

*The Newberry Crater
of
Central Oregon*



DESCHUTES NATIONAL FOREST

PACIFIC NORTHWEST REGION

U. S. DEPARTMENT OF AGRICULTURE

FOREST SERVICE





Paulina Peak (on horizon), elevation 7,985 feet, is the highest remnant of ancient Mt. Newberry. The peak overlooks the crater which includes East Lake (left), the vast obsidian flow fanning down (at upper left), and Paulina Lake (right).

NEWBERRY, VOLCANIC GIANT OF ITS DAY

Largest by far of all the Ice Age volcanoes east of the Cascade Mountains in Oregon was giant Newberry, a companion mountain of Mazama, ancestral to Crater Lake. Newberry was a broad shield volcano some 9,000 feet high. Across its base it measured about 25 miles.

This old mountain was built upon the Deschutes plateau close to the eastern foothills of the Cascades and east of the Deschutes River. Mt. Newberry was built up by alternating flows of basalt and rhyolite. Principal volcanic activity of Mt. Newberry, together with Mt. Hood, Mt. Jefferson, and Mt. Mazama, occurred during the Pliocene-Pleistocene epochs. Volcanic activity of these mountains continued until about 2,000 years ago.


Near the end of its long volcanic existence, Mt. Newberry engulfed its top, not as a result of a catastrophic explosion such as shattered the dome of Mazama, but as a result of lava leakage on its lower slopes. Molten rock from the feeding conduits of the volcano escaped through slope fissures and from volcanic cones on the mountain's outer slopes. The outflow of basaltic lava was huge, and the result was inevitable. As lava drained from the central feeding pipes of the mountain, support was withdrawn from the bulky summit. The top of the volcano collapsed through concentric faulting, resulting in a summit depression from four to five miles in diameter. This occurred about 10,000 years ago during the end of the Ice Age.


A short time after the collapse of the summit, volcanic activity was renewed both within the crater and on the outer slopes. Scores of parasitic cones were formed on the mountain's outer slopes.

It is estimated that there are some 200 of these cones. Many small cones were also built up within the caldera, dividing the crater into two parts. In the depressions on each side of the dividing cones, two lakes, East and Paulina, came into existence.

LEGEND


CAMPGROUND 


CINDERED ROAD 

LAVA FLOW 

OBSERVATION POINT 

PAVED ROAD 

RESORT 

TRAIL 


EAST & PAULINA LAKE CAMPGROUND

NO UNITS

MILEAGE BETWEEN STARS 

ON TRAILS  3.5 


NO DRINKING WATER 

ACCESSIBLE BY BOAT
OR TRAIL ONLY 

ASSIGNED TRAIL LETTER 

1. PAULINA LAKE

68

2. COVE 

1

3. WARM SPRINGS 

2

4. LITTLE CRATER

53

5. EAST LAKE

29

6. HOT SPRINGS

43

7. CINDER HILL

106

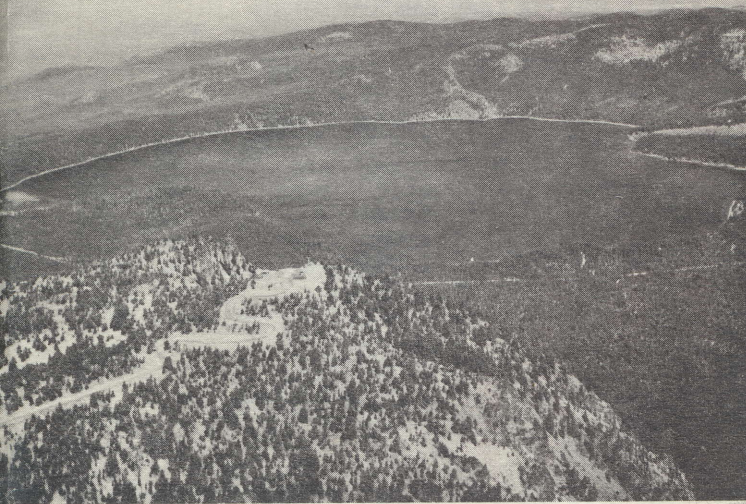
8. HORSE CAMP

12

9. OVERFLOW

18





Paulina Peak and Paulina Lake

Towering above the caldera to the south is Paulina Peak, the 7,985 foot-high remnant of the dome of the mountain's vanished summit. From the peak, portions of four states and the entire Cascade Mountain Range of Oregon are visible.

OGDEN'S TRAPPERS ARRIVE IN 1826

In ancient days Newberry Crater was the camping ground of tribesmen. Their chipped obsidian is found strewn on the shores of Paulina and East Lakes.

The first whites to visit the crater were members of Peter Skene Ogden's fur hunters, in 1826, on a trip westward to the upper Deschutes River from the Harney Basin in Eastern Oregon.

