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Experiments of light and shadow made by means of the prism

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to have been obtained, including several very *improbable* alternatives, for the purpose of showing the necessity that exists for the repetition of the experiment, with the precautions suggested in these remarks, before any important conclusions can be founded upon it respecting the theory of galvanism.

Dec. 28, 1829.

E. W. B.

EXPERIMENTS ON LIGHT AND SHADOW MADE BY MEANS OF THE PRISM. BY DR. J. READE.

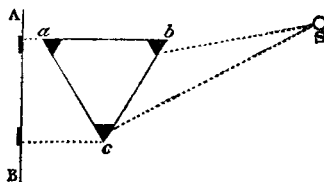
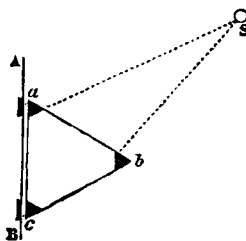
Exp. 1.—Having placed a piece of white paper close to one of the planes of an equilateral prism, on looking through it at the clouds the black angles of the prism reflecting their shadows were very apparent, as represented in the following figure:

A B, a sheet of white paper held close to and touching the plane

of the prism *a c*. *a b c* three opaque and dark angles forming black shadows, which passing through the plane fall on the paper A B. If we now hold a lighted candle behind the prism, these black shadows are immediately changed to blue at top, orange at the bottom, demonstrating in the most conclusive manner, that it is the black shadows of the prismatic angles which give the colours of the spectrum, and not any decomposition of the solar ray.

If when the sun is shining we bring the prism with its attached paper into the rays, and then turn the instrument on its axis so as to bring the plane *a c* to an angle of 45°, with the paper A B, as thus represented, a refracted spectrum is formed. The black shadows from the angles *a* and *c* are passed through the prism and rarefied by the reflected light from the plane *b c* into orange at the bottom, blue at the top. On looking at the inside of the plane *b c*, we see the window reflected as soon as the coloured spectrum is formed; and, as I believe Mr. Brougham first remarked, if a pin

or any other slender body be held in the spectrum, light-coloured shadows are seen. Now as every separate light forms its own shadow, we need no stronger proof that light is reflected from the plane *b c*; and as the light is reflected upwards, the spectrum ascends on the opposite wall.



J. READE, M. D.

P.S. Since writing the above, I have made the following experiment: The sun shining on the slates of an opposite roof to my bed-chamber, I pulled down the blinds, leaving a triangular corner open. I now held a pencil before a sheet of white paper and saw three
 N. S. Vol. 7. No. 37. Jan. 1830. K coloured

coloured shadows,—blue, yellow, and brown : on bringing a lighted candle near the blue, it was changed to a perfect lake ; on bringing the blue to overlap the yellow, a green was formed.

Cork, August 26, 1829.

OCCULTATION OF ALDEBARAN, ON OCTOBER 15TH, 1829, OBSERVED BY DR. BURNEY.

In the evening of October 15th, about 9^h 6^m mean time, an occultation of Aldebaran by the moon was observed here ; as the moon approached, Aldebaran became less ruddy, and when in contact it showed very little colour. After a perfect contact of the star with the moon's northern limb, at an angle of about 69 degrees from her vertex, it was *six seconds of time* clinging, to appearance, to her enlightened limb before it disappeared.

ON THE COPPER-COLOURED LIGHT REFLECTED FROM THE DARK PART OF THE MOON'S DISC. BY DR. BURNEY.

In the evenings of October 30th and 31st, 1829, the non-illuminated part of the moon's disc, when near the horizon, reflected a *dull copper colour*; a circumstance that often happens while the sun, or rather the earth, is passing through the southern signs of the ecliptic, but seldom if ever while passing through the northern signs. By considering the relative positions of the sun and moon with that of the earth, and the small angle subtended by the latter during the first four days of the moon's age, when the phenomenon is exhibited to the best advantage, the dull copper colour seen on the moon's opaque body in clear weather, particularly when near the horizon after sunset, appears to be effected by means of the solar rays reflected to the regions of the moon, from the extensive water in the Ethiopic Ocean and the Great South Sea, according as the earth advances in its annual motion round the sun : as it is well known the reflected solar rays from water are extremely bright, and as they proceed through a clear atmosphere in the direction of the moon, it is probable that they produce a faint light upon the dark part of her disc. In the opposite season of the year, when the sun's declination is north, there is more heat in this latitude, and consequently more vapours in the atmosphere, which intercept the incident and reflected solar rays, and do away their effect ; nor is the moon's angular position in the heavens so convenient to receive them as in autumn and winter.

Cold in southern latitudes as far as 56 or 57 degrees, is said by late voyagers to be a mere chimera, and that snow is scarcely ever seen on the ground in these parallels, although reverse to nature in comparison of the low temperature and rigour of the winter in the same parallels in the northern hemisphere ; therefore, snow on the ground in South America, or the Cape of Good Hope, or New Holland in any part of the year, cannot be the means of conveying the sun's reflected rays to the regions of the moon ; nor is the snow in North America so situated during our winter, as to cause light from
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