

THE VESUVIUS OF AMERICA—MT. LASSEN.

CALIFORNIA, the state of Panama-Pacific fairs, of perennial self-advertising and of other marvels too numerous to mention, is now having the downright good luck of being in possession of the only volcano which the eyes of white men have ever seen in a state of eruption within the borders of the United States.

That California should have presented to her by nature at just this time the only active volcano within the borders of this country is just her luck. The visitors who ordinarily would have gone only to the exhibitions now travel far up to the northern borders of the state, spending their money as they go, to take a look at Lassen Peak as she spouts out steam, cinders, sulphur smoke, flames and volcanic rock. And again it is California's luck that when the distinguished members of the American Association for the Advancement of Science meet in San Francisco shortly—the first meeting which the association has held west of the Rockies—she will have a real fire-spouting volcano with which to entertain them.

It was only a year ago that Lassen Peak, which had lain dormant for a thousand years, was roused from her lethargy. Ever since she has been exhibiting the force which springs from imprisoned fires of the earth. It was on May 30, 1914, that the Californians who lived within a radius of fifteen to twenty miles of Mt. Lassen were awakened out of their night's sleep by a roar and a thunder like the sound of thousands of heavy cannon going off.

A black column of smoke, attended with hot ashes, fine sand and hissing steam, was shot up from deep caverns of the earth into the sky five thousand feet above the summit of the mountain, which is itself nearly two miles high.

The Californians could scarcely believe their senses. They had been used to considering Lassen Peak as a harmless old pet, as a quiet old monster who didn't have a tooth left in her head. And then to have her suddenly become one of the most savage active volcanoes in the world was almost too much for them.

But with the true Californian spirit the Californians got busy and made Lassen Peak and its eruption shout for the glory of California. "If California has a dead volcano that won't behave itself and stay dead," said the Californians, "then we'll make a virtue of its misbehavior, advertise it and get more tourists to come to God's favorite spot of earth."

This is just what the Californians did. It was just their luck to come into possession of the only live volcano the United States owns. So they advertised it right and left and got advance notices and reviews concerning it in all the papers and magazines in the land. The Los Angeles Times even went so far as to send William H. Knight, a scientist of that city, "way up to the northern border of the state to sit through an entire performance of Mts. Lassen. Which he did and was so impressed in doing it that he wrote almost two full pages of a laudatory review concerning her extraordinary work."

California has every reason to feel proud and to boast her volcano for all it is worth.

for Lassen Peak almost over night has taken its place in the front ranks of the great active volcanoes of the world. There are, of course, thousands of dormant and extinct volcanoes in the world. Every country, continent or island which professes to be anything at all owns one. But the roll of active volcanoes can be quickly called.

The principal ones are Vesuvius, in Italy, 4,000 feet high, dormant previous to 79 A. D.; Etna, in Sicily, 11,000 feet high; Stromboli, on one of the Lipari islands, 3,000 feet high, and Hecla, in Iceland, 5,000 feet high. All these are on the map of Europe.

In America there are several low volcanoes on the Aleutian Islands, two large ones in Mexico, two in Guatemala, one in Salvador, Mt. Pelee, on the island of Martinique; Cotopaxi, in Ecuador, 19,500 feet high, and one each in Patagonia and Terra del Fuego. There is also one on the Antarctic continent.

In the mid-Pacific there are two volcanoes on the Hawaiian Islands—Mauna Loa, 13,760 feet high, and not far away Kilauea, 4,000 feet high. There are a few inconspicuous ones in other Australasian islands. In Japan there are two, Formosa has one and Kamtschatka has two or three. It is a noteworthy fact and one that has not been explained by scientists that all the active volcanoes are near the sea, that is, within one hundred miles of the coast.

Thus it happens that Lassen Peak is the only active volcano in the United States. It is a giant mountain with a height of 10,437 feet. It is built up entirely of materials drawn from the deep interior of the earth. California claims it now as one of her most wonderful scenes. Not only is it a rugged sentinel guarding the state's northern frontier but it is constantly challenging attention and exciting admiration by splendid displays of deep-seated energy and by sending forth magnificent black plumes into the sky often accompanied by a grand bombardment of great rocks.

