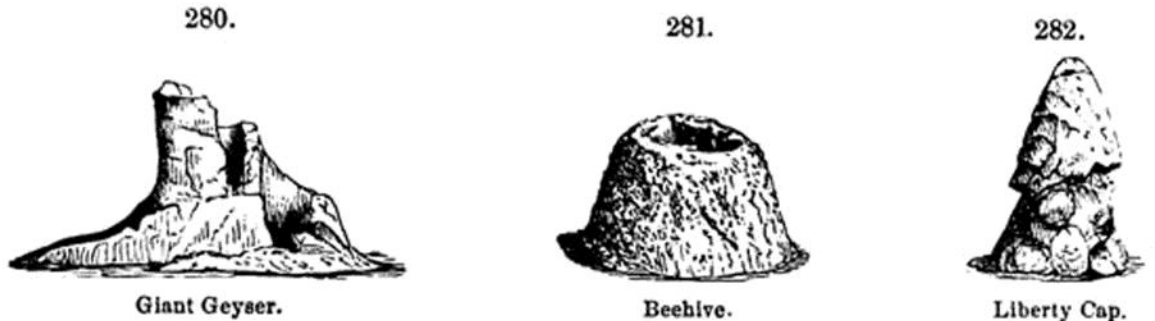


"Liberty Cap," 50 feet high and 20 feet in diameter; and Fig. 136, on page 132, represents calcareous (travertine) terraces on this river.

One of the geysers in the Upper Geyser Basin of the Fire-Hole is shown in action in Fig. 283; the cone (Fig. 281) is but 3 ft. high and 5 in diameter, but it throws up a jet beyond 200 ft. in height about once a day.

In the eruption of a geyser, the jet is first water, then much steam with the water, and, at last, mostly or wholly steam, the water having been all thrown out; and, when the water partly falls or runs back into the basin, the eruption is sometimes renewed successively, before finally stopping.



The intermittent action is owing (1) to the access of subterranean waters to hot rocks, producing steam, which seeks exit by conduits upward; (2) to cooler superficial waters descending those conduits to where the steam prevents farther descent, and gradually accumulating until the conduit is filled to the top; (3) to the heating up of these upper waters by the steam from below to near the boiling-point; when (4) the lower portion of these upper waters becomes converted into steam, and the jet of water, or eruption, ensues. This is nearly the explanation given by Bunsen after an examination of the geysers of Iceland. The deposit of silica in the throat of the conduit, after an eruption, tends to diminish its size, and sometimes closes it completely, so that the waters are obliged to open a new vent.

The beauty of the siliceous geyser-cones is often enhanced by the delicate tints of pink, buff, yellow, etc., mingled with white, over their surfaces. Pebbles in the bottom of the small basins formed about the cones are commonly concretions of geyserite, like the rosettes of the bottom and sides. Fig. 280 represents the cone of the "Giant" geyser, in the Upper Geyser Basin of the Fire-Hole; it is about 10 feet high and 24 feet in diameter at base, and has one side partly broken down and bent inward. It throws out, at long intervals, a jet 90 to 200 feet in height. "Old Faithful" is one of the largest of the Madison River geysers; it has a low and broad irregular cone, and throws up its great jet to a height of 150 feet, once in about 65 minutes, the remarkable regularity of its action having suggested the name it bears. The "Giantess," another of the large geysers of the Fire-Hole, throws a still larger body of water to the same height. Another, the "Architectural" geyser, is actually, when in action, a combination of jets of various sizes and angles of inclination, each having some independence in its movements, but all working together, and producing a marvelous effect from the ever-changing views.

Frank H. Bradley observes that, while standing on the mound of "Fountain" geyser, whose pool was overflowing, and watching a steam-jet a hundred yards away, the jets suddenly ceased, and "Fountain" commenced throwing up a jet, 10 feet in diameter, to vary-