

The Missoula Flood— analogue for the greatest flood of all

***Bretz's Flood: The remarkable story
of a rebel geologist and the world's
greatest flood***

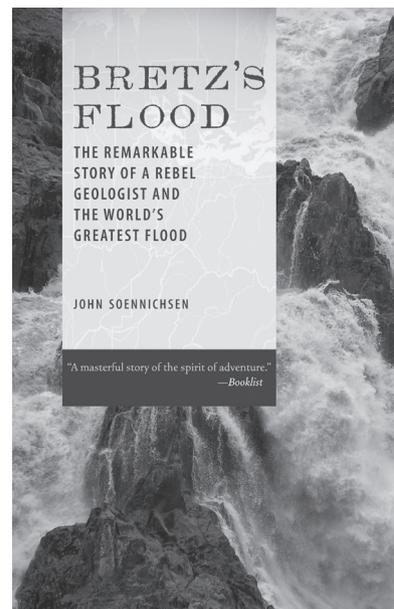
John Soennichsen
Sasquatch Books, 2009

Edward Isaacs

Harlen Bretz and his research in Washington State's Channeled Scablands have become one of the most remarkable stories in science—one of how “personalities, pride, and outright prejudice superseded scientific evidence”.¹ Though told innumerable times over the past half century, few tell this story so clearly as John Soennichsen in his book *Bretz's Flood*. Through a fascinating examination of Bretz's life, Soennichsen clearly depicts Bretz's remarkable journey from the origination of his “outrageous hypothesis” to its vindication.

Bretz the atheist

Born in the late nineteenth century, Bretz was raised in a Christian home. However, Bretz observed much Christian hypocrisy such as false “faith healers” (pp. 8–9). Bretz was drawn to the sciences, and although Bretz's father was similarly interested



in science, Bretz saw the pursuit of scientific inquiry passively discouraged in his home.² These influences helped push the young Bretz to become an atheist “nature lover and worshipper” (p. 12) and “a rebel against the uncritical acceptance of Christian mysticism and mythology” (p. 10). This belief would be reinforced throughout his life through interactions with students who were unprepared “to make a defense to anyone who asks you for a reason for the hope that is in you” (1 Peter 3:15). Nonetheless, Christianity had a lasting impact on him.³



Figure 1. A panoramic view of Dry Falls. During the Missoula Flood, huge torrents cascading over 100 m off the falls eroded gigantic plunge pools and left erosional remnants (middle right), while floodwater above planed the adjacent regions.

The outrageous hypothesis

Bretz developed an interest in the Scablands as early as 1909 but did not start his lifelong research there for another decade. After meticulous observations of the region and its deep coulees (box-shaped canyons), towering cataracts, oversized plunge pools, and regional-sized braided streambeds, Bretz concluded that catastrophic stream erosion formed the Scablands (figure 1). Yet, few were willing to accept his conclusions. Calling for the use of ‘established’ geologic processes to explain the Scablands, Bretz’s critics proposed many hypotheses to contradict his catastrophism, even stating that Bretz’s flood was too biblical in scale.^{4,5} It took a new generation of geologists for Bretz’s work to be accepted, and in 1979 Bretz was awarded the prestigious Penrose Medal after enduring over 40 years of rejection.

Chronology of the Missoula Flood

What is now known as the Missoula Flood has been well researched, leading to a comprehensive chronology of events. Meltwater ponded behind an ice dam in Montana to form Glacial Lake Missoula. When the dam failed, a massive surge of water inundated the surrounding valleys, producing huge ripple marks and erosional structures formed by kolk.⁶ Upon exiting Rathdrum Prairie further downstream, the Missoula Flood emptied into Glacial Lake Columbia in present-day Eastern Washington before quickly overflowing its banks and flooding across the Columbia Plateau where the floodwater planed and scoured the basalt, carving several scabland tracts and depositing numerous gravel bars. Before entering the Quincy Basin, the Missoula Flood gouged coulees into the substrate, such as Grand Coulee, and left the large erosional remnants Umatilla Rock in Lower Grand Coulee and Steamboat Rock in Upper Grand

