

**Excerpts from:  
Monthly Bulletin of the Hawaiian Volcano Observatory, March 1921  
by Thomas A. Jaggar**

**“Activity of Halemaumau”**

“The continued subsidence of the lava in Halemaumau pit made the scene surpassingly impressive owing to the great inner crags towering above the five lava lakes. One of these was a peak 93 feet above the lake level, and another showed a tabular summit surmounted by a group of rocks resembling a mediaeval castle. The walls around the several lakes were sheer precipices, 70 feet high in places and the rim of the pit stood 90 feet above the liquid lava. The lakes lowered about 5 feet per day during the first week in March.

“The lowering of floors along with crags had restored the appearance of a circular pit, and from the rim several lakes could now be seen at once, with the molten matter streaming and bubbling, sometimes forming lines of fountains where currents met and were deflected into a lateral cavern. Great crevasses yawned open in the floors showing bright red glow beneath, and avalanches fell. The islands stood high and showed broad pedestals in those places where the lakes sank faster than their surrounding cups and bottom substance.

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“The second week in March produced slowly subsiding lava, both lakes and crags lowering a foot or two per day. The activity became remarkably sluggish, the lakes being mostly crusted over, with only twenty or thirty fountaining places in the whole area. The islands increased in size and new islands appeared, as shoals were revealed by receding lakes. One island toppled over and its side broke away. Numerous avalanches fell from the crags, sending up spectacular clouds of red dust.

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“The third week produced a spectacular rise and for the first time in recorded history the larger crater of Kilauea was sending a flow through a gap in its southern rim. . . . On March 20 it had traveled 900 feet into the Kau Desert\* and was a narrow tongue of pahoehoe pushing forward very slowly.



*“March 19, 1921, 2 p.m. Halemaumau. Explosive fountaining cauldron building rampart against south pressure rim. Single jets were forty feet high. Torrent on right rushing into cauldron.”*

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“This equinoxial eruption was the climax of the most rapid and violent display of overflowing yet exhibited in 1921. The week began with dull crusted stationary lakes. March 15 inaugurated rising and a small islet was lifted into an elephantine hill 40 feet high. The crags rose but the lakes remained dull.

“Suddenly in the early morning hours March 18 the crusts broke up, violent fountaining began, the lakes rose 40 feet in a few hours

and united into one, and at 6 a.m. the pit was overflowing its brim on three sides. . . . The overflow northeast swept down for a mile in the Volcano House direction, crossed the trail and made aa lava at its front; a branch flow surrounded and burned the hut belonging to the Observatory. The rift flows filled the southern embayment of Kilauea crater, just as in 1894, and it was these which broke out into the desert.

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“Kilauea was never more spectacular. At Halemaumau the gas release which followed the overflowing produced three sink-hole cauldrons inside the pit, arms of the lake. These developed enormous clusters of roaring fountains, hot greenish-brown fume, inrushing cascades, and upthrown slaggy flings that formed ramparts. Showers of grit and spun glass fell to leeward. The new rim of Halemaumau was almost unrecognizable. The eruption continued steadfastly, with pit in adjustment to overflow, and the crag islands, which had risen less than the liquid, began to disappear.

“The fourth week in March produced marvelous displays of fiery activity. The eruption showed signs of lessening, the lava lowered a few feet, and the noisy roar, luminosity and outflow decreased. The flow in the desert stopped after advancing a third of a mile.

“A first maximum of rising was passed just at equinox and on March 21 a great boiling cauldron 40 feet deep formed on the northeast side of Halemaumau, with inrush of lava cascading from the remainder of the lake. The drowned crags were revealed as banks plastered with lava splash and showing aa texture in places. Then there came a revival of rising for two days, which sent a tongue of flow across the road terminus, and built up huge fountaining grottoes around the pit.

“This activity was accompanied by whirlwinds generated by uprush of hot gas, and deposits of glass droplets, olivine crystals, and spun glass were piled up near the ramparts. The actual whirling movements carried shells and fragments of glowing basalt hundreds of feet into the air, becoming miniature tornadoes, and lifted the fountains and burning gases into streamers of fire. These whirls made loud roaring noise, and the larger fragments fell several hundred yards from the pit. The calm cloudy weather caused the finer stuff to rise to great heights and fall as grit and wisps of Pele’s hair many miles away.

“At night the whole of Kilauea was illumined so that print could be easily read at the Observatory\*\* by the light from Halemaumau.

“About March 25 and thereafter the central and southern parts of the pit became a fountaining cauldron towards which there was cascading lava from the other sides, the rumble being audible for several miles. The flows on the Kilauea floor pooled and backed up to the source cones making heaps, which finally collapsed on top. At Halemaumau quiet spells began to occur, some islets disappeared, and the liquid lava stood about 20 feet below the rim.

“The end of the month started a rapid sinking away of the lava column to the hundred-foot level. This was the closing stage of the eruptive crisis, and the fire-pit resumed its more normal condition, with scores of fountains, numerous islands and crags, lava cascades pouring into wells, and shifting surface currents across the incandescent lake.

“Crag islands lowered ten feet or more per day, whirlpools and shifting sink-holes formed, the crags and islets increasingly emerged, fume grew thicker, and lines of traveling fountains like those of 1912 became conspicuous features. The noise, glow and heat greatly diminished. The flow on the Kilauea floor ceased when the subsidence began and impressive underground chambers were revealed at the two source cones, with wells surrounded by glowing stalactites, and banners of pale flame.”

\* The area Jaggar refers to as the “Kau Desert” is actually the southern part of Kilauea’s caldera.

\*\* In 1921, the Hawaiian Volcano Observatory was located where Volcano House stands today.



*Halema'uma'u Crater, March 21, 1921*