Hexagonal prisms of the mineral are of frequent occurrence; good, clear, regular-shaped specimens, 1 cm. (or more) in diameter, coming especially from Cumberland. The sides of these prisms are, of course, parallel to the optic axis; and hence a pair of opposite sides, if smooth and well developed, serve for two of the plane surfaces required for the Bertrand prism (see NATURE, May 15, p. 52) without any alteration. Moreover the crystal has a very strongly marked cleavage along the planes of the fundamental rhombohedron; and since these planes make angles of almost exactly 45° with the optic axis, a pair of them will supply the two remaining surfaces of the prism.

If, then, we select a good hexagonal prism of calcite, as shown below—

and carefully cleave it in two places, AB and CD, and allow a beam of ordinary light (preferably from an opal lamp shade) to enter the side of the prism near A, it will be affected in its passage through the crystal in the manner explained in my former letter (*ante*, p. 53), and the usual pair of ring-systems will be visible to an eye receiving the light emergent near D.

If there are any slight imperfections in the natural plane surfaces, we can easily improve upon Nature by cementing thin plates of glass upon them with Canada balsam.

Queen's College, Oxford.

H. G. MADAN.

Testing for Colour-blindness.

MAY I ask, in connection with the lecture of Mr. Brudenell Carter, why those interested in the testing of colour-vision do not avail themselves of a scientific instrument like Lord Rayleigh's colour-box, wherein a given yellow has to be matched by proportions of red and green adjusted by turning a handle over a dial graduated on the back; instead of contenting themselves with crude methods, such as selection of coloured wools, which cannot give results definite enough to be of much interest, even if they were quite efficient in detecting the grossly colour-blind?

OLIVER J. LODGE.

IN Mr. Brudenell Carter's interesting paper read at the Royal Institution on Friday, May 9, a physiological explanation is suggested of an easily-verified fact of colour-perception.

An eye with the pupil dilated is proportionally more perceptive of red rays than one with the pupil contracted. If we stand at right angles to a window, or other light, shading the further eye with the hand, and look at a piece of white paper with the two eyes alternately, we shall find that, to the eye in the light, the tint of the paper seems distinctly colder than to the shaded eye.

Dr. Waelchli's observations of the retinal red zone in birds, surrounding the central green region, makes the cause of this phenomenon comparatively clear; while the phenomenon itself tends to prove that the distribution of colour-zones in the human eye resembles that of birds.

E. H.

May 16.

I do not know whether the following will be considered too trivial to be admitted as an illustration of Dr. Brudenell Carter's lecture.

About 30 years ago, being then an assistant master at a school, I one day asked an older colleague (since dead), "Who's that boy in the red cap?" Several were standing in a line, most of them with black caps. "Red cap?" said my friend; "I don't see any red cap" (it was scarlet flannel); "I can see the red head"—meaning another boy with so-called "red" hair.

The same gentleman could see no difference in colour between the flower and the leaf of the *Pirus japonica*; but it will be observed that he distinguished "red" hair without difficulty.

Otham Parsonage, Maidstone.

F. M. MILLARD.

NO. 1074, VOL. 42]

Red Spot on Jupiter.

ON May 22 last, at 15h., I observed Jupiter through a 10-inch reflector, power 252, and saw the red spot between the east limb and centre of the planet. It was rather faint, and not nearly so conspicuous as some of the belts in its vicinity. According to careful estimation, the spot reached the central meridian of Jupiter at 15h. 35m. This is 15.5 minutes before the time given in Mr. Marth's valuable "Ephemeris for Physical Observations of Jupiter," published in the *Monthly Notices* for March 1890, p. 344. The difference proves that the motion of the spot continues to accelerate in a slight degree relatively to the mean rate of rotation of 9h. 55m. 40.63s., adopted by Mr. Marth in his recent ephemerides. Observers, therefore, who wish to see the spot at mid-passage across the disk of Jupiter must turn their telescopes upon the planet at least a quarter of an hour before the predicted times based on the daily rate $870^{\circ} 27'$.

During my observation on May 22 I saw a very dark, if not black, spot of circular form threading its way across the disk, and projected upon the northern half of the great north equatorial belt. I ascertained by reference afterwards to the *Nautical Almanac* that this object was the fourth satellite in transit.

Bristol, May 25.

W. F. DENNING.

Coral Reefs, Fossil and Recent.

I PUBLISHED a review of the third edition of Darwin's "Coral Reefs," with appendix by Prof. Bonney, both in the *Biologisches Centralblatt* and in the *Naturwissenschaftliche Rundschau* of last year. This will, I think, considerably modify the meaning of Prof. Bonney's statements, published in NATURE of the 15th inst. (p. 53), according to which I was ignorant of this work of his when I wrote my letter on "Coral Reefs, Fossil and Recent."

R. VON LENDENFELD.

Swallows at Sea.

THE following notes from my journal as to meeting swallows at sea during the autumn migration may be of use to anyone interested in that subject.

On board ss. *Port Victor* from Plymouth to Sydney, 1889.—"October 31, lat. 16° N., long. 19° W. A quantity of swallows flying about the ship evidently tired and very tame, perching freely within a few feet of anyone. Look thin. A solitary swallow or two were seen yesterday and day before in lats. 20° and 24° N. respectively. 9 p.m., passed Cape Verde at a distance of forty miles.

"November 1.—The swallows roosted last night on board, and left during the forenoon, with the exception of one or two who remained on board all day. Saw a curlew and a wagtail at noon, lat. 12° N., long. 18° W.

"November 2.—One swallow still on board, roosted last night on the poop. Calm. Saw a wagtail.

"November 3.—Five swallows and two martins about the ship, apparently in very fair condition, so tame that they would perch on one's hand; had three or four sitting on my hand at once sometimes. Noon, lat. 5° N., long. 14° W., about 150 miles off land.

"November 4.—Swallows left, could not see in what direction they went. Picked up south-east trade, lat. 2° N."

HERBERT E. PUREY-CUST.

H. M. S. *Egeria*, Auckland, April 6.

The Corolla in Flower-Fertilization.

I HAVE noticed a curious fact in reference to the blue gentian of the garden here that will interest you. This flower (like the daisy) closes at night and opens in the morning, and is exquisitely sensitive to the time of sun rising and setting (it is a lasting, and with its bronzed throat an exquisite flower). The fact observed is this, that, when visited by the large handsome bee that fertilizes it, the beautiful widespread pentamerous flower closes gently on the bee, if the insect effectually enters and fertilizes it, on its passage to the honey of the five cups at the base of the corolla; and after the insect's exit, does not again unfold, if the fertilization is complete, but remains a folded flower—a protection (shorn of its beauty) for the precious seed-vessel and its maturing contents within.

JOHN HARKER.

Hazel Grove, near Carnforth, May 13.