

THE FOSSIL RECORD AND DISTANT STARLIGHT

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I. Comments on Creation and the Fossil Record

A. The fossil record poses some problems for evolutionists, and I may touch on some of those in coming weeks, but it also poses problems for those who believe as I do. One fact that makes it difficult for people to believe that the basic kinds of animals and plants were created within a literal week just thousands of years ago is that the plants and animals change significantly as one moves up and down the fossil record. There is a general sequence of appearance of life forms, and the lower you go in the sedimentary rock layers, the less the plants and animals look like anything living today.

B. The scientific establishment's explanation for this sequence is that it reflects gradual changes as living things evolved over eons of time. The reason trilobites always appear below dinosaurs, for example, is that trilobites flourished on earth and went extinct before dinosaurs evolved. The degree of change in living things that is reflected in the fossil record could not happen by random processes in thousands of years – it would require hundreds of millions of years for evolution to work its magic. And they believe this is confirmed by radiometric dating.

C. Most biblical creationists, on the other hand, believe that the fossil order is largely a product of Noah's flood. That is, they believe that the flood sequentially overwhelmed different ecological zones, which resulted in the sequential fossilization of the plants and animals inhabiting those zones. The ecological zones that were inundated and buried last were most like the post-flood world and thus the plants and animals that inhabited those zones were better adapted for continued survival in the post-flood world. That is why modern plants and animals look most like those higher up in the fossil record.

1. Now, I know how our culture looks at Noah's flood. Some years ago, I noticed an advertisement in a magazine for the "Greatest Children's Home Video Collection Ever." Noah's Ark was included along with Jack and the Beanstalk!

2. This is the result of our making the scientific establishment the final arbiter of truth. If it says, as it does, that there never was a global flood that destroyed all but a handful of humans, land animals, and birds, then that never happened, regardless of what the Bible says. The Bible then gets put along side Jack and the Beanstalk, and we're afraid to say we believe it because we don't want to appear ignorant. From the way the mainstream press talks, you'd think the worst thing in the world is to be a "fundamentalist." That's code for "believes the Bible to be the inerrant word of God," which in their eyes marks you as unsophisticated at best, a toothless hayseed at worst.

3. Of course, not only do we have the account of the flood in Genesis, but the author of Hebrews declared in 11:7, "By faith Noah, when warned about things not yet seen, in holy fear built an ark to save his family. By his faith he condemned the world and became heir of the righteousness that comes by faith." The Apostle Peter wrote in 1 Pet. 3:20 that "God waited patiently in the days of Noah while the ark was being built. In it only a few people, eight in all, were saved through water." He wrote in 2 Pet. 2:4-9:

For if God did not spare angels when they sinned, but sent them to hell, putting them into gloomy dungeons to be held for judgment; ⁵ if he did not spare the ancient world when he brought the flood on its ungodly people, but protected Noah, a preacher of righteousness, and seven others; ⁶ if he condemned the cities of Sodom and Gomorrah by burning them to ashes, and made them an example of what is going to happen to the ungodly; ⁷ and if he rescued Lot, a righteous man, who was distressed by the filthy lives of lawless men ⁸ (for that righteous man, living among them day after day, was tormented in his righteous soul by the lawless deeds he saw and heard)-- ⁹ if this is so, then the Lord knows how to rescue godly men from trials and to hold the unrighteous for the day of judgment, while continuing their punishment.

And Jesus said in Mat. 24:37-39:

As it was in the days of Noah, so it will be at the coming of the Son of Man. ³⁸ For in the days before the flood, people were eating and drinking, marrying and giving in marriage, up to the day Noah entered the ark; ³⁹ and they knew nothing about what would happen until the flood came and took them all away. That is how it will be at the coming of the Son of Man.

D. But back to my point, the big question for creationists is how the kind of sorting we see in the fossil record could have been accomplished by Noah's flood. It does not appear that a global flood today would have that effect, but – and this is key – the world of today is not like the world that existed at the time of the flood. As Peter wrote in 2 Pet. 3:6, echoing Gen. 6:13, the world of that day was "destroyed" or "perished." The world we live in is a world that has been radically transformed by the judgment of God. We can do little more than speculate about how the pre-flood world was arranged.

1. Knowledgeable creationists recognize that we have a long way to go in detailing a flood model. There are questions for which we presently have no good answer, but as I've said, that doesn't shock me given the small number of qualified people working in the field (and even those are doing so part time with no government assistance). And lest you think that's a cop out, here's a quote from an article in the November 15, 2005 issue of the journal *PLOS* (Public Library of Science). The article is titled "Jump-Starting a Cellular World: Investigating the Origin of Life, from Soup to Networks," and the author points to lack of funding for origin-of-life research as part of the reason the answers have been so slow in coming.

