

**Book Review – Grand Canyon:
Monument to Catastrophe
Chapter 4 – A Creationist View of Grand
Canyon Strata**



**By Greg Neyman
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Because this chapter takes the viewpoint of the entire young earth creation science framework, it is thus entirely flawed. However, when reading it, some of it may seem to make sense to the uninformed. In order to reach the conclusions of this chapter, the authors rely on the faulty conclusion of Chapter 3. They state with a lot of frequency the word "If..." Their assumptions are that Chapter 3 is correct. However, since Chapter 3 is flawed, this invalidates the creation science arguments in this chapter. Thus, we will not discuss every little point in this chapter, since much of it is already disproved.

Five Divisions of Grand Canyon Rocks

They break up the rocks of this region into five eras. This is important to the disproving of the young earth theory. If you don't have the book, here is how they break up the divisions.

Division 1 & 2 - Pre-Flood and Creation Week. This is everything below the Great Unconformity.

Division 3 - Early Flood. This is the rest of the rocks in the Grand Canyon, or the flat, horizontal layers exposed in the canyon.

Division 4 - Late Flood. This is the rocks which overlie the Grand Canyon rocks, and are visible in the Zion Canyon, Arches, and other areas (very important...take note of this for later).

Division 5 - Post-Flood - This is listed as the formations that geologists claim formed in the Cenozoic, which is 65 million years or younger.

One short note...the authors say that the Zoroaster Granite contains crystals up to eight inches in length. Young earth theorists claim that crystals can form rapidly...they have to in order for it to fit their model. However, we can actually watch molten rock harden today in volcanic regions. When we do this, we see lava flows...the deeper we go, we see fine-grained rocks. These crystals demonstrate the need for slow cooling, and long periods of time. The young earth creation science believer would argue (possibly) that the Zoroaster was eroded to reveal these crystals. However, according to their timeline, there is only 1,500 years from creation to the Flood. During this time, the flat layers of limestone, shale, and sandstone need to be deposited. There is not enough time for all of this to happen.

Early Creation Week Rocks (Page 59)
Creation Week and Pre-Flood Strata (Page 62)

The authors claim that the base, igneous units known as the Vishnu schists and Zoroaster granites, and the uplifted (tilted) rock layers below the Great Unconformity are all in this category.

Zoroaster Granite (Page 60)

In this section, the authors mention the tourmaline, apatite, beryl, and feldspar crystals that are up to 8 inches long. The only way to get this large crystal size is from slow cooling. Young earth creationism may argue that it did, but the overlying, quickly cooled surface has been eroded away, revealing these crystals. However, in the next column, the authors state that Arizona was a seafloor during the creation week. This ocean environment would rapidly cool the granite, leading to small crystal sizes.

Nonconformity (Page 60)

Here the authors' state there must have been erosion processes that started on day 3 of creation. Since both young and old earth creation science models support erosion here, nothing here can be inferred as error, except the already mentioned false presupposition of a young earth leads them to this fictitious conclusion.

Unkar Group (Page 62)

This group of rock layers is said to have formed after creation, up until the time of Noah's Flood. The claim is made that northern Arizona remained an ocean floor for many years after day 3. Thus, supposing 200 years, that leaves us about 1,300 years to deposit this 5,320 foot thick segment, or about 4 feet per year (however, the young earth creation science model proposes over 2,450 feet of this occurred in one day! (They say the Bass, Hakatai, and Shinumo layers formed on Day 3).

The authors mention the presence of stromatolites. Please note that throughout this Group, no complex fossils are found. You would expect some fossilized animals here, in the Dox Formation, but there are none.

Bass Formation (Page 62)

The authors make a big deal about the presence of oxidized minerals, and the supposed conflict this presents with the old earth view of a reducing atmosphere. Two points...first, the Bass was deposited about 1.2 billion years ago. This is 3.3 billion years after the start of the creation of earth. We have been "oxidizing" for 3.3 billion years, so of course there was oxygen in the atmosphere.

