Creation vs. Evolution

0. Introduction and table of contents

The following is an organized presentation on the creation vs. evolution controversy. This is the fourth revision of a set of essays which I had originally submitted in note 840 of the now-archived Christian_V5 conference, with first revisions submitted in note 24 of the Christian_V6 conference and note 35 of the Biology conference, and second and third revisions submitted in note 25 and 640 of the now-archived Christian_V7 conference as of this writing, respectively. (These are employee-interest forums at my place of employment.)

It is my hope that this will provide a logical and coherent framework for defending the fact of special creation and the abrupt appearance of life on earth against the popular dogma of evolution.

"Always be prepared to give an answer to everyone who asks you to give the reason for the hope that you have." (1 Pet 3:15)

Table of contents:

● 0. This introduction and table of contents
● 1. An abstract of the presentations to follow
● 2. A defense of Creation
● 3. "Chance" is not a cause
● 4. Life from non-life: Spontaneous Biogenesis?
● 5. Random genetic mutations
● 6. Natural Selection
● 7. Genetics and Micro-evolution
● 8. What about Taxonomy?
● 9. Transitional forms
● 10. The fossil record of life forms
● 11. Fossilization
● 12. Stratified layers of rock containing fossils
● 13. Uniformitarianism vs. Catastrophism
● 14. Radioisotope dating methods
As a preface to this document, I want to point out that it is a shame that we have to continue to refute the same arguments that evolutionists keep bringing up over and over again in their attempts to argue against the fact of creation, which fact has been well established since the day the earth was created ex nihilo several thousand years ago. Nevertheless, the neo-Darwinian dogma of the spontaneous auto-organization of random chemicals into complex biopolymers, by chance forming complex self-replicating automatic machines that then evolve into more and more complex self-replicating automatic machines through genetic transcriptional errors and the injection of random noise, filtered into highly coded information and structures by predators, the climate, and other mindless agents working together to produce an ecosystem capable of sustaining and improving all these countless life forms for billions of years has managed to permeate, over the last 150 years, the thinking in major scientific circles, the media, and secular education, even penetrating some professing Christian institutions.

It is also a shame that the masses have bought all this based on some circular reasoning about fossils, where fossils tend to be found buried, similarities between various life forms, the presence of certain decay products in rocks, and other inherently speculative arguments about the past, based on phenomena that exist in the present.

If I hope to accomplish anything, it will be to simply encourage critical thinking. One must get past the arguments ad populum (that its popularity counts for something), ad hominem (that if you attack the person making the argument, this counts for something), and especially ad baculum (that there are people who have the clout to decree it as true), to ask the key questions and challenge the unsubstantiated assumptions and thinking of those who would hold to the evolution position. Today there are an increasing number of anti-creationist authors who are producing books and periodicals that make this relatively brief presentation insufficient to deal with all the points in dispute. Those defending creation today
who don't have the time to devote their life's study to gaining expertise in all fields of inquiry must principally be prepared to think critically, logically, and challenge unsubstantiated assumptions made by these people. They must also keep a level head in the face of some vicious attacks and diatribes that will be directed against them, as is advised in the scriptures (1 Peter 3:15-16).

By way of definitions, I want to point out that when I speak of "evolution," I am referring to the popular contemporary use of the word, which in a nutshell is the belief that all life forms are related by ancestry, and that the first life form occurred spontaneously, all due to completely natural processes.

When I speak of "creation," I am referring to the inherently obvious fact that the origin of all life forms can be attributed to a creator who purposefully created them with planning and intent, and the documented fact that this occurred over the course of a week's time several thousand years ago.

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The originality of content of this document ranges from mere paraphrases of material from a wide assortment of authors to entirely original material that I have not seen expressed by any other author. The mix is probably about 50/50.

I should point out that I do not consider myself an authority on the leading edge of modern creationism, although it may seem so to the uninitiated. Those wishing to be on the forefront of knowledge must look beyond this paper. I am not a scientist, but an engineer by education and profession. Even so, it is my conviction that no substantial scientific training or experience is required to confront evolutionism and defend recent creation.

I wish to thank my critics, especially those anti-creationists whom I have encountered along the way, for helping to expose deficiencies in my presentation, which has contributed greatly to the continuing refinement of this document. I also wish to thank those who have encouraged me by telling me that this presentation has made a difference.
1. An abstract of the presentations to follow

This is an abstract of the presentations on the creation/evolution issue that follow:

As design demonstrates the existence and capability of a designer, the inherent design in life, the earth and the universe implies the existence and capability of its Designer. The best source of information regarding a design can be had by inquiring of the designer. A designer provides better and more authoritative information about his design than the design does about itself. In the case of life on earth, the Designer has unmistakenly identified Himself and revealed specific information about some of the circumstances surrounding creation. (See 2. A defense of Creation)

Chance does not cause anything. In fact, within the laws of probabilities and statistics we should not expect order and selection to be the result of "random" processes. Order and selection are the result of directed, non-random causes. (See 3. "Chance" is not a cause)

Living matter does not and could not have been spontaneously generated from non-living matter. The laws of biochemistry, probability and statistics, and basic information theory are against it. It has never been demonstrated in the laboratory. (See 4. Life from non-life: Spontaneous Biogenesis?)

Effects caused by random genetic mutations (that is, those that are phenotypically expressed) are almost always bad. Once in a while they produce some interesting benign abnormalities. But no one has ever shown them to be beneficial, so as to result in complex and sophisticated designs. (See 5. Random genetic mutations)

The "survival of the fittest" clause is a tautology and success does not imply complexity. Natural selection shouldn't be expected to result in functionally different or more complex designs. Putting natural selection together with random genetic mutations doesn't help matters. (See 6. Natural Selection)

Genetics disproves evolution. Animals vary based on coded genetic information that is already there. This is the principle of micro-evolution, which has been verified by the scientific method. (See 7. Genetics and Micro-evolution)
Similarity does not imply ancestry. The animals don't have ancestral dates attached to them. Evolutionary taxonomy is an effort based purely upon speculation and prior acceptance of the evolution model. (See 8. What about Taxonomy?)

Any discussion of "transitional forms" is based purely upon speculation and conjecture, and is therefore moot and useless. (See 9. Transitional forms)

The fossil record of life forms does not support evolution. The animals now fossilized were as complex back then as they are today. They seem to have appeared abruptly. The fossil record is consistent with creation according to separate kinds. "Hopeful monster" theories are without foundation and fallacious. (See 10. The fossil record of life forms)

The fossils themselves don't have dates attached to them. Furthermore, the process of fossilization should not be expected to occur gradually, but better fits within the model of a geological catastrophe. (See 11. Fossilization)

Burial order does not imply ancestry. The various stratified layers of rock do not have dates attached to them. The ordering of fossils within them are best modeled as a consequence of a geological catastrophe. The ordering is also too inconsistent to fit within the evolutionary model. (See 12. Stratified layers of rock containing fossils)

There is no basis for assuming uniform geological processes and ruling out catastrophic events. There is no basis for even assuming the uniform and consistent application of natural law throughout all time. Uniformitarianism is an ideology without a foundation. (See 13. Uniformitarianism vs. Catastrophism)

Current methods for dating rocks and organic material using radioisotopes involve many assumptions about initial conditions and the environment that are not known. The dating results are inconsistent. Objects known to be young have been dated using these methods with erroneous results. These dating methods therefore cannot be considered reliable. And even if they were reliable, age does not in principle imply ancestry. (See 14. Radioisotope dating methods)

Many dating methods exist which would similarly suggest that the earth is thousands, not billions, of years old. While these methods also have their own set of unverifiable assumptions, they invalidate, or falsify, the few dating methods that would seem to suggest an old age for the earth. (See 15. Dating methods that suggest a young earth)

There is no substantial evidence for the existence of ape-men, or any hypothetical
sub-human ancestor of man. As far as we know, there is, and has always been a single species that was totally human since the beginning. There also exist and have existed various species of apes, some extinct, and some still living. Perhaps there might also have existed some degenerate or diseased descendants of modern man. (See 16. The "Ape-men")

Science is limited to the study of natural phenomena and is not sufficient to evaluate the issue of either creation or evolution. Nevertheless, the fact of creation is obvious. In conclusion, it may be stated that the overwhelming evidence points to creation and rules out evolution. (See 17. Science)

Faith is "confident belief, trust," "being sure of what we hope for and certain of what we do not see." To believe evolution over creation one must ignore the overwhelming evidence available for creation. It is better to place our faith in the Creator, rather than the creation. (See 18. Faith)

Rebuttals are provided to common objections to the design argument and chance argument. (See 19. Some objections to the design/chance arguments)

A quantitative comparison is made between a hypothetical message from outer space and the complexity/coding of a living structure, demonstrating that if one accepts purpose, planning, and intent as the cause for one, then one is compelled to accept purpose, planning, and intent for the other. (See 20. Extra-terrestrial intelligence)

A resource list of books, pamphlets, tracts, videos, magazines, and research organizations is provided for further reference. (See 21. Resource list)

A list of primary source documents cited by the secondary sources is given for footnoted points in essays 14., 15., and 16. (See 22. Primary source references)

2. A defense of Creation

In the computer industry, we know that any computer system functions according to a design and contains highly coded information. Because of the complexity of this design and the highly coded information, we attribute the origin of design in such a machine to an intelligent designer and coder. In fact, the more sophisticated the machine, the more planning and forethought we attribute to its development and the more intelligence and ability we attribute to the designer. Computers themselves can assist as tools in the process of designing other computers, but ultimately the origin of the design can be attributed to careful planning and intent
apart from the machine and tools themselves or any process of nature.

No one would suppose that something as complex and sophisticated as a computer happened together by chance or by natural processes. This idea would be considered an absurd proposition. So it is with life forms on earth.

Life on earth is far more complex than computer equipment. In fact, the collective know-how of the greatest minds in all of human history have failed to produce a machine of the sophistication and success of even the simplest replicating life forms. The inherent design in the life forms on earth and the coded information contained therein must be attributed to a designer of vastly superior intelligence and ability than man.

It is set forth here as something obvious that design proves a designer and coded information proves a coder. We simply conclude from consistent life-experiences that when we stumble across something that has design, this demonstrates the existence of a designer, and likewise that coded information demonstrates the existence of a coder. From consistent experience we also know that a creator is not the creation, but that a creator exists outside his creation. The evidence in the world around us, by itself, is reason for us to deduce the existence of a Creator, who exists outside of his creation. (See Rom 1:19-20, Heb 1:3)

I am an engineer by trade. If I want to find out how a particular piece of computer equipment was designed, I can go about it in a couple of different ways. One thing I can do is examine the piece of equipment, taking it apart, measuring it, etc., to try to come to a conclusion about what makes it tick. The other thing I can do is go find the designer and either talk to him or consult the blueprints and other documentation associated with the device. Of the two methods, the source of the most authoritative information is to consult the designer and his documentation.

From the principle that the design in life forms today demonstrate the existence of their creator, the surest way to resolve the creation/evolution controversy is to see if that creator has revealed specific information about the circumstances concerning the implementation of the design.

Written testimony from the Creator includes things like the following (paraphrased): "I am the only God who ever existed or ever will. There is no other god besides me." (see Isa 43:10); "I created the universe by myself. There was no one else with me when I did it." (see Isa 44:24); "God created the heavens and the earth in six days"; "God created each animal after its own kind." "God created the first man Adam from the dust of the ground, and the first woman Eve from the first man's rib" (see Gen 1-2).
Now, anyone can claim to be the creator, and anyone can fabricate information as if it was from the creator. One of the important things we must look for is evidence that a piece of spoken or written testimony really did come from the creator.

As Creator, God has validated his testimony by causing things to happen in his creation which are specifically intended for us to take note of his existence and his specific revelation to us. We call these phenomena "miraculous" because they are supernatural phenomena.

Examples of God's supernatural intervention are such as: Parting the Red Sea, allowing a virgin to conceive, saying that he will flood the whole earth, then doing it; predicting events in the future with 100% accuracy; incarnating himself as a man, allowing his body to be killed and buried, then raising himself up from the dead after three days. Multiple witnesses have seen these things happen and heard the Creator speak and have written them down as reliable testimony which we can now refer back to. Such events are not considered natural phenomena, and so by definition fall outside the realm of scientific inquiry.

Keep in mind that in accumulating information, we rely largely on indirect information about what people have observed. Even a scientist does this, and an evolutionist does too. An evolutionist cites most of his information from written or spoken testimony by people who have observed things, and a minority of information from personal experience. Just like a creationist.

An adequate defense of the authenticity and reliability of the ancient historical records that make up what we now call the bible is beyond the scope of this document, so will have to be assumed as a premise. Although the bible is not required to defend the fact of creation and the existence of the Creator, it is required to defend the historical time frame and circumstances in which creation happened and the identity and personality of the Creator.

