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**C1030 – August 25, 2010 – Grand Canyon**

We're going to be wrapping things up next week in our Biblical Framework of Geology and returning to our normal course in the Minor Prophets, we'll be picking up with the prophet Micah, so if you want to do some reading that's where we're going. Tonight, I want to do a special on Grand Canyon. I'm going to use Grand Canyon sort of as a mock to illustrate our basic presupposition of catastrophism. We want to see how we can apply what we've learned. We could do this with a number of geologic structures but I chose Grand Canyon because it's grand, it's well-known and it's one of the earth's grandest geological features. Next week, we'll try to draw this all together into one picture, so it will summarize what we've covered. We haven't covered all the details and we don't intend to; our goal is to provide a framework for thinking in this area. And hopefully by having the larger framework it can serve as a compass to gauge what we're constantly being fed in our educational system, in the media, in National Geographic, on the History Channel, etc. Everywhere you turn you hear the same old story that's been filtered through the evolutionary framework but if you have a biblical framework for thinking about these things then you can use it to re-interpret the pagan story inside the biblical worldview. We want to do to them what they've done to us and that's suck them in and interpret them in our frame of reference. Christians have allowed the world to take the data in nature, which is God's data, God's revelation and twist it and interpret it in their frame of reference and then we come along and say, well, they're the experts, they know what they're talking about, they've got the Ph.D's. And then we come to the Bible and the Bible doesn't fit what the Ph.D's say so we adjust the Bible to fit what they say and that undermines biblical faith, that erodes, to use a geological term, our ability to trust God's word. So to reverse this

trend and take every thought captive to Christ, we have to consider the most important data in Scripture first and think through the implications, then go to the data and interpret nature in terms of the Scriptures.

### Statistics of Grand Canyon

Tonight we want to do that with Grand Canyon. Let's start with a look at Grand Canyon and some of the statistics. Grand Canyon is located in the state of Arizona and forms perhaps the greatest geological formation on earth. Geologist Steve Austin says, "There is no sight on Earth which matches Grand Canyon...The scale is too outrageous. The sheer size and majesty engulf the intruder, surpassing his ability to take it in." Look at this, at 277 miles long Grand Canyon virtually isolates the entire NW corner of Arizona from the rest of the state. If we could just move Grand Canyon to the southern border with Mexico we wouldn't need a border patrol. Breathtaking views spanning up to 18 miles across and a mile deep where the Colorado River flows. For sheer scenic beauty many consider it unsurpassed. As the sun strikes the walls your eyes are presented with a feast of the entire known color spectrum.





The sunlight across the landscape creates hues of pink, blue, orange, red, yellow, purple, green and violet. Truly one of the marvels of the world and it has kept people mystified for centuries.

Yet in this vast canyon of stratified sediment there has never been a single fossilized reptile bone found. Remember what we said, about the nature of the fossil record, over 95% of it is marine invertebrates,

another near 5% is plants and less than 1%, far less than 1%, is land animals. As large as Grand Canyon is there has never been a fossilized reptile bone found. But there are many, many marine fossils, there are billions of nautiloids, a marine Cephalopod, that have been found all oriented in a similar direction along a thin strata extending the entire length of the canyon, suggesting rapid, moving water deposition.<sup>i</sup> So that gives you an idea of Grand Canyon, some of the facts of Grand Canyon. We want to press on to the formation of Grand Canyon. How did this great geological feature form?

