

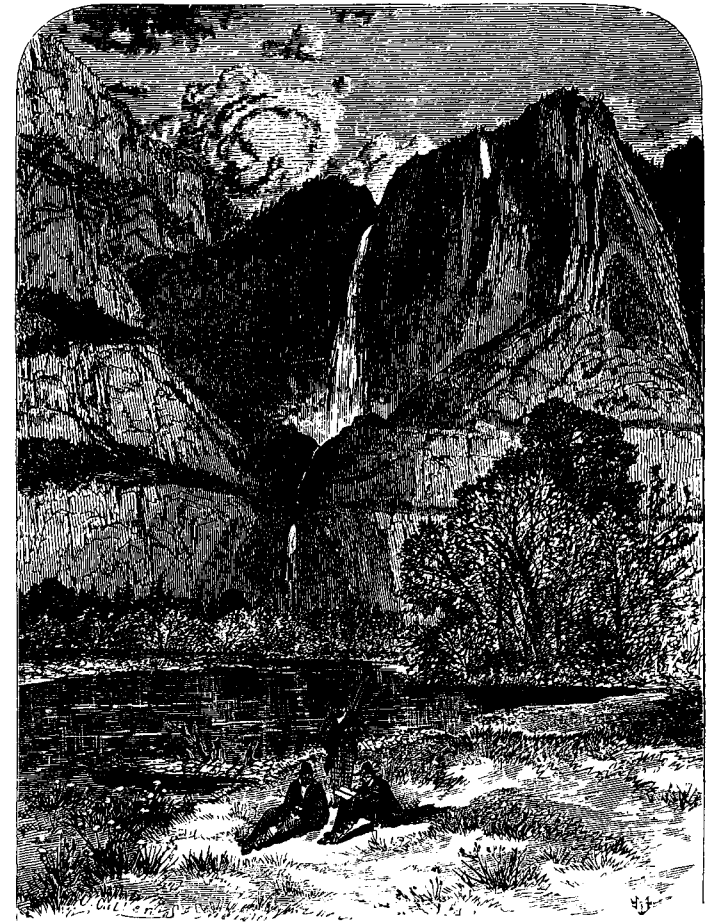
PART IV.
OTHER FAMOUS CATARACTS
OF THE WORLD.

CHAPTER XIX.

Yosemite—Vernal—Nevada—Yellowstone—Shoshone—St. Maurice—
Montmorency.

FOR the purpose of comparison it may be interesting to note other cataracts in the United States, and in other parts of the world, and also some of the remarkable rapids, which may be successors to what were once perpendicular falls. For descriptions of those in foreign countries we are chiefly indebted to the geographical gazetteers and the journals of Humboldt, Livingstone, Bohle, and Stanley; for information regarding the cataracts of Norway we are indebted to Murray's "Norway, Denmark and Sweden."

In the United States, after Niagara, the first to claim our attention are the Falls of the Yosemite, so graphically and scientifically made known to us in the second volume of Professor J. D. Whitney's Geological Report for California.



Opposite page 164.

Yosemite Falls.

Before describing them it is necessary to note the physical features of the region in which they are placed. The valley of the Yosemite forms a portion of the bed of the Merced River, which flows through it and passes from it by a wild, deep cañon into the San Joaquin. It is about eight miles long and from half a mile to a mile wide, with a sharp bend to the west, about two miles from its upper end. To this place the Merced and two tributaries, called the North and South Forks, have come through the most rugged cañons, falling nearly two thousand feet in the space of two miles.

Near the southerly end of the valley is the remarkable rock El Capitan, an almost vertical cliff 3,600 feet high, and one of the grandest objects in the valley. Just above this is the imposing pile called the Cathedral Rocks, and behind these, connected with them, two slender and beautiful granite columns called the Cathedral Spires.

Two miles above, on the opposite side, is the row of summits, rising like steps one above another, named the Three Brothers. On the other side, in the angle of the valley, stands Sentinel Rock, so called from its fancied resemblance to a watch-tower. Three-fourths of a mile in a southerly direction from this is the Sentinel Dome, more than four thousand feet high and affording from its summit a most magnificent view. Following up the North Fork, just at the entrance of the cañon, rises the Half Dome, the grandest and loftiest in the Yosemite Valley, an inaccessible crest of granite, having an elevation—according to Prof. Brewer—of 6,000 feet. On the oppo-

site side of the same cañon stands the North Dome, another of those rounded masses of granite so characteristic of the sierras. Appearing as a buttress to this is Washington's Column, and below this the Royal Arches, an immense arched cavity, formed by the giving way and sliding down of portions of the rock, and presenting, in the upper part, a vaulted appearance.

In the angle formed by the Merced with the South Fork is the symmetrical and beautiful North Dome. This valley is the most remarkable basin thus far found in the world, and in view of its gigantic and impressive scenery we cannot but marvel at its size—a mere cup or trough in the midst of one of the sublimest of geological formations. This tiny strip of wonder-land is, as we have seen, only eight miles long and less than three-quarters of a mile average width.