We conclude that life on earth came about by a special creative act of God. A whole set of life forms, including man, was created at once. This happened on the order of several thousand years ago, and the process took less than a week. We don't fully understand all the "hows" and the "whys" in every detail, but we pursue further knowledge given those details that we are sure of, accepting the authority of what the Creator has to say over the more limited information we obtain by examining His creation. The Creator is more knowledgeable, and none of us was there to observe life come about on earth.

Hopefully this not only provides a defense for "creation," but also explains why "creationists" are always appealing to the Creator (God) and testimony that comes
from Him (the Bible). Because if you really want to know about how something was designed, it's best to first consult the person who designed it.

References: 44

3. "Chance" is not a cause

"Chance" does not cause anything.

If I flip a coin, you might say that there is a 50% chance that it will come up heads and a 50% chance that it will come up tails. But this is only an observation, not the cause for it to come up heads or tails.

Say I flip a coin and it comes up heads. What was the cause for it to come up heads? Consider: We understand the laws of motion, statics and dynamics, friction, etc. If we could analyze each aspect of the position of the coin in time and space, and take into account all the forces that act upon the coin, we would conclude that the coin is doing just what it is supposed to do under the circumstances. In fact, if I could set up all the same conditions and flip the coin again in exactly the same way, it would by necessity come up heads each time. It would take a miracle for it not to.

The fact of the matter is that I am too clumsy and lack the skill and ability to cause a coin that I flip into the air to come down in any particular way. So we conclude that there isn't enough intelligence and skill behind my coin flips and consequently we expect a random distribution of results. We conclude that it is my lack of skill and ability that will result in disorder and chaos.

Probabilities and statistics are mathematical observations of things. For things that seem to occur in a random way, we attempt to predict an outcome using a mathematical model. If the results don't fit the model, then we must conclude that either we have done our math wrong or the thing just isn't behaving in a random way. In the case of a sequence of coin flips, you expect chaos and disorder in the long-term, producing a random sequence of heads and tails.

Suppose I announce that I am going to repeatedly flip a coin and hope to come up with a sequence of all heads. So I proceed to flip the coin, and it comes up heads. You say, "OK." I flip it a second time, and it comes up heads again. You say, "OK." I flip it again, and it comes up heads again. You say "Hmmm, OK." Say I flip it again, and it comes up heads a fourth time. You say "Hmmm." Say I flip it again, and it comes up heads a fifth time. You say "Wait a minute, what's going on here?" I flip it again, and it comes up heads a sixth time. You say "Stop, this isn't
fair." I say, "Why?" You say, "It isn't random. You're doing something to make that coin come up heads each time." I flip it again, and it comes up heads a seventh time. I say, "Look, millions of people have flipped coins throughout history. This was bound to happen sooner or later." I flip it again, and it comes up heads an eighth time. You say, "Come on, what are you doing?" I flip it again, and it comes up heads a ninth time. I say, "Nothing. Really! I'm just flipping this coin and it keeps coming up heads by chance." I flip it again, and it comes up heads a tenth time. You say, "You're a liar. What do you take me for, some sort of fool?"

Now, if it is true that a million people have tossed coins throughout history then maybe you should have waited until at least 20 throws (since $2^{20}$ is a million), before even considering crying "foul." But most people, in fact, won't. Why did the observer in the above example not wait that long? Because after 10 tries he concluded that he could call the coin-thrower a liar based on the non-random results. Statistically, he would have only 1 chance in a thousand of being wrong!

Given the immensely lower probability of things happening in the evolutionary scheme of things, one should conclude (to be consistent) that evolution didn't happen. That person would have a 1 in $1000000000000...$(fill in some enormous number of zeros)...0 chance of being wrong, solely on the basis of sheer probabilities. In any case, this person is not to be taken for some sort of fool.

References: [36]

4. Life from non-life: Spontaneous Biogenesis?

In considering creation/evolution, we must keep in mind that "chance" does not cause anything. A person defending evolution often excludes an intelligent creator as an explanation for the cause of things happening, and in the void substitutes "chance." But "chance" can be one of the evolutionist's worst enemies.

First of all, what the evolutionist's "chance" creates (figuratively speaking), the evolutionist's "chance" ought to destroy, in the long run. Chance is equated with randomness, and randomness is equated with disorder and chaos. Life on earth is an example of incredible order and complexity. What, then, was the cause for this order and complexity?

The classic evolutionary concept of spontaneous biogenesis involves living matter coming about from non-living material by chance. For example, let us suppose that in a hypothetical primordial atmosphere, ammonia, water, methane and energy can
combine to form amino acids. That this first step can happen is indisputable and has been verified through laboratory experiment (such as in the famous Miller/Urey experiment of 1953). However, to proceed beyond this point to living proteins by chance would involve a major miracle of such great proportion that one would think it easier to just accept the obvious (that it didn't happen "by chance").

Amino acids are molecules that have a three-dimensional geometry. Any particular molecule can exist in either of two mirror-image structures that we call left-handed and right-handed (in layman's terms). Living matter consists only of left-handed amino acids. Right-handed amino acids are not useful to living organisms, and are in fact often lethal. The random formation of amino acids produces an equal proportion of left-handed and right-handed molecules. This has been confirmed by laboratory experiment and is essentially what Miller produced in his famous test-tube experiment (putting methane, ammonia, and water together and zapping them with electrical discharges.)

Life as we know it cannot consist of a mixture of left-handed and right-handed amino acids. So it would take an enormous sequence of coin-flips (in which the coin came up heads each time) to come up with a protein that could constitute living matter. Yet there is more.

Proteins consist of amino acids linked together with only peptide bonds. Amino acids can also combine with non-peptide bonds just as easily. In fact, origin-of-life experiments in the laboratory yield only about 50% peptide bonds. So, it would take another enormous sequence of coin flips to come up with a protein that could constitute living matter. Yet there is more.

Any particular protein contains amino acids that are linked together in a particular sequence geometrically. At a minimum, that sequence must be correct for any given protein at all the active sites which comprise about half of the amino acids in the protein. Proteins contain anywhere from 50 to as many as 1750 amino acids, depending on the particular protein.

There are about 20 common amino acids that comprise the basic building blocks of life. Any particular protein must have all the correct left-handed amino acids joined with only peptide bonds with the correct amino acids at all the active sites. Yet there is more.

Let us consider the sequence of chemical reactions necessary for us (or rather, "nobody") to produce one particular protein contained in living matter: One amino acid can combine with another amino acid in a condensation reaction to produce a peptide (two amino acids linked with a peptide bond) and water. One peptide can
combine with another peptide in a condensation reaction to produce a polypeptide and water. And so goes the sequence of chemical reactions that supposedly can produce one protein essential to living organisms that can reproduce. Let's stop again, and consider what has happened thus far.

Each condensation reaction described above is reversible. That is, it can occur in either the forward or the reverse direction. That means that "randomness" would be consistent with things breaking down as they are being put together. But to top it off, the popular scenario involves things happening in a primordial sea, implying an excess of water. Since a condensation reaction produces water, and there is already excess water in the presence of the chemical reaction, there is much more opportunity for any complex molecule to break down into the more simple ones. Thus, a polypeptide should combine with excess water to produce monopeptides, and a monopeptide should combine with excess water to produce amino acids. The initial reagents of the supposed equations that are given as a pathway to life are favored, in the presence of excess water. Yet there is more.

Amino acids can react and form bonds with other chemical compounds, and not just other amino acids. Assuming that there is more in our "primordial sea" than just amino acids and water, we will encounter scenarios where these other reactions will take place instead of the ones we want to produce a protein.

An oxygen-rich atmosphere, such as we have today, is one example of what would ruin the chemical reactions proposed for the origin of life. It is for this reason that we have the Oparin Hypothesis, which states that the atmosphere must have originally been reducing, rather than oxidizing, containing very little free oxygen and an abundance of hydrogen and gases like methane and ammonia. Circular reasoning is employed to defend the Oparin Hypothesis.

The above only considers the formation of a single protein, not to mention that there are many different kinds of proteins necessary to form the simplest single-cell organisms. And we haven't even begun to address the formation of the various nucleic acids and other chemical constituents of life, which must be simultaneously present (by "chance"). Finally, all these must occur in a specific arrangement to form a complex structure that would make for a reproducing organism (by "chance").

Many evolutionists are now proposing that not proteins, but DNA or RNA occurred first. Consider that this is moot, since the same amount of information must be coded into the nucleic acid to synthesize a protein as is represented by design and structure of the protein itself. This makes such scenarios to be at least as unlikely.
The spontaneous organization of nucleic acids into DNA or RNA suffers in concept from the same problems that the spontaneous organization of amino acids suffers from. All nucleic acids must be right-handed, form particular bonds, in a particular arrangement, in chemical reactions that proceed in a particular direction and aren't spoiled by other chemical reactions.

Some evolutionists are proposing that life originated not in a primordial sea but on some clay template. Again, this is moot, since the clay template must by necessity be as complex as what is formed on the template. This makes such scenarios to be at least as unlikely. Furthermore, the evolution of informational "defects" in the crystalline structures of clays has never been observed or demonstrated in theory. Shifting the medium for evolution from biological molecules to polyaluminum silicates solves nothing.

The classic examples given for the formation of some of the basic building blocks of life by chance therefore lacks substance on a theoretical basis both according to the principles of chemistry, the principles of probability and statistics, and the principles of basic information theory.

Without proper theoretical or experimental basis, a scientific hypothesis cannot be supported. The formation of living matter from non-living matter by chance remains within the realm of speculation without foundation.

References: 1, 2, 7, 20

5. Random genetic mutations

Most of us understand that the information that represents the data and instructions for a computer program has a particular code, designed specifically by the software engineer. What would we expect to happen if, once the program was loaded and running, we zapped the binary image from which it was executing with a random change of some data bit?

In most cases, the program would probably crash or seriously fail to accomplish anything useful. In some cases, the program might continue on oblivious to the change. In a very few cases, the program might exhibit some interesting aberrant behavior. But in no cases would we expect to get a more complex program or a program of a totally different kind.

So it is with random genetic mutations. Life forms are more complex than any computer program that we have ever designed. Random genetic mutations are bad.
When they have an observable effect (i.e., are phenotypically expressed), they are almost always to the detriment of the organism, killing it, maiming it, making it sterile, etc. Sometimes, interesting aberrations are the result. But never has anyone demonstrated that a mutation has benefitted an organism in such a way as to create an innovative function or a more complex or different kind of life form.

"Chance" does not cause anything. Things that are caused by processes that we observe to be "random" we associate with increasing disorder, not more complex design.

Random genetic mutations are claimed to be a key factor by which simple life forms evolve into more complex ones. A scientific hypothesis is tested through laboratory experiment/observation and theoretical analysis. Regarding random genetic mutations being a plausible factor for evolution to occur, we may conclude the following:

- In a theoretical sense, the claim fails based on sheer probabilities and statistics. Randomness is associated with disorder, and disorder is not associated with selection.
- In an empirical sense, the claim fails, since no one has demonstrated that random genetic mutations have created innovative functionality. They have never been observed to create more complex or functionally different kinds of life forms.

When considering the idea of "beneficial mutations," keep in mind that mere reproductive success in the presence of a particular environment is not sufficient to account for innovative functionality and increased complexity. One can imagine a scenario where a runaway computer program, as a consequence of its malfunction, begins to consume system resources beyond what it was designed to, even getting in the way of the proper execution of other programs that are also running under the same operating system. That program may have been more than successful in its own right, but it experienced a deterioration of function that was not advantageous in the grand scheme of things. Cancer within living organisms is a good example of this in biological systems.

Sickle-cell anemia is an example of a mutation which gives one a reproductive advantage over normal people in scenarios where malaria is rampant, because people with sickle-cell anemia aren't as susceptible to malaria. But sickle-cell anemia itself is a lethal disease and represents a deterioration of function when compared with a normal person who has no disease. If malaria became so rampant in the world that only people with sickle-cell anemia survived, then the final population would be worse off functionally than the non-mutant population that lived before the plague hit. This is not "evolution."
The important thing to remember is that random genetic mutations are the consequence of transcriptional errors and random noise corrupting highly coded information. In the long run, living things should be expected to deteriorate as a whole, implying the reverse of evolution. If anything, the complex should evolve into the simple.

References: 13, 14

6. Natural Selection

The concept of natural selection involves a tautology and is not a cause that would be expected to result in different or more complex designs.

A tautology is a statement that includes all possibilities and is therefore useless. A tautology cannot be used in defense of a position since it is a restatement of the obvious and contributes no useful information.