Second, the Bass is a limestone/shale formation, which means underwater deposition. The authors claim the water which deposited the Bass was rich in dissolved oxygen, thus making it capable of oxidizing minerals. Since we have been oxidizing for 3.3 billion

years at this point, it would be reasonable to assume that there would have been plenty of dissolved oxygen present.

The rest of the Bass text does not contribute any information which needs further rebuttal.

Hakatai Shale (Page 63)

Nothing of importance here, other than to make a note there are still no complex fossils.

Shinumo Quartzite (Page 63)

Again, no complex fossils. The authors argue that the unusual features shown in Figure 4.7 indicate rapid deposition and tectonics, a reference to their belief in the "cataclysmic" nature of the formation of this feature. However, geologic history is full of cataclysmic events, separated by millions of years. You can't single out one single event, and say it applies to all of creation!

The authors say that this feature probably occurred on day three of the creation week. Great. Consider the Bass, Hakatai, and Shinumo...they are formed in water. Day 1 and 2 were the creation of light and the heavens, so on day 3, God separated the waters from the dry land...thus you have to lay down all three of these formations in the 24 hours of the third day...that is a thickness of 2,450 feet of sediment in one day!!!

Also, keep in mind that we have limestones present on Day 3. In today's world, a limestone is formed from the remains of microscopic organisms...however, they were not even created until after Day 3. Yes, you can get limestone from direct precipitation of calcium carbonate from water, but this is an even slower process of formation, therefore the presence of this limestone is too problematic for the young earth creation science model.

Dox Formation (Page 64)

It is not said, but here must be where we move past Day 3 of the creation week (or, it also could be inferred not to occur until the creation of the Chuar Group of sediments). The Dox is 3,100 feet of sediment, and no relevant information is presented here. No fossils present.

Diabase Sills (Page 64)

These are injected into the Bass, Hakatai, and Dox formations. No relevant information here.

The Cardenas Basalt (Page 64)

The only important thing here is the radiometric dates. The authors show discrepancies in the dating of these rocks. While interesting, this does not disprove the

old age of this unit. It only means we do not have a 100% precise method for measurement of age.

Nankoweap Formation (Page 65)

A 330 foot thick sandstone formation...no relevant dating information here. No fossils.

Chuar Group (Page 65)

This group of formations has a maximum thickness of 6,610 feet. It is here one must ask the question, "where are the fossils?" The Chuar, and the Nankoweap and Dox, are post-creation week, having formed in the 1,500 years from the creation to the Flood. During this time, animals died, yet NONE of their fossils are present in the rocks...anywhere in the world. The young-earth authors argue that this lack of fossils is evidence against the evolutionary theory...however, it is just as valid an argument against the young earth theory. Here is over 6,000 feet of sediment, which according to the young earth creation science model, was deposited after the creation, and before the Flood. Animals were alive, and flourishing, and dying, during these 1,500 years...yet there is no evidence of advanced life forms in these stratum. Once again, the best scientific model is the old-earth model, because the rock layers here and above show increasing complex organisms as you get younger in the geologic record, which is perfectly consistent with the old earth model.

Galeros Formation (Page 66)

Shale, limestone, and sandstone, with a maximum thickness of 4,272 feet. No fossils except for the stromatolites. Nothing of importance for the age of the earth, except the lack of fossils that should be there in the young earth creationism model.

Kwagunt Formation (Page 66)

Shale, sandstone, with small amounts of dolomite and chert, with a maximum thickness of 2,218 feet. Again, a lack of major animal fossils proves the young earth creationism model could not deposit this.

Sixtymile Formation (Page 66)

Mostly sandstone, about 120 feet thick. Again, no significant young earth evidence presented.

The Great Unconformity (Page 66)

The authors propose this great erosional feature occurred at the onset of the Flood model, when the underlying rock layers were uplifted and underwent pressure. While this is the only way to explain it, unfortunately for the authors, there is no geophysical

mechanism to cause such massive upheaval. There is no mechanism in place that would cause such an event. They usually claim that the waters that were released from underground caused this uplift. However, the opposite would occur. Yes, you would have local upheaval where the water came out, but overall, with the underlying water removed, the land would sink, not rise. That is...if you believe this nonsense.

