

**Book Review – Grand Canyon:
Monument to Catastrophe
Chapter 5 – How Was Grand Canyon
Eroded?**



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In this chapter the authors try to propose a mechanism as to how the canyon eroded using the young-earth model. They also seek to destroy the uniformitarian, old-earth model.

Three Observations

In this section, the authors put forth three geologic observations relevant to the forming of the canyon.

Amount of Erosion (Page 83)

Nothing of significance here. The authors merely state that it was a lot of erosion, as you can see in the form of the Grand Canyon.

Grand Canyon Cuts (Page 84)

Here, the authors are amazed that the canyon took the course that it did, instead of the river draining in some other direction. While interesting, this means only that...it didn't go the direction the young-earth theorists thought it would, which is not critical to the big picture.

Uplift Occurred Before Erosion of the Canyon (Page 85)

In order to erode the canyon in the manner that it actually occurred, there would have to be regional uplift before the erosion started. Nothing important here.

In the preceding three observations, the authors are trying to do two things...first, set the stage for their theory (however, what they claim can also set the stage for the old-earth theory as well). Secondly, due to the weak nature of their model, they are trying to make their latter argument credible, by first presenting some credible observations. The hope is that the reader will believe the first, so he will be that much more inclined to accept the latter. This is a standard apologetic technique when you try to sell something.

The Antecedent River Theory

Problems With the Antecedent River Theory

The authors give the arguments against this theory. Since this is an old theory, we will not discuss here. There is one item worth mentioning. The authors do a calculation of the amount of sediment that should have eroded over the last 70 million years, and claim that there is no evidence for this vast amount of sediment, since it should be downriver somewhere. The authors commit several mistakes. First, they base the amount of sediment on a study done from 1926-1950. Sediment rates today, because of the nature of the river, are at their highest. Using these rates gives inflated results. Second, close to half the canyon rocks are carbonate limestones, which would eventually dissolve, and leave no evidence. And finally, the Colorado River changed course about 5 million years ago, and started emptying into the Gulf of California. Therefore, the author's calculations that there should be 70 million years worth of eroded sediments in the Gulf of California is off by 65 million years worth of sediments!

The “Precocious” Gully Theory

This section, in which the authors try to dismantle the predominant old-earth explanation, shows how weak their scientific methods are. The theory they present here is neither a gully, nor is it even up to date. We will update you on the latest.

The term “gully” is misleading. Obviously, this is no simple gully. Nor was this erosion “rapid” as they state...it has been going on for 5.5 to 6 million years. They claim that geologists would have to postulate many different solutions to the problems they give in the opening paragraph...they have.

They claim that the original Hualapai stream, draining westward, gradually downcut enough towards the east, until it merged, or captured, the Colorado River.

Problems With the Gully Theory

How Could the Gully Do It? (Page 90)

After a weak, emotional appeal in the first paragraph with no evidence, the authors mention in the next paragraph, that there could not be a hundred-mile long, east-west gully (river) here because the predominant faults in the area are north-south. What the authors fail to realize is their point previously made about an enormous amount of erosion. The overlying layers, the Moenkopi and Chinle Formations, are completely eroded away over the Grand Canyon. They assume the same faults now in the canyon would indicate they existed in these formations as well. However, there is no way to know this. Obviously, something removed 1,000 feet of sediment from over the canyon, and once it got to the Kaibab Limestone, it started there as well, and embedded itself into the rock, setting the pattern for the Grand Canyon.

Even without this, they state it is hard to believe that the so-called gully eroded 100 miles towards the Colorado River. This river that drained the Hualapai area had been doing so since the uplift at the beginning of the Miocene, about 25 million years ago. Subtracting the 5.5 million years since the stream capture of the Colorado, that's 19.5

million years. Let's calculate that...100 miles, over 19.5 million years, equals a rate of...8/25ths of an inch per year. You see, once you break it down, instead of taking their word for it, you learn that the river only had to erode less than one-half an inch per year towards the east, for it to gradually capture the Colorado River.

The authors look for proof of this ancient river...let's see, the top 1,000 feet of sediment are gone...so they will never find it. Does that mean it never existed...no, because this is the best model for Grand Canyon formation...after all, we have seen in previous chapters that the rock layers can't be laid down during the Flood of Noah, so we are 100% certain the young-earth model is wrong.