Here is the "survival of the fittest" tautology:

Q: Who survives? A: Why, the fittest do, of course!
Q: And what do the fittest do? A: Why, they survive, of course!
Q: And who are the survivors? A: The fittest.
Q: And what do they do? A: Survive!

Every instance of an animal living or dying can be explained by the "survival of the fittest" clause, regardless of whether evolution or creation actually took place.

Consider how natural selection applies even in the computer industry, where we know the origin of things. The good computers sell and people buy the good computers. The lousy computers don't sell, and people don't buy the lousy computers. The proliferation of the best computers and the extinction of the worst is observed. And lo and behold, the computers have actually gotten better and more sophisticated. But this is not an explanation for the origin of the the computers and their inherent functionality, but only their survival in the marketplace. In each case, every aspect of the sophistication and complexity of a computer can be attributed to intelligent design by actual designers.

The neo-darwinian evolutionist should be challenged to explain by what process of nature the innovative functionality of life forms originates. Predators eating prey is not a vehicle for the origin of any innovative functionality, but only its possible destruction if one trait should be driven to extinction. And random genetic mutations should be expected to corrupt the existing coded genetic information.
Furthermore, the animals, their predators, cosmic radiation, harmful chemicals, and genetic transcriptional errors have not been shown to be working in some sort of grand coalition with each other towards a common engineering effort.

This last point is worth repeating, for evolutionists tend to provide an evasive justification based upon random genetic mutations and natural selection. When it is pointed out that random genetic mutations are but meaningless noise, the evolutionist counters that natural selection filters it into something useful. When it is pointed out that natural selection doesn't provide any new genetic codes, the evolutionist counters that new information arrives through genetic mutations. But genetic errors, cosmic radiation, and other natural environmental influences are random, and predators are self-serving, merely purposing to kill and eat those less fit to survive, leaving alone those who are more fit to survive. And the mere fact that these survivors are successful in the fight for survival doesn't compel them to be endowed with new functions and codes that weren't there before. In fact, we should expect just the opposite in the presence of cosmic noise.

Success does not imply complexity. Evolutionists should be challenged to explain why higher life forms, such as humans, are compelled to exist just because certain lower life forms, such as bacteria, are successful in the fight for survival.

Since neither natural selection nor random genetic mutations nor the two put together have been demonstrated as a vehicle for the design of innovative functionality, the concept of neo-darwinian evolution (design by mutation + natural selection) cannot be supported, scientifically or otherwise. We should instead expect variations in animals that are limited to already-existing genetic information.

In the long run, the opposite of evolution should be expected to occur as the total pool of highly coded genetic information is gradually corrupted. Complete extinction of all life forms is the ultimate end, as the pool of genetic information finally deteriorates into random data that is no longer useful to fulfill any purpose whatsoever.

References: 8

7. Genetics and Micro-evolution

Genetics disproves evolution.

Given that neither random genetic mutations, nor natural selection, nor both put together can be considered a vehicle for one kind of animal to change into a
functionally different or more complex kind of animal, then variations in interbreeding animals must be restricted to what is already in the gene pool.

One classic example given for evolution is the peppered moth. In the mid-19th century, 98% of peppered moths were light. The light moths blended in well with the mottled gray lichen on the trees. With the industrial age, pollution killed the lichen on the trees, making them dark. Birds selected the light moths for their meal and overlooked the dark moths. By the mid-20th century, 98% of the moths were dark.

Question: What did the peppered moth evolve into?
Answer: A peppered moth.

Each species of animals has a gene pool. A gene pool is simply all the different genes that all the members of a species collectively has. Already-existing genetic information allows for variations to occur among members of that species as individuals within that species interbreed. In the case of the peppered moth, the genetic information already existed in the gene pool, and one genetic trait became more common in the population as a result of the changing environment and the fact that birds use their eyes to spot their food.

Variations such as this demonstrate the concept of what is often referred to as "micro-evolution." A scientific hypothesis is verified through theoretical analysis and laboratory experiment/observation. Micro-evolution can be demonstrated in theory (according to the rules of genetics) and in practice by observation.

It is important not to quickly jump to the conclusion that any particular beneficial trait was due to a mutation. Already-existing genetic information can find latent expression in the presence of new environments. Also, there are genes that can turn on and off upon being subjected to a particular environment. Evolutionists cite all sorts of alleged examples of beneficial mutations. The burden of proof is on them, however, to show that a particular beneficial trait was a mutation to begin with.

It should also be noted that sometimes animals within one species form distinct groups which no longer interbreed. Since the word "species," by definition, is a group of animals which interbreed, you might say that new "species" of animals have been formed. Does this demonstrate evolution?

No it does not. In fact, this also works to disprove evolution. Evolution requires that the gene pool be expanded to allow for more variations to occur. Instead, what has happened here is that the gene pool for each of the splinter groups has gotten smaller. Each new group has a smaller set of genetic traits in its collective pool of genes, and so will now exhibit less variation over future generations. Since less
variation means less of an ability for the new species to collectively adapt to its environment, then we should expect a greater likelihood of extinction (not evolution) to occur if this process of speciation is taken to its limit.

The important thing to remember in all of this is that the genetic information was already there from the beginning. And further advances in selective breeding and genetic engineering will only further disprove evolution by demonstrating that such selective changes in life forms requires planning and intent.

References: 14, 37

8. What about Taxonomy?

Similarity does not imply ancestry.

Taxonomy involves classifying animals according to their physical or genetic characteristics. There are countless species, and among them there are many similarities, physically and genetically.

One who is an evolutionist tends to look at the similarities and conclude that there must be common ancestries between various kinds of animals.

One who is a creationist tends to look at the similarities and conclude that there must be a common designer and design principles for all the various kinds of animals.

In both cases, the conclusion is based on prior acceptance of either the principle of evolution or creation.

Correlation does not imply a cause-effect relationship. If two life forms "A" and "B" are similar, this does not imply that "B" evolved from "A," any more than it implies that "A" evolved from "B." Evolutionary charts drawn up to illustrate ancestral relationships between all the various life forms are therefore entirely hypothetical and speculative to begin with. And it would be circular reasoning to argue that the charts support evolution.

The important point to keep in mind is that all the animals exist in the present. Fossils also exist in the present. We weren't there to observe either evolution or creation happen. So similarities between species do not demonstrate that either creation or evolution happened.
9. Transitional Forms

The issue of whether or not "transitional forms" exist is not a productive topic to debate in the creation/evolution controversy.

Some evolutionists use similarities between three particular animals to argue that animal A evolved into animal B based on the fact that animal X exists.

Some creationists use the dissimilarities between these same animals to argue that animal A did not evolve into animal X and animal X did not evolve into animal B.

Said evolutionists keep seeking to justify their "transitional forms" on account of the similarities and despite the differences.

Said creationists keep seeking to rule out "transitional forms" on account of the differences and despite the similarities.

Anything is good enough for the evolutionist, and nothing is good enough for the creationist. Neither will ever satisfy the other or a discerning observer.

A scientific theory is validated through experimental observation and/or theoretical evaluation.

Neither party actually observed the origin of animals A, B, or X, so neither party is qualified to argue scientifically from an experimental perspective whether or not animal X is a "transitional form."

Neither party can justify the origin of animals A, B, or X from a theoretical perspective, since no scientific theory exists to explain why animals A, B, or X must exist with their particular characteristics.

It can be concluded that a discussion of "transitional forms" is moot and useless.

10. The fossil record of life forms

The fossil record of life does not support evolution.

The fossils which are found in what are usually considered the lowest deposits are alleged to belong to the Cambrian era of approximately 800 million years ago. In these rocks are found the fossils of various shellfish and crustaceans, sponges, worms, jellyfish, and various other complex invertebrate life forms.

If you were to go scuba diving today, explored the bottom of the ocean, and then
explored a hypothetical ocean full of the life forms that are now represented by Cambrian fossils, you would probably not be able to tell the difference, except that many species have now become extinct (e.g. trilobites). In all, you would find fewer life forms today than you would in this "fossil ocean." This in itself would suggest the opposite of evolution.

Charles Darwin actually represented the fossil evidence as being a hostile witness to his theory, as documented in his famous book *The Origin of Species*. He claimed that the abrupt appearance of life and lack of transitional forms was the most serious objection to his theory.

However, it should be noted that the fossil record of life-forms does not prove either evolution or creation, even though it is most consistent with the latter. Neither does the fossil record disprove either evolution or creation. The fossils that exist, exist in the present. And the fossils that don't exist prove nothing. We weren't there to observe either creation or evolution happen. Prior belief in either evolution or creation determines how one interprets the data, whether it be eons of evolutionary history preserved in gradual deposition or catastrophic burial from a worldwide flood.

Today, some evolutionists have even turned to other theories, such as the "hopeful monster" theory, in which Ma and Pa X-o-saur simply give birth to a Z-o-pus (without proposing the vehicle by which such a thing could happen, or explaining where said Z-o-pus would get its mate). Another proposal is the "life seeded by aliens from outer space" theory, which also has no foundation and just shifts the problem to some other planet.

References: [14](#)

### 11. Fossilization

"But doesn't the existence of fossils demonstrate that life has been around for hundreds of millions of years?" No it doesn't.

When we talk about fossils, we usually refer to the petrified remains of animals that died a long time ago. It is often claimed that animals which have died fall to the ground and are slowly buried by the accumulation of sediment and fossilized in the process. This is not a reasonable assumption, nor is it supported by experimental observation.

When an animal or plant dies, its remains are quickly eaten by scavengers and decomposed by bacteria, etc. Any remains are also affected by weather. Fish in the
sea that have died usually float to the surface and are soon eaten (as opposed to settling down on the sea floor, waiting to be slowly buried by sediment and fossilized.) How then, should we expect a fossil to be formed?

The most reasonable explanation involves a catastrophe. To get such a fossil, you would have to suddenly and quickly bury the animal under tons of sediment, so that it would be isolated from scavengers and excluded from the effects of weather. Only then should you expect the petrification process to work.

Also, these fossils in and of themselves do not give any indication of the age of the animals that they represent, for they are just impressions of once-living organisms that have died.

Scientists who are not set on ignoring the biblical record generally agree that most fossils are most likely the result of the worldwide flood that is described in the Genesis record, with its cataclysmic geological implications.

Reference: 13, 18, 19, 35

12. Stratified layers of rock containing fossils

Burial order does not imply ancestry.

In many places in the world, you can find stratified layers of rock in which are embedded various fossils. The fossils found in each layer make up an approximately ordered sequence, from the fish in the lowest layers to the land-dwelling mammals in the highest.

The evolutionist and the creationist come up with entirely different stories from this picture, depending on the prior acceptance of either evolution or creation.

The evolutionist pictures a gradual build-up of each stratum, or layer, over hundreds of millions of years of the accumulation of sediment, gradually fossilizing dead animals in the process. The oldest evolved life forms that supposedly arose out of the sea are logically to be found in the lowest layers. The most recently evolved life forms are to be found in the highest layers.

The creationist pictures a global catastrophe (the flood), which over a very short period of time causes the sudden upheaval and deposition of earth and sediment in some geographical areas. This upheaval buries animals in that ecological niche, dumping layer upon layer of sediment on them amidst swirling underwater
currents. The fish are naturally to be found at the bottom because they dwelt in the lowest elevations, in ponds, lakes, and rivers. They were the first to be buried, and the least able to escape the deluge. The mammals are to be found at the top because they lived in the highest elevations in the region, and also were the best equipped to escape the deluge, resulting in them being the last and the fewest to be buried.

The problem with evolutionary thinking is that fossils of various "evolutionary periods" are not consistently found in the proper strata. In many places, fossils representing "more recent" life forms are found in strata far below their supposed ancestors.

The existence of polystratic fossils (fossil life forms that are found buried vertically through several layers of strata, such as trees and long cone-shaped mollusks) also disproves the evolution story, since this would require that the organic remains of such life forms remain intact and unfossilized for millions of years in place above the ground, awaiting the deposition of successive layers of strata.

For the evolutionist, the mere existence of polystrates and fossils of "recent" life forms below the fossils of their "ancestors" disproves their hypothesis. Evolutionists cannot explain polystrates at all, and they resort to theories of "overthrusting" to explain how older strata ends up over newer strata, even though such a phenomena has never been observed, and even though they cannot explain where the geologic forces should originate. Overthrust theories also demonstrate circular reasoning as evolutionists try to use the geologic column to support their theory, then use their theory to explain away inconsistencies in the geologic column.

However, the creationist acknowledges that the ordering would be approximate, based on the chaotic nature of the flood, and that different strata models would be found in different parts of the world, based upon the local ecosystem and what animals dwelt in it. And fossils buried through several layers of strata would obviously not be a problem.

