

Impressions of Mt. Lassen.

By EDWARD BOYCE.

Dispatches from Redding, Cal., July 16, 1914, reported Mt. Lassen in a more active state of eruption than it had been at any time since volcanic disturbances were first observed on the mountain, about six weeks ago. Although these dispatches were somewhat exaggerated, the activity of the crater is well worth the trip, and one is amply repaid by a study of the country surrounding the mountain and the action of the crater.

On July 18, 1914, in company with Mr. H. E. Brown, who climbed Mt. Hood and Mt. St. Helens with me in August, 1913, I left Portland for Red Bluff, Cal., a station on the Southern Pacific 548 miles south of Portland, arriving there the following evening at eleven o'clock. The next morning we left by auto for Mineral Springs, forty miles east of Red Bluff, which is the first stopping place on the road to the mountain. Mount Lassen is sixteen miles from Mineral, and on horseback the round trip can be made in one day over a good trail without much physical effort.

The road from Redding on the Southern Pacific Railroad to the mountain is excellent, and in some respects better than the road from Red Bluff. Automobiles using the Redding road can approach closer to the mountain with less difficulty, and the hotel accommodations at Redding are good, which is a luxury after an auto ride of seventy miles over dusty roads.

From Mineral we proceeded to McKenzie's Ranch, eighteen miles farther, where we secured horses and crossed a low range near the base of Mt. Lassen to see some geysers that are in active operation on the northeast side of the mountain. These geysers are similar to some of the smaller geyser in the Yellowstone National Park.

On the evening of the 20th we stopped at Mr. Kelly's ranch, seventy miles from Red Bluff, which is an excellent stopping place for those who contemplate a visit to the mountain. It is more convenient than most of the stopping places because the ascent from there to timber line is easy and can be accomplished on horseback in a few hours.

The morning of the 21st was spent at the Devil's Hole, a small basin where numerous small geysers are in operation, many of them almost extinct. At twelve o'clock we reached timber line, one and one-half miles from the summit of Mt. Lassen. Here we had lunch, and leaving our horses, began the ascent of the mountain, which is not a