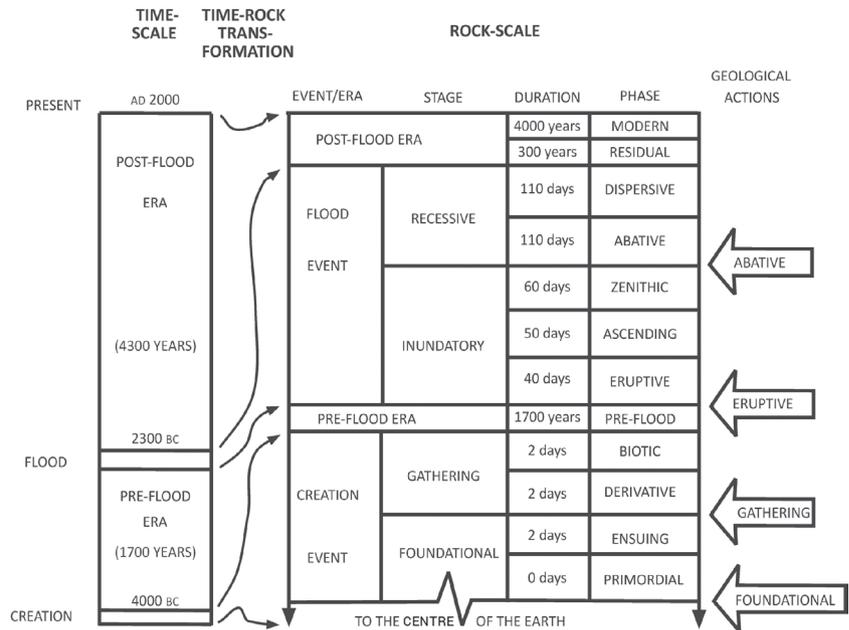


Figure 2. Walker’s updated diluvial timescale of Earth history. The Flood began with catastrophic erosion and deposition as the floodwaters inundated the continents (Inundatory Stage). Later tectonics commenced the Recessive Stage and caused catastrophic sheet flow to retrocede from the continents and form regional planation and erosional surfaces. Further runoff channelized to produce localized water gaps, erosional remnants, pediments, and terraces.

Coulee as well as the monumental Dry Falls (figure 1).

As the Missoula Flood issued into south-eastern Washington and carved the Cheney-Palouse Scabland tract, it overflowed and transected the southern border of Washtucna Coulee, rapidly breaching the ridge and forming Palouse Canyon and Devils Canyon. This floodwater streamed into Idaho’s Snake River, back-flooding several miles upstream and depositing gigantic gravel bars countercurrent to the present river. This branch rejoined the main torrent and briefly ponded at the Wallula Gap where it reached velocities nearing 130 km/h, bursting through the Columbia Gorge and producing terraces and boulder fields. Further west the floodwater eroded Beacon Rock, the remaining throat of an extinct volcano. Numerous hanging valleys were also produced, now containing the largest concentration of waterfalls in the United States, including Multnomah Falls.

As the Missoula Flood emptied through the Columbia River into the

Pacific Ocean, it back-flooded into the Willamette Valley where it deposited numerous erratic boulders⁷ and the enormous gravel deposits comprising the Portland Delta before finally draining into the Pacific Ocean.

How many Missoula floods?

Although Bretz originally hypothesized one Missoula flood, geologists today propose up to 100 such floods. Soennichsen noted that: “Current research has raised this total to forty, sixty, eighty—even a hundred floods or more” (p. 251). The multiple Missoula floods are based on an interpretation of rhythmites,⁸ usually presuming one rhythmite per flood. Bennito and O’Connor admit: “We *infer* that each sand and gravel couplet [rhythmite] was deposited during a single flood” (italics added).⁹ However, multiple rhythmites may be formed during a single flood, and the lack of cut-and-fill structures and angular unconformities in Walla Walla Valley rhythmites indicate a single gigantic Missoula

flood.^{10,11} Clastic dikes transecting the entire sequence of rhythmites exposed in Burlingame Canyon reinforces this interpretation.^{10,11} Some geologists are now returning to Bretz's original hypothesis of one gigantic Missoula flood.¹²

Soennichsen on diluvial geology

In examining Bretz's legacy, Soennichsen says:

"... another sort of theorizing has occurred ever since Bretz's theories first gained acceptance. Over the past few decades, in fact, Bretz has gained a whole new collection of allies composed of individuals with decidedly *unscientific* viewpoints. These are people who are elated to see catastrophism winning out over uniformitarianism. They are the proponents of creationism, people for whom Bretz has suddenly become a hero who—in their minds—single-handedly proved their case for the Great Flood in the Bible" (p. 260).

