

Creationist Funhouse, Episode Four

GOD PLAYS IN THE MUD

Conservative creationists believe God made a young, created universe appear to be an old, evolved one. In this episode, we see that they believe that God, in the middle of the flood of Noah, smushed the mud around so that it looked as if it were deposited over the course of millions of years instead of all at once.

STANLEY RICE

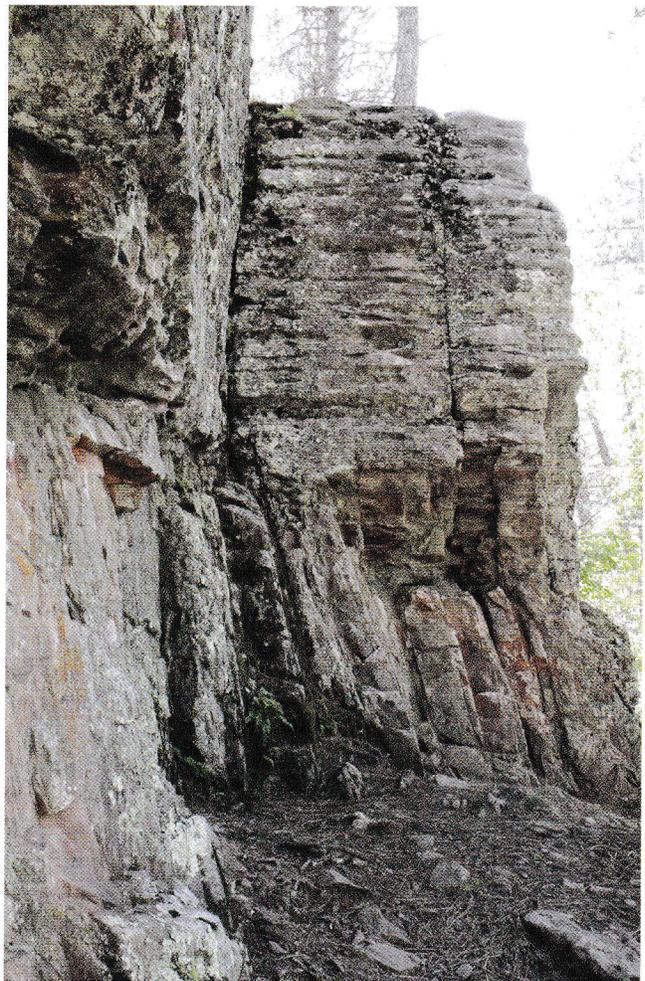
This is the fourth of an occasional series of articles on the Creationist Funhouse.

James Hutton was a scientist in the eighteenth century, back before there were professional scientists. But he had the single most important trait that a scientist needs to have: he had the habit of asking questions about the things that he saw.

As he walked along the cliffs near Edinburgh, Scotland, he saw a promontory that thousands of people had seen for thousands of years and that he also had seen many times, but this time he started asking questions about it. What he saw was an *unconformity*—that is, a place where the layers of sedimentary rock above the unconformity did not match those below. You don't have to go to Edinburgh to see a geological unconformity (although you could always use that as an excuse for a European vacation). You can see some right here in America. I have never been to Scotland, so I will tell you about the Great Unconformity in the Black Hills of South Dakota, which I have visited.

The Great Unconformity is a line that separates Precambrian rock layers, which are in this case over two billion years old, from Cambrian rock layers, which are about a half-billion years old. Of course, that is according to an evolutionary interpretation. To a creationist, this unconformity, like all sedimentary rock layers, was formed during the flood described in Genesis 6.

The standard scientific explanation of the Great Unconformity in the Black Hills is that the lower layers formed in a shallow sea and were compressed into sedimentary rock. Then, after they were rock, geological forces lifted them above sea level and tilted them. This process took a long time, and a lot of erosion occurred. Almost two billion years later, the land subsided, or the sea levels rose (or both), the tilted rock layers were again submerged, and new sediments accumulated in layers on top of them. Finally, the whole thing was compressed into rock and raised up into the mountains, where you find them today.



