

was as unpropitious as cloud and rain and mist could make it. Had the railway been completed, assuredly we should have left our mountain height, and have proceeded *anywhere* along the line in quest of clear weather somewhere. Nor were we alone in our anxiety. Mr. Airy at Pobes, Mr. de la Rue at Miranda, were involved in similar apprehensions. A party of French *savans*, acting under M. Leverrier had posted themselves and certain ponderous instruments on a hill some seventy miles south of us, and distressed at the threatened disappointment, that eminent astronomer actually did what we only desired to do—he quitted the height and his friends, and the ponderous instruments, and, unembarrassed by such impediments, hastened down to the plain below in quest of the sun: happily he found it in time; but so also he would have done had he remained with his friends on the hill.

Notwithstanding the unpromising state of the weather and the sky, some of us, as our duty was, proceeded at seven A.M. to our observing hut, there to make all the preparations, and to be ready for the best or the worst. At noon we saw Mr. Scott leisurely and reluctantly ascending our hill under the shelter of an umbrella. By way of eluding the water, or of concealing their chagrin, he was assailed with the notes of “Rule Britannia,” but a trifling break in the clouds occurring at the moment of his arrival, the telescope was adjusted as on a former occasion by means of an imperfectly visible sun-spot, while the object glass was protected from the drizzling mist by the friendly umbrella.

Matters now began to mend, the weather clearing up rapidly in the direction of Pobes and Miranda, and we rejoiced for our friends there. Soon after noon the whole population of the country seemed to have turned out, and assembled as near as they could to our hut and the large telescope. To our infinite surprise, and in the first instance not without some apprehension on our part, scores of soldiers were seen in the distance marching evidently in the direction of our hill: we found in due time that they had been dispatched by the kind thoughtfulness of the Spanish authorities from Ordúña, partly to act as a protection for us, and partly as a guard of honour. At the polite request of the officer in command, we accepted two of them as a patrol round our little enclosure, while the rest dispersed themselves to see what might chance to occur.

At one o'clock, to our great relief, not a cloud was to be seen in the heavens from the horizon to the zenith, with the exception of a dense mist which enveloped, as usual, the shoulders and summit of the Gorbea mountain, under which inhospitable canopy we suspected, and subsequently were assured, that Mr. Vignolles, the very Corypheus of our expedition, was vainly attempting to see the sun. And now among our neighbours there commenced a very active demand for pieces of smoked glass, which we gratified to the best of our power, the supply of the raw material coming from the workshop of the railway. Our party then separated, each to his post and to the particular line of observation which he had selected.

The first contact of the sun and moon was well observed with the telescope at 1h. 47m. 20s. G.M.T., but the remaining part of the disc of the dark moon itself thus striking the sun was wholly invisible: this phenomenon, though usual in eclipses, nevertheless is always remarkable. As the black moon silently crept over the sun's face, its uneven mountainous character became clearly displayed. There were several spots on the sun, and facule, or huge mountainous ridges of its luminiferous envelope, were heaped up in abundance towards the eastern or left-hand limit. At 2h. 27m. the landscape had become perceptibly dim, reminding us of the light of an autumn sunset. At 2h. 44m. some of the assistant engineers were observed to shrug their shoulders and put on their oilskin coats, while many Spaniards, who sat on the grass, watching the eclipse, began to push themselves into the heather to warm their backs. Our black bulb thermometer, inclosed in *vacuo*, which to a certain extent resembles a human back with a black coat on, had now fallen some 40° since the commencement of the eclipse; the ordinary thermometer in the shade had fallen only 8° . About 2h. 51m., that is, ten minutes before the totality, compliments began to be freely passed among our party on the grim, sepulchral hue assumed by the human countenance, and excitement was now becoming general. The corona became partially visible to us some seconds before the extinction of the sun's light, and on the side opposite to the remaining light. A rose-coloured prominence was also reported as having been seen distinctly near the highest part of the sun, many seconds before the totality. The last light of the sun was not extinguished like an unbroken luminous thread, but in an undulating line; it was not broken up into detached brilliant beads. Mr. Fasel, whose duty it was to look for it, saw, or as it were *felt*, the mighty rush of gloom which came sweeping at an awful speed from the N.W. like a storm over the waters, and yet suddenly wrapping objects and men in an unexpected, windless silence and calm. In an instant the corona now broke forth in its beauty around the black moon, surrounding it like a radiated crown of glory, in width fully extending to half its diameter. The hundreds of Spaniards who lay warming themselves in, rather than on, the heather, now sprang up as if electrified, shouting, “Mire a la luna! Mire a la luna!” “Look at the moon! Look at the moon!” Our friendly Alcaldes soon quieted them, and they lay down again watching in silence.