He further adds that:

"Dozens of creationist books, magazine, articles, and Web sites [*sic*] now portray Bretz as a champion who advanced the theory of creationism by refusing to bow down to his uniformitarian colleagues. But while the results of his findings may serve their purpose, nothing could be further from the truth than Bretz embracing catastrophism. ... Bretz was no poster boy for creationism" (p. 261).

Soennichsen shows himself to be a master of the strawman argument. First, he claims that the debate on diluvial geology is one of 'science vs religion', not discussing the philosophy underlying secular geology.^{13,14} Second, he falsely claims that diluvialists believe Bretz "proved their case for the Great Flood in the Bible".¹⁵

A broader perspective—the Ice Age

The Pleistocene Ice Age presents some of the greatest enigmas to secular

geology,¹⁶ such as the absence of a plausible mechanism.^{16–20} An ice age requires: 1) greater atmospheric moisture for increased snowfall; 2) cooler summers and reduced solar input; and 3) an extended period of these conditions for glaciation.¹⁶ Secular geology cannot explain these seemingly contradictory conditions because they are a natural consequence of the Genesis Flood.¹⁶ Following the Flood, temporarily elevated ocean temperatures fuelled profuse snowfall over the continents while the addition of aerosols to the atmosphere via subsiding volcanism reduced solar radiation, thereby cooling Earth's atmosphere.¹⁶ This condition would continue for centuries as the earth regained tectonic and volcanic equilibrium and the oceans cooled.¹⁶ Subsequent deglaciation produced numerous meltwater streams which often ponded behind ice dams from local glaciers. Many of these lakes were eventually released as large meltwater floods like the Missoula Flood.²¹

Missoula Flood—analogue for the greatest flood of all

Bretz's critics vehemently opposed the scale of the Missoula Flood. Soennichsen notes that the Scablands: "formed deep below the surface of the flood waters, sometimes hundreds of feet in depth" (p. 229). The immensity of the Missoula Flood makes it a local analogue of the cataclysmic erosional and depositional processes operating during the Genesis Flood. Walker's timescale²² (figure 2) depicts rapid erosion and sedimentation during the inundation of the continents (the Inundatory Stage), followed by catastrophic sheet flow concomitant to rising continents during the Recessive Stage producing regional-scale planation and erosional surfaces like those in the Teton Mountains (Wyoming) and the lower-elevation Colorado Plateau.²³ More localized run-off created water gaps, erosional remnants, pediments,²⁴ and terraces.^{23,25}

Conclusions

Soennichsen details the truly remarkable story of J Harlen Bretz, clearly depicting the life and work of this astounding man. However, Soennichsen dismisses the debate on diluvial geology as being one of 'science vs religion' and fails to observe the shortcomings of secular geology. Instead, the Missoula Flood is an excellent analogue for the Genesis Flood and provides insights into the erosional and depositional processes operating during the greatest Flood of all. Bretz's story also exemplifies the bias conventional geology holds against any event resembling the Genesis Flood, for they are indeed willingly ignorant.

References

1. Alt, D., *Glacial Lake Missoula and Its Humongous Floods*, Mountain Press Publishing, Missoula, MT, p. vii, 2001.
2. This is illustrated by Bretz's recollection of his grandfather and his position on science: "Why argue about scientific theories when the Bible contains all we need to know in order to get a pass to heaven?" (p. 8).
3. For example, even as a firmly committed atheist he would still recall familiar Bible verses upon occasion.
4. Alt, ref. 1, p. 17.
5. Oard, M.J., *The Missoula Flood Controversy and the Genesis Flood*, Creation Research Society Books, Chino Valley, AZ, p. 69, 2004.
6. A kolk is "a vortex with a near vertical axis that develops in high-energy flood flows and generates intense pressure gradients that can lift rock particles". Baker, V.R., *The Channeled Scabland: a retrospective*, *Annual Review of Earth and Planetary Sciences* 37:393–411, 2009.
7. An erratic is: "A rock fragment carried by glacial ice, deposited at some distance [often up to hundreds of km] from the outcrop from which it was derived, and generally resting on bedrock of different lithology." Bates, R.L. and Jackson, J. A., (Eds.), *Dictionary of Geological Terms*, 3rd edn, Anchor Press, New York, p. 170, 1984. Many erratic boulders in the Willamette Valley were glacially rafted on icebergs before being deposited during the Missoula Flood.
8. A rhythmite is an "individual unit of a rhythmic succession" resulting from: "The repetition, through a sedimentary succession, of a sequence of two or more rock units in a particular order and indicating a frequent and predictable recurrence of the same sequence of conditions. It may involve only two components (such as interbedded laminae of silt and clay)." Bates and Jackson, ref. 7, p. 432.
9. Benito, G. and O'Connor, J.E., Number and size of last-glacial Missoula floods in the Columbia River valley between the Pasco Basin, Washington, and Portland, Oregon, *GSA Bulletin* 115(5):624–638, 2003.

