

b19 Channeled scablands in eastern Washington

< Lake Missoula; J Harlen Bretz (no period is after his given name J) >

“All my enemies are dead so I have no one to gloat over.” Bretz confided to his son in 1979 when awarded the Penrose Medal, GSA’s highest honor established in 1927 by Richard Alexander Fullerton Penrose, Jr. (1831-1931).¹

In the Pacific Northwest, *scabland* describes areas where, because of poor range management, soil has been eroded to expose bedrock.

In eastern Washington, scabland prehistorical erosion is evidenced by a few widely spaced remnants of a former extensive plateau of Pleistocene loess. This is a region of five thousand square kilometers bounded by the Spokane, Snake, and Columbia rivers. It is crossed by braided channels 70 meters deep and as far apart, that contain giant ripples up to 15 meters high with spacings between crests of as much as 150 meters.

In 1923, **J Harlen Bretz** (1882-1981) interpreted the scabland prehistorical erosion as evidence of a single gigantic flood that had lasted at most a few days at some time between 18,000 and 20,000 years ago.² This catastrophist interpretation was rejected by then uniformitarian geologists as being hopelessly retrogressive. Also, Bretz had described no adequate source for the flood waters.

But J was correct.

In western Montana, prominent lake strandlines about Missoula were known to railroad surveyors in 1881 when T. C. “Chamberlin conceived the idea of a glacial dam and furthermore tentatively suggested that its location was in the Pend Oreille region with outflow by way of Spokane,” WA.³ In 1910, Joseph Thomas Pardee had published that this had once held 500 cu mi of water. In a letter to Bretz, dated 3 June 1925, Pardee wondered “whether you have considered the possibility of the sudden draining of a glacial lake” to produce the discharge required for your postulated “Spokane Flood”? Later, Bretz (1927) does not mention this possibility and prefers that “my interpretations of the channeled scabland should stand or fall on the scabland phenomena themselves.”¹ (Which righteous stand is the maddeningly correct one for the historical geologist: Establish the facts of prehistory and leave explanations to others.) In 1961, the spillway (present west-flowing Clark Fork river) for Lake Missoula (known from its shorelines) was located and was found to lead into the scablands. Ice that plugged this outlet at the end of the Ice Age was at some time breached. Through-rushing waters then quickly melted any remaining portion of the ponding ice barrier. The result was the spectacular flood that Bretz had envisaged. “Ten times the combined flow of all the modern rivers of the world” marvels David D. Alt in *Glacial Lake Missoula and Its Humongous Floods*, 2001, and follows the path of the floodwaters as they raged from western Montana across the Idaho Panhandle, then scoured eastern Washington, and rushed down the Columbia Gorge to the Pacific Ocean.⁵

In 1984, Richard B. Waitt invoked a *jökulhlaup* (an Icelandic word pronounced *yo-kool-loop*) mechanism. As Waitt used the word, *jökulhlaups* are catastrophic floods of water of glacial origin triggered when water pressure lifts a glacier where it dams a lake outlet and the water escapes beneath it. The numerous strandline levels of Lake Missoula record, like “bathtub-rings,”⁶ successive filled levels up to 600 meters that a varying in thickness damming glacier let drain each time the depth of accumulating water in the lake provided the pressure for a *jökulhlaup*.⁷ Bretz’s catastrophist flood repeated hundreds of times makes each quotidian and so uniformitarian.

Now features as 3.5-miles-wide Dry Falls, WA, with a drop of over 400 feet (by comparison, Niagara Falls, is 1-mile-wide and has a drop of 165 feet) are understood to record where torrents once cascaded. □

