as broad as my outstretched hand—yet those men who manufactured them could hold them securely in the palms of their hands!

William Howells in his book *Man-kind So Far* tells us that “. . . the excellence of their stone-working, which was as good as anything which had yet been achieved . . .” was amazing. Their characteristic tool—the fist ax which I saw in England—was “so heavy as to be surprising, for the men of the age were surely not monsters” (pp. 164, 118). Not monsters? But the facts prove it! There *were many men* of gigantic power as well as stature scattered throughout the world before the deluge.

Most every child has heard of the cave-men or the Neanderthal Man, the remains of which have been found scat-

tered throughout vast portions of the ancient world. Far from being sub-men, they were of *gigantic muscular build—giants in strength* when compared with us today. Here is what Howells says of them:

“The Neanderthal brain was most positively and definitely not smaller than our own; indeed, and this is rather a bitter pill, it appears to have been perhaps a little larger. The middle-aged man of La Chapelle-aux-Saints had a brain whose volume was about 1,625 cubic centimeters, which is a figure that only a fraction of modern European men can match . . .” (pp. 165-166).

“A skull of the Neanderthals has a characteristic and striking form. It is huge and thick. It considerably *exceeds that of any modern type both in length and in breadth . . .*” (pp. 166).

Far from being “half-way up from the ape,” these *giants* in muscular development who roamed the earth possessed a “squat, heavily built physique of great strength”; their “teeth were robust and somewhat larger than ours, but *not more primitive*” (p. 168).

Science PROVES It

Their *heavy bones* are proof *not* of their primitiveness, but of their terrific muscular build. A recent scientific experiment demonstrated this. Dr. Sherwood L. Washburn operated on newborn rats and removed certain of the MUSCLES *on one side* of the jaw and skull. After rapid recovery, the rats matured. Then they were killed and their skeletons examined. Says Ruth Moore:

“A notable change had come about in the head. On the side that had not been operated, the rats had the usual deep creases seen in the skull of the Neanderthal man and some of the other early men, and taken as a sign of their primitiveness. On the other side, the operated side, the skull of the rats was smooth, very much as the skull of modern man is smooth.”

She continues: “One side of the rats’ head was Neanderthal, so to speak, and the other was modern. . . . The muscle apparently controlled the form of the skull; the ridges . . . were superstructures created to withstand the pull of the powerful jaw muscles” (pp. 383-4).

Rather than indicating primitiveness, the heavy skulls of ancient man indicate muscular power and physical health which we cannot match today!

In Rhodesia, Africa, a skull has been found of the same general type which is “really colossal in size . . .” (p. 176 of Howells’ work).

The Wajak skulls of the Australian area also have a large brain and heavy bone construction. “A few skulls of much the same sort (and date) have come to light in South Africa; the im-

portant ones being the Florisbad, Fish, Hoek, Boskop, and Springbok Flats crania. They are all old and *big*.” “This is especially true of the enormous Boskop skull (with a capacity of perhaps 1,800 cubic centimeters)” (pp. 191-192).

Violence Filled the Earth

Now let us turn to the Biblical record. Where did the wandering tribes of ancient “stone-age” man come from? Let’s notice the answer of Scripture:

After Cain *murdered* Abel, God sentenced Cain to become a “*fugitive* and a *vagabond*”—or “wanderer”—“in the earth” (Gen. 4:12). Cain was a criminal. He was sentenced to become a fugitive—a wanderer. That was his punishment! And from him and other sons of Adam we have the spreading abroad of human beings throughout the world—and the spreading abroad of VIOLENCE!

“And the earth was corrupt before God, and the earth was FILLED WITH VIOLENCE!”

The record in Genesis says that God, in mercy, destroyed life off the earth to save man from himself. Evil and violence made life unbearable. Archeologists have found *proof of that violence*. In the Ofnet cave of Bavaria, Germany, “were discovered thirty-three skulls all huddled together in a circle. Their owners *had each been killed by a stone ax*, and *all the beads had been cut off* and buried together in this fashion” (p. 226 of Howells’ book).

In China the bones of ancients were discovered to have been “split lengthwise in a fashion which no animal can manage, but which has been used by man to get at the marrow of a bone in other times and places” (p. 149). *Cannibalism*, perhaps?

The stone cultures of the vagabonds, though separated from the main centers of civilization in the Near East, existed contemporaneously with cultures using copper, bronze and iron—*just as stone age cultures still exist today, side by side with civilizations empowered with atomic weapons*.

That does not prove the theory of evolution, but the shocking process of *degeneration* in the human race!