Beginning at the south-westerly end of the valley we first reach, in ascending it, the Bridal Veil, formed by one of the torrents that feed the Merced River. It is 1,000 feet in height, the body of water not being large, but sufficient to produce the most picturesque effect. As it is swayed backward and forward by the force of the wind, it seems to flutter like a white veil.

Near the head of the valley, where it turns sharply toward the west, we have before us the Yosemite Fall. "From the edge of the cliff to the bottom of the valley the perpendicular distance is, in round numbers, 2,550 feet. The fall is not one perpendicular sheet. There is first a vertical descent of 1,500 feet, when the water strikes on



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Bridal Veil Fall.

what seems to be a projecting ledge, but which is in reality a shelf or recess about a third of a mile back from the front of the lower portion of the cliff. Across this shelf the water rushes downward in a foaming torrent on a slope, equal to a perpendicular height of 626 feet, when it makes a final plunge of about 400 feet on to a low talus of rock at the foot of the precipice. As these various falls are in one vertical plane, the effect of the whole from the opposite side of the valley is nearly as grand, and perhaps even more picturesque, than it would be if the descent was made in one sheet from the top to the bottom. The mass of water in the 1,500 feet fall is too great to allow of its being entirely broken up into spray, but it widens very much as it descends, and as the sheet vibrates backward and forward with the varying pressure of the wind, which acts with immense force on this long column of water, the effect is indescribably grand."

The first fall in the cañon of the Merced is the Vernal, "a simple perpendicular sheet 475 feet high, the rock behind it being a perfectly square-cut mass of granite. Ascending to the summit of the Vernal Fall by a series of ladders, and passing a succession of rapids and cascades of great beauty, we come to the last great fall of the Merced—the Nevada, which has a descent of 639 feet, and near its summit has a peculiar twist caused by the mass of water falling on a projecting ledge which throws it off to one side, adding greatly to the picturesque effect. It must be ranked as one of the finest cataracts in the world, taking into consideration its height, the

volume and purity of the water, and the whole character of the scenery which surrounds it."

The fall from end to end of the valley proper is about fifty feet. "Its smooth and brilliant color, diversified as it is with groves of trees and carpeted with showy flowers, offers the most wonderful contrast to the towering masses of neutral and light purple-tinted rocks by which it is surrounded. Its elevation above the sea is estimated at 4,060 feet, and the cliffs and domes about it from 3,000 to 5,000 feet higher." It is a source of great satisfaction to the lover of nature that this famous and favored territory, so studded with grandeur and fretted with beauty, has wisely been set apart by Governmental authority to minister to the higher needs and better instincts of man.

The valley of the Yellowstone east of the Rocky Mountains in the north, like that of the Yosemite west of the sierras of the Pacific slope, is another wonderland, presenting a bewildering variety of land and water formations which, in turn, awe, charm, fascinate, or amuse, but always astonish, the beholder.

Among the most interesting objects in the Yellowstone Valley are the upper and lower falls of the Yellowstone River. "No language," says Professor Hayden, "can do justice to the wonderful grandeur and beauty of these scenes, and it is only through the eye that the mind can gather anything like an adequate conception of them. The two falls are not more than a fourth of a mile apart. Above the upper fall the Yellowstone flows through a grassy, meadow-like



Opposite page 158.

Vernal Falls.

valley with a calm, steady current, giving no warning until very near the fall that it is about to rush over a precipice 140 feet high, and then, within a quarter of a mile, again leap down a distance of 350 feet. After the waters roll over the upper flat, rocky bottom with great rapidity along the upper flat, rocky bottom which spreads out to near double the width above the falls, and continues thus until near the fall, when the channel again contracts and the waters seem, as it were, to gather into a compact mass and plunge over the descent of 350 feet in detached drops of foam as white as snow."

On the Snake or Lewis River, the largest tributary of the Columbia River, are three falls, the greatest of which is the Shoshone in Idaho, where the river, with a width of six hundred yards, is said to be of so great a depth that it discharges nearly as much water as the Niagara, over a precipice about two hundred feet high. This grand fall is situated in the midst of magnificent scenery, and is surrounded by a fertile country.

Another lesser Niagara is found in the north-east, in the river St. Maurice, the largest tributary of the St. Lawrence, which falls into it from the north below Three Rivers and about twenty-two miles above its mouth. The fall—the Shawenegan—is the same height as Niagara, and while the width and depth of the river are not given, the volume of water pouring over the precipice is said to be forty thousand feet per second, a supply sufficient to produce a grand and impressive cataract.

Eight miles below Quebec the river Montmorency dis-

charges directly into the St. Lawrence, over a cliff two hundred and fifty feet high, with a width of one hundred and fifty feet. The falling foam-flecked sheet presents a beautiful and picturesque appearance. It is unique as being the only known instance in which a tributary falls perpendicularly into the main stream.