### The Formation of Grand Canyon

Uniformitarian geologist Spamer said, “The greatest of Grand Canyon’s enigmas is the problem of how it was made. This is the most volatile aspect of Grand Canyon geological studies.” R. J. Rice puts it this way, “After a century of study, we seem, if anything, to be further than ever from a full comprehension of how the Grand Canyon has evolved.” Of course, we’ve all heard the Antecedent River Theory, the idea that the Colorado River cut out the canyon. Still today millions of people visit Grand Canyon and are told the story that the canyon was cut out by erosion caused by the Colorado River over millions of years after an upwarp of the Kaibab Plateau. It’s envisioned that the upper Colorado River and the little Colorado River joined together and the flow was so great that it ate its way through forming the canyon. But we have a little problem with that. When a river erodes gradually we can find the eroded sediment in the river delta. But we can’t find all the sediment in the Colorado River delta. We should find 1.3 million cubic miles of sediment, that’s sort of a big pile of sediment, and we ought to find it in the delta of the Colorado River but we can’t find even near that amount of sediment. Yet this is what 4<sup>th</sup>-6<sup>th</sup> grade students are told. This is from the teachers manual, “Over billions of years, geologic processes such as deposition, uplift and erosion have shaped the surface of planet Earth. By studying the geologic history of Grand Canyon, students will gain a better understanding of many universal geologic principles and processes.” Notice the word universal, which means universal in space and time, that’s the doctrine of uniformitarianism, that all continues just as it was since the beginning. That’s what Peter warned against, taking present processes and applying them to the past to unlock the

formation of Grand Canyon. This is teaching children to not accept the self-authenticating God of the Bible but to accept the self-authenticating claims of present experience as universally self-verifying. The manual goes on, “The canyon, and all of the formations within it, results directly from weathering and erosion in various forms. The Grand Canyon is one of the world’s greatest examples of arid land erosion through layers of stratified rock. For Grand Canyon to form it needed to be desert and it needed a river starting at a high altitude. The river has cut the canyon by scouring the walls and its bottom with the sediment it carries...As the river cuts down, it cuts straight through hard layers, then erodes the softer layers more quickly. (This is differential erosion.) As the softer layers erode back, the hard rocks like sandstone eventually collapse due to lack of support. Rain erodes side canyons and canyon walls to make the canyon wider. Freezing and thawing in rock crevices during the winter also erode the canyon walls.”<sup>ii</sup>

Remember what we learned earlier in the class? Everyone comes to the data with a worldview or presuppositions that determine how one interprets the data. Grand Canyon is no different. If one has a uniformitarian worldview, that present processes are the key to the past, then he will hold that the canyon was cut out by the erosive forces of the river over millions and millions of years.

However, if one holds to a catastrophic worldview, then certain catastrophic processes in the past revealed in the Scriptures formed the canyon very rapidly. The debate came to a head in 2003 when Tom Vail, a Colorado River guide, published his book, *Grand Canyon: A Different View*. In the book Vail says, “For years, as a Colorado River guide I told people how the Grand Canyon was formed over the evolutionary time scale of millions of years. Then I met the Lord. Now, I have “a different view” of the Canyon, which, according to a biblical time scale, can’t possibly be more than about a few thousand years old.” You may recall this. What happened was Vail published a creationist interpretation of the formation of Grand Canyon and of all things the National Park bookstore at Grand Canyon accepted it. So now we have on the bookshelves two ideas on the formation of Grand Canyon: the young earth catastrophic view and the old earth uniformitarian view.

Actually there were already other ideas on the bookshelves than the Colorado River Theory, namely the Precocious Gully Theory, but nobody was too upset about that. It's just that Vail's book invoked the sovereign God of the universe and so it was labeled as religious, right-wing fundamentalism. The uproar from the scientific community broke forth immediately. You always want to pay attention to what causes an uproar. It's like in war and you know how well your artillery is scoring by the screams from the enemy camp. So you know you're onto something when you get an uproar. Here are some of the screams against Vail. "...the Grand Canyon has long been viewed as a kind of living encyclopedia of geological forces, a layered history of the Earth that debunked fundamentalist dogma on the age of the earth." See the agenda at work? What's the real agenda underneath interpreting Grand Canyon as cut out by the Colorado River? To debunk "fundamentalist dogma." They said it themselves, paganism unveiled its true position, and "We hate fundamentalism and the Bible." The article goes on; get a load of this vitriol, "The Park Service leadership now caters exclusively to conservative Christian fundamentalist groups." "What's next? Live reenactments of the witch trials at Salem National Historical Park, presided over by John Ashcroft?" Look at the tone of those reactions; those are the violent screams from the enemy camp as Vail's artillery scored points. Vail was on to something. His case, if you remember, is a lot like Judge Roy Moore. Remember Moore was the judge in Alabama who had the audacity to put the Ten Commandments on the wall of his courtroom, you know, "Thou shalt not murder," We can't have that on the courtroom wall, God wrote that. It's only the basis of all Western Law and they came along and said you have to take that down and Moore, very confidently, very coolly refused to do anything of the sort. Lost his job for it. Good for him. This was all going on about the same time Vail's book hit the bookstores at Grand Canyon and the reactions were violent on both ends because what both Vail and Moore were doing was hitting the enemy target. Where's the target? The target is whenever you bring the God of Scriptures out of the religious box. Once you make His work public, whether it's in Law, as the case with Judge Moore, or Geology, as in the case with Tom Vail, when you say that the word of God applies outside of your personal private religious experience, you're a threat, and Satan perceives the threat and there's a flood of vitriol and hate that follow.

