

doubtless a slip, but in the particular reaction described is of some importance.

We feel sure that Mr. Crookes will receive the thanks of those interested in this subject in England for the care and completeness with which he has arranged and carried out the text-book.

#### OUR BOOK SHELF

*Half-Hours among some English Antiquities.* By Lewellynn Jewitt, F.S.A., &c. (London: Hardwicke and Bogue, 1877.)

THIS ought to be an extremely useful little manual to those who desire to obtain a knowledge of the various classes of antiquities to be found in England, both prehistoric and historic. Mr. Jewitt writes with full knowledge and in a manner that cannot fail to secure the attention of the reader. He theorises very little, confining himself mainly to a statement of facts in reference to the various objects included under the name of antiquities. He speaks of barrows, stone-circles, cromlechs, flint and stone implements, bronze instruments, Roman remains of various kinds, ancient pottery, arms and armour, sepulchral slabs and brasses, coins, church bells, glass, tiles, tapestry, personal ornaments. Thus, it will be seen, Mr. Jewitt's programme is extensive and varied, and although much cannot be said in the space at his command, his little work will prove a very useful introduction to works of a more special kind. Not its least valuable features are the illustrations—upwards of 300—which accompany the text.

#### LETTERS TO THE EDITOR

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##### Centralism in Spectroscopy

In NATURE, vol. xv. p. 489, there are some remarkable counter-assertions by Mr. Christie to certain of my matter-of-fact statements on your p. 449, of which the most pressing for me to notice is the paragraph wherein he declares that "the Edinburgh Observatory has, for the last four years, possessed three spectroscopes which are almost precisely identical with those used with such effect by Dr. Huggins."

I beg to say that the above is not the case, and for this, amongst other reasons, viz., that though three spectroscopes are there in part, they belong solely as yet to H.M. Office of Works in London, which office, moreover, decided long since to return all of them to their maker, in lieu of one new spectroscope. And Mr. Christie must have known of this perfectly well when he wrote the above paragraph, for the carpenters of the department, who fetched away, about nine months ago, the one and only collimator to all those three partial spectroscopes, in order to send it back to its maker, spoke, as a matter of notoriety, of Mr. Christie himself being the adviser of H.M. Office of Works in that transaction, as well as the designer of the one new spectroscope ordered by the London office to take the place of the former three, but not received here yet.

With regard to the other new, and far more important, Greenwich spectroscope, of which Mr. Christie both chides me for not waiting for the full account to appear, as he now intimates, in a forthcoming number of the *Proceedings* of the Royal Society, and also challenges me to discuss its principles with him at once, I beg to say that my former remarks had reference solely to the official *codex* of last year's work at the Royal Observatory, Greenwich, as published by the Royal Astronomical Society in their last Anniversary Report, at p. 162, where all the world both may, and I suppose was intended to, see it, and where Mr. Christie's name appears no more than it did in my letter. And as in that letter (at your page 450) I ventured to assign the next anniversary meeting of the same society as the limit of time within which the full practical value of the said new Greenwich spectroscope will have been arrived at, I do not think we can do better than wait for that time to arrive.

15, Royal Terrace, Edinburgh, April 6 PIAZZI SMYTH

Parhelia and Paraselenæ seen on March 20, 1877, and again on March 21, 1877, at Highfield House Observatory

PERHAPS this phenomenon is the most remarkable of the many somewhat similar ones that it has been my good fortune to witness during the last forty years, the chief features being brilliancy and persistency.

Fig. 1 represents the appearance at 8 A.M.: an ordinary halo of  $22\frac{1}{2}^\circ$  radius, with an elongated mock sun at the apex. This



FIG. 1.—8 A.M.

lasted till 9.30 A.M., when, in addition to the halo,  $\alpha\beta$ , and the mock sun,  $\gamma$ , there was a second circle,  $\delta\epsilon$ , of  $45^\circ$  radius, also having the true sun for its centre, an inverted portion of a third circle,  $\eta\theta$ , of  $22\frac{1}{2}^\circ$  radius having its centre  $45^\circ$  above the true sun; also a portion of a fourth circle,  $\iota\kappa$ , of  $90^\circ$  radius, whose centre was  $90^\circ$  below the sun. The mock sun,  $\gamma$ , was very bright and prismatic, as also was the circle,  $\alpha\beta$ . The other rings were colourless.

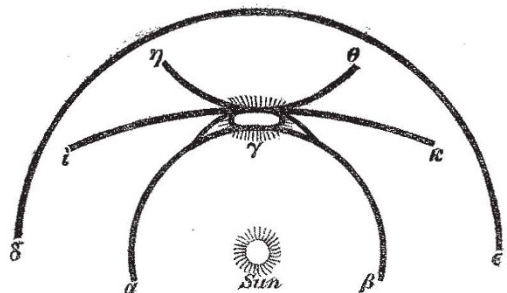


FIG. 2.—9.30 A.M.

At 9.40 A.M. the portions of circles  $\eta\theta$  and  $\iota\kappa$  had vanished, but a wing-like portion was now visible, and brilliant (see Fig. 3,  $\lambda\omega$ ). This remained until 11.15 A.M., when only  $\alpha\beta$  and the mock sun  $\gamma$  remained, lasting all the morning. At 12.57 P.M. the arc,  $\iota\kappa$ , again appeared, and was visible until 1.22 P.M., the halo,  $\alpha\beta$ , and the mock sun,  $\gamma$ , lasting till 5 P.M.

At 7.40 P.M. an ordinary lunar halo ( $\alpha\beta$ , Fig. 5), and at 8.25 P.M. a portion of a second circle,  $\delta\epsilon$ , of  $45^\circ$  radius, and of a third circle,  $\iota\kappa$  (of  $90^\circ$  radius) and an elongated mock moon,  $\gamma$ ,

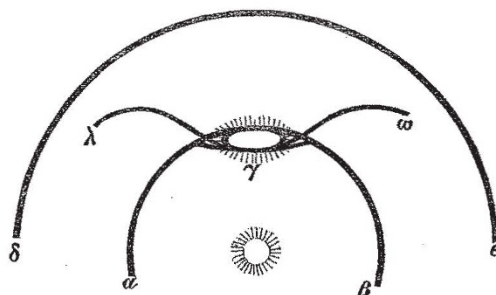


FIG. 3.

were very apparent. At 8.31 the ordinary lunar halo alone remained. At 9.10 a portion of a circle,  $\nu\sigma$ , not quite  $90^\circ$  radius, appeared (see Fig. 6), but this did not touch the circle  $\alpha\beta$ , but was  $10^\circ$  above it. At 9.15 P.M. this also vanished, but the lunar halo remained as long as the moon was above the horizon.

On March 21, at 8 A.M., there was a solar halo and mock sun exactly like the one seen at 8 A.M., March 20 (see