References: 11, 13, 14, 18, 19, 35

13. Uniformitarianism vs. Catastrophism

Uniformitarianism is the philosophy wherein it is assumed that the geologic features of the earth have been laid down through uniform processes, gradual erosion and gradual sedimentation being examples. A philosophical extension of
this principle is that all phenomena in the universe can be explained by the uniform application of the laws of nature; put another way, that all phenomena are natural phenomena. And a philosophical consequence of that principle is that there is no Creator who exists outside of the creation who is able and willing to intervene in the natural order in a supernatural way.

Catastrophism is the viewpoint wherein it is assumed that at least some of the features of the earth have been laid down as a result of a catastrophe. A philosophical extension of this principle is that some phenomena may be explained by exceptions to the laws of nature; put another way, that not all phenomena are natural phenomena. And a philosophical consequence of that principle is that there is the allowance for a Creator who exists outside of the creation who is able and willing to intervene in the natural order in a supernatural way.

Since at least one worldwide catastrophe (the flood) has been historically documented, catastrophism is backed by historical record.

Uniformitarianism has no backing for it. It is just a baseless presupposition. Even if uniformitarianists don’t accept the historical record, they have no scientific basis for assuming that a worldwide catastrophe has not ever occurred.

A scientific theory is validated through theory and experiment.

- No theory exists to show that a worldwide catastrophe cannot occur.
- No experiment has been performed to show that a worldwide catastrophe cannot occur.
- No theory exists to show that all phenomena are natural phenomena.
- No experiment has been performed to show that a supernatural phenomenon cannot occur.

Evolution is defended based upon the assumption of uniformitarianism. Because uniformitarianism is not defensible, therefore its application in the defense of evolution is not valid.

No man was there to both observe and document the formation of the major geological features of the earth. Neither do the features have dates attached to them in any coded form.

The idea of gradual sedimentation and fossilization already mentioned are examples of uniformitarian interpretations. Other examples range from multiple Ice AgeS and plate tectonics, to such cosmological assumptions as that the speed of light has always been the same as what it is now (implying that the universe must be old because it took the light from stars so long to get here. [Note: This
should not be construed as an endorsement of the Norman/Setterfield light-decay theory])

Multiple Ice Ages seem to be a basic assumption in geography books and are spoken of as having occurred in a time frame of at least hundreds of thousands of years, consequently precluding an earth that is only several thousand years old. This is nothing more than an assumption, based on other unverifiable assumptions, including even the assumption that 100,000 layers of ice were laid down annually.

Yet, in the polar ice has been uncovered large coal deposits and the frozen remains of animals and plants which used to live there. The meat of some animals is so well preserved that it has been fed to livestock. Corals, which can only survive at temperatures above 20 degrees Celsius, frozen fruit trees, and other tropical life forms are found frozen in the polar regions.

The interesting thing is that fruit trees have been found frozen with the fruit still on them and woolly mammoths frozen with food still in their mouths. What caused them to freeze so quickly?

Plate tectonics assumes that the continents of the earth are riding upon some huge geologic conveyer belts that meet at the mid-oceanic ridges. But where do the mechanical forces come from to operate such a mechanism? And why are there multiple fractures perpendicular to the ridges?

Scientists who accept creation have suggested some reasonable explanations as alternatives to conventional wisdom. These should not be presented as scientific facts, or even theories, but working hypotheses:

The presence of a vapor canopy over the earth, similar to that found on Venus and Saturn's moon Titan, might have created an incredible greenhouse effect on the earth, making the climate tropical all over the globe. Genesis 1:7 says, "And God made the firmament (expanse of the sky) and divided the waters which were under the firmament from the waters which were above the firmament."

What may be submitted as one alternative to the "gradual ice age" concept is that at the time of the flood there was an immense vapor canopy around the earth which collapsed (the "floodgates of heaven" of Gen 7:11). The polar regions and significantly beyond were soon frozen. In time, the global environment and atmosphere stabilized, and a good portion the ice extending down from the polar regions receded. All this happened orders of magnitude faster than what is now assumed, yielding a single "ice age." After the flood, a rainbow was provided as a sign of God's covenant (Gen 9:13-14). (Underneath a world-wide vapor canopy, a rainbow would not be possible.)
It has been argued, even within the creationist community, that a vapor canopy is not sufficient in itself to explain the worldwide flood as documented in the scriptures. Another alternative is that at the time of the flood, there was an immense subterranean chamber of water ("the fountains of the great deep" - Gen 7:11) which collapsed under the weight of the earth above it, spewing water/vapor and mud into the atmosphere which primed the hydrodynamic cycle and precipitated as rain or was frozen high in the atmosphere and fell to the earth in the polar regions as ice cold enough to freeze animals on contact. Perhaps also coal and oil deposits in the polar regions are there because huge mats of uprooted vegetation *floated* there during the Flood.

This latter scenario, referred to as the "hydroplate hypothesis" contradicts the popular plate tectonics hypothesis (and also possibly the vapor canopy hypothesis). It also explains (hypothetically) many more geologic features of the earth. According to this hypothesis the mid-oceanic ridges are not the intersection of moving plates, but the place where the earth underneath where the layer above the water first cracked and gave way bulged up. The continents are not constantly moving on some geologic conveyer belt, but literally slid on top of the water of the collapsing subterranean chamber to their present locations where they are now nearly motionless. The mountains were formed where the continents eventually hit something and buckled upwards. Paleomagnetic anomalies showing "reversals" (actually not complete reversals in flux, but reversals about an average non-zero flux level) reflect originally magnetized materials that moved away from the mid oceanic ridges. The continental shelf defines the edge of the original plates and is submerged under only shallow water because that is where the edge of the newly-formed continents, rapidly eroded by moving water underneath, submerged and settled.

An adequate description of the hydroplate hypothesis, its geologic implications, and a comparison to conventional geologic explanations is beyond the scope of this document. Furthermore, even within creationist circles there is contention and debate over competing theories. As an example, there also exists a "catastrophic plate tectonics" theory, which is hotly debated against the "hydroplate hypothesis".

The descriptions above are not meant to categorically argue for any particular catastrophic theory, but rather to illustrate that there are alternatives to conventional "scientific" wisdom. This conventional "wisdom," which is presented as dogma, is based upon uniformitarianism, which is not defensible.

In any case, once the allowance is made for an all-powerful creator, it is a small matter to allow for him to have acted supernaturally upon the earth, which means
that a natural, scientific explanation may not even be appropriate.

References: 5, 11, 13, 14, 18, 19, 44

14. Radioisotope dating methods

One of the problems in the creation/evolution dilemma was that we weren't there to observe either happen. Can we determine how long ago an animal lived by examining its organic or petrified remains or by examining rocks found in the vicinity of the dead animal?

Several methods have been proposed for dating of animal remains and rocks by measuring the decay of radioactive isotopes. The general public tends to view them as high-tech "hocus-pocus," so people often aren't prepared to question their validity and tend to assume that the measurements are valid. But are they?

The following are the major radioisotope dating methods and their associated problems.

Carbon-14:

Cosmic rays hit Nitrogen-14 in the earth's atmosphere, producing radioactive Carbon-14. Plants absorb the Carbon-14. Animals eat the plants. Animals eat animals. Eventually all living things are supposed to have the same amount of Carbon-14 in them.

When the animal or plant dies, it quits eating and so takes in no more Carbon-14. The Carbon-14 decays back to Nitrogen-14 over time. Measuring the amount of Carbon-14 left in the animal remains is supposed to tell you how long it has been since the animal or plant died.

It is universally accepted, even among evolutionists, that Carbon-14 is only useful for dating the organic remains of living tissue and that it only works up to about 20, 30, maybe 60,000 years. So Carbon-14 dating is irrelevant to the discussion of the time frame of macro-evolution, which is supposed to have occurred over hundreds of millions of years.

It is assumed that the level of atmospheric Carbon-14 has been constant for tens of thousands of years, when it has only been measured since the early part of this century. This is a ratio of 1/1000 over the span of the proposed measurement period. (Tree-ring dating and other methods of historical dating have provided some corroborating data for some samples, however.)
Things like the strength of the earth's magnetic field affect how much cosmic radiation gets through to the atmosphere (which affects how much Carbon-14 is produced.) The strength of the earth's magnetic field has declined since it was first measured in 1835.

It is assumed that the rate of radioactive decay of Carbon-14 has never changed. However, in the laboratory, it has been demonstrated that the rate of decay of Carbon-14 can be significantly changed by application of an electric potential (specifically, 9 standard deviations for a potential difference of 180 volts in one particular experiment. [1])

It is assumed that no exchange of Carbon-14 between the animal remains and the environment has occurred since the animal died.

Successive Carbon-14 measurements of individual specimens have been shown to produce conflicting results, the differences amounting to about a 1:2 ratio. And dating of specimens of known age has produced erroneous results. For example, why was a fresh seal skin dated at 1300 years? [2] Why was a living mollusk dated at 2300 years? [3] How does an antler end up 5340, 9310, and 10,320 years old at the same time? [4] How does a piece of bark end up both 1168 and 2200 years old? [5] How does a mastodon die from the outside in over a 750 year period of time, 7820 years after it was born? [6] How does the "prehistoric" village of Jarmo in northern Iraq end up archeologically occupied for 500 years and radioisotopically occupied for 6000 years? [7]

**Potassium-Argon**

Potassium-40 decays into Argon-40. When molten lava solidifies, it has some Potassium-40 in it. Potassium-40 trapped in the rock decays into Argon-40. The amount of Argon-40 that has formed in a rock since it solidified is supposed to tell you how long it has been since the rock was formed.

Potassium-40 also decays into Calcium-40. The rate of decay into Argon-40 vs. Calcium-40 is not accurately known. Uranium dating methods (see below) are used to "calibrate" the Potassium-Argon method. So to begin with, Potassium- Argon dating cannot be more accurate than Uranium isotope dating.

It is assumed that no Argon was originally trapped in rock when it solidified.

It is assumed that there was no exchange of either Potassium or Argon between the specimen or its environment since it solidified.
It is assumed that the rate of decay of Potassium-40 has not changed since the formation of the rock. The strength of neutrino flux from cosmic radiation, which is affected by things like supernovas and the strength of the earth's magnetic field, which is known to change, are known to affect decay rates. (Although in this case this does not necessarily explain sufficient measurement error, it does demonstrate again that the rates are not necessarily constant.)

Successive measurements of individual specimens have produced different results, representing inconsistencies on the order of hundreds of millions or billions of years. The difference can be on the order of a ratio of 1:10.

Measurements using Potassium-Argon have produced results inconsistent with those obtained using other radioisotope methods.

Measurements of rocks of known age obtained from recent volcanoes using the Potassium-Argon method have produced erroneous results. Rocks known to be less than a couple hundred years old have been dated at billions of years old.

For example, how does an unweathered underwater lava flow that looks 200 years old end up 12 to 21 million years old? [8] How did the minerals in the Kimberlite pipe in South Africa end up both 68 million and 142 million years old or the ones in the Breccia pipe from Australia end up both 121 and 911 million years old? [9] How come the 1800 Kaupulehu lava flow in Hawaii, which men observed come out of the ground, end up 1 to 2.4 billion years old using Potassium-Argon dating, and 140 to 670 million years old using Helium dating? [10] How did the Salt Lake Crater on Oahu end up 92-147 million years, 140-680 million years, 930-1580 million years, 1230-1960 million years, 1290-2050 million years, and 1360-1900 million years old? [10] How did the 1000 year old (C-14) trees in the Auckland volcanic field of New Zealand get buried under 145,000-465,000 year old (K-Ar) lava? [11]

**Uranium-235**

Similar principles and problems as shown above. Uranium-235 decays into Lead-207, and the amount of Lead-207 is supposed to tell you how old the rock is.

The original content of Uranium-235 vs. Lead-207 is not known. (It is simply assumed that there was no Lead-207 to begin with.)

It is assumed that no Uranium-235 or Lead-207 is exchanged with the environment over the life of the rock. Laboratory experiments have leached Uranium out of some specimens with a weak acid. [12]
It is assumed that the decay rates have always been constant.

Successive measurements of the same sample often produce different results.

Measurements by this method often disagree with measurements using other methods.

**Uranium-238**

Similar principles and problems as shown above. Uranium-238 decays into Lead-206.

**Thorium-232**

Similar principles and problems as shown above. Thorium-232 decays into Lead-208.

**Lead-Lead**

Similar principles and problems as shown above. Lead-207 decays into Lead-206.

**Rubidium-Strontium**

Similar principles and problems as shown above. Rubidium-87 decays into Strontium-87. (It should be noted that the "Isochron" nature of this method eliminates only some of the unsubstantiated assumptions.)