So we want to be like Vail and Moore. We want to send some artillery right on top of the enemy. Christians that don't do this aren't even in the war. There's a war being fought and we're soldiers for the truth. So we want to go into what is the truth about the formation of Grand Canyon, evidently a very sensitive portion of the pagan heart. Dr Henry Morris says of Grand Canyon, these rocks aren't just beautiful, they're "a solemn witness to the mighty power of God." Ken Ham said, "The Grand Canyon is one of the greatest memorials of God's work that we possess. If only the Christian church took God at His Word, it could be used as one of the great reminders of His power."

What Ham means is we're followers of God and Christ, shouldn't we consider first and foremost the most important data? What the Scriptures have to say? Shouldn't we take every thought captive to Him? He's the sovereign Lord of the universe and He wrote the plan of history. He "declared the end from the beginning, From ancient times things which have not been done, Saying, "My purpose plans will be established, And I will accomplish all My good pleasure...Truly I have spoken; truly I will bring it to pass. I have planned it, surely I will do it." So He knows what He planned and He knows what He did and so we want to start with what He did in Gen 8. Gen 8 is part of the Global Deluge chapters of Noah. We looked at the hydroplate model of Dr Walt Brown where he has tried to account for the data in the earth. And part of that model and every biblical flood model is that after the first 150 days the waters had prevailed over all the high mountains of the entire earth. Put yourself on the moon and you're looking at the earth on the 150<sup>th</sup> day, what would you have seen? A blue sphere. If you had a telescope the only object you could find on the surface of the blue sphere would be what? The ark. So let's pick up on the 150<sup>th</sup> day. "God remembered Noah and all the beasts and all the cattle that were with him in the ark; and God caused a wind to pass over the earth, and the water subsided." So this is the retreat phase, the water is abating. Verse 3, "and the water receded steadily from the earth, and at the end of one hundred and fifty days the water decreased." meaning on the 150<sup>th</sup> day the waters began to recede. Verse 4, "And in the seventh month, on the seventeenth day of the month, the ark rested upon the mountains of Ararat." That's the 150<sup>th</sup> day as well, so the waters

retreated on that day to the level where the ark rested on the mountains of Ararat. Verse 5, “And the water decreased steadily until the tenth month; in the tenth month, on the first day of the month, the tops of the mountains became visible.” So the water is running off the land into the newly formed ocean basins. Verse 6 you have another forty days of this runoff erosion going on, then Noah sends out the raven, “and it flew here and there until the water was dried up from the earth. <sup>8</sup>Then he sent out a dove from him, to see if the water was abated from the face of the land.” The dove came back, verse 10, “So he waited another seven days; and again he sent out the dove again.” The dove came back again, this time with an olive leaf. “So Noah knew that the water was abated from the earth.” So the water has decreased, now verse 13, watch the emphasis, “Now it came about in the six hundred and first year, in the first month, on the first of the month, the water was dried up from the earth. Then Noah removed the covering of the ark, and looked, and behold, the surface of the ground was dried up.” Verse 14, “the earth was dry.” Now think through what we just read. If you have water covering the entire earth and then it runs off into newly formed/forming ocean basins then what’s going to happen to some of the water as it runs off? It’s going to get captured in low elevation places and form post-Flood lakes on the continents. That’s what the Flood model predicts.