When Did the Gully Do It? (Page 90)

Admittedly, there are discrepancies among the radioisotope dates for the canyon...so what. Give or take a million years is fine with me. Just because dates disagree doesn't mean the canyon was formed 4,500 years ago! There are variables in the radioisotope dating process, which gives us a range of dates, and we do our best...it's not perfect...but it's better than "assuming" blind dates based on a 17th century theologian who didn't know anything about science! (referring to Ussher, who postulated the earth was created on 3 October, 4,004 B.C.) More will be said on dating in the rebuttal for Chapter 6.

Could the Landscape Endure? (Page 91)

The authors claim they should be able to see the erosion of the last 70 million years. They can! Look at the 1,000 feet of sediment missing, the Moenkopi and Chinle Formations...oops, you can't look at them...they are gone! Perfect evidence of this erosion!

Where are Evidences of Ancestral Upper Colorado River (Page 91)

The same answer as above. Erosion occurred to the east as well during this time. Any area that has erosion for 60 million years is going to leave little evidence, UNLESS you reverse the erosion process, and start depositing, filling in the channels to preserve them. We look to flat rock formations, for evidence of deposition, since they are depositing sediments, thus they leave evidence of the past river. Here, we are ERODING!!!

The authors on page 92 mention the fact that they should see river deposits east of the Canyon, but they find only the lake deposits of the Bidahochi Formation. This is nothing new, geologists know this lake was there millions of years ago. It presents no problem, nor have any geologists claimed that this is a river deposit formation! This has no bearing on the discussion.

The Breached Dam Theory An Extraordinary Proposal

Here we go with the young-earth theory. In the second paragraph, the authors tell the story of the Havasupai Indians, and their tale of the formation of the canyon after a

flood. They also mention the hundreds of flood traditions worldwide as support for the flood.

Okay, back to the basics. What happened during the flood? ALL humanity was wiped from the face of the earth, and they started over when Noah and his family left Mount Ararat. HOW do these Indians know the flood caused this canyon? They were not there to witness it? The only living witnesses were Noah and his family! Noah landed on Mount Ararat...he did not land on the north rim of the Grand Canyon! Using this simple logic, ALL flood stories must have been passed down by the descendants of Noah. Local cultures from around the world could not claim "the flood did this," or "the flood did that," because they were not dispersed until after the Tower of Babel.

Here is a basic problem of young-earth scientific work...they would rather listen to the tales of fallible men, than to the very creation that God made.

The authors then propose their lake theory. Three large lakes provided the water for the Grand Canyon Formation (Figure 5.22).

Examples of Failed Dams (Page 94)

In this section, they prove that dams can fail. Wow, that's a wonderful contribution to science! Actually, everyone already knows this...the authors merely want to lend credibility to their argument.

Evidences for the Breached Dam

The authors use four evidences for this theory.

Evidence for an Ancient Lake (Page 97)

Note, they say "an" ancient lake. Yes, there is evidence of the lake they refer to as Hopi Lake, only because there are lake deposits in this location they propose. However, this deposit formed between 16 million and 4 million years ago! This small basin is the only evidence for a lake. What about the other, larger lake in Figure 5.22? Evidence for this is based on "other deposits" that "may be interpreted as ancient lake deposits." These scattered remnants that "could" be interpreted as lakes are not given...we are left to accept their existence based on the author's claims. HOWEVER, you can rest assured that if young-earth theorists had solid proof of these lakes, they would be shouting up and down with the evidence...but there is none. Unfortunately for their model, the Hopi Lake is too small to cause their catastrophic canyon formation.

Evidence for Accelerated Drainage (Page 98)

The authors make more misleading statements here. They mention that river systems upstream are "underfit," or don't even have enough water to modify their existing flood plains. Yes, this is true in September, but how about March? Runoff from snowmelt would be greatest, and there is plenty of water then. They say this is evidence of at least one episode of very high discharge. Actually, high discharge happens every spring!

The authors use the incised river meanders as evidence of a greater water flow in the past. However, these incised rivers offer a perfect rebuttal for the young-earth model. Look at the picture in Figure 5.16. The greatest erosional force in a river is at the outer curve of the meander. At the upper right, as the water curves toward us, the greatest erosion happens on the left side of the riverbank. If you increase this water flow to flood proportions, the erosion on this bank would cut right through, and cut off the rest of the meander. A river with a large volume of water would tend away from meandering, and towards a straight line.

The authors then mention the Palouse River in Washington. Look at Figure 5.12 of this river...what incised meanders are they talking about! It looks nothing like Figure 5.16. You don't have the same degree of stream curvature that is shown in Figure 5.16, which proves that it formed quicker than the Goosenecks of the San Juan River. This proves that a cataclysmic flood model would tend to produce a straighter canyon, in contrast to the slow-forming Goosenecks.