But why should people today be so much smaller and less powerful? The answer is found in a statement by Howells on page 226, “There were some groups of people in Egypt and the Near East who were long headed but had the lighter-boned, *smaller skulls of men of today*.” Noah lived in the Near East. He was the progenitor of all the nations that exist today. He undoubtedly came from this stock—the group that did not have the greatest physical strength and stature! God could use him in His min-

Angels are spirits and could not be destroyed by water.

With the outpouring of the deluge "all flesh died . . . AND EVERY MAN" (Gen. 7:21-23).

Why Called "Sons of God"

If you will examine the sixth chapter of Genesis more closely, you will notice that DAUGHTERS were born when the human race began to multiply rapidly (verse 1). Why the apparent mention of daughters ONLY? What about the *sons* that must have been born? The human race reproduces at least as many males as females. The answer is that the sons *are* spoken of, but most readers overlook it.

Turn to the last verse of Genesis 4 and pick up the real beginning of the account. Over two and one-half centuries had passed since the creation of Adam. What happened? "Then began *men* to call upon the name of the ETERNAL." They *knew* God was their Creator and they were His creation—his sons! They lived near enough to creation to *know* that!

A marginal reading is "then began *men* to call themselves by the name of the ETERNAL" (Gen. 4:26).

Like people today who profess *Christ* and call themselves *Christians*, those men of old gave only lip service to the ways of God even though they *called themselves by the name of God!* THEY were the *sons* born before the flood.

They were rebellious and unrepentant. What had they done that was evil in God's sight? Notice it, the males who professed God, but with whom *God would not continue to strive*, were the ones who married the "daughters of men."

They persisted in having their own way and married their neighbor's daughters—beautiful, but *unconverted* women—who led them further from God and into the cares and evils of this world.

BIBLE Definitions of "Sons of God"

The Bible employs the phrase "sons of God" in several ways. Therefore we have need of adequate Scriptural proof before we can be sure *which Bible definition* is intended in the sixth chapter of Genesis. People always want to pick the definition they want to believe rather than what God intends to reveal! Maybe that's what you, without realizing it, have been doing all these years.

Here are the Bible usages.

First, if one has received and is *led by the Spirit* of God (Romans 8:14), then he is now a *begotten son of God* (I John 3:1). Many verses in the New Testament explain that the *natural* human being is *not a* BEGOTTEN son of God until guided and filled with the Holy Spirit which is the DIVINE NATURE and LIFE of God (II Peter 1:4).

Second, figuratively speaking, natural human beings are called "sons of God." We are all the sons of God *by creation* (Malachi 2:10; Luke 3:38).

Third, in the book of Job, God calls *angels* "sons of God" because they were created by Him. Notice it. "All the sons of God shouted for joy" when God was laying the earth's foundation (Job 38:5-7). This was long before there were any human beings. Adam, who was the *first* man (I Cor. 15:45), was created much later.

Although angels are called "sons of God" because they are created by God, they can *never* become *begotten* sons of God as can human beings (Hebrews 1:5).

How plain, then! Angels cannot marry women. Jesus said so. Those "sons of God" who were *destroyed* because they sinned by contracting marriages which ruined them could NOT have been angels. The angels were *not* destroyed at the flood. They are spirit and could *not* be destroyed by drowning.

Since the "sons of God" were carnal, sinful human beings—hence not the begotten sons of God—they were the "sons of God" *by CREATION!* The Scripture permits no other conclusion!

Would that learned men of science and professing Christians would open their minds to the Bible revelation and let it *guide* their reasoning to the astounding TRUTH!

LETTERS TO AN ATHEIST

March 20

Dear Mr. Atheist:

I have two of your recent letters to Mr. Armstrong and have read a third which was turned over to one of our students who has done considerable study in geology at Berkeley. Perhaps various individuals will answer or discard the different letters you sent. I do think you deserve an answer to your proposals.

First your typed comment, "Fair minded persons will read before destroying." As a debator, interested I assure in the truth, why do you imply that your reader is going to destroy the material you send? The statement contains a strong implication that we are not going to be fair with you, though it does not openly say so. On the other hand, your letter is addressed to Mr. Herbert and Garner Ted Armstrong (in person). Is this fair? These two men are not able to read the 600,000 letters that are addressed to them each year. They do go across tens of thousands and I believe the two letters of yours given to me were read, in part at least by Mr. Ted Armstrong. So in writing this letter, I do wonder if I am dealing with a fair-minded man.

Point number two. The object of your letters is not clear. It seems you are trying to convince us that there is no God. We already know there is a God on the basis of evidence which you lack. What, then, can be your purpose?