And, in fact, we have evidence of ancient lakes all over the world. “Modern surveys as well as the ancient historian Herodotus show that the Sahara Desert had great lakes with much runoff.” Lakes in the Sahara Desert? It’s one of the driest places in the world? Yet evidence suggests it was once full of lush vegetation.<sup>iii</sup> If you’re familiar with the NW there’s a dry lake in Montana called Lake Missoula that was dammed up by ice from the ice age and when the ice retreated the dam failed and it flooded into SE Washington State into the Coulee region. And in NE Arizona there is evidence of a lake named Hopi Lake that is no longer there. But we have evidence it was there including fossils of freshwater fish, amphibians and beavers and laminated silt and mud layers. It was east of the Kaibab Upwarp which served as the dam. Today there is no lake there because the lake that was there caused an enormous breach called Grand Canyon which cuts right through the Kaibab Upwarp. It’s difficult to tell exactly where the borders of Hopi



Lake were but it occupied the drainage basin of the present Little Colorado River. It's possible there were other lakes such as Canyonlands Lake and Vernal Lake in SE Colorado which could have also breached their dams and when you put all that water together it formed Grand Canyon, either successively or simultaneously.

It appears this is what happened: when the Flood waters retreated water was trapped in Hopi, Canyonland and Vernal Lakes east of the Kaibab Upwarp. Some time after the Flood these dams were breached, possibly one after another and this caused the rapid catastrophic formation of Grand Canyon. This is called the Breach Dam Theory.

What processes can cause the breaching of dams? Two such processes are known. Overtopping and piping. Overtopping is when the water level gets high enough that it starts to run over the top of the dam, in which case it causes erosion rapidly. "...as a spillway is formed, and the volume of flow increases...the notch in the dam is lowered and the lake behind it is drained." Alternatively dams fail by piping. Piping occurs when water pressure within the dam builds up to such a sufficient level that tunnels of water begin flowing through the dam causing erosion and the dam collapses into the piping channel, this rapidly opens up a spillway through the dam and the lake drains catastrophically. Both overtopping and piping of dams cause "rapid erosion, even of solid rock and concrete...as high-velocity flow causes cavitation...and plucking. The volume of material that can be removed...is astounding."

Let me explain two words in there, cavitation and plucking and a third word not mentioned, kolk. These are three catastrophic geologic processes that have come under intense scrutiny in recent years. The question is can these processes account for the formation of Grand Canyon. The first word, cavitation, was introduced to me by my brother-in-law who's an engineer. He worked at DFW airport and was responsible for a number of things, one of which was keeping the runways dry. He was always involved in drainage projects. And he started telling me about cavitation, a rock pulverizing process associated with water that could quickly destroy pump propellers. If the water flow gets greater than 20 miles an hour, which is really fast, the atmospheric pressure decreases below the vapor pressure of water

and so the water undergoes a phase change and forms tiny bubbles, just like boiling water, and these vapor bubbles have extremely high atmospheric pressure and when the atmospheric pressure increases they condense and implode. “The cavitation process inflicts explosive, hammerlike blows on the bedrock surface, with pressure ranging as high as...(440,000 pounds per square inch)...rocks are literally converted to powder by the cavitation process. Because of its obvious catastrophic effects, engineers take deliberate steps to avoid the conditions which cause cavitation.” We have an example of this at the spillway tunnel at Glen Canyon Dam in 1983. They had unexpected flow rates due to snow. On June 15, 1983, after days of attempting to control the rising water level in Lake Powell they opened an additional 40-foot diameter spillway to drain 12,000 cubic feet of water per second. This was increased to 17,000 cubic feet per second and on June 28 it was increased to 32,000 cubic feet per second. So they’re increasing the flow of water. Suddenly “large blocks of concrete and bedrock were hurled from the 40-foot-diameter tunnel. The water exiting the tunnel became red (the color of the surrounding sandstone), and noticeable ground vibrations (earthquakes) were felt by engineers. The spillway tunnel was immediately closed...” This is what the survey team discovered. The concrete in this spillway was three-feet thick steel-reinforced. Where the tunnel levels out they found a hole 32 feet deep, 150 feet long and 40 feet wide that was cut right into bedrock. The speed of this erosion occurred extremely rapidly, in a matter of only seconds to minutes. That’s cavitation and that’s why engineers have to be careful. If the water gets travelling too fast and those bubbles form they’ll implode and rock will be pulverized. And that’s one process we think cut out massive amounts of rock to form Grand Canyon.

