

lower eyelid produce this effect, whilst it is evident that a prism of the shape taken by the liquid in the angle must produce it.

2. If the bright point be examined in front of a looking-glass, so that the eye, its reflection, and the point are in a straight line, it will be found that (B) does not begin to be visible till the eyelid is just beginning to eclipse the pupil, showing that it is the light which grazes the lid that produces the effect. I have accurately reproduced the phenomenon by fitting a lens of short focus

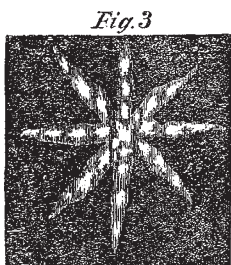


Fig. 3

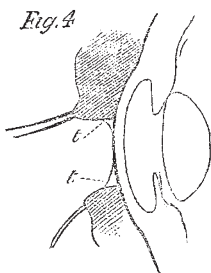


Fig. 4

into a pair of artificial eyelids, moistening the angle between the lens and lid, and photographing a bright point with the combination thus made. The diffraction effect (c) was also reproduced in this manner when the lids were brought close together.

The phenomenon (A) may be studied in the following manner:—Throw into the eye, by means of a lens or mirror, a pencil of light so widely divergent as to form a luminous patch on the retina, whose border is the shadow of the iris. If the pencil

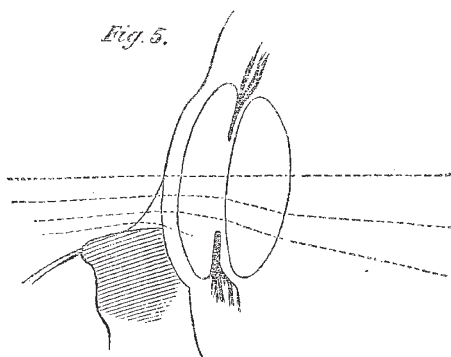


Fig. 5.

proceed from a point, this border is well defined and dust on the cornea and any small irregularities in the distribution of moisture on its surface are rendered clearly visible by the diffraction rings and bands which surround their shadows. But what is most striking is the star-shaped figure (Fig. 6) which occupies the whole lighted area.

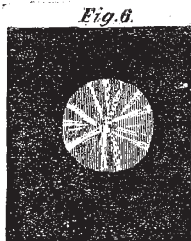


Fig. 6.

If now the divergence of the pencil be gradually diminished, which it may be by withdrawing the eye further from the focus of the lens, this area diminishes in size and increases in brightness towards the centre, leaving, however, the rays of the star still bright, and protruding into the region which has now become unilluminated; and when the luminous point is far enough off to enable the eye to focus rays proceeding from it, the phenomenon (A) is seen to

be the limiting form of this star-shaped figure. The rays in the figure correspond with the stellate structure of the crystalline lens, to which, therefore, I conclude that (A) is due.

ARNULPH MALLOCK

Antedated Books

As Editor of the Zoological Society's *Transactions*, I must maintain, in direct opposition to "Another F.Z.S.," that we set a good, and not a bad, example in dating our books. The parts of the *Transactions* not being issued at regular dates, I have

adopted the plan of placing the date at which the paper is going finally through the press at the foot of each sheet, for the very purpose of giving its correct date as nearly as possible. The part is always on sale within a month at least, I think I may say, after this date; so that this date and that of publication are to all practical purposes identical.

P. L. SCLATER,
Secretary to the Zoological Society of London

Aug. 22

MR. R. BOWDLER SHARPE makes a singular defence to my comments on his "evil practice" of issuing, in August, 1876, a work dated on the cover May, 1875. He says that if I had looked into the interior I should have found "abundant evidence" to convince me that the date on the cover was a false one. Seeing that when I wrote my former letter I had only just received the number from the publishers, I had no need to search for further evidence of such being the fact. Mr. Sharpe must be aware that the covers of works issued in parts are often bound up for the express purpose of preserving a record of the date of issue. How will this plan operate in the case of the second edition of the "Birds of Africa?"

"Another F.Z.S." states that in his copy the date "May, 1875" has a line drawn through it. This is not the case with my copy, nor is it so in others which I have examined.

F.Z.S.

Kerguelen's Land

If Mr. R. Bowdler Sharpe considers that, having published a description of the new Teal from Kerguelen's Land, he has done all that is necessary in relation to the collection of birds made by Mr. Eaton in that distant island, he will, I fear, find but few persons to agree with him. Most of his brother naturalists will side with me that our American friends have shown much greater energy in getting out a complete account of the ornithology of this interesting island at an early date than Mr. Sharpe in issuing a short notice of the single undescribed species.

THE REVIEWER OF "THE BIRDS OF KERGUELEN'S LAND"

A Large Meteor

I HAVE just seen a large meteor. It fell vertically in a line passing half-way between the pole-star and the nearer pointer, disappearing about 15° above the horizon. Where it came from I did not see. At disappearance it seemed a very elongated pear-shape, and changed colour from red to violet (commencing at the edges). Its horizontal diameter was about 20'. Time 8.10 P.M. about; my point of view, 4 miles due south of the dome of St. Paul's.

I may add, that on the night of Thursday, 10th, between half-past 11 and 1, while on a long drive in the neighbourhood of York, and looking up at the clear sky only as circumstances permitted, I counted twenty, and saw more, the moon shining brightly at the time.

RICHARD VERDON

London, Aug. 21

[Mr. Paul Robin, writing from Sheerness, states that on Monday evening, at 8.10 P.M., he saw a meteor brighter than Jupiter, with a white luminous train of about 5 deg. Its course crossed a line from the pole-star, joining the pointers.]

THE "CHALLENGER" EXPEDITION

WE have already published (vol. xiv. p. 197) the weighty testimony borne to the value of the *Challenger* Expedition by the leaders of science in Vienna. The following no less valuable address to Sir C. Wyville Thomson has been sent us for publication:—

To Prof. Sir C. Wyville Thomson, F.R.S., Director of the Civilian Staff of the "Challenger" Expedition, Edinburgh.

R. Museo di Fisica e Storia Naturale di Firenze, Florence, July 7, 1876

SIR,—The professors of the Natural Science Section of the Royal Institute of Florence have followed with the most intense interest the researches on the deep-sea fauna initiated by you during the *Lightning* and *Porcupine* expeditions, and so splendidly followed up during the voyage round the world of the *Challenger*. With anxious expectation we have followed the