ART. V.—*Notes on Mauna Loa in July, 1888.*I. *On an Ascent of Mount Loa by W. C. MERRITT, President of Oahu College.* From a letter to J. D. DANA, dated July 28.

PRESIDENT MERRITT reached the summit of Mt. Loa at noon of the 18th of last July, and encamped near the southeast angle of the crater. The spot was considerably lower than the highest point on the west side of the crater, and probably about 13,400 feet above tide-level. Water boiled at 185° F. between 7^h and 8^h in the morning when the temperature was at 56° F. The thermometer was at 62° F. at noon, 40° F. at 7 P. M., 30° F. at 11 P. M. and 26° F. at daybreak, so that during the night water froze in a large crack, ten feet below the surface. About half a mile south-by-west from the southern end of the crater of Mokuaweoweo (see map, Plate II, vol. xxxvi), there was a small but deep pit-crater. Having descended the east wall of the central pit of Mokuaweoweo to its bottom, a small cinder cone was found not far from the eastern wall; and just southwest, a pumice cone in the midst of an aa flow, the summit of which was very hot and reddish from the action of vapors. In the southwest corner of the pit, there was a cone at F (for all positions see same map), from which vapors were escaping, and south of it, at *m*, a circular pit 300 and 400 feet in diameter by estimate, and 150 to 175 feet deep. The walls of the pit consisted of the edges of layers of basaltic rock one of which was 40 to 50 feet thick, and vertically columnar in structure. The floor of the central pit had, as a whole, a slope from the southwest to the northeast, confirming the view that the southwest part of the pit had been the seat of greatest activity, as it is in Kilauea. Southwest of *m*, the outer wall of the central pit was cut through from top to bottom by two parallel fissures, which had a S.S.W. direction, and thence pointed nearly toward the place of chief eruption of 1887. East of *m* and near the wall in the direction of L, there were great numbers of small fumaroles, from which sulphur vapors were escaping freely, and large deposits of sulphur had been made about them. Near *h* two dikes, 2 to 2½ feet thick, intersected the walls, crossing one another at a small angle, the rock of which had a feldspathic aspect.

From a rough measurement, the depth of the crater on the east side was made not over 350 feet. If this small depth is sustained by careful observations, a great change of level had taken place since the survey of Mr. Alexander in 1885. Such a change might have been among the effects of the eruption of February, 1887.

In Prof. Dana's paper of July last, accounts are cited of a fountain of lavas in the summit crater in 1873—in June, by Mr. W. L. Green and Miss Bird, and in August, by Dr. O. B. Adams. President Merritt obtained from Mr. E. G. Hitchcock the following facts observed by him and Mr. H. R. Hitchcock on a visit to the summit in October, 1873. They spent one night at the summit near the site of Wilkes's camp, on the east side of the central crater or pit. At the time a fountain of lavas was playing in the southwestern end of the crater, to a height of 600 feet. The height was ascertained by lying upon the brink and looking across the pit to the top of the opposite wall; the column of fire ascended at least one-half higher than the distance from the floor to the top of the walls, and taking this distance at 400 feet, the height of the fountain was decided to be approximately 600 feet. Moreover the descending lava of the fountain, falling into the basin, flowed off northward nearly the whole length of the western side of the pit.

President Merritt also visited Kilauea on July the 14th. His letter speaks of the walls of Halema'uma'u as in part wholly obliterated, as represented by Mr. Dodge; it was 15 to 20 feet high in some places. The nearly circular lake (at *l*) on the west side of the cone (which he calls "Dana Lake") was in ebullition, but not more active than in August, 1887. The enclosing walls of this small lake were 10 to 15 feet high above the liquid lava within, and 15 to 20 feet above the floor outside. With regard to the rising of the cone in Halema'uma'u Mr. Merritt expresses full confidence in the view of Mr. Dodge.