10. Oard, M.J., Evidence for only one gigantic Lake Missoula Flood; in: Ivey, Jr., R.L. (Ed.), *Proceedings of the 5th International Conference on Creationism*, Creation Science Fellowship, Pittsburgh, PA, pp. 219–232, 2003.
11. See Oard, M.J., Only one Lake Missoula Flood, *J. Creation* 14(2):14–17, 2000, and references therein.
12. Shaw, J., Munro-Stasiuk, M., Sawyer, B. *et al.*, The Channeled Scabland: back to Bretz? *Geology* 27(7):605–608, 1999.
13. Materialist Prof. Richard Lewontin reveals the philosophical dangers of materialism (the foundation of secular geology) in Lewontin R., Billions and billions of demons, *The New York Review* 9(1):31, 1997.
14. For an overview of the philosophical underpinnings of secular geology, consult Mortenson, T., *The Great Turning Point: The church's catastrophic mistake on geology—before Darwin*, Master Books, Green Forest, AZ, 2004; and Reed, J.K., *Rocks aren't Clocks: A critique of the geologic timescale*, Creation Book Publishers, Powder Springs, GA, 2013. Although this philosophy is generally recognized by the diluvialist community, no consensus has been reached on the implications of it in diluvial geology. For example, see Reed, J.K. and Oard, M.J. (Eds.), *The Geologic Column: Perspectives within diluvial geology*, Creation Research Society Books, Chino Valley, AZ, 2006.
15. For example, see Oard, ref. 5, pp. 107–108; Oard, M.J. and Reed, J.K., *How Noah's Flood Shaped Our Earth*, Creation Book Publishers, Powder Springs, GA, p. 162, 2017; Oard, M.J., The Lake Missoula Flood—clues for the Genesis Flood, *Creation* 36(2):43–46, 2014.
16. Oard, M., *Frozen in Time: The great woolly mammoths, the Ice Age, and the Bible* (eBook), Master Books, Green Forest, AZ, 2004.
17. Alt, ref. 1, p. 180.
18. Hebert, J., Have uniformitarians rescued the 'Pacemaker of the Ice Ages' paper? *J. Creation* 33(1):102–109, 2019.
19. Oard, M.J., Ice ages: the mystery solved? Part 1: the inadequacy of a uniformitarian ice age, *CRSQ* 21(2):66–76, 1984.
20. Oard, M.J., Astronomical troubles for the astronomical hypothesis of ice ages, *J. Creation* 21(3):19–23, 2007.
21. Over 40 known examples are listed in Baker, V.R., Global Late Quaternary fluvial paleohydrology: with special emphasis on paleofloods and megafloods; in: Shroder, J.F. (Ed.), *Treatise on Geomorphology*, vol. 9, Academic Press, San Diego, CA, pp. 511–527, 2013.
22. Walker, T., A biblical geological model; in: Walsh, R.E. (Ed.), *Proceedings of the 3rd International Conference on Creationism*, Technical Symposium Sessions, Creation Science Fellowship, Pittsburgh, PA, pp. 581–592, 1994.
23. For more information, consult Oard, M., *Flood by Design: Receding water shapes the earth's surface*, Master Books, Green Forest, AZ, 2008, and references therein, as well as articles in *CRSQ* (creationresearch.org) and *J. Creation* (creation.com).
24. A pediment is a, "broad gently sloping erosion surface or plain of low relief, typically developed by running water ... at the base of an abrupt and receding mountain front", Bates and Jackson, ref. 7, p. 372.
25. Oard, M.J., Planation surface and strath terraces point to a Flood origin for the Chinese Loess Plateau, *J. Creation* 28(2):3–5, 2014.