

lava, and whitened about the sides and bottom with sulphate of soda, in a state of efflorescence. A considerable quantity of this was taken up. It had been found in other places, but only in small quantities.

On the 5th, a large quantity of dry grass arrived from below, which I had sent for to thatch the house, in order to preserve a more equable temperature. This we used to stuff between the house and tent. I also laid a thick covering of the same material over the lava floor, as I thought it probable there might be some hollow tunnel or cavern beneath the house. All these precautions soon produced the desired effect by giving an equable temperature, although the outward variation still continued from  $17^{\circ}$  to  $50^{\circ}$  during the twenty-four hours.

As we were desirous of having a little fire, for the purpose of warming our fingers when calculating or writing, we took one of the calabashes, and by filling it with stones, converting it into a "brasero." This answered our purpose admirably, except that we were occasionally annoyed with smoke. Dr. Judd, not content with this rude contrivance, invented a fire-place and chimney, which he built in one corner of the tent, and which occupied all the spare room we had. We thus were enabled to enjoy the comforts of what, on the top of Mauna Loa, we called a good fire. How good it was, may be understood when it is stated, that our allowance of fuel was three sticks of wood per day; and that water froze within a couple of feet of the fire, when it was giving out the most heat.

In a former gale, one of our three barometers had been blown over, spilling the mercury, though not injuring the tube; being prepared for such accidents, I filled the tube again and took a careful comparison with the others, in the event of farther accidents.

The temperature of boiling water was again tried, and found  $187^{\circ}$ ; the barometer stood at 18.384 in. No dew-point could be obtained. Electricity was developed in large sparks.

Brooks, who was employed in putting up signals around the old crater with Lieutenant Budd, brought in some fine specimens from the north crater; among them were some having almost the appearance of pure glass. He had found a small piece of fern in the rich earth of the crater, which was regarded by us all as a great curiosity.

The afternoon of the 6th, the atmosphere was heavy, causing much refraction; there was little air stirring at the time.

The 7th, we continued our observations; the temperature of the pendulum-house now continued equable at  $40^{\circ}$ .

On the 8th, we had a change to cold, raw, and disagreeable weather; snow began to fall, and a kona or southwest gale set in; the temperature fell soon to  $20^{\circ}$ .