The magnitude of the problem can be easily seen. Many assumptions are made about decay rates, initial conditions, environmental influences, and etc. The results obtained are inconsistent with successive measurements made using the same and different dating methods. Measurements made of specimens of known age produce erroneous results. (We know about these inconsistencies, ironically enough, because they are usually the subject of papers by evolutionists attempting to explain them away. Such explanations demonstrate more circular thought as evolutionists resort to concocting more unsubstantiated scenarios to explain away data based on the prior assumption that the dating metric must be good.)

Furthermore, the dating procedures are not testable under controlled, laboratory conditions over the period of time they are supposed to measure.
It should be noted that dating of fossils is almost never done by measuring the fossil itself, but by measuring rocks in the vicinity of the fossil. So it is assumed that a rock in the vicinity of a fossil is the same age as the fossil.

It can be concluded that radioisotope dating methods lack the theoretical and experimental foundation needed to be considered reliable indicators of the age of the specimens being dated.

Finally, keep in mind that age does not imply ancestry. If evolution does not work in theory or practice, no amount of time added into the scenario will make it work.

General references: 13, 14, 18, 22, 30, 35

15. Dating methods that suggest a young earth

It should be pointed out that the age of the earth or life on it cannot be rigorously demonstrated through any dating method because the method is not testable over the range of time it is supposed to date. There are always critical assumptions made which are not verifiable, and a considerable amount of extrapolation of the results over time.

Some radioisotope dating methods appear to suggest that the earth is billions of years old. However, many dating methods of at least equal merit suggest that the earth and life upon it is only several thousand years old and/or at least contradict the notion that the earth and life upon it is billions of years old. In all, I have seen a list of about 70 different dating methods that would instead suggest that the earth and life is anywhere from N00 to N00,000,000 years old. Given any preconceived age of the earth, there can be found a dating metric to support it.

Honest scientific inquiry should involve an unbiased quest for data. One of the requirements for validation of a scientific hypothesis is that it be subject to falsification. In verifying a hypothesis, you must consider all data, including that which may contradict your hypothesis. If data is found which contradict the hypothesis, then this contradictory data must be accepted and considered, along with the data that supports the hypothesis.

A hypothesis made that isn't subject to falsification falls within the realm of dogma, rather than scientific inquiry.

The following are examples of some of the dating metrics contradicting the
hypothesis that the earth and life upon it is N billion years old. Keep in mind that each of these metrics is also subject to limitations due to its set of unverifiable uniformitarian assumptions, extrapolation of data, and so forth, and should never be submitted as "proof" that the earth is young.

**Population of the earth:**

Today the population grows at 2% per year. If we set the population growth rate at just 0.5% per year, then total population reduces to zero at about 4500 years ago. If the first humans lived 1,000,000 years ago, then at this 0.5% growth rate, we would have $10^{2100}$ (ten with 2100 zeros following it) people right now. If the present population was a result of 1,000,000 years of human history, then several trillion people must have lived and died since the emergence of our species. Where are all the bones? And finally, if the population was sufficiently small until only recently, then how could a correspondingly infinitesimally small number of mutations evolved the human race?

**Ancient civilizations:**

Written history and archaeological evidence of ancient civilizations dates back to several thousand years. Beyond that, all traces of civilization disappear. This is not consistent with a species which is supposed to be at least hundreds of thousands of years old.

**Decaying magnetic field of the earth**

We know that the earth's magnetic field has been decaying since the time it was first measured in 1835. Given the most plausible model of magnetism being generated by circulating electric currents that are decaying within the earth, and projecting the numbers backwards, 10,000 years ago the earth would have a field as strong as a magnetic star which utilizes thermonuclear processes to maintain a field of that strength. (See general reference 16.)

Critics of this theory insist on the existence of an electric generator ("dynamo") inside the earth, without theoretical or empirical evidence to justify such a thing. (Paleomagnetic anomalies are presented as evidence, but are inferior to the global statistically averaged data used to justify the young-earth model. Said paleomagnetic artifacts are dated using old-earth metrics and assumptions.) Again, circular reasoning is employed: "The earth is old, therefore the magnetic field has not been monotonically decaying. Because the magnetic field has not been
monotonically decaying, there must be a dynamo. Because there is a dynamo, the magnetism in the earth has not been monotonically decaying. Because the earth has not been monotonically decaying, the young-earth model is invalid."

**Comets are disintegrating:**

Each time a comet swings around close to the sun, the sun causes part of the comet to disintegrate. It is the tail that we see as a result. Astronomers have observed that the life of a short-term comet is on the order of 1,500 to 10,000 years. There are an abundance of short-term comets. Why aren't they all gone by now? [13]

Critics of the young-earth model hypothesize what they call an Oort cloud, which supposedly generates comets, even though they have never observed such a thing, nor can theoretically show that it must exist. Circular reasoning is employed: "The universe is old, therefore something is producing the short-term comets. Because something is producing the short-term comets, therefore the young-earth metric is invalid."

**Io, the still-volcanic moon of Jupiter:**

Small bodies like Io should have lost the heat and energy that it takes to be volcanic a long time ago. How can Io still be volcanic after billions of years? (Leave it to the evolutionist to propose some source of heat and energy.) [14]

**Four stars moving apart**

Four stars in the Trapezium of the Orion nebula are moving away from each other. Their paths can be traced back to a common point of origin 10,000 years ago. [15]

**Volcanoes spewing out juvenile water:**

As much as 20% of the erupted material in a volcano is water that was trapped deep within the earth. This water is called "juvenile" water, because it is assumed to have never been on the surface of the earth before. About a dozen volcanoes erupt each year. The amount of water spewed out from all these volcanoes is estimated to be about a cubic mile. There are an estimated 340 million cubic miles of water in all the oceans, lakes, and streams on earth. This would imply that there weren't any oceans 340 million years ago. Yet it is said that life originated in the oceans some 1-2 billion years ago. (See general reference 18, p. 389-389), [16][17]
Volcanoes spewing out lava:

The amount of lava currently being spewed out by volcanoes (using a low estimate of 0.8 cubic km/year) in 4.5 billion years roughly corresponds to the volume of all the continents on the earth today (3.3 billion cubic km). Where did all the lava go? [18], [19]

Helium rising into the atmosphere:

One of the decay products of Uranium and Thorium is Helium-4. Given the estimated concentrations of Uranium and Thorium in the earth's surface, current decay rates and the estimated helium content of the atmosphere, the implication would be that this could not have been going on for N,000,000,000 years. Based on the numbers used, the calculations I have seen range from N,000 years to N0,000,000 years. [20], [21], [22]

Substances washing into the sea

Many substances are being eroded, dissolved, and/or otherwise flushed from the land into the oceans, where they do not return to the their point of origin. Given the estimated rate of influx of each substance, and given the current concentration of these dissolved minerals in the sea, and working backwards, we get values ranging from N00 to N00,000,000 years. [23], [24], [25], [26], [27], [28], [29], [30]

Again, these are but a few examples of metrics which contradict the far fewer metrics that suggest a billion-year-old earth. They don't prove that the earth is young, but they are not less valid than the metrics which suggest that the earth is old. The inconsistencies between dating metrics mean that we have no good reason for accepting dating methods that yield old dates over the dating methods that yield young dates. This is the principle of falsification which every scientific hypothesis must be subject to.

Given that both the old-earth metrics and the young-earth metrics are subject to the same sort of fallacies of assumption, the evolutionist should be asked to explain why he is such a vehement supporter of the old-earth metrics and such a vehement critic of the young earth metrics. Why doesn't he apply the same sort of reasoning he uses to justify the old- in support of the young-? And if he can so keenly and appropriately point out the problems with the young-, then why won't he admit to
16. The "Ape-men"

In considering the issue of creation vs. evolution, we must keep in mind that a discussion of transitional forms is moot and useless. To the evolutionist anything looks good enough to be considered a transitional form, and to the creationist nothing looks good enough to be considered a transitional form.

There remains, however, the prominent issue of whether there has ever existed a species of animal that was decidedly sub-human and super-ape (the so-called "hominids.")

The following is a list of the various "ape-men", who found them, what the evidence consists of, etc. The information should be current to about 1985.

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A juvenile skull was discovered in East Africa in 1924 by Raymond Dart. Dart projected that an adult would stand 4 feet tall and have the brain size of a gorilla. An adult was discovered in 1936 by Robert Broom. Discoveries of various bone fragments and skeletal parts continued by several others. "Lucy" was a skeleton about 40% complete. The work of Mary and Louis Leakey, and later their son Richard, gained considerable publicity through the help of the National Geographic Society. They found tools in the vicinity of the bones, and assumed that Australopithicus used them. They found human footprints and assumed that they were not human. Extensive analysis of the Australopithecine bone structure has called into question whether the animals ever walked upright. They were long-armed, and short-legged, and were probably knuckle-walkers, more closely resembling an orangutan. These animals are no longer considered by most anthropologists to be man's ancestor, but rather are classified as apes. [31], [32], [33], [34], [35], [36], [37], [38], [39], [40], [41], [42], [43]
**Homo erectus / Africa**

Along with the Australophithecenes, Louis Leakey found a skull cap, part of a femur, and a hip bone, and attributed them to Homo erectus. In 1975, Richard Leakey found a relatively complete cranium and parts of the rest of a skull. More finds continued. In 1984, an almost complete skeleton was found. Limited information is available regarding these latter finds. They appear to be similar to Neanderthal man in some respects and bear some resemblance also to some skeletons dug up in the Kow Swamp area in Victoria, Australia, which have been dated on the order of 10,000 years. Based upon where the bones were dug up in Africa, it must be concluded that Australopithecus, Homo Habilis, and Homo Erectus lived contemporaneously. Underneath all these bones has been dug up the remains of a circular stone habitation hut which could only have been attributed to Homo sapiens. Thus, none of them could be man's ancestor, evolutionarily speaking, and one evolutionist, Geoffrey Bourne, has gone so far as to seriously suggest that apes evolved from men. [44], [45], [46], [47], [48], [49], [50], [51], [52], [53], [54], [55], [56], [57], [58]

**Homo erectus / Java Man (Pithecanthropus erectus)**

A Dutch physician by the name of Dubois found a skullcap (1891), a femur and two teeth (1892), and a third tooth (1898) near Trinil, Java. The leg bone appeared human, while the skull resembled that of an ape. These fossils were found 45 feet apart at a level in the rock which also contained two human skulls, which Dubois concealed for 30 years (until 1922). Dubois announced at the end of his life that the fossils did not belong to an ape-man, but that in fact the skull belonged to a giant gibbon. Further study by anthropologists ascribed the first two teeth to an orang and the third tooth to a human. [59], [60]

**Homo erectus / Peking Man (Sinanthropus pekinensis)**

In 1921, Davidson Black found a couple of teeth and, on the basis of this find, immediately declared that this established evidence for a hominid. In 1928-1929, 30 skulls and 11 mandibles (lower jaws) and 147 teeth were found at Choukoutien (near Peking, China). The skulls were all bashed in at the rear, evidence that they were all killed by hunters for food. The question was, who was the hunter? All the bones mysteriously disappeared sometime during the period of 1941-1945. A major limestone quarrying industry existed in ancient Choukoutien, and the skulls were all allegedly found in heaps of debris from a collapsed limestone hill. Without tangible evidence we are left with the skeletal reconstructions and work of
a man who would declare that he found a hominid based on a couple of teeth. It has been suggested that Sinanthropus was either a large macaque or baboon, and that the workers at the quarry killed them and ate their brains for food. [61], [62]

**Neanderthal Man (Homo sapiens neanderthalensis)**

In 1848, workmen at a quarry in Gibraltar found a fairly complete fossil skull. In 1856, another partial skeleton was found near the village of Neander in Germany. Professor Schlaafhausen reported the find in 1857 and gave it the name Neanderthal. Rudolf Virchow, a pathologist, studied the fossil material and concluded that the Neanderthals had rickets, a disease caused by Vitamin-D deficiency and resulting in bone deformities that would account for their awkward appearance. In 1888, the Galley Hill skull, a very modern-looking skull, was found in strata believed older than Neanderthal. More modern-looking discoveries were found in 1855 at Ipswich, and in 1863 at Abbeville. In 1932, a modern human jaw was found in deposits "older" than Neanderthal. In 1939, Professor Sergio Sergi demonstrated that Neanderthal walked erect as we do. In 1947, a Neanderthal was discovered to have lived in a cave after a modern man had inhabited the cave (some have alleged that this was an "intrusive burial"). The brain capacity of Neanderthals are found to be on the average larger than the average size of modern man. It is today generally admitted that Neanderthal man was fully human. [63], [64], [65], [66], [67], [68], [69], [70], [71], [72], [73], [74], [75], [76]

**Nebraska Man (Hesperopithecus faux pas)**

A field geologist by the name of Harold Cook sent Henry Fairfield Osborn, the director of the American Museum of Natural History, a tooth. Osborn sent the tooth to be analyzed by specialists, and the consensus was that the tooth more closely resembled the human tooth than of any known ape, and concluded that this was the first evidence of an anthropoid ape in the western hemisphere. A book was published claiming that this species, Nebraska Man, was halfway between Java Man and Neanderthal Man. A field expedition was launched to find more remains of the creature. It was found that Hesperopithecus was in fact a wild pig. [77], [78]

**Piltdown Man (Eanthropus dawsoni)**

In 1912, William Dawson and A. S. Woodward reported the discovery of an ape-man in Kent Plateau in England. The skull was broken but the jaw resembled that of an ape. Mammal bones, stone tools, and an elephant bone ground to a point were also found. More expeditions at another location produced a two skull pieces
and a single tooth. In 1953, Kenneth Oakley did chemical tests on the bone fragments and demonstrated that the skull and the jaw didn't belong together, and that neither belonged to the animal bones. The material had been chemically treated with iron salts to make it look old, and the teeth had been filed down to make them look worn. How could anthropologists befooled for 40 years? [79]

**Ramapithecus**

A 1932 find in India by G. E. Lewis. On the basis of a handful of teeth and fragments of a jaw, it was claimed by Simons and Pilbeam in the 1960s that this was an evolutionary ancestor to modern man. Pilbeam admitted in 1984 that his conclusions were based more on his preconceived ideas than actual data. It should be noted that a baboon that lives in high altitudes in Ethiopia, Theropithicus galada, has teeth and jaw characteristics very much like Ramapithecus and Australopithecus. Ramapithecus is now generally classified as essentially the same animal as a fossil orangutan known by the name of Sivapithecus. [80], [81], [82], [83], [84], [85]

**Cro-Magnon Man**

There is nothing to differentiate these European finds from modern man. If anything, they have superior size and brain capacity than what is average for modern man.