About 1,500 feet of its summit can be

seen from the mall stage at a distance of twenty miles. Steam can be seen gently steaming forth. Every once in a while a column of black smoke comes forth and rises straight towards the zenith. A long horizontal light-colored cloud lies apparently above the volcano. The smoke sometimes reaches a height which mountaineers have estimated as being 5,000 feet above the volcano opening. It impresses itself indelibly upon the memory of anyone who is lucky enough to see it.

The crater itself cannot be approached at present on account of the incessant spurts of steam, and the possibility of an outburst of cinders, ashes and rocks, not to mention flows of lava which may take place any minute.

At such times a fine sand ranging from an almost impalpable but gritty powder to very small pebbles is projected with great violence from the throat of the monster and carried to distances of from fifteen to twenty miles. It was on the northern and eastern side of the mountain that the tremendously large rocks were projected from the volcano and sent tumbling down the steep mountain side toward Maunawake lake, four miles distant, when the tremendous and historic outburst occurred on May 22 last.

Some of the daring mountaineers set out with lines to measure these stones shortly after the eruption. They found two great rocks, one twelve by fourteen by ten feet and the other eleven by nine by seven feet, both still so hot that they blistered their hands in measuring them. Another great rock which was vomited forth set fire to a green sapling against which it rested.

It was on the northern slope of the mountain that the great disaster of Hot Creek occurred. There was a deep snowbank near the summit and the fierce heat of the explosion together with a great

mass of hot cinders rapidly melted the snow, and the water mixed with the ashes and the sand to a muddy consistency rushed down the mountainside in an irresistible torrent, covering portions of the valley for a width of two miles with mud from one to two feet deep.

There was a time in remote geological ages when Lassen Peak did not exist, when the waves of the Pacific ocean rolled over the broad expanse of what is now Sacramento valley and washed the shores of a continent which terminated at the base of the Sierra Nevada mountains. Then began a wonderful upheaval of the earth's crust attended with a tremendous display of subterranean energy and the most brilliant series of thermal, explosive and volcanic outbursts the world has ever known.

This was when the giant volcanoes of Lassen and Shasta and the mountains of the Cascade range were born. The foundations of the great deep were broken up. During the uplifting of basic rock by stupendous subterranean forces they were metamorphosed by the intense heat and veins and dikes were filled with the melted rock from below.

In the imaginative language of an early writer: "The funeral day of the old world had come. It must be buried. The momentous event was ushered in by one of the grandest displays of terrestrial fireworks earth ever witnessed. But there were no human spectators. All the pageantry and pomp of earth and heaven were presented on a scale of magnificence never since equaled. The roar of heaven's artillery was drowned in the more terrible crash of breaking and heaving mountains; the sea was quenched by the fiercer gleams of red flames that shot from a hundred volcanoes; along half a thousand miles, from the summits of Lassen

and Shasta to those of Hood and Rainier, the earth was opened in wide-gaping chasms and tremendous floods of scorching, burning, liquid lavas were poured out; and black, suffocating showers of ashes and cinders fell upon the land. The fire of some volcanoes did not even stop to set

carried far out over the ocean, now shal-
lowed by the terrific upheavals."

The area that was affected by this great turning over of nature in her sleep is of immense extent. It includes parts of California, Nevada, most of Oregon and a large part of Washington. Its extent is about 150,000 square miles.

"Volcanic phenomena," says a professor in the University of London, "are the outward manifestations of forces deep-seated beneath the crust of the globe. The universality of these phenomena all over the surface of the globe in past and present times indicates the existence of a general cause beneath the earth's crust."

"The similarity of volcanic lava over wide regions is strong evidence that they are drawn from one continuous magma consisting of molten matter beneath the solid exterior crust."

Since the first outburst of the Lassen volcano in May there have been to date more than one hundred other eruptions carrying gray ash and fine, dry powder and sometimes rock and rounded lava boulders, but at no time has there been any flowing melted lava. Yet every eruption, every discharge of ashes and projectiles is accompanied by powerful jets of steam and water and a roar like the firing of some monster gun. It gives no sign of letting up.