But other circumstances besides the apparition of the corona, contributed to the grandeur and excitement of the scene. Our entire distant horizon, where it was at all visible, became tinged

with such hues as are not seen by mortal eyes on other occasions. They did not precisely resemble the gorgeous variegated tints of sunset, for the source of those tints is a light sliding *from below*, but the vapours of our horizon were illuminated with the radiations of the corona shining *from above*. The distant hills were blue, with a sharp outline, the immediate foreground at their bases was a distinct orange, while the sky above them for several degrees assumed a strong rosy tint, and then rapidly shaded off to a dark indigo blue, right up to the black moon and the corona, near to which planets and stars were shining. But that indigo sky seemed not in its proper place, it descended ominously near to the earth, while the moon, like a round black patch, hung in the mid air with a strange huge open space between it and the corona. The aspect of things was unearthly and seemed inverted.

Mr. Scott, who was charged with that especial duty, reported that he had seen four planets,—viz., Mercury, Saturn, Jupiter and Venus, during the totality; the two latter were visible for some minutes both before and after. He saw also Regulus, Sirius and Procyon. He could discern no trace of the hypothetical Vulcan, nor of any other intra-Mercurial planet.

The effects produced on animals reported by Mr. Bartlett's groom, and by others, was very various. The horses and dogs which he had taken with him appeared to be unconcerned. The former continued to graze and the latter to eat. Not so with a large assemblage of sheep; they divided themselves into small flocks and scampered off in as many directions; we subsequently learned that these directions were towards their several homesteads. Small birds were terribly frightened, some ran among the spectators, and two, as a reward for their confidence, were caught. An eagle came wheeling in disagreeable propinquity round the head of one of the assistant engineers, who was posted a few miles away from us.

Nevertheless, the darkness was rather peculiar than intense. There was no difficulty in reading the chronometer. The smallest type employed in the *Times* newspaper was deciphered by the aid of the light reflected from the corona by the masses of now white cloud which enveloped the Gorbea mountains, and alas! our kind friend Mr. Vignolles also. It is said that shadows thrown by the corona were visible, but none of our party testified to that.

Such, then, were the remarkable, not to say the sublime, phenomena witnessed by us during this eclipse. Alas! they were almost as evanescent as they were grand: for three minutes only they were beheld in astonishment, and then they vanished as suddenly as they burst on our view. The returning light came, to our regret, and yet, in a certain sense, it came also to our relief.

The neighbourhood of our enclosure, which during the last two minutes had been enveloped in deep silence, now became animated with the hum and the movements of hundreds of men and women who came crowding round us. Some of the officers of the guard, and the Alcaldes, and the Priests, were gratified with the sight of the vaning eclipse through the telescope; to our regret we could explain nothing but by dumb show. One of them, to Mr. Fasel's horror, removed a minimum grass thermometer from the ground, turning the bulb towards the sun in the vain endeavour to use it as a telescope. Of course the indications were destroyed, and there is a corresponding hiatus in our friend's meteorological register, but this is the sole trifling mishap which befel us on the day; nothing could exceed the good behaviour and good humour of our rustic companions.

We continued to observe the meteorological instruments until the time of the last contact and the termination of the eclipse: this occurred at 4h. 9m. 20-3s. G.M.T. We then adjourned to the little inn at Gujuli, where a substantial and not unwelcome meal was provided by the liberality of Mr. Bartlett for some five-and-twenty, who more or less contributed to the observations of the day. Those of our party who had brought in the written results of what they had seen, kindly submitted to a cross-examination, not unnecessary for the sifting of fact from imagination; one of them whose accounts did not exhibit a complete cohesion, finding himself a little confused, at length broke out into the naive confession, “*En fin, Monsieur, j'étais un peu distrait*.” Perhaps if we admitted the truth to ourselves, there was hardly one among us who had not been a little *distract*. As one instance of this, we may record that such was the astonishment or the mental absorption of one of our party at the sudden apparition of the corona, that he did not hear or did not heed the notification of the moments when the totality commenced or ended, although distinctly announced by the observer at the telescope. The reader will not be far wrong if he considers the middle of the eclipse to have been at 3 r. m.

Such was, and thus ended, our share of the observations of this memorable eclipse. Happily there were few failures owing to the weather among any of the parties who located themselves anywhere near to our longitude in Spain. Father Secchi, the eminent astronomer of Rome, obtained available photographs at Desierto de las Palmas; the French savans near Tarrazona, our own Astronomer Royal and M. O. Struve at Pobes, Mr. de la Rue at Miranda de Ebro, and, we may add, ourselves at Gujuli, were all successful in our respective efforts. It is with regret we record that the weather was unpropitious for those able observers who left us at Bilbao, and proceeded westward in the *Himalaya* to Santander. The late eminent philosopher, Dr. Whewell, had posted himself in the plains near to Ordúña, about five miles to the N.W. of us, and many