**Orce Man**

In 1983, a skull fragment was found. A year later, it was determined that the fragment came from a four-month old donkey. [86]

"**Flipperpithecus**"

A man by the name of Noel Baez mistook a dolphin's rib for the shoulder bone of a hominid, as reported in a 1983 edition of Science News. [87]

As can be seen, there just isn't enough substance to build a case for the existence of ancestral ape-men. The above examples illustrate conclusions based on preconceived notions, major extrapolations upon scanty finds, and some outright frauds.
The Flintstones ("Homo hannabarbaras")

In many ways, the cartoon character Fred Flintstone is a better representation of what have become known as "cave-men" than what is taught today by modern anthropology. Fred Flintstone is depicted as having modern intelligence, able to communicate, and lived alongside dinosaurs (as early man certainly did before the dinosaurs became extinct). Yabba-dabba-doo.

Adam, Eve, and their descendants (Homo sapiens)

The Genesis account gives us reliable historical information about the first men. They were intelligent, able to communicate, organize societies, cultivate the land, classify animals and domesticate them, make tools and weapons, etc. They are indistinguishable from modern man. The first man was created from out of the dust of the ground. The first woman was created from the first man's rib. Every human on earth is descended from that first pair. Estimates based on genealogies in the bible and archaeological evidence of ancient civilizations suggest that Homo sapiens appeared on the earth on the order of several thousand years ago.

General references: 6, 11, 13, 14, 35, 44

17. Science

Science, according to the American Heritage Dictionary, is

"The observation, identification, description, experimental investigation, and theoretical explanation of natural phenomena."

It is important to keep in mind that science only deals with natural phenomena. Intelligent design, planning and intent is not a natural phenomena. Miracles are not a natural phenomena. "Logic" and "common sense" are concepts presented as intuitively obvious, consistently applied, and profitable, but are certainly not a science. "History" is not a science.

Some have elevated the natural sciences to the level of ideology, such that all things can ultimately be explained by scientific thought. (Consider that such a proposition is not a scientific proposition in and of itself, so it is self-refuting!) In any case, there is no foundation for such thinking. Rather, science is a discipline which deals only with the workings of the natural order. It does not invalidate other means of inquiry, and in fact it requires other methods of inquiry.
When a scientist makes experimental observations, the actual facts of the observations themselves can't be subject to scientific scrutiny. If this were not the case, then no scientific progress could be made. Suppose that we launched a highly accurate clock into orbit and then discovered that it lost time. Now, you could make an appeal to the science of Newtonian mechanics and conclude that something went wrong with the measurement. And as for Lorentz, FitzGerald, and Einstein, you could just state that they were quacks. A wiser thing to do, however, is to consider the possibility that Newtonian mechanics needs to be revised. The issue, then, is not whether a particular observation violates a scientific theory, but whether the observation was correctly and reliably made. And that is not a scientific matter.

This last point is worth repeating. In the above example, it is not Newtonian mechanics (a scientific theory) which invalidates the observation, but the observation which potentially invalidates Newtonian mechanics (the scientific theory). The issue is whether the observation was correctly made, and again, that is not a scientific matter.

I have made assumptions about the validity of certain ancient historical records (the books of the bible). A defense of the authenticity and validity of these is beyond the scope of this document on creation vs. evolution. But it is important to keep in mind that evolutionists also rely principally on written testimony by reliable witnesses who have observed events in the course of their experience and written down their observations. Scientists cannot contradict what are historically confirmed observations, since historically documented observations are the very basis for scientific analysis. Scientists should be challenged as to their objectivity in selecting which authors they consider reliable and which authors they don't.

Those who have elevated the natural sciences to the level of ideology desire to scientifically test and judge the authenticity of the bible. But the bible is not a scientific treatise containing any scientific theories to be scientifically evaluated. The bible is principally an historical record of historical events written down by historical witnesses. In fact, some of what is written documents supernatural phenomena, which is inherently outside of the realm of any kind of scientific inquiry.

When it is recorded that Jesus turned water to wine at the wedding at Cana, the issue is not whether that event was "scientifically plausible." The issue is whether we can rely on the written testimony that states that the phenomenon did in fact occur. If it did in fact occur, then either there is something about the natural order that needs to be better explained by scientific study or the event was simply a violation of the natural order brought about by a cause outside of the natural order.
"Creation scientists" (at least those who accept the authority of the Bible) are those who pursue scientific study in light of the facts of history that the scriptures document. They are not (or at least should not) be those who suppose that they can scientifically prove creation or any of the circumstances surrounding it.

Neither evolution nor creation are strictly scientifically defensible. No scientist was there to observe the origin of life. No scientist has been able to repeat it in the laboratory. No scientist has been able to demonstrate a theory that compels the present array of life forms to exist with their present characteristics. A scientific theory is validated through experiment and/or theory. Both evolution and creation ultimately fall outside the realm of scientific verification.

Evolution has been touted as a scientifically defensible theory, but these essays have endeavored to show that it is not. Creation is intuitively obvious based on the consistent observation about how complex, sophisticated designs and codes whose origins have been observed always have required purpose, planning, and intent. It is confirmed based on testimony revealed by the Creator. Furthermore, the abrupt and recent appearance of life is an historically defensible fact, explicitly revealed to us by the Creator.

18. Faith

Faith, according to the American Heritage Dictionary, is "confident belief, trust." According to the Bible, it is "being sure of what we hope for, and certain of what we do not see" (Heb 11:1). It is no mystical or necessarily religious concept. It is not the religious buzzword some have made it out to be.

Every time we decide to sit in a chair, we are demonstrating our faith that this chair will hold us up. And we even sit in chairs that we have never seen anyone sit in before! Obviously, there are a set of criteria which we use to decide whether we should place our faith in any particular chair, that it would hold us up and not collapse just as soon as we sat in it.

When people say things like "it takes more faith to believe in creation" or "it takes more faith to believe in evolution," they are misusing the word "faith." It is like saying, "it is more rickety to sit in that chair." The fact of the matter is that it is a matter of faith to believe in either creation or evolution. And the issue is, how much faith do you have that creation (or evolution) took place, and how much faith will you place in the Creator (or the creation) as the cause for the origin of life, and how well will your faith stand the test when all is said and done?
In the case of creation vs. evolution, no mortal man was there to observe the origin of life. The creationist did not observe the Creator create, and the evolutionist did not observe the life forms evolve. Yet based on a variety of reasons and criteria each individual purposes to place his faith in either the Creator or the creation as the cause responsible for the origin of life. The question is, which is the better substantiated position to place one's faith in: Creation, or Evolution?

These essays have endeavored to show objectively that there is a good foundation for believing that the Creator was responsible for the creation, and that there is no good reason to believe that the creation was responsible for the creation. Therefore, we should place our faith in the Creator, and not the creation.

**19. Some objections to the design/chance arguments**

The argument from design is actually the most powerful and obvious defense for the fact of creation vs. evolution. It is one expression of what has been written in scripture:

"...since what may be known about God is plain to them, because God has made it plain to them. For since the creation of the world God's invisible qualities -- his eternal power and divine nature -- have been clearly seen, being understood from what has been made, so that men are without excuse." (Romans 1:19-20)

There are four popular objections to the argument from design. The first is "If design demonstrates a designer, then who designed the designer?"

The answer to that question is actually irrelevant to the design argument. The argument from design insists that complex and sophisticated designs demonstrate the existence of a designer. Whether or not *that* designer was designed makes no difference to the point that design demonstrates a designer. Computers are designed by computer engineers regardless of whether the computer engineers themselves were designed. The reason we know our Creator was not created is not because of the design argument, but *because he said so*, which is based on our acceptance of the record of his testimony, and is an entirely different matter.

The following is a more rigid definition of the design argument presented:

1. For all complex and sophisticated things (especially machines, even more especially automatic machines) whose origin we have observed, we see that it was always through planning and implementation by a designer. We
therefore apply this reliable and consistent experience and observation to those things whose origin we have not observed and assume that they likewise were designed.

2. Further to point 1, the greater the sophistication and complexity of something, the more obvious that it was designed and the more intelligent and capable the designer.

3. We are inferring the existence and skill of the designer from the complexity of the design, not making statements about the nature of the designer (e.g., he must be likewise "complex" in construction).

4. In all cases of observed design, the creator is apart from that which he created and not necessarily bound by all the rules which he caused his creation to operate in. The Designer of the universe can be assumed to be apart from the universe and not necessarily bound by any process or phenomenon which we observe.

5. From points 3 and 4 above, we can say nothing about the nature of the Designer, but only that he exists and has demonstrated awesome power and intelligence in our realm, unequaled by anything in the known universe. Not necessarily bound by anything we have observed in the universe, it is premature to make statements about his nature or abode (e.g., he also must be complex, and therefore designed). He himself is therefore not necessarily even bound by the principle of the argument from design (though perhaps he defined it!)

6. That God did not himself have a creator is not known from empirical observation (i.e. the argument from design), but by his own testimony. That however is a different issue, requiring a different defense. In any case, it is irrelevant to points 1 through 5 above.

7. It is important to note that both creationists and evolutionists are equally responsible for ultimately attributing phenomena in the universe to an "uncaused cause." The creationist says that God caused everything but was not himself caused by anything. The evolutionist says that the cosmos that we behold (i.e. the natural order) caused everything but was not itself caused by anything. In either case, someone or something had to be first, or else there would be nobody and nothing ultimately responsible for the origin of things. If your boss needs to ask his boss, who needs to ask his boss, who needs to ask his boss, *ad infinitum*... permission to give you a raise, then you can be sure that you will never get one.

The second objection to the design argument is this: "Crystals and snowflakes are examples of ordered things spontaneously occurring in nature." First, this is a weak
rebuttal even on the surface, because crystals and snowflakes are nothing compared to the complex and sophisticated self-replicating automatic machines that living systems consist of. Secondly, crystals and snowflakes do not actually demonstrate complexity, but only very simple order and repetition. They are but natural consequences of structures at the molecular level which make them up.

The third objection to the design argument goes like this: "The panda's thumb is an example of poor design." Now, one could embark on a useless discussion about whether it is indeed poor design or not. For that matter, we could just as well embark on a useless discussion about whether it is a design flaw that men aren't given the ability to fly like birds or breath water like fish. For all we know, it could be an issue of pure aesthetics.

But to begin with, we shouldn't consider ourselves qualified to criticize the design, since we ourselves have not designed anything of the level of sophistication of a panda, let alone a single-celled organism. But further than that, the person stating this objection has not observed the genesis of the panda, such that he could describe the panda's functionality in light of the panda's original environment, which is not known for certain to be the same as it is today. For all we know, the Panda may have been much better suited in its original environment, regardless of whether he evolved or was created!

