



## On the symmetrizing power of the eye

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part measured to the edge of the sun's disc (where alone the distortion seems to take place), otherwise errors and discordances will occur. Those prodigious lunar elevations and depressions, so frequently described in solar eclipses, are seldom or never seen, except at the commencement or termination of the eclipse, or in places near the solar cusps: that is, in those points only which are near the edge of the sun; every other portion of the moon's circumference being comparatively smooth and circular. If this notion be correct, it would seem that the measurement of the solar cusps during an eclipse may be liable also to discordances from this very cause.

Mr. Baily concludes, by expressing a hope, that, at the total eclipse of the sun in 1842, and the annular one in 1847 (both of which will be central in Europe), the attention of astronomers will be directed more particularly to this subject, both as to its existence and its cause; and that such a regular system of observations in various places will be adopted, as may best tend to elucidate and explain this very remarkable phenomenon.

There was laid on the table, for the inspection of the members present, a small floating collimator, made by M. Amici. This instrument was only  $1\frac{1}{2}$  inch in length, and, together with the mercury on which it floats, was packed in a small round box, 2 inches diameter in the inside, and 2 inches high, which might be carried in the pocket. It is intended for voyagers, and other persons, to whom a larger instrument would be a great inconvenience. It was the first that had ever been made of such small dimensions.

There was also laid on the table a drawing, or representation, of several *shooting stars*, that were observed at Plymouth from the 11th to the 14th of November last, together with the direction which they severally took, as compared with the fixed stars then visible.

II. Stars observed with the moon at the Royal Observatories of Greenwich and Edinburgh, and the Observatory of Cambridge, in the month of November, 1836.

## XLVII. *Intelligence and Miscellaneous Articles.*

ON THE SYMMETRIZING POWER OF THE EYE. BY THE REV.  
J. G. MACVICAR, A.M.

*To the Editors of the Phil. Mag. and Journal of Science.*

GENTLEMEN,

THE many interesting communications which have appeared in your Journal of late years on the subject of vision induce me to send an account of the following experiment, in the hope that it will not be unacceptable.

Let the surface of a glass mirror be sprinkled over with some powder, as, for instance, with flour from a dredging-box. This

done, on looking perpendicularly down upon the reflecting surface, at the distance of distinct vision from it (unless the eye be too long-sighted), the powder will appear, not irregularly scattered, as it really is, but symmetrically distributed in two systems of beautiful radiations, having the pupils of the eyes for their centres.

The phenomenon is sufficiently remarkable to strike even those who are not otherwise curious in such matters. It may be observed, however, that as every eye cannot catch it at once, it is better to commence by using one eye only, as this gives only one system of radiations, which, being more simple, is more easily observed. If this phenomenon has not been already attended to (and I do not recollect to have seen it noticed anywhere), it is, I think, well worthy of investigation. Some facts are, indeed, immediately obvious respecting it. Thus, as to the region in which the physical part of the phenomenon takes place, it plainly appears that it is not either the humours or retina, as is generally supposed in reference to other phenomena of the same order, but a more deeply seated part of the apparatus of vision. For if it were any of the anterior parts, or even the retina itself, the centre of the radiant system would certainly change its place when the eye was made to wander over the mirror\*. In point of fact, however, that centre does not change place except when the whole head is moved, in which case it does so proportionally.

I ascribe the phenomenon to a peculiar mode of action in the nervous part of the apparatus of vision proper to it as an elastic tissue, in virtue of which it tends, like the tissues and media experimented on by Chladni, Savart, Faraday, and others, and doubtless all elastic tissues and media, to distribute all motions impressed upon it in symmetrical systems; a view of the matter having very interesting bearings upon the principles of taste,—during the investigation of which it was that this experiment first occurred to me,—and one calculated to explain several seemingly unaccountable phenomena as to the distribution of sensibility in the retina.

Johnfield by Dundee, Oct. 14.

#### STARCH.

M. Payen, in a memoir on starch, considers that this substance, in whatever manner or from whatever part of vegetables it may be obtained, whatever may be its form, its age, or its state of aggregation, has always the same chemical constitution: its conversion into dextrine by diastase, sulphuric acid, potash, &c., are modifications of its physical properties, without in the least degree altering its chemical constitution, which is represented by  $C^2 H^5 O^5$ .—*Jour. de Pharmacie*, Oct., 1836.

#### ON THE ACTION OF SULPHUROUS ACID ON STEEL.

The experiments which M. Vögel has made on this subject lead to the following results :

\*[ We do not feel certain that this would be the case, if the seat of the symmetrizing power be in the retina.—EDIT.]