The Great Unconformity, part of which is in the Black Hills of South Dakota, could not have formed during a Flood.

Here is why the unconformity could not have formed during a single flood. The rock layers below the unconformity have been tilted, and the upper layers laid down horizontally on top of them. If this all happened during a single flood, the lower layers (still being mud) would have been compressed into a big muddy pile—that is, unless something turned those

mud layers to rock *before* they were uplifted and tilted. But how could mud layers turn into rock in the middle of a flood? Well, interesting that you should ask that question. Because God can do anything he wants. He obviously scooped the sediments around and squished them into rock even as the flood waters raged all around him. God, you're my hero! Your valiant efforts have once again made a young earth look old.

Some creationists claim that the sedimentary layers below the unconformity formed during the two thousand years before the flood. But this does not help their case very much. Even two thousand years is not enough time to produce, solidify, and tilt all the sedimentary layers below the unconformity unless God did it miraculously—something the Bible does not mention. In fact, Genesis makes the pre-flood world sound like a quiet place in which gentle mists dominated the water cycle.

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Creationists believe that during the flood, God was very busy thinking about the human future of the earth. In particular, God was getting the earth ready for its industrial future by making sure that the crust of the earth contained massive deposits of coal and oil. Once again, God had us modern people in mind during ancient times by creating things of which all the people who lived before us were unaware.

Coal formed mostly from leaves and branches of ancient forest trees. Oil formed mostly from single-celled photosynthetic cells that floated in ancient shallow seas. Most creationists believe that all the coal and oil formed from trees and cells that were alive at the same time, on the day that Noah entered the Ark. Calculations quickly show that the earth could not have contained this much biological material all at one time—unless, that is, the pre-flood earth had more land area and the growing conditions were better than any found on the earth today. One creationist wrote that it would take only a 128-fold enhancement of plant productivity over that of modern levels to account for the coal and oil. Another creationist claimed that God created the oil miraculously.

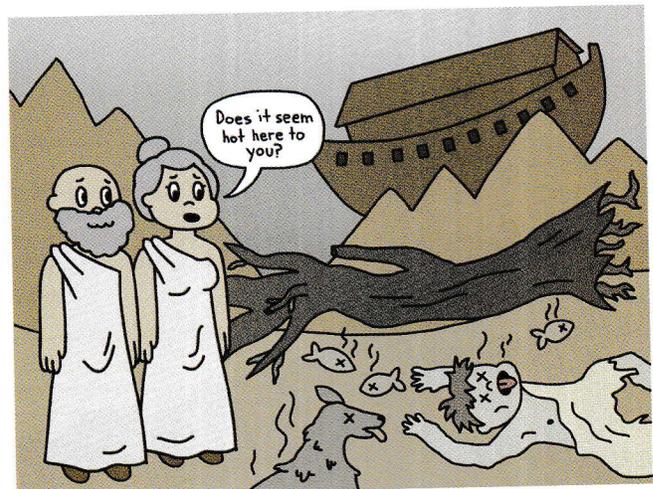
But God wasn't finished yet! He knew that modern industry would need supplies of mineral ore. So, as the flood deposited sediments, God made sure that many of these sediments

The small formation in Idaho is world famous because between the layers of shale (and layers of volcanic ash), you can find many perfect leaves.

contained such abundant minerals as iron and aluminum but also rare minerals such as cadmium and germanium. Had these minerals been dispersed among all the sediments, modern mining technology could not have profitably extracted them. God made sure there were concentrated deposits of ores of everything from iron to germanium. And the best is yet to come for modern industry to make use of God's mineral blessings. The mountains of Afghanistan, where American troops are conveniently located, contain vast deposits of rare minerals that are necessary for electronic equipment.

The Bible, of course, says nothing about God manipulating the flood to produce coal, oil, or mineral deposits.

