

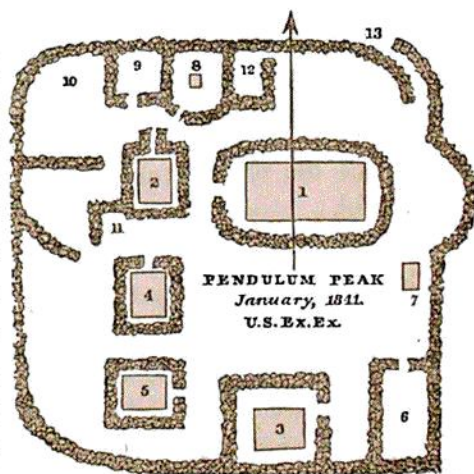
Christmas-day set in quite stormy, with snow and a gale from the southwest; it was very cold, and the only way we had of keeping warm was to wrap ourselves up with blankets and furs. We had just wood enough to heat a little chocolate.

The small instruments having arrived, I began some of the observations.

While the rest were employed in making our tents as tight as possible, in the one Dr. Judd and myself occupied, we discovered a great deposit of moisture, which, on examination, was found to be caused by steam issuing through a crack in the lava. On placing a thermometer in it, it rose to 68°. The tent was forty feet from the edge of the precipice of the crater, and it was not surprising that the steam should find its way up from the fires beneath. As it somewhat annoyed us, we pounded and filled the seam full of broken pieces of lava. This circumstance led to the discovery of a small piece of moss, the only living thing, either animal or vegetable, that was found within six miles distance, or within four thousand feet of the height of the terminal crater. This moss was here nourished by the steam that escaped, which supplied it with warmth and moisture.

This day we made many experiments on the temperature of boiling water: the mean of the observations gave the boiling temperature at 188°, being five hundred and sixty feet to each degree of temperature. At the volcano of Kilauea, I had found it less than five hundred and fifty feet to each degree; while the result of careful experiments at the Sunday Station, gave five hundred and fifty-five feet to the degree, and at the Recruiting Station, five hundred and fifty-eight feet.

We also employed ourselves in building a high stone wall around a space large enough to contain the houses and tents, when they should all arrive, having found the necessity of it to protect ourselves from the violent winds. Besides this, each tent was to be surrounded by a separate wall, up as high as the eaves, when completed. The plan was as exhibited in the annexed wood-cut.



1. Pendulum-house. 2. Captain Wilkes's tent. 3. Officers' tent. 4, 5 and 6. Men's quarters. 7. Magnetic house. 8. Observatory. 9. Store-house. 10. Wood-house. 11. Kitchen. 12. Thermometer and barometer house. 13. Entrance.