Chapter 58

Inselbergs Left Behind on Planation Surfaces by Flood Runoff

While the Floodwaters were planing the continental surfaces, local variations in the currents, landscape, rock hardness, and structure resulted in the rapid formation of tall erosional remnants. These include igneous volcanic necks like Devils Tower and Ship Rock (see Chapter 9), inselbergs, and tower karst. Tower karsts are very similar to inselbergs, the only difference is fast Flood currents eroded carbonate rocks. It is interesting that Osborn deduced water was at least partly responsible for the formation of the tall sandstone inselbergs in southwestern Jordan.[1] Furthermore, the water also removed all of the eroded sandstone from the area.

What Variables Caused Inselbergs?

Several different variables are able to create inselbergs during the runoff of the Flood. One is local variation in a rock body's resistance to erosion. A particular inselberg, karst tower, or erosional remnant could represent nothing more than a harder unit of rock, even if the lithology was the same as the surrounding rock that was eroded. Greater resistance could also come from the relative absence of joints and foliations compared to the surrounding rock.[2,3,4,5] Joints weaken a rock and make it more vulnerable to erosion. Foliation is the planar arrangement of rock texture or structure, especially the planar structure that results from flattening of the grains in the rock during metamorphosis.[6] Devils Tower and Ship Rock are necks of volcanoes. They could easily have been harder than the surrounding sandstones, shales, and other rocks just laid down by the Flood. It is possible that even these erosional remnants would have been sheared off if Flood drainage lasted a little longer in the area. Regardless, their presence is a testimony to the compressed timeframe of the Flood itself. However, the idea that these monuments could resist erosion for many millions of years at even reduced modern erosion rates while hundreds of feet of the surrounding sedimentary rocks were eroded all around is preposterous, since vertical faces eroded much faster than horizontal surfaces.

Another possible variable is the locally-reduced velocity of the Flood currents at those places where we find inselbergs. Even a large sheet current would have local low velocity zones.[7]

A Possible Mechanism for the Formation of Tower Karst

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[1] Osborn, G., 1985. Evolution of the Late Cenozoic inselberg landscape of southwestern Jordan. *Palaeogeography, Palaeoclimatology, Palaeoecology* 49:1-23.
[2] Pye, K., A.S. Goudie, and D.S.G. Thomas, 1984. A test of petrological control in the development of bornhardts and koppies on the Matopos Batholith, Zimbabwe. *Earth Surface Processes and Landforms* 9:455-467.
[3] Migoń, P., 1997. The geological control, origin and significance of inselbergs in the Sudetes, NE Bohemian Massif, Central Europe. *Zeitschrift für Geomorpholgie N. F.* 41:46.
[4] Twidale, C.R. and J.A. Bourne, 1998. Origin and age of bornhardts, southwest Western Australia. *Australian Journal of Earth Sciences* 45:903-914.
[5] Twidale, C.R. 1982. The evolution of bornhardts. *American Scientist* 70:268-276.
[6] Neuendorf, K.K.E., J.P. Mehl, Jr., and J.A. Jackson, 2005. *Glossary of Geology*, Fifth Edition. American Geological Institute, Alexandria, VA, p. 248.
[7] Schumm, S. and F.G. Ethridge, 1994. Origin, evolution and morphology of fluvial valleys. In, Dalrymple, R.W., R. Boyd, and B.A. Zaitlin (editors), *Incised-Valley Systems: Origins and Sedimentary Sequences*, SEPM Special Publication No. 51, Tulsa, OK, p. 11.

Emil Silvestru (personal communication) suggests that more caves formed in the areas between tower karst, making these areas more vulnerable to Flood erosion. These caves most likely were formed rapidly by acidic hydrothermal fluids under pressure during uplift, deformation, and fracturing of the rock.[8] The caves would have weakened the rock, allowing the Flood currents to more easily erode the area between the towers and leave the tower karst standing.

It is interesting that some caves are found in tower karst. This would reinforce the view that caves formed *before* the tower karst, supporting the excavation of caves in carbonates *during* the Flood.

Figure 58.1. Wave Rock is a natural rock formation from southwest Australia that is shaped like a tall breaking wave, 46 feet (14 m) tall and 360 feet (110 m) long (Wikipedia). It forms the north side of a solitary granite inselberg known as Hyden Rock.

What Caused Flared Slopes and Tafoni on Some Inselbergs?

Flared slopes and tafoni around some inselbergs and tower karst, particularly at the base, could be due to the last vestiges of Flood currents eroding the base of the monument. Some researchers suggested a river erosional mechanism (see Appendix 20). Twidale and Bourne have noted a paleochannel adjacent to Wave Rock, one of the most distinctive flared inselbergs in

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[8] Silvestru, E., 2003. A hydrothermal model of rapid post-Flood karsting. In, Ivey, Jr., R.L. (editor), *Proceedings of the Fifth International Conference on Creationism*, technical symposium sessions, Creation Science Fellowship, Pittsburgh, PA, pp. 233-241.

southwest Australia (Figure 58.1). Round rocks, although rarely found, are associated with some tafoni. [9]

Because of their flared slopes and tafoni at the “Silent City of Rocks,” I lean toward their origin *after* the Flood, during the Ice Age. Tafoni are found among talus boulders (see Figure A20.2) and, therefore, must be a post-Flood effect. Heavier acidic precipitation, due to volcanic aerosols during the Ice Age, could have caused the uniquely-weathered flared slopes and tafoni to weather much faster.