A third point of disagreement is worth commenting on. Your typed comment, "Why don't you deal with evolution more over the radio? Are you afraid to? This is the reason why millions of infidels are not converted!" Evolution is dealt with over the radio. This was one of the first subjects Mr. Armstrong studied as he became acquainted with the Bible. His autobiography in the Plain Truth should be sufficient evidence for this. It was one of the first problems I dealt with when I came to the college as a theistic evolutionist, having formerly been superstitious (in other words, being too ready to believe without all the facts), superstitious enough to believe in atheism. It would probably be better to say I toyed with the concept of atheism and agnosticism a few years and found it to be superstition.

But the factor I wish to point out in your statement is the one

concerning the conversion of infidels. The real reason infidels are not converted is given in Romans 1:28, "even as they did not like to retain God in their knowledge, God gave them over to a reprobate mind." It is God who hardens the minds of some and calls others to repentance at this time. He will raise them all from their graves, and those who never were converted will have their first and only opportunity to know and obey Him. This is the pre-destination that is taught in the Bible, and has only to do with the time of a man's calling to repentance. It does not foretell his eventual fate. How could it? We are free moral agents. God only commands us to choose His Way. Even He does not know our next decision; but being in control of circumstances, does know the future by bringing it to pass. Therefore, we spend our time teaching those who come to us, and putting out a broadcast that people can turn on or off as they wish. We do not condemn those who are blind for not being able to see. Why should we? God has blinded them until a time just ahead of us when man will be ready to destroy all life from this earth. Blinded as Isaiah points out, "until the cities be wasted without inhabitant." Following the war with hydrogen bombs that is coming, God will remove the blindness of all men.

There are some things in your literature which are correct. "Fundamentalists" have made errors in science as well as in understanding the Bible. So have the evolutionists, the agnostics and the atheists, so there is no reason for any boasting on the part of either group. Would it be unusual for people to make mistakes? Obviously, a group whose main study is theology is not going to be able to snap out the immediate, correct answer every time to answer the blundering of philosophers when they deal with the Scripture which they admittedly do not understand. Nor can they be expected to have the full answer to the errors in present day theories of scientists, which are continually in a state of flux. To debate on those points is missing the trunk of the tree.

Your problem, the trunk of the tree in your case, is this: You do not believe there is a God. In doubting that we are reasonable people, you set up your own self in your estimation as being reasonable. I am going to test that assumption for you.

I know that God exists, that He is an intelligent Being, that He is not composed of matter as we are but of spirit, that He inspired the writing of the Bible, and that He interferes in human affairs to bring His Will to pass. What will you accept as proof that such a God exists? I will await your answer.

You may have to become more than a philosopher to really give this point, which you contest, a fair-minded appraisal. I work in the field of science where a concept is neither true or false until it has been proved. It should be capable of being proved over and over again. The problem of dealing with an invisible, intelligent world involves more than armchair philosophizing. Without giving the case a fair trial, how can you know? If you believe firmly either way on the subject without such fair trial, you are superstitious. I wasn't that fullible 11 years ago and I found out. Why don't you? Again, what will you accept as proof of the existence of God?

Sincerely yours,

April 8

Dear Mr. Atheist:

Your approach to the problem of evolution is still wrong. The most fundamental basis of evolution is the assumption that there is no God. Pages and pages are written on how life evolved, on how the species came to be, on how the human race is tied in with the rest of the animal world, on how the gap between the various species might be bridged. But the key stone is ignored in the same fashion as your letter ignores the question I set forth. What will you accept as proof of the existence of God?

If you do not face this problem and search for the existence of a spirit world, you can only confess ignorance of the subject. Does God Exist? Make an honest inquiry. If you were to do so and find positive evidence of His existence, it would throw a new light on every fact that is used to support the theory of evolution.

I do not intend to show you God. You claim to be a debater of some standing. But the most honest, straightforward inquiry as to whether you would be willing to question the trunk of the tree of your atheistic belief (which is a superstition because you believe without basis) -- this inquiry to search into the possible existence of a God, you avoid. What does God have to do to be acknowledged by you?

Your approach to such a problem would be very interesting to our readers. We know God exists, that a world of angels who obey Him exists, also. In addition, there is an evil spirit world headed by an individual called Satan, who is called the god of this present world. The overwhelming majority of professing Christians worship him as god, as do the heathen of the world. Can you find no way to inquire into the possible existence of such a spirit world?

Sincerely yours,

April 30

Dear Mr. Atheist:

You have placed yourself in a very precarious position. You do not believe there is a God. You are corresponding with a man who knows that God Does Exist. When asked to make an honest inquiry into the existence of a spirit world, the only factual material which comes back is more of this reasoning about why evolution is so. You are out on a limb and do not know it. The trunk of the tree in your case, as I wrote before, is that you have assumed in your own heart that God does not exist. You have not proven this to be so, but made one big assumption. As a debater, then, you have placed yourself in a trailer embarrassing position. Might one say that you are "treed".

