

Kilauea Erupts, Fulfilling Prediction

Volcanology

"Kilauea flashed into magnificent eruption at 1:00 a. m. Hawaii time (6:30 a. m. Eastern Standard Time) this morning."

This radiogram, received in Washington by the U. S. National Park Service on Wednesday, February 20, fulfills in spectacular fashion the prediction of Dr. T. A. Jaggar, of Volcano House, Hawaii, government volcanologist, that an eruption might be expected this year. The prediction was published in the *SCIENCE NEWS-LETTER* on February 2, and has been made good in less than a month's time by the volcano on whose rim Dr. Jaggar has lived, watching, for more than half a generation. The volcano itself is a ward of the United States government, as it is a part of Hawaii National Park.

Washington specialists in volcano science received the news with great interest.

"It has been a long time since the last major eruption of Kilauea," said Dr. A. L. Day, director of the geophysical laboratory of the Carnegie Institution of Washington. "We all felt that something was due, and even over-due, to happen."

No report of any damage or loss of life was reported in the first news of the eruption, and it was not anticipated that any serious harm will be caused. Kilauea enjoys the reputation of being a spectacular but on the

whole well-behaved volcano, whose eruptions are not of the dangerously explosive type such as wiped out Pompeii in the early days of the Christian era, and devastated Martinique less than a generation ago. Such explosions are caused by the penning up of the steam and other gases in the vent, until they reach bursting pressure.

Kilauea has a huge safety valve, known as Halemaumau Pit, in the southwestern end of its huge oval crater, nearly three miles across at its greatest diameter. The constantly boiling lava in this pit gives off vast quantities of steam and hot gases, and vents some of the superfluous energy of the volcano, which might otherwise make Kilauea a menace to all life in Hawaii. Only when the lava on the lake becomes partially "frozen" is there any possibility of explosive eruption.

There are two major eruptions on record which displayed explosive phases. One of these occurred in 1825, when the noted English writer Lord Byron was visiting the islands. He was awed by the thunderous cloud of steam that rose from the volcano and by the great showers of falling stones and ashes.

The other explosive eruption occurred in 1789 and 1790, while the islands were still under the rule of native monarchs. A division of King

Keoua's army, bivouacked indiscreetly close to Kilauea, was annihilated. Native eyewitnesses reported that the eruption was preceded by violent earthquake shocks, terrific thunder and lightning, and a dense cloud of darkness that rose from the crater and enveloped the entire region.

But during the past century there has been no eruption of this type. Kilauea is almost ceaselessly active, but its activity consists mainly in the rise and fall of lava within the crater. It seldom overflows the rim, and as a matter of fact does not often climb out of the deeper pit of Halemaumau itself onto the floor of the crater. When the lava does rise high enough to overflow the crater it usually courses quietly down the mountain-side, burning its way through forests and plantations that may happen to lie across its path, but not causing widespread devastation. The same relatively quiet lava flows are characteristic of Kilauea's sister volcano, Mauna Loa. Mauna Loa has a smaller crater than Kilauea, but is more than 10,000 feet higher, reaching an altitude of more than 12,000 feet.

The studies of Dr. Jaggar have shown a periodicity in the activity of both volcanoes. A crisis in the affairs of Mauna Loa comes about every four and one-half years, and Kilauea's lava rises highest at intervals of about nine.

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Kilauea on Schedule

Volcanology

Kilauea follows a regular cycle of activity, according to the studies of the late Prof. James D. Dana, one of the first to determine the unique features of the Hawaiian volcanoes. First the liquid lavas rise, filling up the crater and consequently raising its floor. This phase was reported during the past few months, culminating in Dr. T. A. Jaggar's bold but promptly fulfilled forecast of an eruption in 1929.

When the crater has filled there is a discharge of the lava through some conduit down the mountain-side. This is followed by a down-plunge of the crater floor undermined by the discharged material. Then follows another cycle beginning with the rising of the floor, which continues until the augmenting forces, from one source or another, are sufficient for another outbreak.

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Dr. Jaggar's Own Story

Volcanology

By T. A. JAGGAR

Lava fountains 200 feet high along a crack on the bottom of Kilauea's most active pit were the most awesome features of the great eruption that began shortly after midnight on the morning of February 20. A crack 1300 feet long runs across the northwestern part of the bottom of Halemaumau Pit, and it is from this that the fiery fountains rushed upward.

A lava lake sixty feet deep, with diameters of 1500 and 1000 feet, has formed, and is rising at the rate of five feet per hour. After twelve hours of eruption, the fiery jets of the fountains rose 100 feet above the surface of this lake. The fountains were casting drops of lava into the air, which fell as they cooled. At first the stony shower consisted of pumice, but now the lava drops are glassy, and there are great quantities of lava needles, and of fine brown

wind-spun lava threads known as "Pelé's hair". Pelé was the ancient Hawaiian goddess of the volcano.

The eruption has been accompanied by a display of bright light and a constant rumbling noise. Clouds of blue, sulphurous fumes roll into the air from the pit.

The seismograph at Volcano House shows a continuous volcanic trembling and tilts away from the pit.

Halemaumau Pit, where the present eruption is centered, is Kilauea's usual focus of activity. It is an enormous hole in the southwestern floor of the crater, 3400 by 4000 feet. Landslides of material previously piled up on its slopes are constantly sliding into its depths, and these volcanic avalanches have been going on incessantly since the present eruption started.

It is expected that the eruption will continue for some weeks at least.

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