The second catastrophic geologic process is called plucking and plucking occurs when the water is flowing at such high velocities over the surface of the bedrock that it’s able to rip loose and pick up large blocks of bedrock at the joints. Once these large pieces of bedrock are in the flow they are tossed downstream where they bang the bedrock causing further loosening of rock and increased erosion. Another known process that was probably involved in forming Grand Canyon.

A third, and perhaps the most energetic catastrophic geologic process, is known as kolk. A kolk is an underwater tornado that forms as high-velocity water rushes by underwater obstacles, causing it to rotate rapidly. The suction power is immense and it can lift multi-ton slabs of bedrock right up and send them down the water flow causing more pitting and erosion. We think all three of these processes were heavily involved in forming Grand Canyon catastrophically in the post-Flood world.

Here's what the Indians in that area still today believe about the Canyon. They're one of the groups that migrated across the Bering Strait after the dispersion at the Tower of Babel and since the Ice Age was going strong at that time it exposed land bridges and so they were able to migrate across these exposed land bridges into North America. They remember the Flood as many cultures do. There are over 270 Flood stories that contain remnants of the truths of Genesis and you can do comparative analysis. This group of Indians are called the Havasupai, they live in the canyon still today. Here's their account of the Flood. "The people put a small girl in a log with the ends blocked with pitch. She had with her food, water, birds, and animals. Two men told her that she would be going up and down in the water and that they would all be drowned. She should remember the San Francisco Peaks so she could fit it [sic] if she came back to earth in another place. She was to get water from a spring on top of the peaks. The water covered all the earth and drowned all the people." It's distorted but you can see elements that are similar to the biblical account. The distortions you can also see, these are distortions of the original Genesis account with faint reminders of some of the truths. Then they have a legend of how Grand Canyon formed. "As the waters of the world dried and flowed away, the face of the earth cracked, and was worn full of deep canyons. One of these canyons was very narrow and filled with rattlesnakes. This was the canyon of the Havasupai."

The point we want to make is that these American Indians have a better remembrance of Noah's flood and the aftermath formation of Grand Canyon than American universities.

We also want to mention the evidence of Mt St Helens. On May 18, 1980 debris and volcanic ash from the eruption blocked the valley of the North Fork of the Toutle River. Two years later on May 19, 1982, a mudflow in the valley caused an overtopping of mud and water. The catastrophic event produced a lot of canyons, some as deep as 140 feet, even cutting through solid lava flows tens of feet deep. The resulting canyon we observed formed extremely rapidly under catastrophic geologic processes. It remains as eyewitness testimony that canyons can form extremely rapidly and not necessarily over millions of years.

In conclusion, “The breached dam theory for the origin of Grand Canyon can be integrated into a biblical Flood model. Late in the Flood, and in the immediate post-Flood, the Kaibab Upward was formed. This upward blocked the drainages of the Colorado Plateau. In the post-Flood period, possibly hundreds of years after the Flood, enough water had built up in these lakes that dam failure could occur.” An estimated 3,000 cubic miles of water was released, more than three times the present volume of Lake Michigan. The catastrophic results caused by such rapid erosive processes of cavitation, plucking and kolk’s, remain as a monument to catastrophe.