Suppose we make an honest inquiry as to whether a spirit world exists, whether an Almighty Spirit Being, a Creator exists. I am being fair with you in this request. I have in time past been an agnostic, an atheist, an evolutionist, a theistic evolutionist, and now you might put it a creationist. These were not idle fancies but conclusions based on the evidence on hand. As more evidence came I exchanged error for truth. I examined your present beliefs years ago and found them lacking. All you are willing to do is talk evolution.

I will even talk evolution with you. Your basis is repeated in a number of your letters quite unintentionally I think. You see the world as cruel; therefore God cannot possibly exist. That reasoning is common but have you thought it through? You see a struggle between men, between races, between man and the animal world, between all species on this planet; a struggle to exist as some have put it. This proves there is no God?

How would you make it otherwise? A dead world? Only a living world could include us. What should we eat? Dust? But God gave us living food. Hardly what is sold in the stores today which is polluted by man's greed. Now, a Creator might (and once did) give us manna from heaven to eat. But He gave us plant and animal life. If your atheism and evolution is true, we are blood relatives to the carrot as well as the goat and are cannibalistic in eating them. Yes, this is true say evolutionists. But turn it around. If this dog eat dog principle is the one to live by, where will it lead? You have no Law Giver, no rule to follow but the struggle to exist and leave this earth to your children. In the time of famine to come, you will see the cruelty of your evolutionary belief.

This nation is trying out evolution and atheism as its religion. will it work? The increased cruelty you are beginning to see among men is the result of this teaching. In the time of severe famine prophesied to come, men will eat hamburgers, goatburgers, carrotburgers, smithburgers, jonesburgers and buehrensburgers with little distinction. Aren't we all just one big happy family? Crime is increasing in this nation as evolutionary teaching, materialism and the number of churches which deny even the best known tenets of fundamentalism increases. Evolution will not work for you.

Sincerely yours,

Kenneth C. Herrmann

condition as you could ask for. If you have closed your mind completely to the question of whether God exists, then obviously I will have to earn my living in a different way than by trying to prove otherwise to you. I happen to know He does. The evidence I have is good but it is not quite what your ad demands.

The very type of evidence you ask is proof of a measure of wisdom in the Bible. You ask almost precisely the type of evidence Satan "supposedly" asked of Jesus Christ. "If Thou be the Son of God" show Thyself by miracles; by obeying my command; by tempting God and disobeying Him. Then that same Bible points out the father-son relationship of sinners and Satan. Your questions are natural, normal, "human-nature" questions.

Were these people who wrote the Bible really Stone Age barbarians? Would you call the Stone Age people who put up Stonehenge barbarians? Or the builders of the pyramids? No. I think you will find those first post-Flood men highly skilled workmen and highly intelligent mathematicians and astronomers. I watched men here on campus put up concrete beams weighing 54 tons and noted the expressions on the faces of hundreds of onlookers. Yet the early men in Europe, Stone Age "barbarians" if you please, placed stones weighing 70 tons in position over their gravesites. How, nobody pretends to know. So-called Stone Age cultures of today are complete degenerates compared to the real men that built those first post-Flood civilizations.

If you want to see a barbaric civilization take a look at what is growing up in America with your atheistic culture. This Frankenstein monster you are feeding with your publications is putting the lives of many of the people in the United States in serious danger. Can you survive these next years?

Consider the cause of crime. It is practically non-existent among our people, held firmly in check (at a determined level) in even a superstitious society, but runs rampant when you preach your doctrines. Every crime reflects to some extent the lack of right teaching by the clergy, or the positive efforts teachers of atheism and agnosticism make.

Let me repeat my claim to your \$1000. Just change your conditions a bit (from those Satan demanded of Christ) to what a real seeker for truth would ask. "If there be a supernatural God who made man in His image less than six thousand years ago, and that God has a purpose in making man, certainly He must have spoken with some of His physical 'offspring' and death (and today deals) personally with some of them." The rest will be brought up from their graves and taught. If you can bring yourself to this type of offer, I'm sure we can do business. You'll find me easy to do business with. I would even split my wages with you. We can be Co-Workers. No? Good wages for just a few days work. Let's go 50-50 on this \$1000 reward.

Sincerely yours,

Kenneth C. Herrmann

Glossary of Related Terms -- Compiled by A.L. Stout

1. Alluvium, any stream-deposited material.

2. Animal Kingdom, (Fauna)

Invertebrates: animals without a backbone.

Phylum: (Phyla*plural) major divisions of a Kingdom.

Protozoa, single celled animals. (Greek, protos, first + zoon, animal) ie. amoeba, foraminifera, radiolaria, and many disease germs. protozoan shells are known as ooze.

Porifera, (porus, a pore + ferre, to bear) ie. sponges.