But beyond assuming the first cell must have somehow come into existence, how do biologists explain its emergence from the prebiotic world four billion years ago?

The short answer is that they can't, yet. But this question may be a little closer to being answered as new money enters the field, and two new discoveries provide support for two competing models of prebiotic evolution.

While the past half century has seen an explosion of knowledge about the evolution of life after it began, there has been relatively little progress in the past half century on how it began—the so-called origin question. In part, the problem is financial: research money has flooded many other areas in biology, but remains in short supply in this one. “The funding is a big part of it,” says Jack Szostak, a Howard Hughes investigator and Professor of Genetics at Harvard Medical School. As a result, there is a shortage of researchers willing to commit their professional careers to finding out how life began. “This is a risky field to be involved with. The problems are hard. You can train students, but there may not be jobs waiting for them afterwards.”

2. There are several articles in my categorized list of articles of interest to creationists (<http://trueorigin.org/camplist.asp>) that discuss some of the competing flood models and get into some of the more technical issues. But just to give you some idea of how one can play with the uncertainty about the arrangement of the pre-Flood world:

a. Imagine a continent surrounded by a saltwater ocean. Early Mesozoic animals inhabited the coastal highland, and inland was a huge freshwater sea that was inhabited by Paleozoic fishes and invertebrates. Extending from the base of the coastal highlands out into the sea was a large floating island of vegetation, something like a massive quaking bog. Certain Paleozoic amphibians lived on the island, some miles in from the edge, and certain Paleozoic reptiles lived on the inner part (where the island was drier and more solid). In the middle of this freshwater sea was an elevated plateau, the lower slopes of which housed the plants and animals characteristic of the Mesozoic. Higher up the slopes was a small upland sea with aquatic Mesozoic creatures and still higher up and on top of the plateau were the plants and animals characteristic of the Cenozoic.

b. As the flood proceeded, sediment was washed into the shallow seas, making them saltier. Perhaps increasing volcanic activity or exposing of salt deposits also increased the salinity of the fresh water. Bottom dwellers may have been buried by that influx of sediment or by sediment disturbances on the sea floor. As the seawater was progressively changed (in salinity, turbidity, and temperature), the Paleozoic sea creatures in the water column died off and were buried in the order in which they could tolerate the changes. Turmoil of the sea broke apart the floating island,

beginning with the outer part first, thereby burying Paleozoic land plants, amphibians, and reptiles in order on top of the Paleozoic marine fauna. As the water continued to rise, the ocean water poured over the coastal highland, washing the early Mesozoic ecological zone on top of the Paleozoic. A downwarp of the land separating the upland sea from the huge sea (or the cutting action of a spillover) caused the Mesozoic aquatic creatures to wash on top of the other Mesozoic creatures. As the continent continued to sink, the ocean inundated and buried the Cenozoic zones associated with the inland plateau.

c. After the sediments were deposited, the continent was uplifted and eroded by the massive run off of the floodwater. Some of the upper sediment (Cenozoic) ran into the ocean, on top of the Mesozoic sediment that had washed in from the coastal highland.

3. In addition to ecological zonation, fossil order may have been affected by the differing ability of creatures to escape the rising waters (as influenced by their intelligence, adaptability, and mobility) and by differing buoyancy of their carcasses. There simply are too many unknowns for someone to declare that the fossil order could not have resulted from a global flood.

4. In the centuries after the flood, the earth was rebounding from the cataclysm. Various processes operated on a scale unlike today. It was God's will that the survivors of the Flood repopulate the earth ("fill the earth" - Gen. 9:1), and the animals soon began spreading over the globe, perhaps driven to do so by God, as apparently was the case in their coming *to* the ark (Gen. 7:8-9, 7:15). This migration may have been facilitated by the existence of parallel climatic zones, a drop in sea level that opened land bridges, and the presence of plant rafts.

5. As the animals migrated from the ark, they were blessed with high fertility rates and diversified rapidly through a divinely given capacity for adaptation. They continued to be fossilized (by local processes) as they diversified. To paraphrase paleontologist Kurt Wise:

God created organisms so they could adapt to the changing world conditions that he knew would follow the Flood. Toward that end, God may have created genetic elements with the ability to trigger favorable changes programmed into the genome. These beneficial genetic elements may have been designed to multiply and move around, both within and between organisms. Something like this would permit organisms to change quickly and dramatically in the centuries following the Flood. The sediments of the Tertiary and Quaternary may document some of these rapid changes (e.g., those within the horse, camel, rabbit, and elephant baramins).

