II. *Notes on Mount Loa* by REV. E. P. BAKER.

In the month of July, Rev. E. P. Baker of Hilo, made an excursion to the summit of Mt. Loa, and also to the sources of several of its great eruptions, and, in addition, visited the lava stream of Kilauea of 1849 and the Kau "desert." Mr. Merritt's trip to Mokuaweoweo was made with Mr. Baker. The following notes are from a letter on his excursions addressed to the writer. Mr. Baker also made a valuable collection of rock-specimens which will add much of interest to the paper on Hawaiian lavas soon to be published by Prof. E. S. Dana.

J. D. D.

To the facts respecting the summit of Mt. Loa, reported by President Merritt, Mr. Baker adds that he observed six parallel fissures ten to twenty rods apart at the south end of Mokuaweoweo which had a course toward the place of eruption of 1887, and which were probably there produced at the first outbreak, before the outflow of the lavas in Kahuku. (See vol. xxxvi, p. 24.) A descent was made into the southern crater of Mokuaweoweo—probably the first ever made—and the depth found to be

seventy-five feet greater than that of the central crater. A fresh-looking lava stream descended into it down the northern wall, which may have been made in 1887.

Mr. Baker, speaking of the source of the lava streams of the great eruption of 1880-81, states that the two streams from the source, the Kau or southern and the Hilo or eastern (see map, Plate I, vol. xxxvi) originated together at the extremity of a long fissure. This fissure follows the course of a "divide," so that a small obstacle was sufficient to turn the flow to one side or the other. The outflow took place on this divide; a northern stream flowed first, then the Kau stream, and then the Hilo. The fissure ran by the north side of Red Hill, a cone with a deep crater which is still giving out vapors, and this hill was apparently the occasion of the turn off southward of the Kau stream, it standing at the point of their divergence. Water boiled near this hill at 196° F. This Kau stream is in general aa, but near the source it is pahoehoe. At the upper extremity of the fissure there is a pit crater, Pukanahi, which is described as the source of the lavas and is still smoking. At this place also water boiled at 196° F.

On the route from Ainapo to the source of the outflow of 1852, the lavas of the 1852 stream, where they were first reached, were of the aa kind; but after awhile there was a change to pahoehoe, and soon after this the source was reached—a red cone in the midst of an extensive bed of pumice. Long ditches or trenches occur in the surface of the region which were evidently the beds of lava streams, their sides having been the banks. The flow appears to have had a single outlet. Water boiled at the source at 200° F.

Going from Ainapo to the source of the eruption of 1887, in Kahuku, about 6000 feet above the sea-level, Mr. Baker passed through regions of woods and grass and saw seven running streams and three or four ponds of water. There had been heavy rains. The fissure of 1887, about 400 feet above the place of outflow, was still giving out vapors. No deep crater marked the place of discharge.

Over the wide region between Mt. Loa and Mt. Hualalai it is hard to tell where the slope of one ends and that of the other begins. The 1859 flow of Mt. Loa as it came down heading northwestward, turned just enough northward to fetch by the northeastern flank of Hualalai.

The *Kau desert*, lying to the south and southwest of Kilauea, has a surface of whitish or light colored sand with areas of pahoehoe lava, which is decomposing at places into a reddish soil. It is about eight miles by six in area. It is destitute of vegetation and owes its dryness to its being under the lee of Kilauea.