Coelenterata, (Koilos, hollow + enteron, intestine) ie. Class-Hydrasozoa, Hydra, Anthozoa, coral, sea anemones; Scyphozoa, jellyfish.

Vermes, (Worms) never fossil. Platyhelminthes, (Flatworms). Nemathelminthes, (Threadworms). Trochelminthes, (Rotifers).

Brachiopoda, (brachion, arm + pous, foot) are abundant fossils especially in paleozoic rocks having 2 non-symmetrical shells (valves)

Bryozoa, (bryon, moss + zoon, animal) marine moss animals that attach to rocks and sea weed and form reef limestone.

Echinodermata, (echinos, hedgehog + derma, skin) marine animals with radial symmetry. ie. Class---Asteroidea, starfish; Echinoidea, sea buds, (extinct); Cystoidea, cystoids.

Mollusca, (mollusca = soft bodied) are known as shellfish and have over 50,000 living species. ie. Class -- Pelecypoda, with 2 bilaterally symmetrical valves in most species: clams, oysters, scallops; Gastropoda, snails, conchs; Cephalopoda, squid, devilfish, nautiloids, ammonites, belemnites.

Annelida, segmented worms. ie. earthworms, beachworms, etc.

Arthropoda, (arthron, joint + pous, foot) is the largest and most diversified phylum in the animal kingdom. ie. Class -- Trilobitoidea, trilobites (extinct); Crustacea, lobsters, crabs; Myriapoda, millipedes, centipedes; Chelicerata, (arachnoidia), spiders, scorpions, eurypterids (sea scorpions-extinct); Insecta, insects.

Glossary continued

Vertebrates: animals with backbones.

Vertebrata, (Chordata)

Classes:

Pisces, (fishes) Grouns- lampreys; sharks, rays; lung-fish, coelacanth; sturgeon, garpike; trout, bass, etc.

Amphibia, (amphi, on both sides + bios, life) cold blooded fresh water animals breathing by lungs, gills or both. ie. salamanders, frogs, Labyrinthodonts (extinct).

Reptilia, cold blooded, egg laying animals. ie. crocodiles, turtles, snake, lizards, dinosaurs (terrible lizards), plesiosaurs (long-necked lizards), Ichthyosaurs (fish lizards), pterosaurs (flying lizards). Last four extinct.

Aves, warm blooded birds.

Mammals, warm blooded. Subclass -- Prototheria, monotremes-spiny anteater, duckbill platypus, lay eggs; Metatheria or pouched animals, marsupials - opossum, kangaroo; Eutharia or viviparous mammals (having placenta and giving birth to young) ie. insectivores, bats, carnivores, rodents, sloths, hoofed mammals, sea cows, whales, primates. Mammals are milk feeding animals.

3. Artifact, artifacts produced by animal or human skill. ie. stone tools, ant hills.
4. Atoll, an annular island consisting of a reef formed from petrified skeletons of coral and inclosing a central lagoon.
5. Base level, lowest level to which a stream can erode, ie. sea level.
6. Basic, referring to the components of rocks (Fe and Mg) yielding generally dark colored rocks as opposed to acidic types as Na, K, Ca which are usually light colored.
7. Bedding Plane, the horizontal planes of separation between layers of sedimentary rock caused by short pauses in deposition.
8. Bedrock, the solid undisturbed rock, exposed or beneath superficial deposits of gravel, sand or soil.
9. Biogenesis, the law that all living things must come from pre-existing life as opposed to abiogenesis or spontaneous generation.
10. Carbonization, process of converting an organic substance into a residue of carbon as in charring wood and in the formation of coal.
11. Catastrophism, the belief that natural catastrophies of an ex-

Glossary continued

tensive or world wide scale have interrupted living things and have had much to do with changing the face of the earth and deposition of fossils. Presented in religious and historical writings and supported by the well known Frenchman Cuvier in the 18th century.