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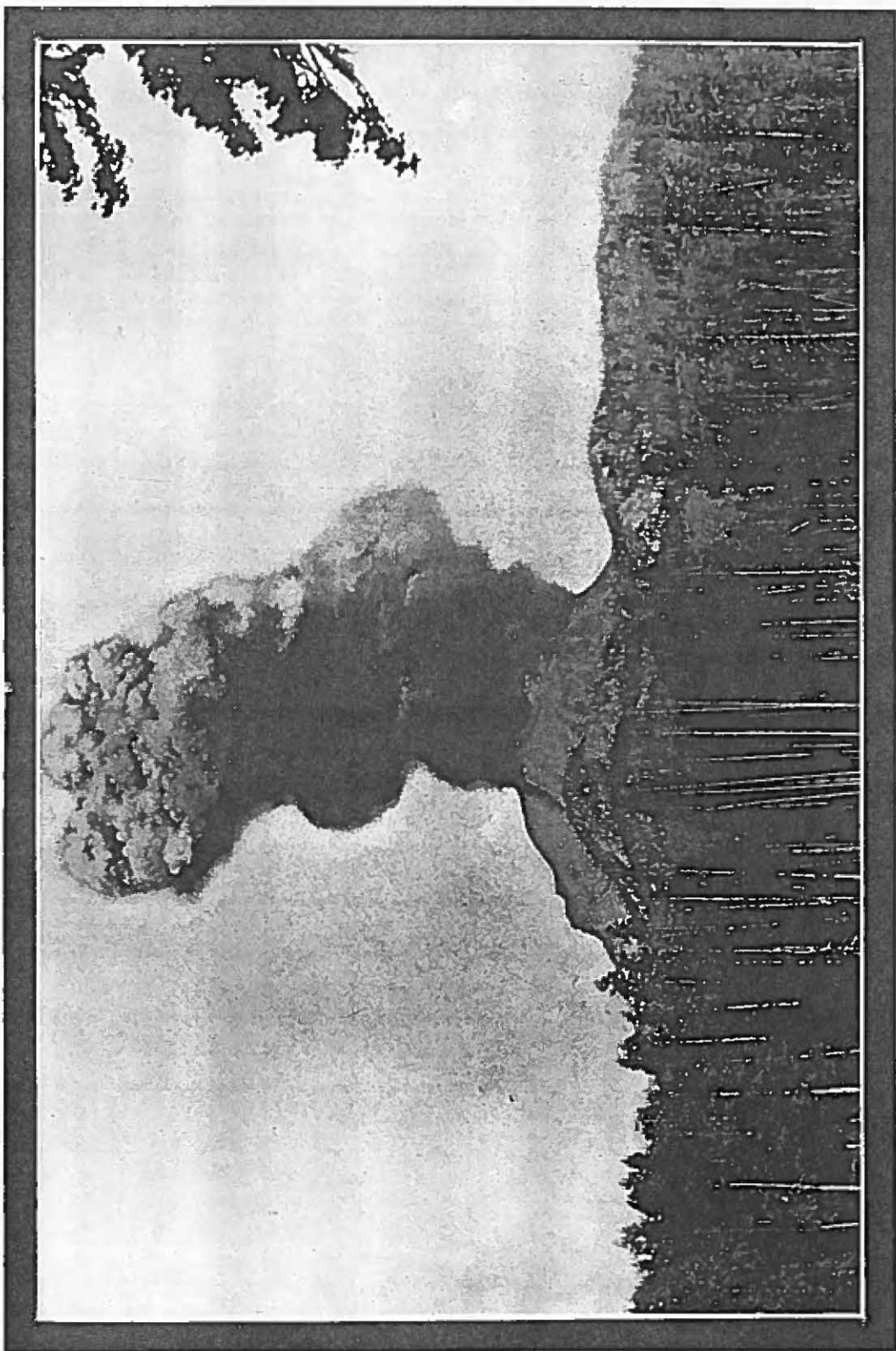
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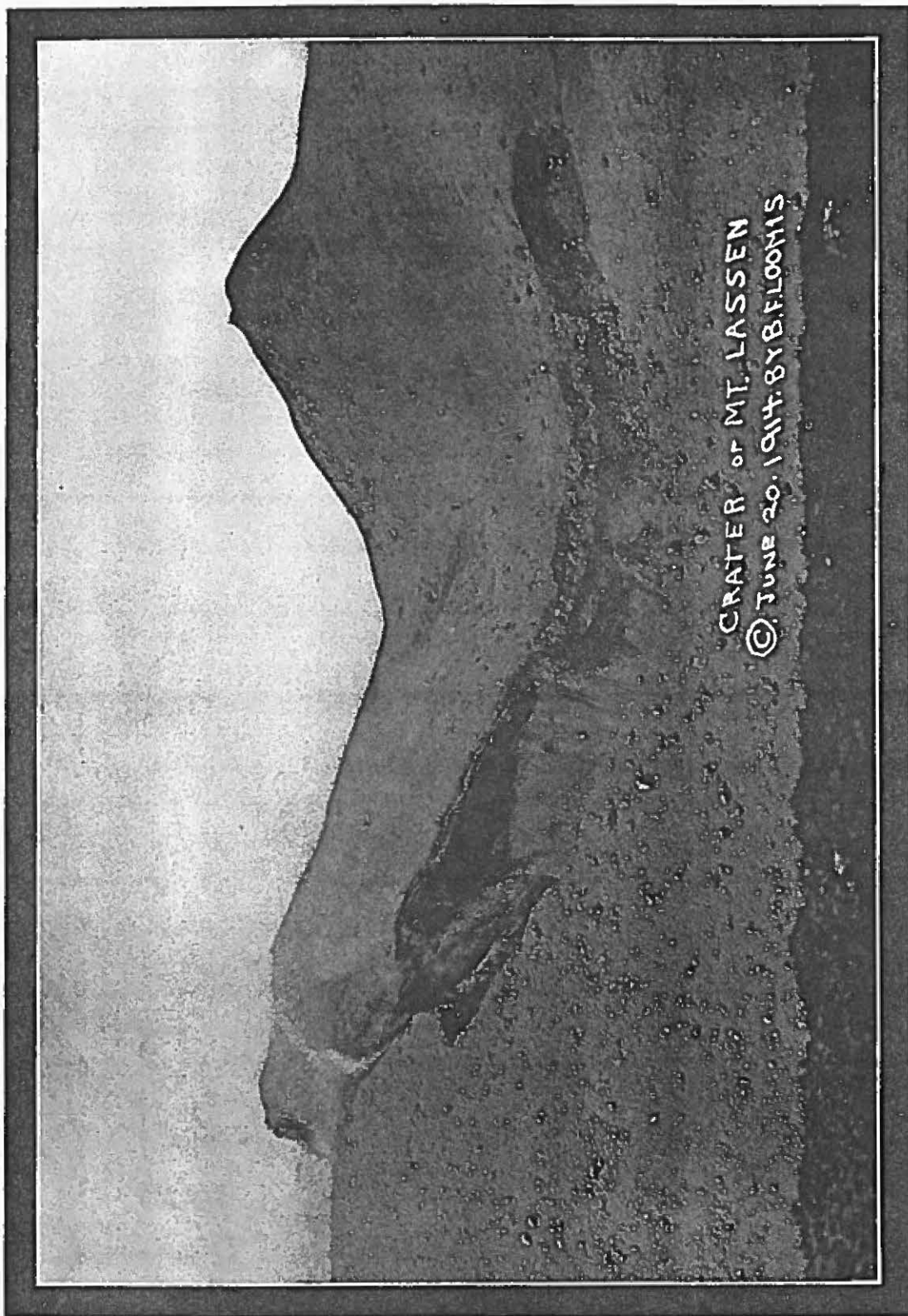
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Mount Lassen in eruption. This photograph was taken at Lees, 5 miles below Drakesbad, August 22, 1914, at 12:30 P. M.
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CRATER OF MT. LASSEN
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difficult climb, reaching the top at two o'clock, where we remained until 4:30, studying the crater and taking pictures.