Evidence for Relict Landforms (Page 99)

The authors use another common trick...if you can prove it on a small scale, then it must be true on a large scale. Sure, you can lower the water level and produce small-scale canyon structures that we see in Figure 5.17. They say they resemble the larger canyons...so what? This proves that they look like canyons!

In the lab, scientists have produced sapping structures that resemble the large landforms we see at Bryce Canyon and in other locations. Again, what does this prove...only that you can create sapping structure look-alikes in the lab. Look at Bright Angel Creek in the Grand Canyon...this creek on the north side of the canyon is 10 miles long, and they propose that the saps in Figure 5.17, at two feet long, prove their model of canyon erosion. Ten miles versus two feet...no comparison at all!

Just above Figure 5.19, the authors use a quote about seeps in alcoves in the Navajo Sandstone. Interesting to note they are using the Navajo, which the authors previously prove as forming in a desert, wind-blown environment, which invalidates their entire Flood model, since you can't have a desert in the middle of a flood (see Chapter 3 and 4).

So, let's assume the sapping structures are right? So what! They have no bearing on the age of these rocks, even though they look alike.

The authors conclude by making the case that there should be more talus at the base of these cliffs if they were truly old. Look at Figure 5.20. They claim there should be a lot more boulders. Two points...first, we are in a desert...erosion is slow. Second, if you look below the surface of the finely eroded material, you will find more boulders, covered by this material. Figure 5.21 is even more deceiving. They state the absence of recent talus at the base of the cliffs...if you look at the picture, there is talus everywhere! Look to the left of the river, 1.25 inches from the bottom, and 2.5 inches from the left...that entire sloping structure is talus. You find it on all the slopes in this picture. The talus that goes into the river is worn down and transported away. The authors actually used a picture that disproved their point!

Extraordinary Delta Deposits (Page 102)

The authors argue that if the Grand Canyon was formed catastrophically, we should see Pliocene deltaic deposits in the Gulf of California. They go on to confirm that there is evidence of Pliocene deltaic deposits.

Great! Geologists claim the Grand Canyon formed over the last five million years. The Pliocene began 5.3 million years ago. This is perfectly consistent with the Grand Canyon starting to form just over 5 million years ago.

Even more convincing is the fact that the Pliocene ended 1.8 million years ago! If the Grand Canyon were formed within the last 4,500 years, the outwash sediments would be dated as Holocene, which started 10,000 years ago. The evidence the authors give for the delta deposits actually supports the old-earth theory! ([click here](#) to see the geologic time scale, from the Geological Society of America website.)

Concerning the rhythmically bedded mudstones, they are referring back to the old varve argument and the Green River formation of Wyoming. I discussed this in Chapter Three.

How the Breach Occurred

Failure of Dams (Page 102)

Nothing of importance here.

Configuration of Lakes (Page 103)

The authors explain their lakes. While there was a lake in the position of the Hopi Lake, there is no geologic evidence for the Canyonlands Lake, nor the Vernal Lake. The authors refer to the work of another young-earth creationist for the Canyonlands, and provide no real scientific evidence for its existence. They hope that you will simply take their word, and the word of this other creationist.

The Vernal lake doesn't even get this level of support. No references, no evidences are presented for this fictitious lake. Rest assured, if the young-earth theorists had evidence for these lakes, they would be claiming it in their book. As such, you can ignore this section, as there were no lakes!

Rapid Erosion of Bedrock (Page 104)

This section likewise is unimportant. Sure, you may be able to rapidly erode bedrock, but since you have no lake....

Rapid Erosion at Glen Canyon Dam (Page 106)

Sure, this happened. What is the relevance to Grand Canyon? None. It only proves that you can exceed the design capacity of a water tunnel, and cause high erosion rates through cavitation. If I ever create any large water tunnels, I'll keep that in mind.

Summary

The authors again appeal to the debate about the Grand Canyon's origin. Yes, geologists disagree all the time. Does this prove the young age of the canyon? No. It's like two people disagreeing on the recipe for spaghetti. Either recipe will yield spaghetti, but the argument does not negate the recipe...we still create spaghetti with either recipe.

The authors claim the uniformitarian model has failed to explain the canyon. Actually, there is no problem with our model. Instead, the poor science of the young-earth theorist has failed utterly to convince any reputable scientist that the Canyon is young.