

Lake County's Big Hole Said Of Volcanic Origin

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BEND (Special) — Mysterious Hole-in-the-Ground of Oregon's Fort Rock country of northern Lake County was not created by the impact of an earth-shaking meteor ages ago.

This is the belief of Norman Peterson, field geologist working out of the Grants Pass office of the State Department of Geology and Mineral Industries, following a recent study of the big hole. The crater has been the object of considerable controversy in recent years.

The deep depression, a miniature of the far-famed Meteor Crater in Arizona, is obviously the result of a terrific volcanic blast, Peterson said. This agrees with the belief of Dr. Howel Williams of the University of California, recognized authority on spectacular volcanic

features of Central Oregon.

Peterson said he found explosion tuffs and breccias in place in the rim of the Fort Rock crater, which overlooks the broad basin that also holds the giant natural amphitheater known as Fort Rock. Near by are the Cow Caves, which have yielded evidence that man, represented by hunters, lived in the region more than 9,000 years ago.

Because of the unusual features of the area, it has been suggested as a state park, with Fort Rock as its central feature.

Peterson also found welded tuffs overlain by a basalt flow exposed in the crater wall, lending credence to the explosion theory.

A factor which led earlier investigations to believe that the hole had been created by the terrific impact of a giant meteor bearing in from the west at a high angle was the presence of huge boulders on the eastern rim of the Hole-in-the-Ground. Peterson believes the coarse-grained basalt porphyry represented by large blocks on the crater rim is not exposed in place. It was apparently blown from a lower section of rock.

No Meteor Evidence Found

Peterson said the Big Hole, another familiar feature of the Fort Rock area, is similar to the volcanic landform called a tuff ring. This formation is just west of the Fremont highway. Explosion tuffs and breccias are the only rocks exposed in the crater walls and the rim.

Moffit Butte, between LaPine and Fort Rock on the Fremont highway, is somewhat larger and more eroded, but appears to be a tuff ring also, Peterson said.

No evidence of meteoritic material was found in the area.

Hole-in-the-Ground is on the summit of a slight elevation immediately west of the Fort Rock basin, once covered by a lake that spread to the south and east, leaving the Connolly Hills as an island. Ancient Fort Rock Lake included Silver Lake of the present.

In warm summer days, "dust devils" now whirl across the basin once flooded by the big Pleistocene lake, in those distant days when flamingoes winged their way over the basin and camels grazed on the lake shores.

Peterson will make his formal report on the Hole-In-the-Ground in the Ore.-Bin, publication of the State Department of Geology and Mineral Industries.

He was detailed to make this study because of the great interest in the Hole-in-the-Ground and nearby geological features.

Hole-in-the-Ground, Oregon, is 400 Ft. Deep

By THE ASSOCIATED PRESS

Hole-in-the-Ground, Ore., is a vast circular depression, nearly a mile across and more than 400 feet deep, in northern Lake County.

It is one of Oregon's unique geologic formations, easily reached by automobile but unknown to people generally.

Hollis E. Dole, director of the Oregon Department of Geology and Mineral Industries, says it looks so much like a meteorite crater that a mining claim was staked out years ago in the hope of finding nickel or other mineral remains.

No Mineral There

But there is no foreign mineral there. Hole-in-the-Ground resulted from a great volcanic explosion, not from the blow of a meteorite.

The story of its formation is told in the October issue of Ore.-Bin, the department's publication, by Edward A. Groh, Portland geologist, and Norman V. Peterson, field geologist for the department. The two recently completed a detailed study of the area and established that the hole was produced — some thousands of years ago — when a great mass of molten rock surged up through a vent, came in contact with water-saturated rock, and exploded.

The force to create such a hole, the geologists say, would be the equivalent of about five million tons of TNT.

The water, in that now parched country, came from an ancient lake that covered the land to a depth of 200 feet.

Fort Rock, a semi-circular rock mass that juts up startlingly from the arid plain about six miles southeast of Hole-in-the-Ground, was formed the same way, Peterson and Groh report, but one wall of it was washed away by the lapping waves along the shore of that old lake.

About six miles west of Hole-in-the-Ground is Big Hole, another of the broad floors of a volcanic crater enclosed by a steep-walled ring. It has a heavy stand of timber in and around the rim, making detail difficult to see.

On Edge of Desert

But Hole-in-the-Ground is right at the dividing line of timber and desert. It is so close to the line that along its western wall, where shadows hold snows longest and result in moisture, there is a stand of trees. The eastern wall, a mile away, is in the desert.

The Ore.-Bin says motorists can reach Hole-in-the-Ground by driving 30 miles south of Bend on Highway 97, turning southeast on Highway 31 and going 25 miles to a well-marked Forest Service road, then going east about two miles. A road bulldozed through the pumice soil circles the hole along the top of the rim.