THE SOLAR ECLIPSE.

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THE variations of health and disease in relation to light, heat, electricity, and the magnetic force, is a subject that is every day acquiring fresh interest, from the investigation of their several phenomena. Meteorology is no longer a science apart from hygienic considerations of the utmost importance. The value of daylight is at last receiving its proper attention in the statistical reports of the public health. Electricity, not many years ago looked upon as a recondite matter of philosophical theory and experiment, is at length regarded as one of the chief agents of vitality. Even magnetism takes its place among the intricate actions of life; for some observers think that they have good reason for concluding, that the greater or less intensity of the oscillations of the needle is in correspondence with certain pathological changes and morbid conditions of the air. These are facts or doctrines of the highest significance. Their indications are invaluable; and time alone is wanting to verify, correct, or cancel them as data, by which we may either act or reason. The solar eclipse offered a rare opportunity for observing them all upon a grand scale; and as such, I have drawn up a statement of all the information I could gather on this point, and have reduced it into as condensed a form as possible, for the purpose of present inquiry and future reference and research.

Meteorological Observations for March 15th.

1858.	Hour.	Amount of daylight.	Hygro-meter.	Electro-meter.	Thermometer.		Baro-meter.	Sky, Wind N.W.
					Night.	Shade.		
March 15	9	3—4	80	act. pos.	37	47	29.720	fair morn.
"	10	4—5	"	act. neg.		48	29.728	light clouds.
"	11	3—4	"	act. pos.		49	29.748	hazy.
"	12	2—3	70	wk. pos.		51	29.750	hazy clouds.
"	12.30	1—2	"	act. pos.		49	29.766	grey clouds.
"	1.10	1—2	80	nil.		47	29.760	dark clouds.
"	2	2—3	"	act. pos.		48	29.774	overcast.

200 feet above the sea-level. The assumed maximum of daylight is 8.

The foregoing observations are entirely meteorological, and such as could be accurately taken without the aid of astronomical instruments. They describe the condition of the atmosphere, the amount of clouds, the degree of daylight, moisture, barometrical pressure, and thermometrical temperature (Fah.), as well as the kind of electricity, from nine o'clock A.M., till two o'clock P.M. The several instruments employed are of approved character, and such as I have been in the habit of using for a long time past. They can, therefore, be perfectly relied upon. The amount of daylight was never less than that of a grey evening in November. At the darkest moment, there was nothing particularly unpleasant in the twilight; and I was able to read off the gradient of my barometer (which is under cover, in a room with a northern aspect) throughout the whole

of the time. The birds did not go to roost; for the sparrows were chirping, and some pigeons were flying about, during the darkest period of the eclipse. Perhaps, if the public had not been alive to its occurrence, the darkness might have passed by without its being particularly noticed by any one, except as a dark hour or so, more than usual. Owing to the overcast sky, the stars were, of course, invisible; but it is doubtful whether they could have been seen, even had the sky been clear, at the maximum of the occultation.

I had strong reasons for supposing that both the magnet and the daylight would exhibit some peculiar phenomena; and, from the authentic reports of others, it appears that the magnet was considerably disturbed and deviated from its true meridian, and that the daylight was polarised at the extreme moment of obscuration. At 1.10 o'clock P.M., I found the electricity *nil*; I had no doubt that the light was completely polarised; and it now appears that the magnet lost its true meridian. If this were actually the case, then it may be concluded that the magnetic force, the atmospheric electricity, and the solar beam, were extinct at the centre of the eclipse. So that the electro-magnetic agency that sustains the material world, and the sun's ray that vivifies the animal and vegetable creations, were, *pro tanto*, extinct together at that critical moment; which, had it been prolonged, would have finally extinguished the present order of nature, and brought both animal and vegetable existences to their close.

On further inquiry, I learn that the ozone—the presence of which in the atmosphere is at all times uncertain—was, on this day in particular, reduced to zero, in strict accordance with the transient polarisation of the light and the cessation of the electro-magnetic force. No state of atmosphere could be imagined more insalubrious than that described in this account, which renders the sublime ideal of an eclipse “shedding disastrous twilight on half the nations”, no longer a poetic fiction, but a scientific expression of the truth. Up to the centre of the eclipse, the electricity had been *positive*, and the weather cold; but, subsequently to that point of time, it became *negative*, and the air warm, the electric current being instantly reversed. March has been, as I have ascertained by exact admeasurement, one third darker than it usually is, arising, in all probability, from the greater or less proximity of the moon's shadow to the earth's surface both before and after her passage across the sun's disc. The purple and yellow light, noticed at the darkest moment, was owing to the distant sky being seen far beyond the depth of the obscuration, showing emphatically that *colour* was absolutely lost at the maximum obscurity; while the sudden return of daylight, so startling to some observers, was nothing more than the restoration of the prismatic elements that had been destroyed as the solar beam was polarised. Nature resumed the order of the day with an electric flash. So that colour, light, electricity, magnetism, ozone, and, of course, heat also, were extinct, or suspended, along the mathematical line traversed by the darkest point, or apex, of the moon's shadow.

ON THE MORTALITY OF INFANTS IN FOUNDLING INSTITUTIONS, AND GENERALLY, AS INFLUENCED BY THE ABSENCE OF BREAST-MILK.

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PART III.

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Cows' Milk. This is the substitute for human milk best known in these regions. The absence of odour and its more general diffusion, are advantages in its favour. In appearance, it is of a bluish white colour, almost tasteless, specific gravity varying from 1030 to 1035. Its microscopical characters are about the same as those of human milk, excepting that the milk-globules are more abundant.

Now, it is clear, comparing this with woman's milk, that—1. The quantity of water is less in the cow; 2. The solid matters are in greater quantity; 4. The sugar is less in amount; 5. There is more casein; 6. And more butter; 7. The salts are also in excess.