The fourth objection to the design argument is this: "If the design argument is so intuitively obvious, then why don't more people believe it?" God only knows. But this is an objection *ad populum*, and so is invalid. The validity of a position is not determined by how many people support it. But as the scripture quoted at the beginning of this essay then proceeds to elaborate:

"For although they knew God, they neither glorified him as God nor gave thanks to him, but their thinking became futile and their foolish hearts were darkened. Although they claimed to be wise, they became fools...." (Romans 1:21-22)

There are three objections to the chance issue, all based on the same theme. The first: "It may have been improbable, but the fact that we are here demonstrates that the improbable did happen."

This assumes the conclusion in the premise and is circular reasoning.

The second objection is this: "The chances of winning the lottery are one in a million. But someone has to win the lottery. When someone pulls a winning ticket, you don't cry foul. Why do you cry foul when you observe the fact that there is life on earth?"
This is a bad application of a valid example of probability and statistics. If there are 1,000,000 people in a sample set, each with a 1 in 1,000,000 chance of winning it, then we are not surprised to find 1 person who has a winning number. The key point is that there were 999,999 people with losing lottery tickets who could win but didn't, and we could theoretically collect all those losing tickets to prove that point. In the case of evolution, the evolutionist has not even specified the sample set to demonstrate that evolution should be considered probable. In fact, he is using a sample set of 1 (this biosphere) since he has no examples of planets that had the right materials and conditions but in which life did not evolve.

The third objection is this: "97565075027519207409. There! Now I have successfully typed a random sequence of 20 numbers. Yet there was only a 1 in 100000000000000000000 chance of me typing that number."

Again, this is a bad application of probability and statistics. The number typed is not meaningful. "Success" was already defined as anything and everything before the number was randomly typed. So in reality there was a 1 in 100000000000000000000 or 100% chance of success. If a particular number had been specified in advance, that would be a different issue. In application, life cannot be construed as anything or everything. In fact, life as we know it can only exist and operate under some extremely narrow boundaries.

20. Extra-terrestrial intelligence

As a caveat and disclaimer to this final essay, it should be noted that it is in principle impossible to prove a universal negative. To categorically exclude all possibilities requires one to have all knowledge of past, present, and future events, information, and processes. One who is omniscient puts himself in the position of claiming to be God, which is a particularly bad image to project.

Rather, it should be kept in mind that the burden of proof remains on the evolutionists to provide a working hypothesis for the chance formation of life from non-life. This is something they have not done. All the evolutionists have done is state their first article of faith: that increasing complexity occurs spontaneously, given enough time. This statement of faith is made in spite of the fact that there is no evidence to support it.

The purpose of the following work is to show the magnitude of the problem that evolutionists face in their propositions and speculations about life arising spontaneously. That said, let us proceed.
Most of us have heard of the project called SETI (Search for Extra-Terrestrial Intelligence). Radiotelescopes are pointed towards outer space, searching for a coded message among the electromagnetic noise that bombards the earth from distant sources. It has been said that just one coded message would prove the existence of intelligence elsewhere in the universe.

Let us suppose that on one of these radiotelescopes the following message is received, to the evolutionists' delight:

"Hello. We are the inhabitants of a planet in the Alpha Centauri system, your closest neighboring star. We have been monitoring radio transmissions from your planet for several years, and have figured out your English language. What a coincidence that life evolved on two planets so close together! Sadly, our society is largely controlled by right-wing fundamentalist religious quacks who believe in a Creator who created everything from nothing, and until now they have prevented us from funding this noble communications project. Now let us tell you a little bit about what life is like over here, and hopefully in eight years we will hear back from you...."

Let us suppose that the text of this message continues for the equivalent of some 133 lines of text 80 characters wide totalling 10658 characters and 1500 words, roughly the size of one of these essays on creation vs. evolution. How do we know that a message such as this had an intelligent author, as opposed to being something that just appeared spontaneously out of random noise?

There are about 60,000 words in the *American Heritage Dictionary*. Yet, a random assembly of just 10 alphabetic characters would produce $26^{10} = 140$ trillion different possibilities. Clearly, meaningful words are a very small subset of what we would expect to get from random letters.

If we arranged 1500 random words, the result would be $60,000^{1500} = 10^{7167}$ possibilities. And even though we cannot begin to count the number of possible arrangements of words that would result in a meaningful message -- any meaningful message -- we know that meaningful messages are but a miniscule subset of all the possible word arrangements. One can get an idea of how small this subset is by repeatedly arranging random words picked from out of a dictionary and seeing how many arrangements turn out to be meaningful.

If we were to choose from a set of 80 possible characters, including the upper and lower case letters, the ten digits, and another eighteen non-alphanumeric characters, a random assortment of 10658 characters would produce $80^{10658} = 10^{20283}$ possible text strings.
Note that even though we cannot begin to count all the possible text strings that would constitute a recognizable message, we conclude that the message has an intelligent author. The message is non-random, containing only recognizable words, following some specific rules of English syntax, spelling and grammar. More importantly, the message accomplishes a purpose, carries out a project, and executes a task, with a clearly defined goal.

If such a message were actually received, neither evolutionists nor creationists would debate the fact that it had its origin in intelligence, planning, intent, motive, and purpose.

Now let us consider the chance formation of a protein structure. A protein consists of a chain of only left-handed amino acids connected by only peptide bonds, in an arrangement in which the amino acids at approximately half of the sites (called the "active sites") must be the correct amino acid. The smallest known protein contains 50 amino acids; the largest, 1750 amino acids.

All proteins are manufactured within a living cell in complex structures called ribosomes. Each of the some 15,000 ribosomes found in a very simple single-cell organism, Escherichia Coli, contains 56 proteins and 3 ribosomal RNA molecules in a particular structure. 53 of the 56 proteins in this structure are unique. The ribosomes in higher organisms may contain as many as 100 such macromolecules, manufacturing perhaps 50,000+ different proteins that make up the organism.

A ribosome can be viewed as a machine that manufactures proteins according to the genetic code that it receives externally from messenger RNA molecules generated elsewhere in the cell. And the proteins in the ribosome itself are similarly built according to a genetic code. Altogether, E. Coli is made up of several thousand different proteins, nucleic acids, and other organic compounds.

The correspondence between code and structure should be noted. Any complex structure can be represented by a finite amount of information that describes the structure and how it is built up from raw materials, like the blueprints for a computer. E. Coli has both the hardware (complex machine) and the software (code) to not only function but replicate itself.

A ribosome is a highly integrated miniature chemical factory. When separated into smaller components, the individual components lose their function.

In order for the simplest living cell to replicate, it must manufacture proteins. In this analysis, we will consider just the chance formation of the proteins in a single ribosome.
Note that viruses and bacteriophages are simpler in construction than the single-cell organism that we are using as a model, but require the prior existence of a host, so a discussion of their origin is moot.

The total molecular weight of the proteins in the E. Coli ribosome is about 1215000. The molecular weights of the 20 known amino acids range from about 75 for glycine to about 181 for tyrosine. For simplicity, let us use an average amino acid of molecular weight 132 (asparagine has this molecular weight) for our calculations. Subtracting 18 for the molecular weight of a water molecule given up when two amino acids form a peptide bond, we have \(132 - 18 = 114\) for the molecular weight of the amino acid residue. This would give us something on the order of \(1215000/114 = 10658\) amino acid residues in the protein structure of a ribosome in E. Coli.

In a random arrangement, the probability of a particular amino acid being right-handed versus left-handed is 1 in 2. The probability of having a peptide bond versus a non-peptide bond is about 1 in 2. The probability of getting the correct amino acid is roughly 1 in 20 (the distribution isn't quite even). The probability of getting a correct right-handed amino acid connected with a peptide bond is therefore \(1 \times 2 \times 20 = 80\). The probability of all 10658 amino acids in the ribosome being correct is 1 in \(80^{10658}\), which is 1 in \(10^{20283}\).

Compare this with the number \(10^{20283}\) for the character arrangement in our hypothetical intelligent SETI message.

Which brings us to point of this exercise: Both the SETI message and the protein component of the ribosome are information-rich. They both represent complexity and/or coding that accomplishes a purpose. Why is it then, that some people would attribute the origin of the former to an intelligent source, but insist that the latter came about through some yet-to-be-determined chance processes? And if the codes and complex structures inherent in life forms on earth cannot be attributed to a natural origin, shouldn't we conclude that the evidence for extra-terrestrial intelligence is right under our noses? Why then do some look to the stars for evidence?

Stating the dilemma a different way, if the evolutionists so dogmatically hold to the position that life arose spontaneously, regardless of its sophistication, then shouldn't said evolutionists be ready to reject any SETI message as being of intelligent origin, regardless of its sophistication? Why then do they look to the stars for evidence?

So if we shouldn't expect that many proteins to randomly occur in a functional
arrangement, then we shouldn't expect the whole ribosome to occur. And if we shouldn't expect a ribosome to occur, we shouldn't expect a functional single-celled organism to occur. And if we shouldn't expect a functional single-celled organism to occur, we are left with nothing for higher organisms to evolve from.

In reality, it takes a considerable amount of know-how by scientists with advanced academic degrees using technologically advanced equipment in a well-equipped laboratory to synthesize proteins, which is what a ribosome, a machine too small to be seen by the naked eye, accomplishes. And the synthesis of a biological structure like a ribosome is currently beyond the capability of the collective know-how of all of the most intelligent minds of mankind, let alone a fully functional single-cell organism.

Keep in mind that what we are encountering is in principle a significant information/complexity problem. Regardless of the exact path which one proposes to get to a fully functional organism, be it protein evolution or RNA evolution or anything else, the same level of complexity must be achieved in the outcome through chance events. The point is that a random, natural process should not be considered a reasonable explanation for it. And since time does not imply complexity, the putting together of many separate events of proportionally better probability over eons of time does nothing to help solve the dilemma.

It is therefore demonstrated that we shouldn't expect life to have come about by chance, given what we know. The dogma of life coming about by chance is reduced to a mere ideology without basis. Furthermore, by removing the foundation for the common ancestry of living things, the dogma of the evolution of all present species through mutations + natural selection, and all the various peripheral issues concerning fossils, dating, stratigraphy, taxonomy, and etc. are rendered moot, because the present species cannot be evolved from a non-existent first life form. And if the origin of the first life form must have required planning and intent, then it is an even easier matter to say that the origin of the higher life forms required planning and intent.

References: 1, 4, 7

21. Resource list

The following is a resource list of some good (and not-so-good) books, pamphlets, tracts, and videos that I know of which deal with various aspects of the creation/evolution issue. These are mostly secondary source information (i.e. textbooks), but do reference the primary research sources to allow for further
in-depth study in specific areas.

1: *Biochemistry*
Geoffrey Zubay
Hardbound, 1268 pages

This is a standard introductory college-level secular biochemistry textbook, assuming a knowledge of introductory college-level general chemistry as a prerequisite. This book, more than any other in this resource list (aside from the Bible), instilled in me a sense of awe concerning the magnificence of God's creation. The final chapter of the book addresses the origin of life from an evolutionist perspective, and is amusing to read.

2: *Principles of Biochemistry*
Albert L. Lehninger
Worth Publishers, 1982
Hardbound, 1011 pages

This is another standard introductory college-level secular biochemistry textbook. It is easier to understand than Zubay, and is weighted more towards Biology than Chemistry.

3: *Chemical Principles*
Masterton/Slowinski
Saunders, 1973 (3rd ed)
Hardbound, 715 pages

This is a standard secular introductory college-level general chemistry textbook. The last chapter contains an introduction to biochemistry.

4: *CRC Handbook of Chemistry and Physics*
Robert Weast
CRC Press, 1977 (58th ed)
Hardbound, 2348 pages

This is a standard reference which contains physical constants, formulas, etc.

5: *In the Beginning...*
Walter T. Brown, Jr.
Center for Scientific Creation, 1989 (5th ed)
Paperback, 122 pages, $9.00+10% shipping

I put this at the very top of my list to recommend. If you like my outline and
approach, you will appreciate Dr. Brown's as well. (Obviously, I am quite biased.) He organizes his writings into categories in a tree structure, with adequate references to support each point. His approach is extremely objective. He also proposes an interesting model to explain 17 known geological phenomena and the flood based solely on the bursting forth of the "fountains of the great deep," a.k.a. the "Hydroplate Hypothesis."

6: *Bones of Contention*
Marvin L. Lubenow
Baker Book House, 1993 (2nd ed.)
Paperback, 295 pages

This book has now become the most authoritative source of information on human fossils, written by a man who has researched the fossil issue for 25 years. [Note: Material from this book has not yet been incorporated into essay 16.]

7: *The Creation Hypothesis*
J. P. Moreland, editor
Intervarsity Press, 1994
Paperback, 335 pages

Difficult reading. This book argues for the creation hypothesis being a valid scientific pursuit. Very secular approach. Good material on information and biological origins. Chapter 5 makes the book worthwhile.