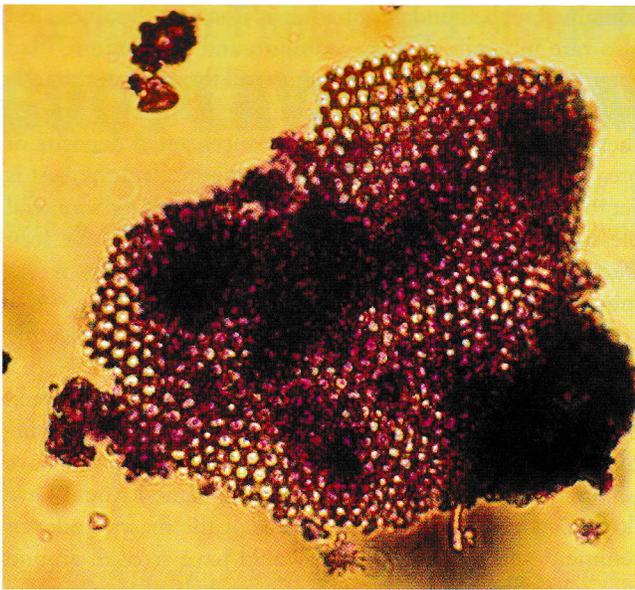
Creationist calculations about how much vegetation would be needed to account for coal and oil assume that all the biomass was buried in flood sediments. This could not have occurred. A lot of the biomass (mostly plants) would have floated and ended up on the surface of the massive piles of sediment and mud that Noah would have seen all around him when the waters receded. If even half of the biomass ended up rotting on the surface, the resulting carbon dioxide gas would have caused, by my calculations, at least 10° C of warming over previous levels. This is not enough to make the oceans boil or Noah's family fall over dead but certainly enough to notice.



Credit: Loraine Thompson

And then there are the microbial deposits other than oil. In some cases, whole mountains consist today of what used to be microbes. One example is organic limestone, which formed mostly from calcium carbonate bio-ooze. Far from being flood deposits, these limestone deposits often contain very little rock, sand, silt, and clay.

One of the most breathtaking examples of a purely biological deposit is one that is built of single-celled algae known as diatoms. Today, diatoms are abundant in shallow water, where billions of them die and form layers of white ooze at the bottom. Diatom shells consist of silicon dioxide rather than limestone carbonate. Just uphill from Lompoc, California, a little



A microscopic view of a diatom shell from the Purisima Hills deposit.



The Purisima Hills of California's central coast consist almost entirely of diatoms that accumulated at the bottom of a shallow sea.

east of Vandenberg Air Force Base, there is the world's largest deposit of diatomite, also known as diatomaceous earth. This mineral, remarkable for its purity, consists almost exclusively of dead diatoms. Between about five million and about one million years ago along the coast of California, trillions upon trillions of diatoms lived in shallow tranquil water (not flood water), then died and sank to the bottom, forming vast layers of diatomaceous slime that were later compressed into diatomite, which now forms entire hills. You can still see fragments of diatom shell under the microscope when you examine diatomite. The White Cliffs of Dover are a similar deposit, consisting of coccoliths rather than diatoms. Thick accumulations of coccoliths have produced all the other chalk deposits in the world as well.



The Fossil Bowl deposit in Idaho contains hundreds of preserved leaves.

While violent flood waters sloshed around, autumn leaves quietly accumulated in a pond in what is now Idaho. About fifty miles south of Coeur d'Alene, Idaho, there is a dirt race-track called Fossil Bowl. Back away from the racetrack is a little cliff of shale layers, about the size of a three-car garage. This small formation is world famous because between the layers of shale (and layers of volcanic ash), you can find many perfect leaves. The volcanic ash allows scientists to estimate the age of the deposit as about fifteen million years. The leaves are not, strictly speaking, fossils. In a true fossil, the original organic material has been largely or completely replaced by minerals such as quartz. But these leaves still consist of organic material. Some of the leaves, when first exposed to the air, still have the same reddish color that they had when they fell off the trees during an autumn day fifteen million years ago. Minutes after exposure to the air, the organic material carbonizes, as in the photo above. The leaves fell from the trees and were compressed into anaerobic sediments; you can still smell the anaerobic sulfur. This could not have happened during a big, raging worldwide flood.