The existing geologic model, with millions of years of erosion, fits perfectly with this evidence for a slow, gradual uplifting of the stratum.

Early Flood Strata (Page 67)

Here is where the Flood model for these rock layers really disintegrates. These 4,000 feet of strata provide ample evidence for millions of years. By the young earth creation science model, the Grand Canyon layers are all "early flood." Since the waters prevailed on the earth about 370 days, these layers all had to form in the first 185 days of the Flood. That is a deposition rate of 21 feet of sediment per day!

Tapeats Sandstone (Page 67)

The Tapeats is a sandstone, with a maximum thickness of 325 feet. Of importance here is the trackways of trilobites. Why do they start to appear here? They must have been alive, by the young earth model, when the pre-flood sediments were deposited...but there are no fossils of them in these sediments. You will notice, as we go up the rock face of the canyon, that the life forms get increasingly complex, which is consistent with a gradual, old earth creation.

At the end, we are referred to Figure 4.12, which gives the author's flood model for the erosion, and deposition of these first layers. Look at the bottom, showing the current speed. This is critical, because of the speed at which a particle of sand or silt will settle out of the water, to the bottom. We have already shown the nonsense of this current speed in another article ([click here](#)). This article deals with the Coconino Sandstone, but the principle is the same. In short, the young earth model cannot move the amount of sediment in the Grand Canyon, at the currents envisioned by the authors.

Bright Angel Shale (Page 70)

This sandy shale is very interesting. Look at the nice, homogenous, clean layers of rock in the model in Figure 4.12. As the waters advance, the shale extends, until eventually the overlying limestone is laid above it. According to the young-earth model, you should see one clean layer of nothing but shale.

However, the shale has interbedded limestone throughout. This indicates a fluctuating sea level, not the nice, clean unit we see in the young-earth model. The young earth model cannot answer why we have an apparent fluctuation in sea level. According to the flood model, the waters rose, then fell...no fluctuation. The last sentence does state that it intertongues with the Mauv Limestone...proof of a fluctuating sea level, not a constantly rising one.

Figure 4.13 is interesting. It shows hikers from the Institute for Creation Research examining a rock face for fossils of trilobites. It does not say if they removed some...to remove one from the Grand Canyon would be a federal crime...to remove anything from a national park is against the law. It does not say, but it makes you wonder...

Mauv Limestone (Page 70)

A sandy limestone varying in thickness from 350 to 1,000 feet. States the calcium carbonate sediment source as being from west of the Canyon...but according to their model, given in figure 4.12, the current is east to west!

The authors are proposing that as you go westward, then you get less of a current. Okay, then the following statement should be true...where you have the strongest current (in the east) you should have the highest erosion, and thus the thicker formations should be in those areas of faster current. The fastest current caused the first unit, the Tapeats Sandstone (125-325 feet thick), then the Bright Angel Shale (350-400 feet thick), then the Mauv (350-1,000). This is backwards of what the young-earth model should give you! The Mauv Limestone should be the thinnest, since it is formed in the least velocity current, which is not able to move as much sediment as the faster current...however, it is the thickest!

Unnamed Dolomite (Page 70)

Nothing important. No mention of fossils.

Disconformity Beneath Temple Butte Limestone (Page 70)

Very interesting...in the previous chapter, the authors went to great lengths to explain away all the supposed unconformities in the canyon. They did not mention this one in their discussions. If the authors had good evidence against this disconformity, they most certainly would have mentioned it. They must not be able to refute this one! This section gives a very weak argument, appealing to the emotions of the reader. They hope that you won't go back to Chapter 3 and look at this, or that you will simply remember, "Hey, they disproved all of them in Chapter 3," so the reader blindly accepts it without further thought. Very Interesting.....

