

Raindrop imprints and the location of the pre-Flood/Flood boundary

Michael J. Oard

The location of the pre-Flood/Flood boundary has been controversial within Flood geology. Some creationists believe the boundary is at the Precambrian/Cambrian contact or a little below (assuming the geological column for sake of discussion).^{1,2} Andrew Snelling stated:

“There is a widespread consensus that the evidence for the commencement of the Flood in the geologic record is where the strata containing fossilized multi-cellular organisms begins, and that is confirmed by the associated evidence of catastrophic deposition of those and other sedimentary strata.”³

John Baumgardner reinforced this belief: “Included in the list are a number of samples from the Precambrian, that is, what we consider non-organic *pre-Flood settings* [emphasis added]”.⁴ Precambrian sedimentary rocks are generally considered to have been deposited during Creation Week after Day 3, while the time between Creation Week and the Flood was generally benign geologically.⁵ This view makes sense if the Precambrian sedimentary rocks are not from the Flood and the pre-Flood world was one of low energy geological processes.

On the other hand, Carl Froede and I believe that the criteria used to make the above determination of the pre-Flood/Flood boundary are equivocal, and that the boundary is likely lower within the Precambrian sedimentary and metasedimentary rocks.^{6,7} We have also left open the possibility

that some of the pre-Flood basement rock (likely igneous) was also melted and recrystallized during the Flood. Some of our reasoning for our non-dogmatic position is the existence of stromatolites, which are probably non-biological, in the Precambrian and Phanerozoic sedimentary rocks; the existence of microfossils in the Precambrian sedimentary rocks; and the existence of diamictite, believed by mainstream geologists to be glacial debris, from rocks claimed to be older than two billion years. Max Hunter considers the pre-Flood boundary is even deeper.^{8,9}

Other sedimentary rock indicators of a boundary below the Cambrian

There are several other indicators that the pre-Flood/Flood boundary is much lower than the Precambrian/Cambrian boundary. One of these is the existence of black shale, a shale containing 3 to 15% organic carbon that is especially common in the Precambrian and Paleozoic.¹⁰ Black shale is difficult to explain within secular geology. Its existence within both Precambrian and lower Phanerozoic sedimentary rocks would indicate that it formed during the Flood, and that the pre-Flood/Flood boundary is low within the Precambrian. Besides, how could such high amounts of organic matter be explained as deposits formed during Creation Week, assuming only low energy conditions between Creation Week and the Flood? Such high Precambrian organic content can potentially be explained by the death of non-*nephesh* organisms during Creation Week, but this possibility seems unlikely.

Another unique type of rock is quartz arenite, a type of sandstone characterized by greater than 95% quartz that is very well sorted and highly rounded.¹¹ Quartz arenite

is commonly found in the late Precambrian and early Paleozoic. It can sometimes be quite thick, up to 1,000 m, and extensive, such as the Athabasca Formation of northern Saskatchewan, Canada, which covers about 104,000 km² and the Thelon Formation of similar extent in the northwest Territories of Canada. This type of sandstone is of high energy and should be placed in the Flood because it exists in the Paleozoic. It probably represents winnowed sand in a highly turbulent environment with a huge amount of sediment in the water. The fact that quartz arenite transcends the Precambrian/Cambrian boundary indicates that this boundary is not the pre-Flood/Flood boundary in sedimentary rocks.

Limestones and dolomites are found throughout the geological column, including Archean sedimentary rocks (older than 2.5 billion years within the uniformitarian timescale).¹² They are especially abundant in the Proterozoic (between 2.5 billion and 542 million years) and the early Paleozoic. They can be thick and extensive. Few would dispute that the Paleozoic carbonates are from the Flood. The fact that the carbonates are also found down into the Archean would suggest that most, if not all, the Precambrian sedimentary rocks are from the Flood.

Precambrian raindrop imprints

Raindrop imprints can also tell us the location of the pre-Flood/Flood boundary. They have been reported in the Precambrian from the Uinta Mountains,¹³ India,¹⁴ Norway,¹⁵ and South Africa.¹⁶ Some of these locations have multiple stratigraphic levels of raindrop imprints. The latter site was in the late Archean Ventersdorp Supergroup. Some creationists have questioned whether Precambrian raindrop imprints really are raindrop imprints.¹⁷ However, the size distribution of Archean raindrop



Figure 1. Fossilized raindrop imprints from the supposed 2.7-billion-year-old Archean Ventersdorp Supergroup (from Cassata and Renne, ref. 19, p. 323).

imprints in South Africa (figure 1) has recently been favourably compared to raindrop imprints today and from experiments of falling water drops of known sizes and fall velocities.^{18,19} So, it is likely that these Archean examples are really raindrop imprints.

Implication of raindrop imprints for Creation–Flood models

Since rain did not fall at least until after man was created, as clearly stated in Genesis 2:5,6, and possibly until the Flood, raindrop imprints indicate that the sediments were laid down either between Creation Week and the Flood or during the Flood. Given the fact that Precambrian sedimentary rocks were often deposited in deep troughs or basins and are very thick, the time between Creation Week and the Flood is unlikely. That leaves only the Flood, which means that even Archean sedimentary rocks are from the Flood. It also means that Precambrian sedimentary rocks are not a record of Creation Week activity.