First, consider what kinds of leaves are in this deposit. They are not a random collection of leaves as one might expect from floating rafts of flood vegetation. They are leaves from a beech forest similar to those found in China or the eastern United States today. The leaves are beech, sycamore,

sweetgum, oak, and other deciduous tree species, including bald cypress, a deciduous conifer. The leaves came from a forest that was growing in that location fifteen million years ago.

There are no such forests in Idaho today. All around the site today are forests of Douglas fir and pine. Fifteen million years ago this location was at low elevation, a wet forest; today it is at high elevation and much drier. The reason for both changes is that the western mountains of North America have been pushed up by volcanic forces. This accounts for the higher elevation. These new mountains create a rain shadow that blocks most of the Pacific moisture from reaching the dry forests. This accounts for the drier conditions. These were also the mountains that produced the volcanic ash from which a radiometric date could be obtained. These volcanoes still erupt, most recently Mt. St. Helens in 1980.

A second interesting thing about these leaves is that they came from trees similar to, *but not quite the same as*, modern deciduous trees. The leaves were recognizable as beeches, sycamores, and sweetgums but came from no existing *species* of beech, sycamore, or sweetgum. There has been just enough evolution in fifteen million years to produce slightly different species of each kind of tree.



At Ashfall Beds in Nebraska, hundreds of mammals were entombed in volcanic dust, not flood sediments.

How selective God must have been to find just the leaves that would be similar to but not quite the same as those of a modern deciduous forest and then bury them gently in volcanic ash that he had made to appear fifteen million years old in a pond in Idaho during the flood.

Oh, but God was even busier than this. To see evidence of his consummate skill, all you have to do is to visit Ashfall Beds State Park in Nebraska. Though seldom visited by people from great distances away, this little park is one of the most astonishing places you could go if you want to learn about the history of the earth. In a single location, you can see scores of animal skeletons—mostly rhinoceroses, camels, and three-toed horses—all piled up together. With their bones still in place!

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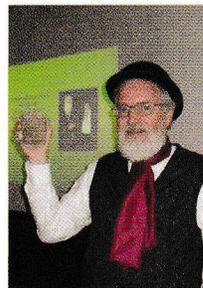
Superficially, the Ashfall Beds deposits look like the remains of a flood, of The Flood. It looks like a lot of big animals got washed up into a pile by a flood, where they got buried by sediments and decomposed quietly without their bones being disturbed. But there are numerous reasons this could not have occurred.

First, the bones are embedded in volcanic ash, not in sediments. The animals died when a volcano erupted and the ash suffocated them. These bones are not a water deposit.

Second, all the bones are from animals that lived at the same place at the same time, in a prairie about twelve million years ago in what is now Nebraska. There are no bones from any place else. Not a single dinosaur, as they had become extinct about fifty million years earlier. Not a single aquatic animal. The only animals entombed here are the species known from other deposits of similar age from North America.

Twelve million years ago, rhinoceroses, camels, and three-toed horses lived in North America. Since that time, American rhinoceroses and camels have become extinct, and modern horses, with a single toe (the hoof), have evolved. And these animals all came together at a small waterhole because, having breathed the volcanic dust, they became very thirsty. The water they drank did them no good. They died from breathing the dust, which then silently covered them. They are still there. This was not a flood.

Geological unconformities in what is now Scotland and South Dakota are evidence that the landscape of earth was not produced by a giant flood—at least, not without a lot of help from God playing in the mud. So, also, are the deposits that occurred in shallow ponds or in volcanic dust in what is now Idaho and Nebraska and the deposits in California and England. But while God was busy pushing dirt around and creating little fossil ponds and big piles of dead algae, he was also devilishly planting evidence that we today would interpret as evolution. That is the topic of our next episode. ■



Stanley Rice is professor of biological science at Southeastern Oklahoma State University and the author of five popular science books, most recently *Scientifically Thinking: How to Liberate Your Mind, Solve the World's Problems, and Embrace the Beauty of Science*. He has been dealing constructively with creationism as a college science educator for three decades.