

# Surprises in Surprise Canyon

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John Woodmorappe’s critical review of *The Grand Canyon: Monument to an Ancient Earth*<sup>1</sup> provided a good summary critique of the arguments the authors used to try to undermine Flood geology. Nonetheless, as Woodmorappe stated: “I . . . need to strongly stress the fact that it would require a full-length book to address all the fallacies of this pro-uniformitarian compromising evangelical missive.”<sup>2</sup> A few remarks expanding on some of Woodmorappe’s points are thus germane.

## Surprise Canyon

My main comment addresses a sedimentary layer within the Canyon walls called the Surprise Canyon Formation (figure 1). Hill *et al.* place strong emphasis upon their interpretation of a subaerial fluvial environment for this formation, claiming it as evidence for a prolonged period of erosion, and asserting that creationists have largely ignored the age implications of this evidence.<sup>3</sup>

The published research on the Surprise Canyon Formation, however, reveals some surprising information. First, the formation is a relatively recent discovery, being undefined before 1984 because of its discontinuous and patchy nature and generally inaccessible outcrops.<sup>4</sup> It consists mainly of highly fossiliferous channel fill with conglomerates at its base. It incises through the top two members of the Redwall Limestone, and thickens from east to west. As a result of these characteristics, the Surprise Canyon Formation has been interpreted to have been formed by a dendritic river system flowing across the top of the underlying Redwall

Limestone during a time of subaerial exposure—hence the interpretation of a subaerial fluvial environment.

However, since Hill *et al.* place great emphasis on uniformitarian methodology, using the present as the key to the past, their interpretation of the Surprise Canyon should be judged by that standard as well.

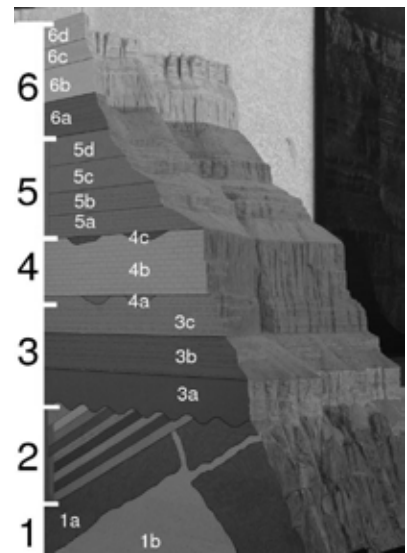
### Surprise canyon and sedimentary fill

One of the most interesting aspects of the Surprise Canyon Formation is the depth of the channel fills, which range from an average of 50–98 m (164–323 ft) in the west, to 45 m (144 ft) in the central area, to no more than 25 m (82 ft) in the eastern exposures, with the deepest channel fill being 122 m (400 ft). The total length of the formation is estimated at 112 km (70 mi).<sup>5</sup> From a uniformitarian perspective, therefore, it would be instructive to compare the dimensions of Surprise Canyon with those of the ten deepest rivers in the world today (table 1).

According to Hill *et al.*, therefore, the Surprise Canyon river system, which was only 112 km (70 mi) long, was deeper than all of the world’s

**Table 1.** Ten deepest rivers in the world, along with their lengths, with the Surprise Canyon at the bottom<sup>6</sup>

River	Length (km)	Maximum Depth (m)
Mississippi	3,730	61
St. Lawrence	1,200	65
Hudson	507	66
Yellow	5,460	80
Amazon	6,990	91
Mekong	4,350	100
Zambezi	2,570	116
Danube	2,860	178
Yangtze	6,300	200
Congo	4,700	250
<b>Surprise</b>	<b>112</b>	<b>122</b>



**Figure 1.** Geologic column of the Grand Canyon. Surprise Canyon Formation (4c) is shown incising into Redwall Limestone (4b).

currently existing river systems, except for three rivers which are 25–56 times longer than the Surprise Canyon system’s estimated total length! (table 1).

