GEOLOGY

"Fossil Niagaras" Dwarf Earth's Greatest Waterfalls

Geologist Finds That Dry, 900-Foot Cliff in Washington State Once Roared With Water From Retreating Glaciers

TWO "FOSSIL NIAGARAS" that would make the mightiest waterfall now on earth a puny trickle by comparison, once roared in the Grand Coulee, a deep, wide gorge that lies about halfway between Spokane and Seattle. These extinct cataracts, now represented only by lines of towering dry cliffs, have been studied by Prof. J. Harlen Bretz of the University of Chicago, who has presented his report on them to the American Geographical Society.

The water that fed these two great cataracts came from melting glaciers of the great Ice Age. Creeping down from the north, the ice had for ages blocked the course of the Columbia River. As the glaciers began to melt off and retreat, they released immense quantities of water, which had to find a new watercourse. Of this necessity of nature was born the Grand Coulee, whose bed, now dry except for a chain of small lakes, is a thousand feet deep, with a width of a mile at its narrowest point. It has a total length of about fifty miles, with an interruption in the cliff walls somewhat more than halfway down its course dividing it into an Upper and a Lower Coulee.

The bottom of the Grand Coulee is not a fairly even slope, as the bottom of an ordinary river valley would be. It has humps and irregularities, and in the rocky floor there are enormous "potholes" a hundred feet deep. Potholes—steep-sided, round-bottomed holes in solid rock—are formed in only one way: by the grinding and pounding of boulders kept in motion by the force of falling water.

Two Tremendous Cataracts

Prof. Bretz therefore looked for the remains of a waterfall that might have done such cyclopean sculpturing. He found two, both of tremendous proportions.

The lesser of the two falls was at the head of the Lower Coulee. It formed a group of cataracts, rather than a single fall; but when the enormous length of its great "horseshoe" and all the lesser bendings of the remaining cliffs are measured as a straight line, the total comes to some three and one-half miles, or nearly six times the straight-line width of Niagara Falls. This tremendous stream leaped from the crest of a 400-foot cliff, more than double the height of Niagara and substantially higher than Victoria Falls in Africa, the greatest known existing cataract.

But mighty as these falls in the Lower Coulee were, they were surpassed by the Steamboat Cataract of the Upper Coulee. This feature gets its name from a high outstanding rock in front of the cliff. This was once an island, first on the brink, as Goat Island stands on the brink of Niagara today, then left isolated as Goat Island would also be if American and Horseshoe Falls receded at equal rates.

900-Foot Fall Now Dry

The Steamboat Cataract was a good mile wider than the falls system of the Lower Coulee, and more than twice as high. In the days of the late Pleistocene, the waters roared over its cliff in a plunge of nine hundred feet!

All this super-Niagaran magnificence vanished when the receding glacial front retreated far enough for the water to flow down the present course of the Columbia River, leaving the upper end of the Coulee high and dry. The head of Grand Coulee now stands about 500 feet above the water level of the river, and several miles removed from its course.

Prof. Bretz tells of a project to put water into the Coulee again: not the thundering post-glacial flood, but an irrigation stream that will bring green life to its present dry bottom, and change the farming basis of the region from dry land wheat to irrigated orchards and alfalfa fields. It is not expected to build a 500-foot dam across the Columbia to do this; a 200-foot dam is expected to be sufficient. The apparant paradox of getting a 500-foot water lift from a 200-foot dam is explained by the fact that a great pumping station will be installed, run on the 200-foot water head, to lift the irrigation water over the 300-foot "hump" into Grand Coulee.

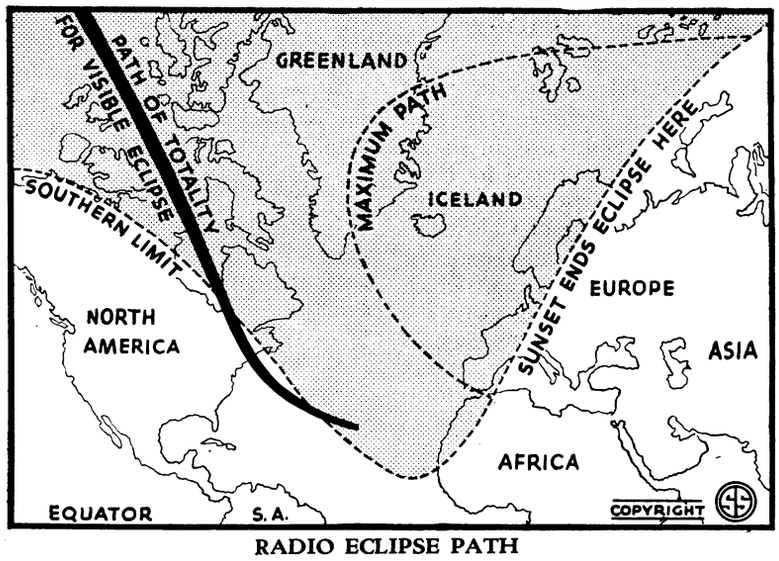
Science News Letter, August 13, 1932

ASTRONOMY-RADIO

Scientists to Study Expected Radio Eclipse

ALTHOUGH the moon's visible shadow will fall on a narrow path (shown in black on the accompanying map) across Canada and New England, there will be a corpuscular or "radio" eclipse over a much larger area on August 31 (shown dotted on the map). This map shows where a rain of neutral particles or corpuscles from the sun will be interrupted by the moon. *(SNL, July 30, '32, p. 75).*

Profs. E. V. Appleton and S. Chapman, British scientists, are urging radio experimenters both within and without the path of corpuscular *(Turn Page)*



RADIO ECLIPSE PATH