8: *Creation Scientists Answer Their Critics*
Duane T. Gish
Institute for Creation Research, 1993
Paperback, 451 pages

This book does exactly what the title implies. Gish goes into very lengthy discussions concerning the points and counterpoints of his opponents. Laborious and lengthy reading, but contains interesting information.

9: *The Creation Explanation*
Robert E. Kofahl, Kelly L. Segraves
Harold Shaw Publishers, 1975
Paperback, 255 pages, $4.95

This is an excellent treatment which covers evidence in design of life forms, fossils, the geological strata, dating methods, age of the universe, age of the earth. Quite a bit of information on the latter topics. However, last I saw, this book was out of print.
10: *The Collapse of Evolution*
Scott M. Huse  
Baker Book House, 1983, ...4th=1988  
Paperback, 170 pages

This is an excellent treatment, covering creation/evolution issues in geology and paleontology, physics, mathematics, biology, anthropology. It has appendices listing organizations, creationist scientists throughout history, a glossary, references, and index.

11: *Evolution: The Challenge of the Fossil Record*
Duane T. Gish  
Creation-Life Publishers (Master Books Division), 1985, ...2nd=1986  
Paperback, 278 pages, $8.95

An excellent treatment, concentrating on the fossil record, geologic column, origin of man. Lots of information on the subject of "ape-men."

12: *Evolution: The Fossils say No!*
Duane T. Gish  
Creation-Life Publishers, 1978  
Paperback, 189 pages, $2.95

An earlier and shorter version of the above mentioned book by the same author.

13: *Scientific Creationism*
Henry Morris  
Master Books, 1974, ...2nd=1985  
Paperback, 281 pages, $8.95

An excellent treatment covering a wide range of topics. Considered by most creationists to be a classic and standard treatment of creationism.

14: *What Is Creation Science?*
Henry M. Morris, Gary E. Parker  
Paperback, 331 pages, $10.95

This book is an attempt at producing a school textbook on creationism, assumes that the reader does not have a biblical world-view, and avoids direct scriptural references. Provides a defense for creation as science and criticism of evolution as science.

15: *It's A Young World After All*
Paul D. Ackerman
Baker Book House, 1986
Paperback, 131 pages

A summary of the dating methods that suggest a young age for the earth. Lots of subjective commentary, very selective about which dating methods to present, doesn't document the assumptions, but interesting and informative reading anyway.

16: *Origin and Destiny of the Earth's Magnetic Field*
Thomas G. Barnes
Master Books, 1983
Paperback

This is a technical monograph in which the author evaluates the magnetic flux of the earth's magnetic field in recent history and argues that the earth must consequently be of recent origin.

17: *Darwin's Enigma*
Luther D. Sunderland
Master Books, 1984
Paperback, 178 pages, $8.95

An OK treatment of fossils and transitional forms. Secular approach.

18: *The Genesis Flood*
John C. Whitcomb and Henry M. Morris
Baker Book House, 1961, ...29th=1986
Paperback, 518 pages, $11.95

This is a very thorough treatment of the biblical record and scientific implications of the Flood. Most of the information is pertinent to the creation/evolution controversy. Considered a classic, if not the classic.

19: *The World That Perished*
John C. Whitcomb
Baker Book House, 1988, ...3rd=1990
Paperback, 178 pages, $9.95

This is a sequel to *The Genesis Flood* (which is not a prerequisite), and an introduction to biblical catastrophism. Easy to read, and more up-to-date.

20: *The Natural Sciences Know Nothing of Evolution*
A. E. Wilder Smith
Master Books, 1981
An excellent treatment, specifically dealing with the biochemical implications in detail (e.g. spontaneous generation of life from non-life), which is missing from most other books.

21: *The Scientific Alternative to Neo-Darwinian Evolutionary Theory*
A. E. Wilder Smith
TWFT Publishers (PO Box 8000, Costa Mesa, CA, 92683), 1987
Paperback, 148 pages, $7.95

An excellent treatment, specifically dealing with information sources and structures, showing that it is necessary to consider "know-how" or an external source of information in developing a scientific theory on origins.

22: *Science, Scripture, and the Young Earth*
Henry M. Morris, John D. Morris
Institute for Creation Research, 1989
Paperback, 95 pages, $4.95

Provides rebuttals to current arguments (especially Davis Young) against a recent creation and flood geology.

23: *Flaws in the Theory of Evolution*
Evan Shute
Craig Press, 1961, ...7th=1976
Paperback, 286 pages, $3.50

An OK treatment, not easy reading, not as thorough, but some good information.

24: *How To Think About Evolution, And Other Bible/Science Controversies*
L. Duane Thurman
InterVarsity Press, 1977, 1978
Paperback, 144 pages, $5.95

This book deals specifically with what the title suggests. It does not provide much useful information about creation/evolution, and the viewpoints are liberal.

25: *From Goo To You By Way of the Zoo*
Harold Hill
Power Books, 1976, 1985
Paperback, 223 pages, $5.95

If you like mudslinging, this book addresses the issues with all the tact and
maturity that the title suggests.

26: *The Great Brain Robbery*
David C.C. Watson
Henry E. Walter, LTD., 26 Grafton Road, Worthing, Sussex, 1975-1977

A very short general treatment, very subjective, but interesting.

27: *Here's Proof: Evolution is a Lie*
Dennis Miller and Louis Watrous
El Camino Press, 1976
Paperback, 57 pages

Another very short general treatment, subjective, but interesting.

28: *Fallacies of Evolution*
Arlie J. Hoover
Baker Book House, 1977
Paperback, 85 pages, $2.50

This is a short book that provides a refutation of the arguments for teaching only evolution in the public schools.

29: *Evolution and the Modern Christian*
Henry M. Morris
Presbyterian And Reformed Publishing Co., 1967
Paperback, 72 pages, $3.95

This is a very brief treatment of evolution, intended to be easy and quick reading for a high school or college student, Sunday school class, etc.

30: *Unlocking the Mysteries of Creation*
Dennis R. Peterson
Master Books, 1987
Hardbound, 207 pages, $18.95

An excellent general treatment of a wide range of topics on creation/evolution, including some information on ancient civilizations. This is a children's book, but contains enough information and references to be valuable for anyone to read. Highly illustrated.

31: *Fossils: Key to the Present*
Richard Bliss, Gary E. Parker, Duane T. Gish
This is a children's book which discusses fossils.

32: *The Long War Against God*  
Henry M. Morris  
Hardbound, 344 pages, $21.95  

This covers the history and impact of the Creation/Evolution conflict.

33: *The Origin of Species Revisited*, Vol 1 and 2  
W.R. Bird  
Philosophical Library 1987, 1989  
Hardbound, 1102 pages total, $50.  

This is a thorough, high-level scientific/philosophical treatment. It requires a very high reading comprehension level.

34: *The Genesis Record*  
Henry M. Morris  
Hardbound, 716 pages  

This is essentially a verse-by-verse commentary on the book of Genesis by a creationist author.

35: *Reasons Skeptics Should Consider Christianity*  
Josh McDowell, Don Stewart  
Here's Life Publishers, 1981  
Paperback, 249 pages  

A general christian apologetic, of which pages 82-218 contain an assortment of question vs. answers on the ark and evolution. Goes together with another book by the same authors, entitled *Answers To Tough Questions Skeptics Ask About the Christian Faith*, which contains a few points about the Flood. Quick, short summaries, ample references. Classic McDowell treatment.

36: *The New Atheism and the Erosion of Freedom*  
Robert A. Morey  
Bethany House, 1986  
Paperback, 176 pages
Not a creation/evolution title at all, but contains information very relevant to understanding the evolutionist mindset. Includes discussion of atheism, agnosticism, materialism, logical fallacies, etc., debate transcripts and excerpts, from the author's experience as a Christian apologist/lecturer/debater.

37: Evolution: Bone of Contention
Silvia Baker
Evangelical Press (P.O. Box 29, Phillipsburg, NJ, 08865-0029, (201) 454-0505) 1976, ...1986, Paperback, 35 pages

This is a short treatment that gets right to the point and is very convincing. An excellent and inexpensive thing that looks like a magazine, and can be passed around or distributed easily, read quickly.

38: Creation or Evolution? (Parts I, II, III)
Winkey Pratney
Pretty Good Printing (Last Days Ministries, Box 40, Lindale, TX, 75771), 1982
Set of 3 Tracts, 12 pages total

These 3 tracts from Last Days Ministries (Keith/Melody Green's organization) are an excellent treatment of the creation/evolution issue in a nutshell, with references, a book list, and evangelically oriented.

39: Understanding Genesis
Ken Ham, Gary Parker
Creation Life Publishers, Box 983, El Cajon, CA, 92022 (1-800-999-3777), 1987
Ten 45-minute videotape lecture-presentations, VHS format, $200

This is an excellent series to have in a church library or for group study. It is authored by two knowledgeable and experienced lecturers on the subject, packed with information, yet easy to understand.

40: The Genesis Solution
Ken Ham
Films for Christ, 2628 W.Birchwood Circle, Mesa, Arizona, 85202 (602-894-1300)
45 minutes, VHS format

This is a good motivational film for creation evangelism, discussing the foundation of Genesis and why the creation/evolution issue is so important.

41: The Great Dinosaur Mystery
Films for Christ, 2628 W.Birchwood Circle, Mesa, Arizona, 85202 (602-894-1300)
20 minutes, VHS format

This is a very subjective film, documenting sketchy "dragon" legends and similar stories, attempting to show that dinosaurs have been around in recent historical times.

42: Origins: The Origin of the Universe (Episode 1)
Films for Christ, 2628 W.Birchwood Circle, Mesa, Arizona, 85202
(602-894-1300)
30 minutes, VHS format, 1991

This is an excellent film discussing the origins of the universe, arguing that the universe is young and not old. Features A. E. Wilder-Smith.

43: Origins: The Earth, a Young Planet? (Episode 2)
Films for Christ, 2628 W.Birchwood Circle, Mesa, Arizona, 85202
(602-894-1300)
30 minutes, VHS format, 1991

This is an excellent film discussing dating methods, arguing that the earth and life on it is young and not old. Features A. E. Wilder-Smith.

44: The Bible
God-breathed
Various translations, ~4000 B.C. to ~70 A.D.
66 books bound together under one cover

This has been around for several thousand years. It is surely the most authoritative source of information on the subject. This is the only historical account we have, originating from the only One who was there to witness it happen. (Excellent reading. A must!)

The following is a list of a few of the many periodicals available that address the issues of creation.

Creation Research Society Quarterly
P.O. Box 8263
St. Joseph, MO, 64508-8263
CRSnetwork@aol.com
($22 for 4 issues/year)

This publication is a technical, peer-reviewed, scientific periodical published under
the auspices of the Creation Research Society.

_Creation Ex Nihilo Technical Journal_
P.O. Box 6330
Florence, KY, 41022
(800) 350-3232
($37 for 3 issues/year)

This publication is a technical, peer-reviewed, scientific periodical published under the auspices of the Creation Science Foundation.

_Creation Ex Nihilo_
P.O. Box 6330
Florence, KY, 41022
(800) 350-3232
($22 for 12 issues/year)

This publication is a non-technical periodical published for the general public under the auspices of the Creation Science Foundation.

_Acts & Facts_
Institute for Creation Research
P.O. Box 2667, El Cajon, CA, 92021
(Free, 12 issues/year)

This publication is a non-technical newsletter/periodical published for the general public under the auspices of the Institute for Creation Research.

The following are a few of the many organizations involved specifically in creation-oriented research and apologetics.

Institute for Creation Research
P.O. Box 2667
El Cajon, CA, 92021
(619) 448-0900
[http://www.icr.org](http://www.icr.org)

Creation Research Society
P.O. Box 8263
St. Joseph, MO, 64508-8263
CRSnetwork@aol.com
22. Primary source references

The following is a list of primary source references cited by secondary sources referenced at the end of essays 14, 15, and 16.


[14]: "Eyes on Jupiter," *Life*, May 1979, p. 46


[16]: Carl Fries, Jr., "Volumes and Weights of Pyroclastic Material, Lava, and Water Erupted by Paricutin Volcano, Michoacan , Mexico," *Transactions, American Geophysical Union*, Vol. 34, August 1953, p. 615


[19]: Carl Fries, Jr., "Volumes and Weights of Pyroclastic Material, Lava, and Water Erupted by Paricutin Volcano, Michoacan, Mexico," *Transactions, American Geophysical Union*, Vol. 34, August 1953, p. 611


[29]: Sir Cyril S. Fox, *Water* (New York, Philosophical Library, 1952), p.27


[71]: Wilhelm Koppers, Primitive Man and His World Picture, London: Sheed and Ward, 1952, p. 221, cited by [70] below:


[77]: *Illustrated London News*, June 24, 1922.