12. Cement, substances that act to bind sedimentary rock together such as silica (SiO_2), calcite (CaCO_3), and various iron oxides and other minerals. Portland cement is made from crushed limestone (mostly calcite) and shale (a sedimentary rock from clay rich in feldspar - much aluminum silicate) heated to 2700°f and gypsum (hydrated calcium sulfate - $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) added.
13. Coal, an organic (carbonaceous-carbon containing) sedimentary rock formed by the carbonization of plant remains. Stages of formation-from peat (not a coal) to lignite, a soft low-grade brown coal, to bituminous, a soft black coal, to anthracite, a hard metamorphosed high grade coal, and to pure carbon forms such as graphite and theoretically to diamonds-require burial of masses of vegetation with pressure and heat to cause the metamorphic changes.
14. Conformity, sedimentary strata laid down in orderly sequence with little or no evidence of time lapse or folding, tilting or erosion before the higher beds were laid down.
diastem, a short interval with a minor break in sedimentary rock layers.
Unconformity, layers missing from the geologic record believed from periods of non-deposition or erosion. The hiatus of an unconformity refers to the time interval not represented when compared to other areas.
nonconformity, tilting and erosion of lower sequence of rocks before deposition of higher beds are implied. Older rocks may be of plutonic origin.
angular unconformity, two layers not parallel. The lower series rests rock of the upper series at an angle.
paraconformity (deceptive unconformity), uncertain unconformity with little evidence of time lapse or erosion.
disconformity, a break in the orderly sequence of parallel stratified rock with a layer seemingly missing, usually indicated by erosion channels.
erosional unconformity, a break in the sequence of rock deposition made manifest by erosion.
15. Continental shelf, the shallow submerged land that fringes the continents.
16. Cosmology, study of the universe, its origin, laws, and components.
17. Crust, the solid outermost part of the earth above the Mohorovicic discontinuity, the lithosphere.

Glossary continued

18. Decomposition and decay, the chemical and physical breaking down of minerals and rocks of the earth's crust. Complex compounds are usually broken into simpler and more stable ones.
19. Diastrophism, the process or processes that deform the earth's crust including all movements of solid parts of the earth with respect to other parts. ie. epeirogeny (continental uplift) and orogeny (lineal uplift of mountain building).
20. Ecology, study of the relationship of living organisms to their environment.
21. Electromagnetic radiation, the energy of the electromagnetic spectrum including the entire range of wavelengths and frequencies from the shortest gamma rays and X rays through the ultra violet, visible light, and infra red (heat radiation) to the longest radio waves. This energy is also given off in the disintegration of radioactive elements. It has a speed of 186,000 miles per second.
22. Entropy, a law of thermodynamics regarding the degradation of all energy and matter of the universe toward a random and most inert state, in opposition to the orderly and complex state of creation. ie. radioactive decay of uranium to lead, the even transfer and diffusion of heat in a room, or the return to dust of a once living animal.
23. Erosion, the result of mechanical and chemical agents wearing away of the earth's crust.
24. Evolution, the doctrine implying that all life sprang from one or a few simple beginnings and continually progresses toward a more complex highly developed state implied from the progressive taxonomy of the plant and animal kingdoms, the law of faunal succession in rock strata, and by embryology (ontogeny repeats phylogeny), comparative anatomy and physiology, and controlled breeding. A direct counter to known laws of entropy, biogenesis, and genetics.
25. Extrapolation, to project or extend a trend from known data to an unknown area by inferences based on assumed continuity. Interpolation, the process of calculating approximate values between known values--introduction or insertion of some thing spurious or foreign.
26. Faunal succession, the observed sequence of life forms as deposited in strata first noted by William Smith in about 1830. He used the distinct fauna of each stratum as an index or guide for determining the formations.

Glossary continued

27. Flood plain, nearly level land of sediment deposited by a stream it borders. A living flood plain is overflowed in high water whereas a fossil flood plain is above the highest flood.
28. Formation, a fundamental unit in strata classification that is a layer or series of continuously deposited layers (lithologic unit). ie. limestone, sandstone, shale, etc. or interbedded types. The larger units, groups and series, are regarded as assemblages of formations.
29. Fossils, (Lat. fossilis from fodere, to dig) the remains or traces of once-living creatures or plants. Types of fossilization include: actual preservation as in ice, tar pits, or resin, or bedded in rock, clay or coal etc., to prevent complete decay; Petrification, (petra, stone + facere, to make) by permineralization - adding of mineral matter from ground water or by replacement of original material with other chemicals such as silica, lime (calcite), dolomite, iron compounds and other minerals. A pseudomorph or false replica is formed in this way showing only the external structure; Distillation or carbonization leaving only a residue of carbon has preserved many "carbon copies" of leaves and some invertebrates in shales. Natural molds or imprints are sometimes formed when the embedded structure is dissolved out leaving a hole and if this is filled in it may form a cast. Other fossils include hardened tracks and trails of animals, rain drop prints and water ripple marks, artifacts of man and animals (ant hills) and coprolites (dried dung). Quick burial is a condition necessary for fossilization in most cases to prevent complete decomposition. Nearly all fossils are found in sedimentary rock.
Living fossils such as the tuatera lizard, the cycad (sago palm), and the coelacanth fish are those having supposedly outlived the forms they were once associated with.
A fossil assemblage is all the organisms found in a single formation that had lived in the same age.
30. Genetics, the science of heredity. The genes are the basic units (blueprints) for inherited traits. They are located on paired chains of DNA (desoxyribose nucleic acid) called chromosomes. Each major group of animals has a specific set of paired chromosomes and each individual has its unique gene combination. Therefore kind breed true (law-kind after its own kind) however variations increase with each new individual. Mutations are changes or disturbances of original genes nearly always detrimental or degenerative, but sometimes give rise to new varieties such as hornless cattle, etc. Cross breeding is mating heterozygous individuals (having many differing traits

Glossary continued

or unmatched genes) as opposed to inbreeding between homozygous individuals (of like traits as near kin). A hybrid is the result of crossbreeding and often has hybrid vigor, a superiority over either parent, but will not breed true unless certain traits are matched and selected until purity is obtained and then it becomes a new breed or variety.