### Surprise canyon and karst

Moreover, the river that carved Surprise Canyon was supposed to have developed on a karst surface, for which Hill *et al.* use Yucatan as a modern-day analogy. The problem from a uniformitarian perspective, however, is that the Yucatan has no major rivers running through it because of its karst topography. This happens on the Kaibab Plateau, as well, where water drains *through* the surface and exits as waterfalls from the cliffs. So the question must be asked, how was a river system as short and deep as that proposed for the Surprise Canyon Formation supposed to have developed on a karst surface?

Additionally, the photos I’ve seen of Surprise Canyon outcrops appear to show draped fill layers within the channels, not the stacks of multiple channel fills which are common in modern rivers.<sup>7,8</sup> Drape fill is more

consistent with *one* episode of scouring.

In conclusion, the Surprise Canyon Formation's short length, anomalous depths, and conglomeratic base fill are not consistent with modern drainage networks developed on karst surfaces. They are, however, consistent with mass flow scouring, which may have been subaerial or subaqueous, but in either case, does not demand a long period of time.

### Grand Canyon and geomorphology

My second comment upon the book is that the authors point out the flaws with the many scenarios given by both creationists and secular geologists for the carving of the canyon, but do not address the solutions proposed by Michael Oard in his book, *A Grand Origin for the Grand Canyon*.<sup>9</sup> Oard offers the most detailed analysis available from a creationist standpoint of the geomorphological features of the Grand Canyon, and I highly recommend it to all interested readers.

### A call for caution

Lastly, although the book is about geology, Noah's Flood, and biblical creation, the authors apparently cannot imagine that creation scientists who study the Grand Canyon could be anything besides deluded or acting on blind faith. The authors imply that their perspective on science is the only correct one. However, they do not realize, or are unwilling to concede, that science is a tool, not a philosophy, and much of the scientific evidence cited in their book can be interpreted in different ways, depending upon the assumptions of the scientist.

The book itself ends with the words, "Truth always matters". Creationists could not agree more, but unfortunately, when it comes to the origin and age of the Grand Canyon,

the full truth will not be known until we meet the One who created the world and all that is in it. Until then, He has revealed enough truth in His word for us to know the age of the earth, the reality of the global Flood, and the resurrection of Christ. So a measure of caution would be well-advised for Christian scientists who claim that science invalidates a literal interpretation of the book of Genesis, while presumably accepting a literal interpretation of the New Testament's decidedly unscientific assertions that a man was born of a virgin and rose from the dead.

### References

1. Woodmorappe, J., review of *The Grand Canyon: Monument to an Ancient Earth* by Hill *et al.*, *J. Creation* 30(3):17–21, 2016.
2. Woodmorappe, ref. 1, p. 17.
3. Hill, C., Davidson, G., Ranney, W. and Helble, T., *The Grand Canyon, Monument to an Ancient Earth: Can Noah's Flood Explain the Grand Canyon?* Kregel Publications, Grand Rapids, MI, p. 200, 2016.
4. Beus, S.S., A geologic surprise in the Grand Canyon, *Fieldnotes, Arizona Geological Survey* 16(3):1–4, 1986.
5. Billingsley, G.H. and Beus, S.S., The Surprise Canyon Formation, an Upper Mississippian and Lower Pennsylvanian (?) rock unit in the Grand Canyon, Arizona, *US Geological Survey Bulletin A* 1605:A27–A33, 1985.
6. Merrow, B., 2009 Day 8 Sept 20 166.5-213 from National Canyon to Pumpkin Spring bmerrow.blogspot.com, 1 January 2009.
7. McCann, M., Mike the Geologist: Science and the Bible (Lesson 5), www.internetmonk.com, 19 May 2016.
8. Oard, M.J., *A Grand Origin for the Grand Canyon*, CRS books, Chino Valley, AZ, 2016.
9. Oard, M.J., *A Grand Origin for the Grand Canyon*, CRS books, Chino Valley, AZ, 2016.

## Errata

### J. Creation 30(3)

- Timothy Clarey's reply under the letter by Ralph Bazley (p. 47), and his reply under the letter by Carl Froede Jr and Jerry Akridge (p. 52) should be exchanged.
- The Hebrew words on pp. 105 and 106 should read as follows: נָטָה (natah), רָקַע (raqa), מַתַּחַח (mathach), and עוֹלָם ('owlam).