Note their tactic...In the middle of the paragraph, they give the standard geologic answer, then they ask if such a long interval is justified by the physical evidence. I don't know...the authors DON'T give any of this 'physical evidence.' Rest assured, if the young earth authors had any such evidence, it would be presented. The lack of evidence, and the author's non-existent arguments, are conclusive proof that the young earth creation science model does not have an answer for this disconformity!

Temple Butte Limestone (Page 71)

Thin limestone, containing rare corals, brachiopods, and gastropods. Here we see these fossils for the first time. Below this level we have had trilobites, and stromatolites. It is easy to see the progression of increasingly complex fossils as you proceed up the

canyon walls. Again, we are early in the flood, according to the young-earth model...but with all the land covered, all the dinosaurs should be dead now. Why do the layers below this not have dinosaur fossils....or any mammal fossils, for that matter.

Disconformity Above Temple Butte Limestone (Page 71)

This one is not mentioned in Chapter 3 either! Their defense here is a little stronger, but still very weak. Again they appeal to the readers' emotions by asking a question for their conclusion...so they must not have any solid evidence again. The argument about the stream gravels is absurd. Of course there are no stream gravels...why should we see stream gravels in the lenticular infillings??? As the waters rose above this area, you have an advancing beach...you would expect sands...any gravels present would get washed away by the waves at the beachfront, or would be worn down to smaller particles by the wave action. Any sand size particles would be from the limestone source anyway, which is the Temple Butte, so they would probably dissolve back into the water to be precipitated out as the overlying formation.

Redwall Limestone (Page 72)

One of the primary cliff-forming formations of the canyon. Increasing complex fossils as you move up the cliff face. Fossils are foraminifera, brachiopods in the Mooney Falls Member, brachiopods, bryozoans, and crinoids in the Thunder Springs Member, and nautiloids, crinoids, horn corals, formaminifera, and brachiopods in the Whitmore Wash Member.

Other than the fossils, not much to note here. It appears as if the authors are guessing...the second paragraph they say 'Creationists might suppose...' In other words, they don't have a clue.

Disconformity Above the Redwall Limestone (Page 72)

From the discussion of chapter 3, there is no reason to doubt this is not a millions of years old disconformity. It is interesting to note the authors choice of words. There is a 'slight degree' of relief (relief=elevation change). Then they mention there are 200 foot deep channels in the Redwall...I would certainly not choose the word 'slight,' for a 200 foot deep ravine in a formation that is only 500 feet deep!

Surprise Canyon Formation (Page 72)

Nothing to note here.

Supai Group (Page 72)

A group of four formations. I'm unsure why the authors chose to do this, but with the earlier Unkar Group (page 62) and the Chuar Group (page 65) the authors maintained the order of the individual formations, from bottom to top. In the Supai, they reverse this, and discuss the formations from top to bottom. I'll reverse them here to put them in their

proper order. There are two possibilities...the editor did not catch this, or the authors are trying to hide something.

Watahomigi Formation (Page 73)

A 160-foot thick limestone, with some chert beds, sandstone, and shale (all evidence of fluctuations in sea level).

Manakacha Formation (Page 73)

A mix of sandstone, mudstone, shale, and limestone with red chert beds, about 300 feet thick. Nothing to note here.

Wescogame Formation (Page 72)

Alternating layers of sandstone and siltstone (again, evidence of fluctuating sea levels). Here we have the appearance of vertebrate fossil tracks. Also, note the presence of conglomerate in Figure 4.15, between this formation and the Esplanade, indicative of river, or deltaic deposition. This conglomerate is not mentioned in the text.

Esplanade Sandstone (Page 72)

Three-hundred foot thick sandstone with fossil crinoids and fusulinids. The formation is intertongued with limestone to the west, further evidence of fluctuating sea levels, not constant-level as the Flood would cause.

After the Watahomigi, the authors make conclusions about the Supai Group as a whole. They make the case, based on colorization, that the group is a marine deposit. The presence of the conglomerate at the base of the Esplanade is proof enough to disprove this. They say the uniformity of the red shales and sandstones over large areas argues against continental deposition...why? No reason is given, and the reader is left to accept this as truth without proof. They state they have evidence for marine deposition of red sand. Is there anywhere in the world where we can see marine deposition occurring now with red sand? No...some places, such as Hawaii, has black sand, but the rest is white.