Flared Slopes Formed by Water during the Ice Age

It has been suggested by uniformitarian scientists that catastrophic floods flowed under the ice during the Ice Age.[10] This is a controversial idea, but has some support from field evidence. However, most geologists oppose the subglacial floods theory. One flood path traveled through Ontario into New York, possibly carving the Finger Lakes. A few localities along this path have shown erosion along the *sides* of hills or ridges.[11,12,13] These are similar to flared slopes around some inselbergs. Water carved flared slopes could be an analog for the very late Flood carving flared slopes along inselbergs. Alternatively, these features could be caused by heavy precipitation and flowing water during the Ice Age.

Exfoliation Erosion Implies Young Bornhardts

The tops of bornhardts are actively eroding by exfoliation—the shedding of sheets parallel to the bornhardt surface, that gives it a dome appearance (Figure 58.2). Exfoliation probably is caused by stress fractures that develop when the weight of the sediments overlying the bornhardt was removed upon erosion. According to the uniformitarian paradigm, the top of the bornhardt was exposed many millions of years ago. How can exfoliation be continuing for millions of years? By then, bornhardts should have been completely eroded through exfoliation. The evidence indicates exfoliation did not begin until recently. Exfoliation is a problem for the uniformitarian model because it indicates recent, rapid erosion,[14,15] which fits in better with a Flood model.

Lake Missoula Flood Examples

There are examples or analogs for inselbergs, tower karst, and erosional remnants from the Lake Missoula flood.[16] Substantial evidence indicates there was only one catastrophic Lake Missoula flood that left a number of erosional remnants in its path. The most impressive is Steamboat Rock in the upper Grand Coulee, central Washington (see Figure 9.6). Steamboat Rock is 1 mi^2 (2.6 km^2) in area and 900 ft (275 m) high. It is as tall as the coulee walls and

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[9] Twidale and Bourne, Ref. 4, p. 911.

[10] Oard, M.J., 2004. *The Missoula Flood Controversy and the Genesis Flood*, Creation Research Society Monograph No. 13, Chino Valley, AZ, pp. 63-67.

[11] Sharpe, D.R. and J. Shaw, 1989. Erosion of bedrock by subglacial meltwater, Cantley, Quebec. *GSA Bulletin* 101:1,011-1,020.

[12] Tinkler, K.J. and R.E. Stenson, 1992. Sculptured bedrock forms along the Niagara Escarpment, Niagara peninsula, Ontario. *Géographie physique et Quaternaire* 46(2):195-207

[13] Kor, P.S.G. and D.W. Cowell, 1998. Evidence for catastrophic subglacial meltwater sheetflood events on the Bruce Peninsula, Ontario. *Canadian Journal of Earth Sciences* 35:1,180-1,202.

[14] Twidale, C.R., 1982b. *Granite Landforms*, Elsevier Scientific Publishing Company, New York, NY, pp. 150-158.

[15] Froede Jr., C.R., 1995b. Stone Mountain Georgia: a creation geologist’s perspective. *Creation Research Society Quarterly* 31:214-224.

[16] Oard, Ref. 10, pp. 108-110.

represents the remains of a once-continuous basalt sheet that once covered the area now occupied by the Upper Grand Coulee. Steamboat Rock is an inselberg and has the same lithology as the surrounding rock. The Lake Missoula flood eroded around the monument, leaving Steamboat Rock as a remnant. Remnants of the Lake Missoula flood support a one-Lake Missoula flood hypothesis because multiple floods would have removed these monuments. Steamboat Rock should no longer exist.

Figure 58.2. A little exfoliation with vertical and horizontal joints on a bornhardt in the "Silent City of Rocks" in the Albion Mountains of south-central Idaho.

Some Inselbergs Orientated

Another piece of evidence for rapid sheet erosion during the Flood is the orientation of some inselbergs and erosional remnants that formed wedges or lens shapes in the direction of the inferred Flood current. From an airplane, the Cypress Hills are wedge shaped, the thin end points upcurrent toward the west. Ayers Rock is also wedge-shaped.[17] Some bornhardts and ridges on the planation surface in the Namib Desert of southwest Africa are orientated east-west,[18] indicating the inferring the Flood currents moved off the rising African continent. Stone

[17] Twidale, C.R., 1978. On the origin of Ayers Rock, Central Australia. *Zeitschrift für Geomorpholgie N. F.* 31:177-206.

[18] Selby, M.J., 1982. Form and origin of some bornhardts of the Namib Desert. *Zeitschrift für Geomorphologie N. F.* 26:1-15.

Mountain, an inselberg in Georgia, has a west northwest-east southeast orientation, matching the direction of Flood currents that moved off the Appalachian Mountains toward the Atlantic Ocean. The west-northwest end is more pointed. The presence of depressions, some now filled with lakes, around Stone Mountain might be the result of erosion from waters diverging and accelerating around the obstruction.

Summary

The Retreating Stage of the Flood can readily explain inselbergs on planation surfaces, while the uniformitarian paradigm has great difficulty. Inselbergs with flared slopes and tafoni could be either very late Flood erosion or caused by post-Flood processes. Inselbergs, as well as planation surfaces, are found all around the world, strongly pointing to a global Flood and not a local or regional event.