

during the space of 35 minutes of time, from the instant of its being set up till it had lost the circular motion : but we found, that in the exhausted receiver it played or spun during the space of two hours 16 minutes * ; and therefore, that the air has no share at all of the cause of its horizontality, and that the air is a great impediment to its motion.

London, Feb. 6,
1752.

Ja. Short.

LVII. *Observations made in going up the Pic of Teneriffe, by Dr. Thomas Heberden, and communicated by William Heberden, M. D. F. R. S.*

Read Feb. 6,
1752.

AT two of the clock in the afternoon we set out from the villa or town of Orotava, about 6 leagues distant from the Pic of Teneriffe. The weather was cloudy ; and before we had travell'd quite a league, we found ourselves surrounded by a very thick mist or fog, which lasted about a league : all which time we travell'd among gardens and woods of pine-trees, after which we came to an open country ; the soil very dry ; here and there a single pine-tree, and some few Spanish broom-plants ; some loose large stones, of the bigness of a butt ; others, which seem'd to have been burned, and are supposed to be cast out from the vulcano of the Pic. The sky very clear, and the thick mist, which we had passed thro', now seem'd a sea of ash-colour'd

Y y

clouds

* Preserving a perfect horizontality for the space of $\frac{1}{4}$ of an hour.

clouds below us. Having travell'd two leagues on this soil, we arrived at eight o' clock in the evening at the Falda del Pico, or foot of the Pic. Here we were obliged to leave our horses; the road, by reason of its steepness and loose sandy soil, being impassable to them. At half a league's distance we baited under some large rocks, called La Estancia de los Ingleses, or the English baiting-place, being first used as such by some of our countrymen in ascending the Pic. Here we tarried all night, making fires to temper the air, which we found very cold. When the morning drew near, we proceeded on our journey, ascending for a quarter of a league the same soil (but more steep and loose) till we arrived at some large rocks of mal-payfes (or stone burnt by a vulcano); amongst which, as the ground was more firm, we walk'd with less trouble, or rather climbed, being frequently obliged to make use of our hands to help us forward.

Having gone about a quarter of a league in this manner, we arrived at the famous cave of Teyde. It is surrounded on all sides (or rather buried) with large mal-payfes, or vulcanian rocks, between which you discover the entrance about six feet high, and four feet wide. The cave seems to be about fifteen feet wide at the entrance; the extremity we could not discover. From its entrance to the surface of the water, which covers the bottom, seems to be about twelve or fourteen feet. The top and sides of the cave are of smooth stone. The bottom is cover'd with ice or snow; above which is a body of water about half a yard deep. This cave is the grand reservoir of snow of the island, whence they are supplied,

plied, when their common reservoirs, which they prepare for cooling their liquors, fail them.

At somewhat more than a quarter of a league's distance from the cave, we came to a plain of sand; from the middle of which arises a yellowish pyramid of sand or cinders, which the inhabitants call *La Pericosa*, and we *The Sugar-loaf*; around the basis whereof perspire vapours incessantly. The Sugar-loaf is about an eighth part of a league to the top, which is very difficult of ascent, occasioned by the loose soil, and steepness of the road. About eight o' clock in the morning we gained the summit or caldera. It is about twelve or fifteen feet deep: the sides, sloping down to the bottom, form a concavity, or *crater*, resembling a truncated cone, with its base uppermost. The *crater* seems nearly circular; its diameter about forty fathom. The ground is very hot; and from near twenty *spiracula*, as from so many chimneys, you perceive a smoke or vapour of a strong sulphureous smell. The whole soil seems mix'd or powder'd with brimstone, which forms a beautiful colour'd surface.

There is one of the rocks, which forms a sort of vault or nich; against which the vapour condensing produces what the inhabitants call *Axufre de Gota*, or *Drop-Brimstone*. The nich, against which the vapour is condens'd, is of a greenish colour, sparkling with yellow like gold. The same colour you perceive on almost all the stones thereabout. A small part of the Sugar-loaf is white like lime; and another lesser part there is, whose internal substance seems a sort of red clay, and whose superficies is cover'd with a salt.

In the middle of one of the rocks was a hole, about two fingers breadth in diameter, whence proceeded a noise like a great body of liquor boiling very strongly; and one of the company applying his hand to the *spiraculum* at about a quarter of a yard distance, was burnt for his curiosity.

This Sugar-loaf is cover'd with snow the greatest part of the year. The snow was lying on it from October 1742 to June 1743.

The different accounts of various authors concerning the height of this famous Pic would have incited one less inquisitive than I am to satisfy his curiosity, by examining the real altitude thereof: for which end, between three and four o' clock in the afternoon of a very serene day, when not a cloud appeared, either on the summit, or in the whole atmosphere, (to prevent any accidental refraction) having pitched on a plain along the sea-side for my horizontal stand, and measuring trigonometrically a base sufficiently corresponding to the angles with the greatest accuracy, I observed the height to be 2566 fathoms.

Two subsequent observations by myself, as well as two antecedent ones some years before by John Crossé Esq; the British consul, served only to confirm my opinion of the justness of this observation.

Tho' the body of the mountain is cover'd with clouds, the Pic is generally seen above them quite clear; tho' sometimes the contrary happens; the whole body of the mountain without a cloud, and only the summit of the Pic cover'd with a thick white cloud, as with a cap. This is often observed in the finest weather; and the Spaniards, on this occasion, say, *El Pico tiene su sombrero puesto*; (i. e.)

(i. e.) 'The Pic has put his little hat on;' and look on it as a certain sign of rain.

During the 6 or 7 years, that I lived in the villa of Oratava, as I had a continual fight of the Pic, I have several times observed the above phænomenon, and do not remember one instance, in which the prediction of rain failed.

LVIII. *Observations of the Weather in Madeira, made by Dr. Thomas Heberden, and communicated by William Heberden, M. D. F. R. S.*

Read Febr. 6, 1752. **T**HE thermometrical observations are made with Fahrenheit's thermometer, and the calculations deduced from two observations daily; at seven o'clock in the morning, and at three in the afternoon. The same method of calculation is to be understood of the barometer. The rain fell thro' a funnel 15 inches in diameter.

The Lesté, Levant, or hot winds, are very troublesome. The remedy is, to keep ourselves within-doors. October 1749, comparing 2 of Fahrenheit's thermometers together, one of them exposed on the north side of my house to the open air, the other within-doors, the difference was as follows:

	Hour	Therm. within-doors.	Therm. exposed to the air.
Lesté, Oct. 20.	10	73	81
	12	76	82
	4	77	77

MADEIRA