They site the lack of channelized sand as proof of non-continental deposition. They are assuming that they should see these channels if deposited in a deltaic system. The absence of these features does not disprove it...it merely means the portions of the formation that is exposed does not exhibit channelization. Perhaps more erosion will prove this. Here, I will use a statement of the young-earth theorists...this is something that needs more study.

Conformity Between the Hermit Shale and Supai Group (Page 74)

Nothing of interest here.

Hermit Formation (Page 74)

This formation is about 300 feet of mostly siltstone. Of note here is the fossils of ferns, footprints, and a fossil wing of a fly. Again, we have increasingly complex organisms as we get higher in the geologic record, which is perfectly compatible with an old earth theory.

Did that say ferns? Hmmm. The earth is completely buried in water, yet we have a concentration of a terrestrial plant here. They cannot have been brought in by the currents, because they would have been stripped of their leaves by the currents proposed by young earth creationists ([see this article](#)).

Let's take this back one more step. This is the first fossil evidence of plant life...however, when the flood started, there should have been many fossils of plants found in the lowest layers of the flood rocks. Going all the way back to the Tapeats Sandstone, at the start of the flood, we should see rapidly buried trees, plants, and animals, all mixed in this first layer, as these things died at the onset of the flood. However, there are no fossils in the Tapeats. This is very conclusive evidence against a young-earth flood model.

Most of the information given is not evidence for a young earth, but evidence that uniformitarian geologists don't agree about the source of this formation. They have no evidence, so they try to pit these geologists against each other, in an attempt to cast doubt upon their theories. Just because two geologists disagree, is no proof of a young earth!

Paraconformity Between Hermit and Coconino (Page 74)

Nothing of importance here. The existence/non-existence of this feature is not significant. While the absence of erosional features is noteworthy, it is inconclusive.

Coconino Sandstone (Page 75)

This 300-foot thick formation is desert in origin, which completely wrecks the wet flood model. To see my rebuttal of this formation, see [this article](#). It proves beyond any doubt that the young-earth model for this formation falls flat on its face. Also check Chapter 3 of this section, under the heading Desert Dunes.

Toroweap Formation (Page 75)

About 250 feet of limestone, with some sandy limestone, gradually giving way to sandstone above and below the limestone layer. Contains Brachiopods and other fossils. Nothing else of interest.

Conformity Between Kaibab and Toroweap (Page 76)

Nothing of significance here. Even if we accept the "one ocean" argument, that doesn't imply it was one short-lived, global flood ocean...an ocean lasting millions of years would accomplish this just fine.

Kaibab Limestone (Page 76)

Limestone layer of about 250 feet, forming the rim of the canyon. Marine fossils are implied, (the same as are in the Toroweap), but the Toroweap does not give a complete listing.

Late Flood Strata and Erosion Surfaces

Now, referring back to Figure 4.1, the rest of the formations are called late flood. By this time, halfway into our 370 day flood event, the water is receding. Here, they actually give evidence of sea-level fluctuating, by inferring from Genesis that this tidal movement occurred. This is based on the translation of Genesis 8:3a and 8:5a of the King James II Version. I'm not sure which version of the KJV this is, but one thing is certain...as Bible translations are updated, errors are removed, thus we don't have this interpretation in today's KJV. I checked five modern translations, all giving a simple version of recede, or return. Even the KJV II text does not support their argument. In this, they come close to the warning in the Book of Revelation, that we should not add or subtract from the content of the Bible. Be careful, young earth creation science proponents...you're treading on ground I would not want to be on.

Unconformity Above Kaibab Limestone (Page 77)

Nothing important.

Moenkopi Formation (Page 78)

Nothing important.

Chinle Formation (Page 78)

This is where it gets interesting. This layer supposedly overlaid the entire region, which is acceptable. This formation contains a large volume of volcanic ash. Fossils include ferns, logs, dinosaurs, and marine invertebrate fossils.

