

EDITORIAL

THE ENIGMATIC GEOLOGIC COLUMN

The geologic column contains so many puzzling features that the word enigmatic comes to mind. Sudden disappearances of numerous taxa (interpreted as mass extinctions) are an example. What process could cause the global disappearance of the dinosaurs, plesiosaurs and ammonites, but not wipe out the mammals, crocodiles or frogs? Another example is the sudden appearance in the Cambrian of all the major groups of durably skeletonized marine invertebrates, except the bryozoans. Why the bryozoans? A third example is the non-random stratigraphic distribution of storm deposits. The number of storm deposits is relatively high in the lower Paleozoic, then declines in the upper Paleozoic and Triassic, then increases again in the Jurassic and Cretaceous.¹ What accounts for such a pattern? Numerous other examples could be given.

Given the complexities of the geologic column, it may be no surprise that creationists have a diversity of views on how the column relates to the Biblical flood. Many attempts have been made,² including a paper by Wise and Snelling published in this journal in 2005.³ The present issue of *Origins* contains an article with a different viewpoint on the flood, and a few comments might be in order. First, publication in *Origins* does not necessarily reflect endorsement of either view by the Geoscience Research Institute, but is intended to help foster discussion. Second, it is hoped that discussion of a diversity of viewpoints will help to identify points that merit additional exploration and encourage further study. Third, exchange of ideas from different viewpoints may stimulate new ideas previously not considered.

Differences of opinion in relating the geologic column to the Biblical flood reflect some rather severe deficiencies in our knowledge. First, since the geologic column represents prehistory, explaining it is a historical question rather than an experimental question. It is not that experiments cannot contribute to our understanding, but we cannot know whether our experiments are accurate replicates of the events in question. Interpreting historical events depends more on *post hoc* explanation than on experiment.

A second problem is we do not have any good idea of what the world was like before the Flood. We do not know how the continents and oceans were arranged on the globe, nor do we know how living organisms were distributed. Were deep ocean basins and continents dispersed around the earth? Or were there only one or two deep ocean basins, with most of the surface covered with granitic rocks, much of them covered with epiconti-

mental seas? Numerous other possibilities come to mind. Were living organisms distributed in global life zones that extended around the world? Or were they, as in modern zoos, organized in separate regions – “dinosaur-land,” “marsupial land,” etc? The possibilities are almost endless, and we do not know either the important patterns or the details.

A third problem is our lack of knowledge about the nature of geological processes before the Flood. Were there earthquakes and tsunamis before the great Flood? How much sediment accumulated in the ocean before the Flood? Were there local floods? What about volcanoes? Many of us are inclined to doubt such things occurred before the flood, but we really do not know. Leonard Brand’s article challenges to re-consider whether our assumptions are justified.

A fourth major difficulty in attempting to decipher the geologic column in the context of a global catastrophe is our lack of knowledge about the sequence of events during the Flood. Was the onset of the Flood sudden and global? Was it sudden and local at first, gradually encompassing the entire world? Some creationists have concluded that the Flood began with a huge “bang” in which the greatest intensity of violence occurred at the beginning:

In the 600th year of Noah’s life, in the 2nd month, on the 17th day of the month, on that day all the fountains of the great deep burst forth, and the windows of the heavens were opened (Genesis 7:11).

But does this text justify the conclusion that the violence of the flood was greatest on the first day of the Flood? Consider Genesis 11:18, 19:

The waters prevailed and increased greatly upon the earth; and the ark floated on the face of the waters. And the waters prevailed so mightily upon the earth that all the high mountains under the whole heaven were covered.

Another text suggests great violence at the end of the flood:

And God made a wind blow over the earth, and the waters subsided (Genesis 8:1).

Who can say with certainty whether the greatest violence occurred when the fountains of the deep opened, or when the waters prevailed over all the high mountains, or when the wind blew so hard it caused the waters to subside? Or who can say with certainty that there were not other major events that occurred during the flood? For example, the sediments of the geologic column record more than 150 impacts of extraterrestrial objects, yet they are not mentioned in the Biblical account of the flood.

A fifth major difficulty with understanding the geologic column is that we have no modern analogue of a global catastrophe. A global flood is not necessarily merely a scaled-up version of a local flood. A globally rising sea might produce effects never observed in historical times. A global ocean could have currents of over two hundred kilometers per hour.⁴ Such speeds could have unexpected effects because the volume and grain size of the sediment load carried by water is directly related to the speed of the flow.⁵ Moreover, a globe completely covered by water might have patterns of oceanic currents drastically different from those in our modern ocean basins, which are bounded by continents.

The potential role of the supernatural is another challenge to relating the geologic column to the flood. Science is generally considered to restrict itself to the study of events and processes regulated by the ordinary rules of nature. It does not consider the possibility of supernatural events or processes. Yet the global flood seems to have been supernaturally caused,⁶ so we need more than materialistic science to understand it. Even if God used physical processes to destroy the earth, He may have caused a series of specific events that we cannot infer from the results because we would not expect them to occur spontaneously. This places another difficulty in our pathway toward understanding the geologic column and its relationship to the flood.

Our incomplete knowledge of the details of the geologic column is a seventh problem for attempts to understand the flood and the geologic column. What geologic evidence is buried out of reach in the earth? What evidence has been subducted beneath the crust? How complete is our knowledge of the fossils preserved in the sediments? These and many other questions remind us that our hypotheses are tenuous at best.

These factors, and undoubtedly others as well, complicate all efforts to correlate the geologic column with the flood. Because our knowledge is so incomplete, we sometimes find it useful to make certain assumptions and then follow the implications of these assumptions to build ideas of earth history. These ideas may potentially be tested against both Scripture and observation.

The use of assumptions is especially important in interpreting the past. Leonard Brand cautions us against depending on old assumptions. He suggests there may have been significant geological activity before the flood and proposes how one might compare that idea with evidence in the rocks. Wise and Snelling's paper utilized a number of assumptions regarding the flood, leading to their suggestion that a particular stratigraphic horizon in the Grand Canyon might represent the first sediments deposited by the flood. Making assumptions and proposing interpretations are legitimate processes in science, but the measure of progress is whether such

exercises lead to broader explanations and better predictions. Both papers point to the need for additional study by those who wish to decipher the puzzles of the enigmatic geologic column.

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ENDNOTES

1. Gibson LJ. 1996. Fossil patterns: a classification and evaluation. *Origins* 23:66-99.
2. For example, several papers on this topic were published in *Creation Ex Nihilo Technical Journal* 10(2).
3. Wise KP, Snelling AA. 2005. A note on the pre-flood/flood boundary in the Grand Canyon. *Origins* 58:7-29.
4. Baumgardner JR, Barnette DW. 1994. Patterns of ocean circulation over the continents during Noah's flood. In: Walsh RE, editor. *Proceedings of the Third International conference on Creationism*, p 77-85. Pittsburgh, PA: Creation Science Fellowship.
5. The size of particles that may be entrained and transported by flowing water increases exponentially with the velocity of the current (see Hjulstrom's diagram in any standard textbook of sedimentology). Measures of river discharge show that both bedload and suspended load tend to increase with increasing flow (Reid I, Frostick LE. 1994. *Fluvial sediment transport and deposition*. In: Pye K, editor. *Sediment Transport and Depositional Processes*, p 89-115. Oxford: Blackwell.
6. According to Scripture, the flood was divinely caused, for a specific purpose: "For behold, I will bring a flood of waters upon the earth, to destroy all flesh in which is the breath of life from under heaven" (Genesis 6:17). This is equivalent to saying the flood involved supernatural activity.