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THE CHAIN LAKE GEYSER

by Ranger Naturalist E. B. Douglass

Across the road from the Riverside Geyser area in the Upper Geyser Basin are a number of hot pools known as the Chain Lakes. The descriptive sign which was in a state of disrepair during the 1936 season said that among the hot pools in the group were several geysers, at least one of which erupted to a height of several feet.

At the opening of the 1936 season most of the area between the Chain Lakes and the road was badly washed, and all superficial debris had been carried away. On the pre-season trip taken by the new rangers and ranger naturalists, Park Naturalist Bauer mentioned that there was increased activity in the area.

Twice during the early part of the summer the author witnessed eruptions of the new geyser. One occurred shortly after the crowd had dispersed following an eruption of Riverside. The other happened just as the auto caravan was passing the point. On this occasion the water flooded over the two foot bank at the edge of the road in a sheet several inches deep. The gutter was unable to carry all the water, and it rushed out almost to the middle of the road.

In the weeks that followed, tourists frequently brought to the Old Faithful Museum reports of seeing a geyser across the road from Riverside, which apparently had no name. These reports seemed to come about every other day and were usually brought by someone who had been waiting for an eruption of

Riverside. We began to wonder if the geyser had a regular forty eight hour interval and if its eruption could be influenced at all by the eruption of Riverside. It was to answer these two questions that an attempt was made to keep a systematic watch of the geyser and record its frequency of eruption.

The technic used was that employed by all amateur geyser watchers, namely to lay a stick of wood on the area washed during an eruption and let the disappearance of the stick be evidence for an eruption having occurred. As frequently as possible trips were made to see if the stick had been disturbed.

The vent from which the eruption occurred was a ragged elongated opening running for twenty feet or more from southwest to northeast. Before an eruption the crater was filled with clear, superheated water and overflowed in considerable volume from two points at the northeast end.

The eruption of the the geyser was interesting because it came up from the southwestern corner of the pool at an angle, much after the manner of the Daisy Geyser. Before the eruption could take place to any height all the water in the crater had to be displaced. Although the crater was not measured, its approximate dimensions must be at least 20 x 8 x 10 feet, and it is this 1600 or more cubic feet of water which wells out like a flood over the surrounding area washing away all loose gravel. For the first half minute or more of the eruption, the force is dissipated in emptying the crater and the water was not thrown higher than 5 to 15 feet. During the last of the eruption, the water was thrown to a height estimated at fifty or sixty feet. A complete eruption was witnessed only once, however, and that came as such a surprise and was of such short duration, probably not much over a minute, that no accurate estimate could be made.

The geyser seemed to be closely connected with a nearby hot pool, one of the Chain of Lakes, for during an eruption this pool was drained completely by an aspirating action, and for several minutes after an eruption, water from another pool of the chain drained into this empty pool and out of sight as if down a sewer.

Following the eruption, pieces of white opalite were picked up on the bare area over which the geyser had played. These were very different from the surface geyserite deposits and their presence could only be explained on the basis of their having been thrown out during an eruption. That considerable sub-

surface erosion was taking place was evidenced by the very turbid condition of the water which filled the crater after the eruption.

Some of the pieces of opalite had an interesting structure and on the broken faces showed small round openings, about 1/32 inch in diameter, as if they were the ends of capillary passages through the structure. In concentric rings around these openings the opalite seemed to be more dense.

As far as the records indicate it would seem that over the period they were kept the geyser erupted at irregular intervals of 2, 1, 1, 1/2, 3, 1, 5, 6, 2, and 2 days. There seemed to be no connection between its eruptions and those of Riverside, the apparent relation coming from the fact that tourists waited so many hours each day for Riverside that someone usually witnessed each daylight eruption of the Chain Lake Geyser.

In view of the size of this new geyser, should it continue to erupt with as much power, it deserves to receive more publicity. The fact that sub-surface erosion is taking place will make future observation of this geyser interesting to determine whether it becomes stabilized or destroys itself.



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