Embryology is the study of the developmental stages (ontogeny) of an individual from conception to birth. Phylogeny is ancestral stages.

31. Geology, science dealing with the physical history of the earth and the structure of the earth's surface.

32. Geologic time, time before written history (prehistoric time)

Geologic time scale units and geologic rock units:

Eons, two major time divisions -- before and after appearance of life. Cryptozoic (hidden life), Precambrian interval; and Phanerozoic (visible life), Cambrian to the present.

Eras, subdivisions of eons, corresponds to Groups of rock formations. These divisions are based on the dominant fossil forms found. i.e. Archeozoic, Proterozoic, Paleozoic, Mesozoic, and Cenozoic eras.

Periods, subdivisions of eras, corresponding to rock Systems which are based on conformity of strata and the location. i.e. Cambrian (Roman name for Wales), Carboniferous (to bear coal), Permian in Russia, Cretaceous (chalk). Also Tertiary and Quaternary periods. Geologists are divided on the classification of strata and the divisions of time, some believe it is a local and arbitrary but useful system and others are convinced that the major divisions are based on major events or breaks in the record affecting all of the continents at once. Periods are sometimes divided into lower, middle, and upper divisions of the rock systems, which have been referred to as cycles of submergence and emergence of the continents in the sea.

Epochs, of time and Series of rocks are lesser and more local breaks subdividing periods and systems. i.e. Pleistocene, Eocene, Upper Triassic or Newark, Cincinnati, and Acadian epochs or series.

Ages, a general term used in referring to a duration characterized by a particular event, i.e. ice age (Pleistocene), and age of fishes (middle Paleozoic).

Stages of rocks correspond to ages.

Zones in rock units are identified on the basis of their contained fossils.

Geologic column, is a composite columnar section of all the strata from all areas superimposed in order of assumed age sequence and would now exceed 95 miles in height.

Glossary Continued

Calibration of the geologic time scale has been attempted by numerous methods:

radioactive decay time, ie. lead uranium ratio.

Ocean salinity, assuming the oceans were originally fresh and salinity increases at a constant rate.

Geologic column, time required for deposition based on present rates of deposition occurring such as in river delta formation.

Erosion time, based on present rates.

Fossil index, assuming gradual evolution from primitive life forms in lower strata to the modern forms in upper strata.

Carbon-14 dating, for recent dates.

33. Geosyncline, a gentle downward flexure or downwarping of the earth's crust in a wide area as opposed to a geanticline which is a gentle upswelling of a wide area.
34. Glacial drift, all rock materials produced, transported, and deposited from glacial ice. A moraine is a deposit of glacial debris left by the melting of the ice.
35. Historical Geology, the study of the origin and history of the earth and its inhabitants to the time of written history.
36. Igneous rocks, rocks formed from molten rock material (magma) including:
Intrusive rocks which cool beneath the earth's surface. ie. deeper (plutonic) granite and the shallower pegmatite, syenite, granite porphyry, diorite, gabbro, and peridotite. Intrusive rocks are slow cooling and form large to small crystals depending on rate of cooling. They occur as dikes, sills, laccoliths, and batholiths.
Extrusive (effusive or lavas) rocks cool rapidly on the surface. ie. lava, rhyolite, obsidian and pumice, andesite, and basalt.
37. Isostasy, a condition of balance (inferred) of the earth's crust floating upon a heavier plastic interior. Heavier land masses would tend to sink deeper than lighter masses, such as the heavier basalt ocean floors and the lighter granite of continental masses.
38. Metamorphic rocks, rocks formed from igneous or sedimentary rocks changed in composition and texture or fabric by the effects of heat, pressure, solutions, or gases. ie. slate from shale, marbles from limestone, quartzite from sandstones, hornfels from clays or shales, schists from granite or sedimentary types, and gneiss from granite and other more complex rocks.