E. Creatures that were unable to adapt to the post-flood world eventually went extinct. That is what happened to the dinosaurs. According to Scripture, each "kind" of air-breathing land creature was on the ark (Gen. 6:20, 7:2-3, 7:14), so each "kind" of air-

breathing land dinosaur was on the ark. That does not mean that every *species* of dinosaur was on the ark. Remember that sea creatures did not have to board (Gen. 6:7, 7:21-22, 8:17) and that "kind" can be much broader than species, something like a family or genus (maybe even in some cases an order). Ham, Sarfati, and Wieland guess that fewer than 50 distinct groups or kinds of dinosaurs had to be on the ark. The Lord well may have sent juveniles or young adults, as they would have a greater life expectancy and thus would be able to generate more offspring.

F. Babel and human history

1. For humans, food would have to be gathered where it could be found, tools would have to be fashioned from crude materials, and shelter would have to be secured in different ways and places. In the span of decades to centuries, these "primitive" societies would change into agricultural, copper-tool-based and then iron-tool-based, city-dwelling societies. This led to the people congregating at Babel (Genesis 11), which was contrary to the Lord's command to fill the earth. He therefore dispersed them over the earth.

2. Wise suggests that the Babel dispersion is pivotal in explaining the differences between the language and culture of people and the origins of the various races of mankind. He estimates that it occurred between 150 and 350 years following the Flood. He suggests that in the Babel event God divided not only the language of the people but their perspectives as well. This led to the rapid origin of the world's distinct cultures.

3. The breakdown in communication introduced at Babel caused the various families to spread across the earth in isolation from each other. Genetic drift within these populations caused unique combinations of essentially neutral traits (e.g., skin color) to develop. Once particular traits were fixed in a group, they may have influenced where that family chose to live.

4. When the families were dispersed at Babel, each one found itself in the same situation it had been in after the flood: food would have to be gathered where it could be found, tools would have to be fashioned from crude materials, and shelter would have to be secured in different ways and places. The process of cultural development (or recovery) began anew at each location, with considerable variation in rate. Cave paintings are rather sophisticated works "of a culturally capable people forced to survive in caves, forced for a time to eat what they could hunt and gather."

5. Because post-flood humans initially congregated at Babel, they arrived at locations around the world well after the animals that dispersed from the ark. That is why animal fossils, including ape fossils, are found below the first evidence of humans. Fossils dubbed *Homo erectus* and archaic *Homo sapiens* are almost certainly humans who lived during the first couple of centuries after the dispersion at Babel. Their morphological differences from modern humans, which relate mainly to the skull, may be related to a slower rate of development (linked to their longer life spans) or to differences

in diet and climate. Other fossils that have been interpreted as humans or as ancestors of humans are extinct apes that lived in the post-flood world with humans.

II. Distant Starlight and Time

A. Those who believe that the universe was created less than 10,000 years ago face a serious objection in the fact we see starlight from stars that are much more than 10,000 light-years away. Given how fast light travels (186,000 miles per second) and given how far away these stars are, it would take tens of thousands, hundreds of thousands, millions, and even billions of years for light from them to reach us. How can that light have already reached us if the universe is only thousands of years old?

B. A popular creationist response is that God created the light beam along with the star so that the star was visible instantly. He certainly is able to do that, but it is questionable whether he did so. To illustrate the issue, in early 1987 astronomers saw a star explode. This bright explosion, called Supernova 1987a, was of a star about 160,000 light-years away. If the image of the explosion had been placed in the created light beam 6,000 or so light-years from the earth (so that it arrived in 1987), all the light waves behind it would be the aftermath of an exploded star. In other words, we'd be seeing the image of an explosion that never actually occurred. It makes the heavens a kind of illusion.

C. Another proposed solution is that the speed of light was much greater in the past, having only recently slowed to its current speed. The main proponent of this view in creationist circles is Barry Setterfield. He's convinced he's right (see his web page at <http://www.setterfield.org/>), but some other creationist physicists I respect are doubtful. They question whether the historical measurements of the speed of light document a slowing. They believe the more recent measurements, which they consider more reliable, don't demonstrate any slowing. In addition, changes in the speed of light would change the values of a lot of other physical constants, which would require a very complicated balancing of compensating changes in these other constants to allow this reality to exist in its present form. Some also think that, if the speed of light changed in the way Setterfield contends, it would have consequences that should still be discernible in light from distant galaxies but are not.