The raindrop imprints can be explained the same way as dinosaur tracks, eggs, and scavenged bonebeds can be explained, early in the Flood.

This is by the BEDS (Briefly Exposed Diluvial Sediments) hypothesis in which rapid sedimentation followed by a drop in local sea level can expose flat bedding planes for brief periods.²⁰ Precambrian sedimentary rocks are normally thousands of metres thick, so it makes sense that they can be briefly exposed after heavy deposition. Raindrop imprints have to be rapidly buried in order to be preserved, which would have happened during the corresponding rise in local sea level. Multiple levels can be explained by this mechanism repeating several times.

References

- Austin, S.A. and Wise, K.P., The pre-Flood/Flood boundary: as defined in Grand Canyon, Arizona and eastern Mojave Desert, California; in: Walsh, R.E. (Eds.) *Proceedings of the Third International Conference on Creationism*, technical symposium sessions, Creation Science Fellowship, Pittsburgh, PA, pp. 37–47, 1994.
- Wise, K.P. and Snelling, A.A., A note on the pre-Flood/Flood boundary in the Grand Canyon, *Origins* **58**:7–29, 2005.
- Snelling, A.A., Radiohalos in granites: evidence for accelerated nuclear decay; in: Vardiman, L., Snelling, A.A. and Chaffin, E.F. (Eds.), *Radioisotopes and the Age of the Earth: Results of a Young-Earth Creationists Research Initiative*, Institute for Creation Research, Dallas, TX, and Creation Research Society, Chino Valley, AZ, p. 125, 2005.
- Baumgardner, J.R., ¹⁴C evidence for a recent global Flood and a young Earth; in: Vardiman, L., Snelling, A.A. and Chaffin, E.F. (Eds.), *Radioisotopes and the Age of the Earth: Results of a Young-Earth Creationists Research Initiative*, Institute for Creation Research, Dallas, TX, and Creation Research Society, Chino Valley, AZ, p. 594, 2005.
- Snelling, A.A., *Earth's Catastrophic Past: Geology, Creation & the Flood*, Volumes 1 and 2, Institute for Creation Research, Dallas, TX, 2009.
- Froede, Jr, C.R. and Oard, M.J., Defining the pre-Flood/Flood boundary within the Grand Canyon: were all the pre-Flood sediments scoured down to basement during the Flood? *Creation Matters* **12**(4):3–4, 2007.
- Oard, M. and Froede Jr, C., Where is the pre-Flood/Flood boundary? *Creation Research Society Quarterly* **45**(1):24–39, 2008.
- Hunter, M.J., Archaean rock strata: Flood deposits the first 40 days; in: *Proceedings of the 1992 Twin-Cities Creation Conference*, Twin-Cities Creation Science Association, Genesis Institute, and North Western College, Minneapolis-St Paul, Minnesota, pp. 153–161, 1992.
- Hunter, M.J., The pre-Flood/Flood boundary at the base of the earth's transition zone, *J. Creation* **14**(1):60–74, 2000.
- Pettijohn, F.J., *Sedimentary Rocks*, third edition, Harper and Row, New York, pp. 282–284, 1975.
- Pettijohn, ref. 10, pp. 230–235.
- Pettijohn, ref. 10, pp. 316–391.
- Hansen, W., *The Geologic Story of the Uinta Mountains*, Falcon Guide, Guilford, CT, pp. 79–80, 2005.
- Akhtar, K. and Srivastava, V.K., Ganigarh Shale of southeastern Rajasthan, India: a Precambrian regressive sequence of lagoon-tidal flat origin, *J. Sedimentary Petrology* **46**(1):14–21, 1976.
- Singh, I.B., Primary sedimentary structures in Precambrian quartzites of Telemark, southern Norway, and their environmental significance, *Norsk Geologisk Tidsskrift* **49**(6):1–31, 1969.
- Van Der Westhuizen, W.A., Grobler, N.J., Looch, J.C. and Tordiffe, E.A.W., Raindrop imprints in the Late Archean—Early Proterozoic Ventersdorp Supergroup, South Africa, *Sedimentary Geology* **61**:303–309, 1989.
- Dickens, H. and Snelling, A.A., Precambrian geology and the Bible, no dissonance or contradiction, *J. Creation* **22**(3):47–50, 2008.
- Som, S.M., Catling, D.C., Harnmeijer, J.P., Polivka, P.M. and Buick, R., Air density 2.7 billion years ago limited to less than twice modern levels by fossil raindrop imprints, *Nature* **484**:359–362, 2012.
- Cassata, W. and Renne, P.R., Fossil raindrops and ancient air, *Nature* **484**:322–324, 2012.
- Oard, M.J., *Dinosaur Challenges and Mysteries: How the Genesis Flood Makes Sense of Dinosaur Evidence Including Tracks, Nests, Eggs, and Scavenged Bones*, Creation Book Publishers, Atlanta, GA, 2011.