the crater, or a little above it, while there is all the time a sound of fierce boiling below; and in others the hot water stands, a wonderfully transparent pool, in vast saucer-shaped basins, from ten to seventy-five feet across, within each of which is the well or tube from whence the eruption occurs. No language can adequately describe the gracefully curved and scalloped forms which the silicious rock deposits on the bottoms and margins of these basins, nor the beauty of the countless vivid and delicate colors with which they are dyed. The only true geysers in America are in the park and on its borders, the *so-called* geysers of California being merely a little cluster of solfataras, fumaroles and hot springs (such as one sees on a much grander scale at many places in the park), and no more like true geysers than a tea-kettle is like a locomotive."

The other chief attractions of the basin may be briefly summarized as follows:

The Castle, once the greatest geyser in the basin, and still the noisest, has a mound forty feet in height. Every few minutes it throws little jets twenty feet upwards, but once a day sends a body of water one hundred feet into the air, and holds it there about thirty minutes, after which vast clouds of steam escape with a roar that can be heard for miles.

The Bee Hive is the most symmetrical in the basin, and about once a day projects a column of water 219 feet into the air, in form the most graceful that can be imagined. It plays but eight minutes. By its side is a small vent from which a jet of steam invariably shoots a few minutes before the eruption.

The Giantess is very irregular in its action, its period being about fourteen days. No warning is given the visitor, but it suddenly startles him by shooting a body of boiling water 250 feet into the air, requiring the exertion of all his activity to escape to a safe distance. It soon diminishes its height to 80 feet, and continues with brief intermissions from twelve to sixteen hours.

The Lion, Lioness and Two Cubs are a group of four, the first one acting independently, and the others generally in unison. They are very irregular in the time of their eruptions.

The Grand is most appropriately named, and its display gives the most satisfaction of any in the park. In action it is irregular, though generally twice a day. At first it is extremely violent, jets shooting up to great heights and at various angles for nearly ten minutes. Then all is quiet for an instant, when the water is suddenly projected up in a mass to the height of 200 feet, is held there a brief time, and then all is again quiet. This is repeated generally six times, though frequently more or less than that number.

Saw Mill geyser is so named because of its puffing sound and peculiar action.

The Splendid was inactive for three years until 1881, when it began again, and is now second only to Old Faithful in regularity, its interval being three hours. For nearly ten minutes it sustains a column 200 feet high, a smaller geyser near by throwing an oblique stream that is frequently united with it by a beautiful rainbow, formed in the falling spray.

The Comet, Grotto, Fan and Riverside are all interesting and of irregular action.

The Giant is an immense geyser, the outline of whose peculiarly shaped cone is familiar to many. Its period is four days, and for nearly two hours it sustains a column of water seven feet in diameter at a height of 100 feet.

Leaving this wonderful basin we cross over the mountains on the trail leading past Shoshone lake, and stand by the hot springs on the bank of the western arm of

YELLOWSTONE LAKE.

These springs are exceedingly large, and from them flow great quantities of boiling-hot water. One of them has been sounded to the depth of 350 feet, and through its translucent waters the coral-like sides of the basin can be seen glistening with the most delicate tints. Near by is a collection of paint pots even more beautiful than those previously described. But it is to the lake that our attention is chiefly directed. It has a shore line of 175 miles, covers and area of 300 square miles, and lies at the altitude of 7,780 feet above the level of the sea. Mr. Marshall says: "It contains several beautiful islands, is surrounded by some of the grandest mountains in North America, and is of so irregular a form as to give an uncommon beauty alike to its bold, bluff shores and its stretches of sandy, pebbly beaches. Its waters, pure and cold, in places 300 feet deep, shine with the rich blue of the open sea, swarm with trout, and are the summer home of countless swans, white pelicans, geese, brant, snipe, ducks, cranes, and other water fowl, while its shores, sometimes grassy, but generally clothed with dense forests of pine, spruce and fir, furnish coverts and feeding grounds for elk, antelope, black and white-tailed deer, bears and mountain sheep. Scattered along the shores of the lake, and on the mountain slopes which overlook it, are many clusters of hot springs, solfataras, fumaroles and small geysers."