Ogden's Journals indicate that he paid little attention to the spectacular geologic features of the caldera or to the summit lakes other than as a place to water his thirsty horses. The brigade entered the crater over the rim adjacent to East Lake, and it was there that the party obtained water.

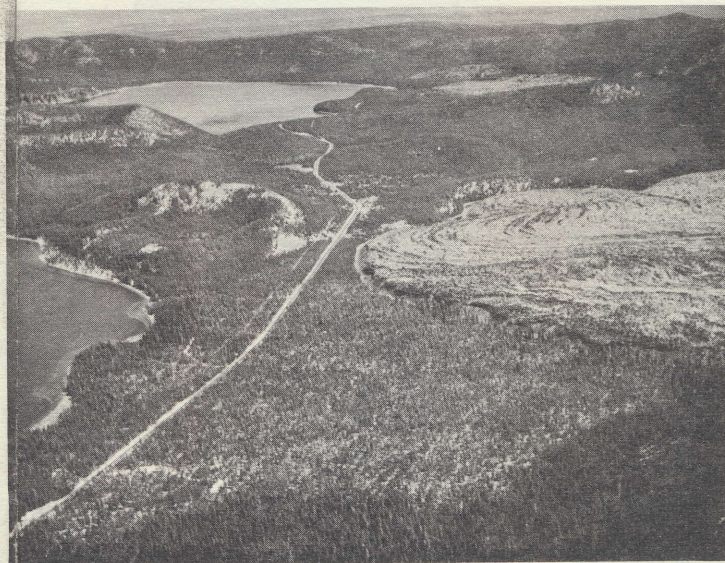
Early-day settlers knew the area as the Paulinas, a name given the isolated mountain range because the region was once the hunting ground of the Paiute

raider, Chief Paulina. Not until the present century was an effort made to name the old volcano in honor of John J. Newberry, a scientist who passed through the Deschutes country in 1855 with the Williamson Railroad Survey party.

The great volcano which once loomed over the caldera is known to geologists as Newberry, and the crater is called Newberry. But the isolated mountain range formed by the collapsed volcano and the numerous parasitic cones is named the Paulinas.

In 1910 Paulina and East Lakes were planted with trout which were carried in from LaPine on pack horses. There were no fish in the lakes during pioneer days.

Popularity of the area increased when a modern highway was constructed from U. S. Highway 97 to Paulina and East Lakes. Not only is the crater an anglers' and campers' paradise, but it is also rapidly becoming known as a geological wonderland. Adjacent to the two lakes, the Forest Service has developed seven campgrounds and two observation sites. Two lodges are operated by private individuals under permits from the Forest Service.



Paulina Lake, East Lake, and the obsidian flow

GEOLOGIC WONDERS FOUND IN THE NEWBERRY CRATER AREA

On the outer slopes of old Mt. Newberry are some of the Pacific Northwest's most spectacular lava flows, including a number that engulfed forests of pine trees and formed strange tree molds, locally known as "lava cast forests". Volcanic cinder cones, spatter cones, fissures, and caves are also found on the mountain's outer slopes.

Within Newberry Crater is one of the geologic wonders of the Pacific Northwest, a great obsidian flow that spilled to the basin floor from a high vent to form frozen cataracts of black, volcanic glass.



Rock pinnacles near Paulina Peak



Paulina Creek Falls

Newberry Crater and the wrinkled surface of the fan-like obsidian flow are especially impressive when viewed from the jagged summit of Paulina Peak, highest point of the old Mt. Newberry formation. A good road provides easy access up the peak to a viewpoint.

The snout of the obsidian flow, one of the most interesting flows on the continent, reaches to the edge of the paved Paulina Lake-East Lake road. Many visitors stop at an observation point adjacent to the road for a close-up view of the "curtain of frozen glass" that drapes the inner wall of Newberry Crater.

Geology students from many parts of the country have studied the story of the old volcano. Cinder and pumice cones tell part of the story, as do bits of charcoaled wood in roadside pumice. A carbon K test has revealed that the wood was charcoaled by fiery pumice about 2,000 years ago.

East and Paulina Lakes also hold part of the volcanic story. Recently, a submerged cone was discovered in Paulina Lake. East Lake is landlocked, but Paulina Lake's outlet, Paulina Creek, tumbles over the spectacular Paulina Creek Falls.

Since the volcanic activity in this area occurred during recent geologic time, people ask if new eruptions will take place in the near future. Newberry is considered to be a dormant volcano, not extinct. There are hot, sulfur water springs in both Paulina and East Lakes. Future volcanic activity is possible. If it were to occur there would be ample forewarning.



Paulina Lake from Paulina Peak