D. Another group of explanations, pioneered by physicist Russ Humphreys, relies on gravitational time dilation pursuant to Einstein's *general* theory of relativity.

1. Experiments have shown that time runs at different rates depending on where one is in relation to the gravitational field. An atomic clock at the Royal observatory in Greenwich, England, which is accurate to about 1 microsecond per year, ticks five microseconds per year slower than an identical clock one mile higher in altitude at the National Bureau of Standards in Boulder, Colorado. This difference is precisely what the general theory of relativity predicts for the one-mile difference.

2. The gist of Humphreys's theory is that God created the universe in such a way that there was a time during the creation week when, as a result of gravitational time dilation, that the cosmos experienced billions of years of time in less than one 24-hour day on earth. He gets there by positing that the universe was created as a "white hole," which is a "black hole" running in reverse. Let me fill that in a bit.

a. A "black hole" is where the matter in a given diameter is sufficiently dense to make the gravity so strong that light rays cannot escape. The point at which light rays trying to escape bend back on themselves is a spherical border called the "event horizon." The more matter that enters the black hole, the more the diameter of the event horizon increases. The interesting thing is that time is massively distorted at the event horizon. Here is a paraphrase (from Humphreys, p. 27-28) of Stephen Hawking's story in *A Brief History of Time* about an astronaut coming toward the event horizon of a black hole:

The astronaut is scheduled to reach the event horizon at 12:00 noon, as measured by his watch. As he falls toward it, a dark sphere blocking off the starry background, an astronomer watching him from far away sees that the astronaut's watch is ticking slower and slower. By the astronomer's wall clock, it takes an hour for the astronaut's watch to go from 11:57 am to 11:58. And then *a day* to reach 11:59! The astronomer never does see the astronaut's watch reach 12:00. Instead, he sees the motionless images of the astronaut and his watch getting redder and dimmer, finally fading from view completely.

b. Humphreys describes what the *astronaut* would see:

As the astronaut approaches the event horizon, he looks back through binoculars at the astronomer's wall clock and sees it running faster and faster. He sees the astronomer moving rapidly around the laboratory like a video in fast-forward. He sees planets and stars moving very rapidly in their orbits. The whole universe far away from him is moving at a frenzied pace, aging rapidly. Yet the astronaut sees that his own watch is ticking normally. When his watch reaches 12:00 noon, the astronaut sees the hands of the astronomer's wall clock moving forward so fast they are just a blur. As he crosses the event horizon, he feels no particular sensation, but now he sees bright light *inside* the horizon. His watch reaches 12:01 and continues ticking.

3. A white hole is like a black hole, complete with an event horizon, except that the matter and light can only escape through the event horizon, not enter it. Just as the diameter of the event horizon expands as matter enters a black hole, so the diameter of the event horizon shrinks as matter leaves a white hole. Under Humphreys's model, the event horizon reaches earth early in the morning of the fourth day, the day on which the heavenly bodies were created. So on that day, the cosmos looked like time-lapse photography; it experienced billions of years of process in a matter of hours.

4. You can find at my list of web articles of interest to creationists (<http://trueorigin.org/camplist.asp>) links to articles criticizing Humphreys's theory and links to his responses to those criticisms. You also can find links to articles by John Hartnett, another creationist physicist/cosmologist, proposing a variation on his theory.

E. What Humphreys and others are trying to do is construct a model of creation that is consistent with Scripture and has God working as much as possible according to known laws of physics. I applaud that effort, but we need to keep in mind that God may not have operated by our understanding of the rules of physics.

1. In other words, if it suited his purpose, God could have accelerated processes in the universe relative to the earth (by dilating time) without following the physics of white holes or gravitational time dilation; he simply may have willed it.

2. You say, "Well, what purpose could God have had in dilating time?" Well, you'll recall that God created the heavenly lights on Day 4 to give light on the earth, thereby delegating to them the regulation of day and night, and to serve as markers for seasons, days, and years. That requires some means of getting the light from the heavenly bodies to earth by nightfall. Time dilation would allow light that actually originated from the most distant stars (as opposed to information being created in the beam) to reach earth by nightfall. No such dilation would be necessary for objects in or near our solar system, as the 12 hours of daylight on Day 4 would be enough time for light to reach Pluto and be reflected back to the earth.