Glossary Continued

39. Mineral, a natural inorganic metallic or non-metallic substance having characteristic properties. An ore is rock containing valuable minerals worth mining. A lode is an ore bearing vein. Water is a mineral.
40. Mohorovicic discontinuity, (Moho), the boundary of the mantle and the earth's crust as evidenced by reflection of earthquake waves. It ranges about 5 to 20 miles beneath the crust's surface.
41. Natural selection, survival of the fittest. Principle of survival of animals best equipped or adapted to their changing environment.
42. Orthogenesis, evolution or development along definite lines as the result of a supposed directing influence.
43. Paleolithic, old stone age of man.
44. Paleontology, the study of plant and animal life of the past based on fossil remains.
45. Pangea, a hypothetical super-continent composed of all the major land masses.
Gondwanaland - a hypothetical continent of South America, Africa, Australia, thought to have broken up in Mesozoic era.
46. Permafrost, permanently frozen ground.
47. Plant Kingdom, (Flora) older traditional classification.
Phylum (Division)
Thallophyta, (thallos, young + phyton, plant) no division into root, stem or leaves and reproduce by simple cell division. Sub divisions, algae - algae, euglena, diatoms, seaweed, etc.
Fungi - lichen, mushrooms, bacteria, molds, yeasts, etc.
Bryophyta, (bryon, moss + plants) liverworts and mosses, spore reproduction.
Pteridophyta, (p teris, fern + plant) Classes: Filicales - true Ferns.
Equisetales - horsetails (scouring rushes). Lycopodales -
Sphenophyllales (extinct) spore reproduction.
Spermatophyta, (seed plants)
Gymnospermae, (naked seed)
seed ferns (extinct)
Cycads, ie. sago palms
Conifers, pine, sequoias, spruce, hemlock, cedars. etc.
Ginkos

Glossary continued

Angiospermae, (enclosed seed) flowering and fruiting plants
Monocotyledons, grasses, palms, lilies, orchids, irises,
etc.
Dicotyledons, beans, peas, roses, apples, sunflowers,
buttercups, etc.

48. Primates, an order of mammals including man, the various apes, monkeys, lemurs, and similar forms.
49. Radioactivity, the emission of energy or particles from an element or isotope (variety of the element having a different atomic weight) causing a change called radioactive disintegration. The half-life of a radioactive mineral is the time required for radioactive decay of $\frac{1}{2}$ of the element. The disintegration rate is constant under all known conditions making it a useful radiometric (measuring) tool.
50. Reef, sedimentary accumulation or build up of shell parts of usually marine organisms forming a mound or ridge.
51. Sedimentary rocks, formed from the mechanical (clastic) or chemical decomposition products of pre-existing rocks. The consolidation or lithification of loose sediments to sedimentary rock occurs by cementation, compaction (pressure) to bring particles closer together, and sometimes heat and chemical reactions.
ie. sandstone from sand, shale from silt and clays, limestone from chemical and organic deposits, conglomerates from gravel and unsorted rubble, and organic deposits such as coal and diatomite.
Limestone deposits have a special significance in the carbon dioxide (CO₂) balance of the air.
52. Seismograph, a device for recording waves from earthquake activity.
53. Shield, the Precambrian mass of a continent on which sedimentary rocks are deposited.
54. Soil, is formed from the decay of fresh rock to subsoil with a further transformation by chemical and biological activity to topsoils. Soils are classified according to the parent materials, textures, colors, maturity, and the type of crops that grow on them.
55. Strata, plural of stratum. A single layer of homogeneous or gradational lithology.
56. Stratification, the characteristic structural feature of sedimentary rocks produced by the deposition of sediments in groups,

Glossary continued

Formations, members, beds, layers, strata, laminae, varves, lenses, wedges, and other tabular rock units. Stratification stems from many causes; differences of texture, hardness, cohesion or cementation, color, mineralogical composition, and internal structure.

57. Stratigraphy, the branch of geology dealing with the order and relations of the strata of the earth's crust.
58. Structural geology, (tectonics and tectonic geology) the study of the architecture of the earth as caused by earth movements resulting in folds, joints, faults, and cleavages of rocks of the crust and movement of magma. Folds (anticlines and synclines) are upward and downward depressions or bends in rock layers or beds. Joints are fractures (cracks and crevices in rocks without displacement). Faults are fractures with displacement occurring vertically (gravity fault), at low angles (reverse or thrust fault - over-thrust) or longitudinal (strike faults). Cleavage is splitting along a certain plain.
59. Superposition, the natural order in which rocks are deposited in beds one above the other. The law states that older beds were laid down before the younger beds above. Assumptions begin when attempting to determine the time of deposition and in the superposition of strata into a geologic column.
60. Uniformitarianism, a doctrine based on the supposition of James Hutton, published in his 1785 "Theory of the Earth", that the present is the key to the past and that given sufficient time, processes now at work could account for all the geologic features of the globe. It has now gained universal acceptance among the wise of this world and is the basis for interpreting the geologic record.
61. Varves, stratified deposits reflecting yearly seasonal cycles.