LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his Correspondents. No notice is taken of anonymous communications.]

The Eclipse Photographs

In his letter published in *NATURE* on the 1st of June, and to which Mr. Brothers courteously replies in your issue of the 15th, the writer briefly touched upon four different points bearing on the value of the eclipse photographs. Those points are:—1st, The possibility in a comparatively cloudless sky of a luminosity akin to that represented under the name of the corona on page 370 of the number of *NATURE* issued on March 9, but caused only by moisture in our atmosphere, as illustrated by his instance of what he termed a lunar halo; 2ndly, The presence of a luminosity on what he apprehends should have been the dark disc of the moon, as represented in the photograph of the American observers at Cadiz; 3rdly, The indifferent definition of the published photograph; and 4thly, The evidence as presented by the photograph of the identity of the coronal rifts. Referring to the first of these points, Mr. Brothers "fails altogether to see the connection between the solar corona and a lunar halo." If the term halo, as applied to any appearance pertaining to the moon, is confined to the ring of light so frequently to be observed apparently surrounding the lunar disc, the writer would substitute the word "luminosity" for halo. The appearance he alluded to resembles Mr. Brothers's woodcuts of the corona already mentioned, more than anything else to which he can compare it, and in common phraseology may be described as a patch of light surrounding the apparent position of the moon, extending from it to a distance varying from about one degree to two or two and a-half, and having an irregular or rifted outline. The phenomenon in question was observed by the writer when the atmosphere was in such a condition that no trace of cloud whatever was visible for a distance round the moon of some thirty or forty degrees. He mentions this merely to show that even when no visible condensation of moisture is present, an appearance—attributable to nothing but atmospheric moisture, and analogous to what is termed the solar corona—is not to be regarded as out of the common, and nothing to be wondered at. Touching the second point, Mr. Brothers would seem to be of opinion that a solar corona may be seen even when the dark disc of the moon intervenes between it and the observer's eye; for he says of the luminosity in question that if caused by our atmosphere it would extend all round and all over that disc. The point at issue here is a very simple optical question, in the discussion of which space would be merely wasted, and in reference to which the writer would simply reiterate the opinion he has already expressed, that the luminous appearance as seen extending on to the disc of the moon in the Cadiz photograph, is (if it were visible outside the camera) attributable to nothing but the influence of the terrestrial, or of a lunar atmosphere. Whilst speaking of the American observer's picture, he would remark in answer to two observations by Mr. Brothers, first, that he is not in "possession of exclusive information" concerning the circumstances of its production; and secondly, that he does not assume that it was taken under conditions less favourable than those prevailing at Syracuse. He does, however, assume that that photograph either represents only the phenomenon to which the instrument used in its production was directed, or that it represents something in addition to that phenomenon. If its representation is confined to the phenomenon, then upon the grounds already shown, he considers that what is called the coronal light in the Cadiz picture not only may be, but most certainly is, in part at any rate, merely the result of atmospheric moisture. If, however, the American observers were unfortunate enough to represent in their photograph a luminosity not belonging to the eclipse at all, then he considers that what did belong to the eclipse is not distinguishable in their picture from what did not. In short, whether the Cadiz picture does or does not represent only what it should do, the writer is of opinion that any evidence it can afford respecting the identity of the coronal rifts must be other than *satisfactorily* conclusive.

Concerning the third point, namely the "indifferent definition," to which he directed attention, Mr. Brothers admits the validity of his remarks, so far as Syracuse picture No. 5 is concerned; and this picture, it may be observed, Mr. Brothers would seem to consider the best of his series, inasmuch as it is the only one procurable of the opticians in Manchester, and also

is the one selected for an engraved representation in the pages of *NATURE*.

Respecting the last of the four points on which the writer has taken the liberty to remark, viz. the evidence afforded by the photographs of identity in the coronal rifts as seen at Cadiz and Syracuse, he is of opinion that he has already said sufficient to justify his observation that that evidence is not "satisfactorily conclusive." If, however, Mr. Brothers should entertain a different opinion, and the Editor of *NATURE* think the matter worthy of further space, he will make a few other remarks, looking at the subject from an altogether different point of view.

In conclusion, the reader should be reminded that the subject under discussion is not the astronomical question—Is the sun surrounded by a medium which is illuminated by his rays and rendered visible under favourable circumstances to the eye of a terrestrial observer? but, assuming this to be the case—Is the luminosity indicated in the photographs under consideration a representation of that medium or is it not?

The writer does not doubt the existence of such a medium round the body of our great luminary (though, assuming it, ought there not to be some trace of it visible above the western horizon, immediately after sunset in a dry climate?), but he does doubt whether the patch of light depicted in the photographs of the late solar eclipse is in the main other than a phenomenon of terrestrial meteorology.

D. WINSTANLEY

The Solar Parallax

MR. PROCTOR entirely misunderstands me if he thinks that my criticism on his account of the solar parallax had reference to any failure on his part to give prominence to the discussion between Mr. Stone and myself, or to correctly apprehend that discussion. To point out all the imperfections and inaccuracies in his account would take a whole column of *NATURE*, and I have neither the time nor the disposition to make such a display of the accidental errors of a fellow-worker in the astronomical field. But, if Mr. Proctor desires it, I will constitute him judge in his own case in form and manner as follows: I will send him privately the list of specifications on which my criticism was founded. If, in his opinion, this list fails completely to sustain the proposition that his history of recent researches on the solar parallax is "imperfect and inaccurate in a remarkable degree," he is to publish it with any defence he chooses to make. Otherwise he may keep it for his own private use in case he brings out a second edition of his work. The kind spirit in which he has taken my remarks is highly appreciated, and I shall be happy to hear from him privately on the subject.

SIMON NEWCOMB

Halo in the Zenith

AT 20 minutes to 6 P.M. on Saturday 10th inst., I witnessed a natural phenomenon which I understand is very unusual. It was a portion of a halo around the zenith. Take the zenith as centre, and with a radius of 20° describe an arc of 120° parallel to the horizon, and having 60° on each side of due west. This gives the position in the heavens, as nearly as I could determine, using no other means of observation except my eyes. The convex surface was red, concave blue. Other colours were also apparent, and were very distinct towards the centre of the arc of 120° , becoming much diluted at a greater distance. The horns of the arc gradually faded away amid the cirri with which the whole sky was covered, its blue colour being only partially obscured. You could tell at a glance that the zenith was the centre of the halo. The phenomenon only continued five minutes from the time I first saw it, until it disappeared altogether. It has been suggested to me that probably the azimuth of the sun and that of the centre of arc of 120° coincided. I think this is very likely, but I did not note it particularly at the time. The wind was easterly, and the sun shone brightly where I was standing. If any of your numerous correspondents would favour me with an explanation of the above I would be greatly obliged. No other halo or portion of a halo was visible at the time.

R. M. BARRINGTON

Fassaroe, Bray, Co. Wicklow, June 26

What is Yellow Rain?

THE letter of Mr. A. Ernst in *NATURE*, May 25, on a recent case of "yellow rain," possesses considerable interest to all who have paid any attention to early prodigies; because his deter-