

at the terminal crater at four o'clock, after a hard walk of six hours. We had now three stations, viz.: the Recruiting Station, Lieutenant Alden's, and the Flag Station, under the sergeant of marines. These made it a more easy task to get the loads up, although it would require a longer time.

I found they had built some part of the wall around our encampment on the summit, and being apprehensive that we were again to have bad weather, we all joined to secure the tents more effectually against the anticipated storm.

The cold, this day, to our feelings was intense, although the temperature was not lower than  $26^{\circ}$ . All our exertions in carrying stone for the wall, and violent exercise could not keep us warm. Dr. Pickering came in, towards dark, half frozen, having made the circuit of the three craters, which had occupied him nearly all day. The stream of the last eruption, some sixty years since, was from the north crater.

The two chronometers, with the pendulum clock, and some of the pendulum apparatus, had reached the top during the day; and I was rejoiced to find, on examination and comparison with the one I had, that no difference of rate had yet taken place.

We found the experiment of enclosing the camp in with a stone wall to succeed admirably, protecting us very much from the southwest wind. The temperature during the night fell to  $17^{\circ}$ .

On the 28th the day dawned with fine weather. At sunrise the effect of refraction was very similar to that before described. I was again struck with the apparent smallness of the diameter of the sun when seen in the horizon. The day continued beautifully clear, with a very strong wind from the westward. We were employed in taking observations, and the transit was set firmly, to get the passage of the stars: a wall was also built around the observatory, to protect it from the wind.

Finding there was no longer any necessity for the Flag Station to be continued, I ordered the sergeant and party up to Pendulum Peak, and directed Lieutenant Alden to remove to the Recruiting Station, and that Lieutenant Budd should join me at the summit. This arrangement became necessary, as the men would now unavoidably be exposed to the cold, and had recruited so much that they could make the trip between the two stations during the day, with loads, sleeping at the upper or lower station. Dr. Pickering made a trip to-day into the crater on the west side, which he found no easy task. He brought back several specimens of lava. The night was clear, but very cold.

On the 29th we were busy putting up the pendulum apparatus. A short time after noon, Dr. Judd again joined us with the joyful news that the party from the ship had arrived, with sixty days' provisions