Mt. Lassen has an elevation of 10,439 feet, and is composed of four small peaks which form a basin where snow lies, winter and summer. The surface of this basin is probably 2000 square feet in area, and from the lowest point in the basin vertically to a point where water would flow between the peaks is between 75 and 100 feet, thus forming a lake of considerable size from which there is no escape for the water, unless it overflows the saddle between the peaks. The snow water confined in this manner may be accountable for the eruption, when the melting snow found a subterranean channel that brought it in contact with the formation that generates volcanic action.

The first eruption or explosion occurred in the center of the lake, and threw rocks and lava ash over the mountain peaks for a distance of 300 feet, penetrating the roof of a forestry lookout station located on the northeast peak, the highest point on the mountain, approximately 300 feet above the lake. This eruption caused many rents or crevasses in the earth's surface, which allowed the snow water to flow freely, thus causing the lava rock, ash, and gravel to become loosened and slide into the opening of the crater, obstructing the escaping steam; this caused other eruptions which opened the earth's surface in a south-westerly direction until it reached the north side of one of the peaks and there formed a vent which, owing to its elevation, is free from obstructions. These numerous eruptions in the basin formed a cavity 150 feet by 400 feet long, and probably 100 feet in depth, which is constantly filling up from the crumbling of the earth's surface around the edge of the crater.

The vent in the mountain side allows the immense volume of steam to escape under great pressure. Should this vent become obstructed below the surface from the constant crumbling of the earth around the edge of the crater, which, together with the melting snow, is constantly adding more weight to the millions of tons of loose rock in the crater, other eruptions will occur until an opening of sufficient size is formed to allow the great volume of steam to escape freely.

Each succeeding eruption enlarges the crater, for the weight of the accumulated rock so thoroughly packed by the melting snow offers greater resistance to the immense volume of steam than other parts of the earth adjoining the crater, which is cracked from the numerous eruptions of the past six weeks. At all events it is doubtful if any eruption of the future will equal in volume those that have changed this peaceful mountain lake of snow and ice to a rumbling, hissing caldron of steam.

The great volume of escaping steam issues from the north side of the southwest peak, fifty feet from the highest point, and the extension of the crater appears to be advancing into the peak, although we had no difficulty in traversing this small space of fifty feet between the opening and the summit of the peak.

Although the north side of this peak is shattered by the force of the eruptions, there are no indications of recent disturbance on the south side.

As is well known, the country for many miles around Mt. Lassen is volcanic, and the formation appears to be younger than that found at other points on the Pacific Coast; consequently an eruption such as occurred on Mt. Lassen could easily occur anywhere in that region under similar conditions, for there are numerous active geysers at the base of the mountain on the south and east side.

Contrary to reports, no lava or smoke issued from the mountain when the crater was in a state of eruption. The lava ash which issued from the crater when it was in action darkened the steam to such an extent that people in the distance thought it was smoke and thus the erroneous impression went forth that a volcano was in action. The lava ash on the mountain averages from four to eight inches in depth, and in such a dry climate when the wind blows this ash rises in funnel shape, which gives the impression of smoke at a distance.

The rent on the earth's surface caused by the eruption extends in a southwesterly and northeasterly direction, stretching northeastward from the edge of the crater two hundred feet, where the opening can be easily traced. From surface indications the recent eruption is a renewal of the former activity of an extinct crater.

The cause of this recent activity on Mt. Lassen, from a geological standpoint, has not been stated, but Prof. J. S. Diller of the U. S. Geological Survey, in company with other Government officials, is making a study of the subject, and his report will be of much interest, because no other man has devoted so much time and attention to this region as has Mr. Diller, and it is doubtful if there is anyone better qualified to give a scientific opinion on the recent activity of the mountain.

From general observation, one is led to believe that the action of the impounded snow water in the lake found a channel which brought it in contact with lime or other substances of similar character, thus generating the gases which caused the eruption.

A visit to this mountain is very interesting and easily accomplished. One contemplating the trip will find much for study and investigation, and will feel amply repaid for the time spent in that region.