### The Age of Grand Canyon

We want to say a few words about the age of Grand Canyon from radioisotope dating. Here’s what the manual states that visitors and schoolchildren are taught. “The rock layers of Grand Canyon range in age from 1800 million years old at the bottom of the canyon to 270 million years old at the top.” This is total a total lie. Their claim is that the lower rock gives older radioisotope dates and the top layers give younger radioisotope dates. In reality, radioisotope dating by three of the major radioisotope clocks, (K-Ar, Rb-Sr, Pb-Pb) has actually yielded ages that say the rock at the bottom is younger than the rock at the top! Now, we know that the rock at the bottom, in this case, was there before the rock at the top, but the point is that radioisochron dating shows that the rock at the bottom is actually younger than the rock above it! If you look at the Rb-Sr model ages at the top; 1,270 to 1,390 million years. The same clock applied to the bottom gives younger ages; 980 to 1,100 million years. Same story when we come to the Rb-Sr

isochron age, at the top; 1,340 million years, at the bottom, 715 million years. Same thing with the Pb-Pb clock, at the top, 2,600 million years, at the bottom 1,070 million years. If these clocks are accurate they should all give the same age, but they obviously don't. This underscores what we said earlier in the class, that radioisotope dating is flawed and in need of serious repair. It cannot be used as a method for providing accurate ages of rocks or fossils.

If we want to look at the formations of Grand Canyon themselves, according to the Creation/Flood model, this lowest rock is what geologists call Precambrian, what does the Precambrian rock correspond to in real history? Creation and pre-Flood rock. Above this, notice the shift in direction of the strata, that's the boundary line. The rock above is called Paleozoic and we call that what? Early Flood Sediment, it's from the first 150 days. Above that we would expect to find the Mesozoic and Cenozoic but we don't. Can anyone guess why? You can find the Mesozoic up at Zion Canyon and the Cenozoic up at Bryce Canyon, but the reason you don't is because during the 221 days of post-Flood water runoff the Mesozoic was eroded off leaving a flat plane of concrete like Early Flood Sediments. So that, for all intents and purposes, if you stand on the plateau, you're standing on the sediments that were laid down in the first 150 days of the Flood, other sediments were laid down but they were washed off. Then we have some post-Flood erosion and so forth happening after.

If you go to Grand Canyon will you enter in upon an imaginary world created by minds at enmity with God designed to crush and suppress the knowledge of God or will you enter in upon a real world revealed by God to minds submitted to His revelation so that we come to see His mighty power and work in the earth of judgment/salvation. As Dr. Kurt Wise, graduate of Harvard University under Stephen J Gould said, "Man continues to marvel at the monument God has left. The Canyon is a testimony of our Lord's judgment and mercy." Grand Canyon is truly a monument to the great Flood of Noah and the aftermath where God judged a sinful world and saved a remnant of those who believed. In these last days we do well to heed Peter's words, "Know this first of all, that in the last days mockers will come with *their* mocking, following after their own lusts, <sup>4</sup>and saying, "Where is the promise of

His coming? For *ever* since the fathers fell asleep, all continues just as it was from the beginning of creation.”<sup>5</sup>For when they maintain this, it escapes their notice that by the word of God *the* heavens existed long ago and *the* earth was formed out of water and by water,<sup>6</sup>through which the world at that time was destroyed, being flooded with water.<sup>7</sup>But by His word the present heavens and earth are being reserved for fire, kept for the day of judgment and destruction of ungodly men.<sup>8</sup>But do not let this one *fact* escape your notice, beloved, that with the Lord one day is like a thousand years, and a thousand years like one day.<sup>9</sup>The Lord is not slow about His promise, as some count slowness, but is patient toward you, not wishing for any to perish but for all to come to repentance.

I want to take questions so we are clear on the formation of Grand Canyon.

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<sup>i</sup> The lowest group of the Redwall Limestone.

<sup>ii</sup> <https://imrcms.nps.gov/grca/forteachers/upload/Teacher%20DE%20lesson%20plan%20.pdf>

<sup>iii</sup> [http://www.tooter4kids.com/Desert/sahara\\_desert.htm](http://www.tooter4kids.com/Desert/sahara_desert.htm)

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