Dinosaur fossils? This is the first formation in which dinosaur fossils appear. Please note that we are in the late flood period, probably 200 days at least after the rain started. So, did these dinosaurs tread water for the past 200 days? Why did they not appear sooner in the lower rock layers.

In order to explain this, young earth creationism must say the bodies floated on the water, and then sank. Dinosaurs are together because of their specific density...thus they sank at nearly the same time. However, would anything be able to float at this time? A global flood produces water currents that top out at 194 miles per hour over the continents ([Baumgardner and Barnette](#)). Nothing would be able to stay afloat, dead or alive, under these conditions. Given the patterns they propose, the bones would be carried along by the great currents, and deposited when the water current dropped.

Assuming they did manage to float, what would have happened? They used multiple continental shapes in their tests, but they all assumed the land masses on one side of the globe. Therefore, the bodies would be carried along to the other side, and all be in one hemisphere (divided north-south), and deposited in the deep ocean basin. However, we have bones all over the world.

However, that is the least of the young earth creationism problems. Look at Figure 4.1 on page 58. There are many more layers of rock above the Grand Canyon laterally, that are not addressed in this book. Of special interest is two formations, the Navajo Sandstone, and the Morrison Formation (it is not visible in the Zion Canyon area...it lies just below the Dakota Sandstone).

Dakota Sandstone

The Dakota Sandstone is a massive, desert sandstone, formed by wind. How could there be a desert in the middle of Noah's Flood? For a complete description, see my article on [Desert Problem](#).

Morrison Formation

The Morrison is another massive formation to the north. It is mentioned once in the book, on page 215. It is famous for its massive numbers of dinosaurs that have been buried in it, and recovered as fossils. By the Flood model, it is Late Flood, as it is underneath the Dakota Sandstone in the figure on page 58. How did these massive numbers of dinosaurs survive until late in the Flood? By all accounts, their fossils should be at the bottom, in the Tapeats Sandstone. In fact, most fossils would appear here...but they don't.

Also, it's not just fossils. Consider the trackways...footprints left behind by dinosaurs. The Morrison, and other later formations, all contain these footprints. Even if you accept the fact that these dinosaur bodies floated around the globe for 200 days before sinking, the evidence of the footprints proves that they were still walking around, 200 days after the start of Flood!!!

And what about nest sites? We have recovered complete, intact nest sites full of eggs from these locations. Now we have dinosaurs laying eggs, 200 days into the flood!!! These are terrestrial dinosaurs, not the swimming variety!

Then there is the evidence from dead dinosaur graveyards. Young earth creationists claim these massive graveyards are evidence of the Flood. However, many of these sites yield bones of one type of plant-eating dinosaur, and right there with it, are the teeth of small, baby theropods (meat-eating dinosaurs). There are teeth marks on the bones, where these small theropods chewed on the bones. So, the flood killed these 20 foot tall plant eaters, and then the small, five-foot tall baby theropods swam underwater to where they were, and ate on them!!! (There are adult chew marks and teeth as well...it was a family buffet)

All this is impossible to explain with a flood model. Clearly, the dinosaurs were thriving, living on land, when they died. The standard, millions of years old geologic model fits these facts perfectly.

Widespread Erosion Surface Above GC Formations (Page 79)

Nothing important...does not prove anything relative to a worldwide flood...since the evidence is washed away!

Post-Flood Deposits

Volcanic Rocks of Western GC (Page 79)

Dated anywhere from 1.3 billion to 700 million years old. Age is irrelevant, due to the fact the underlying rocks cannot be produced by a flood model. For more on Dating Techniques, [click here](#).

Landslide Deposits (Page 80)

River Gravels (Page 80)

Lake Deposits (Page 80)

Nothing important here.

Summary

The authors claim that they have integrated the five main divisions of rock formation into the historic framework of Scripture (i.e. Noah's Flood). From the above discussion, it is obvious they have failed miserably.