In speaking of the hot springs, Professor Hayden says: "Near our camp there is a thick deposit of the silica, which has been worn by the waves into a bluff wall, twenty-five feet high above the water. It must have originally extended far out into the lake. The belt of springs at this place is about three miles long, and half a mile wide. The deposit now can be seen far out into the deeper portions of the lake, and the bubbles that arise to the surface in various places, indicate the presence, at the orifice, of a hot spring beneath. Some of the funnel-shaped craters extend out so far into the lake, that the members of our party stood upon the silicious mound, extended the rod into the deeper writers, and caught the trout, and cooked them in the boiling spring without removing them from the hook. [See illustration]. These orifices, or chimneys, have no connection with the waters of the lake. The hot fumes coming up through fissures, exteading down toward the interior of the earth, are confined within the walls of the orifice, which are mostly circular, and beautifully lined with delicate porcelain." In bathing in the lake one can select either a warm or cold bath, as the hot water from the springs floats out upon the surface. At one point the temperature to a depth of eighteen inches is 110° Fahrenheit, immediately below that 80°, and a few rods away along the shore it is but 45°. Professor Hayden says: "While the air was still, scarcely a ripple could be seen on the surface, and the varied hues, from the most vivid green shading to ultramarine, presented a picture that would have stirred the enthusiasm of the most fastidious artist. Such a vision is worth a lifetime, and only one of such marvelous beauty will ever greet human eyes."

A new object of interest lately discovered on the lake shore is a

NATURAL BRIDGE,

beneath which is a cascade waterfall. The bridge is thirty feet long and five wide, and eighty feet above the bottom of the chasm over which it hangs. The view here is extremely enticing, but time calls us away, and we follow the trail to

MUD GEYSERS,

six miles below the lake. The geyser has been inactive for four years, but is surrounded by springs and pools extremely curious and interesting. The greatest object of curiosity is a mud volcano on the hill side. Looking down into its crater, glimpses can be had of the boiling mud as it belches, mingled with steam, from the mountain, striking against the side of the bottom and rolling back again out of sight. Another near by is somewhat similar, but emits only jets of steam. A new one has recently been discovered on Pelican creek, two miles east of Yellowstone falls. It is surrounded by numerous hot springs, and when in action, large masses of mud are thrown to a great height. The force at times must be terrific, as the trees in all directions, for a distance of seventy-five yards, are covered with mud.

Passing on towards the river we visit Sulphur mountain, with its hot sulphur springs, and then hasten to the greatest sight of all, the canyon and

UPPER AND LOWER FALLS,

of the Yellowstone. Half a mile above the upper falls and with nothing to suggest the scene soon to burst upon our vision, the peacefully-flowing river suddenly breaks into a series of dashing rapids. The water rushes along impetuously until it plunges over the brink of the upper falls upon the rocks 140 feet below. The channel is narrowed to 100 feet, and the water so deepened that with the great force accumulated in the rapids, it is hurled over the edge and breaks into detached masses of glistening white, blending into the cloud of spray that rises from below, through which it darts like arrows, rebounding from the sloping sides of the rocky masses at the bottom. From here the river flows swiftly on, receiving into its bosom the waters of the Cascade creek, which plunge over the edge of the canyon at Crystal cascades 129 feet above. Spreading out to considerable width, it suddenly contracts to about 200 feet when a quarter of a mile has been traversed, and hurls itself over a precipice 350 feet high into the bottom of the canyon. Says Professor Hayden: "The waters seem to gather themselves into one compact mass, and plunge over the descent of 350 feet in detached drops of foam as white as snow. Some of the large globules of water shoot down like the contents of an exploded rocket. The entire mass falls into a circular basin which has been worn into the hard rock, so that the rebound is one of the grand features of the scene."

THE GRAND CANYON,

which opens out in its greatest magnitude below the lower falls, extends down the river for twenty miles, and the walls vary from 1,000 to 3,000 feet in perpendicular height. The falls and canyon are thus described by Col. William Ludlow: "The view of the grand canyon from the point where we stood, is perhaps the finest piece of scenery in the world. I can conceive of no combination of pictorial splendors which could unite more potently the two requisites of majesty and beauty. Close at hand, the river, narrowed in its bed to a width