

unspent cannon-ball impeded by a bank of earth, keeps spinning and grinding in its bed for four months, and then suddenly goes off with unabated velocity as if it were merely ricocheting from its point of interruption?"

Did the writer never hear that the motion of this comet was in strict accordance with the laws of gravitation, and Laplace used it for correcting the value of Jupiter's mass? In these cases, and in many others, the author has gone sadly astray. The accounts of the appearance of the different comets are good and clear and are well worth reading, but one or two drawings of comets would have improved matters considerably. There is a plate at the beginning of the book, of the earth in a comet's tail, which draws somewhat on the imagination. A want of soundness with reference to mechanical laws appears throughout the book, for we read of the two parts of Biela's Comet having less mass to be acted upon by solar attraction than they had before separation, so that the original orbit must have been altered; and we hear of a comet altering capriciously its centre of gravity with reference to solar attraction. The words *orbital* and *phosphorous* occur frequently, we hope for the last time. The book is spoilt by the endeavour to explain the appearances of comets without regard to the most fundamental physical laws which have so far been found to be rigorously exact.

G. M. S.

LETTERS TO THE EDITOR

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

Pollen-grains in the Air

MR. HUBERT AIRY'S letter printed in your issue of Sept. 3 appears, to a great extent, to reconcile that gentleman's observations with my own. My set of drawings have been made entirely from pollen-grains in the *dry* state, and in this condition (in which of course it is wafted through the air) I find the pollen of plants fertilised by the wind, though belonging to the most widely dissociated natural orders, to be uniformly, as far as I have been able to observe, nearly or perfectly spherical, with no prominences or furrows visible on magnifying about 250. A very short immersion in glycerine would cause the protrusion of the intine through the weak spots of the extine, and would give to the grains of birch and hazel the spherically triangular appearance described by Mr. Airy, and represented in some of the plates by an old German writer.

ALFRED W. BENNETT

Penmaenmawr, Sept. 9

Fossils in Trap

WHEN examining the great exposure of trap and associated Upper Silurian rocks at Cape Bon Ami, New Brunswick, I unexpectedly found fossils in the trap. I was at the time collecting agates and amygdals of calcite. One amygdal attracted my attention as singularly regular in shape. On detaching it from the rock and examining it with the magnifying glass, I found it to be a coral, *Favosites gothlandica*. The fossil is nearly circular. Its greatest diameter is $1\frac{2}{3}$ in., its smallest diameter $1\frac{1}{3}$ in., its greatest thickness is $\frac{1}{2}$ in. Notwithstanding the rubbing by exposure on the shore, many of the cells are quite distinct: the side attached to the trap is without cells. I found a second specimen of a similar coral in another part of the trap-rock. Of this the length is 1 in., the width $\frac{3}{4}$ in. The exposed part is a section having the structure perfect; it is slightly weathered. The fossil is indissolubly united with the trap, its sharp septa penetrating it: the trap of the specimen is very compact.

These fossils are derived from the associated strata of Niagara limestone: Wenlock limestone age.

The strata have been coral reefs: they are filled with corals, *Favosites* and *Cyathophylla*. I collected magnificent specimens of the former, also *Crinoid* joint, *Orthis* sp.? *Strophomena depressa*, *Atrypa reticularis*, *Rhynchonella* sp., *Athyris nitida*, *Orthoceras* sp.?

The fossils are easily detached from the strata.

I have no doubt that the notice of the occurrence of the fossils in trap will be new to many of your readers. In all my investigations I have not met with a similar occurrence. The first example proves that the trap was, at least, in a *plastic* state when the fossil dropped into it. The second proves that it was in a *fluid* state.

This is all very satisfactory to us, as proving that trap is a true *lava*, although the Wernerian might thereby infer that the trap was a sedimentary rock. The section of the coral in the trap is as perfect as sections of *Lithostrontion* in the Lower Carboniferous limestone of East River Plcton in our museum collection.

By what process were these fossils preserved from destruction in the molten trap?

D. HONEYMAN

Halifax, Nova Scotia, Aug. 27

[Our correspondent does not define in what sense he uses the vague word "trap." Fossils, both animal and vegetable, are of common occurrence in some kinds of "trap," e.g. in the different forms of tuff. We presume that the specimens he refers to were of true basalt, or some other form of crystalline, and once molten igneous rock. If so the fact is interesting, though possibly some of our readers may be able to adduce similar cases.—Ed.]

Curious Rainbow

THREE or four days ago I observed a phenomenon which may possibly be interesting to some of your readers. I was standing on a hillside, about 200 ft. above the sea, and saw a rainbow of the ordinary description, very vivid and extending to the horizon at both ends of the arch; outside this was a secondary bow, also very distinct, and inside the primary bow was a series of coloured bands, to all appearance identical with the series in the primary bow from the green to the violet, so placed that the green of this third bow was next to the violet of the primary bow, and the violet of the third bow the innermost of all. There was no appearance of any superposition of colours, and the third bow was nearly as bright as the primary, and the interval between them was hardly appreciable. The whole series was concentric. I have not observed any notice, in works on the subject, of a phenomenon similar to this, or any hint that it might be expected according to the geometrical or physical theories of the rainbow, and therefore think the appearance may possibly be of rare occurrence.

R. P. A. SWETTENHAM

Glen Caladh, Kyles of Bute, Sept. 5

Polarisation of the Aurora

IN answer to Mr. Procter's first question (vol. x. p. 355), I would refer him to NATURE, vol. vii., p. 201, where he will find an account of observations of the polarisation of the zodiacal light, and of the aurora, by Mr. Ranyard, who appears to have used a double image prism and Savart, during the great aurora of Feb. 4, 1872, and to have detected no polarisation. He refers also to some observations made upon the small aurora of Nov. 11, 1871, in which he could detect no polarisation. The only other account of observations that I have met with are contained in the report of Prof. Stephen Alexander on his expedition to Labrador, given in Appendix 21 of the United States Coast Survey Report for 1860, p. 30. He found strong polarisation with a Savart's polariscope, and, what is most remarkable, thought that the dark parts of the aurora gave the strongest polarisation. This was at the beginning of July. He was in latitude about 60°, and the observations appear to have been made near midnight. But he does not state whether there was twilight or traces of air polarisation at the time, nor does he give the plane of polarisation.

Cheltenham

J. A. FLEMING

FRANCIS EDMUND ANSTIE, M.D., F.R.C.P.

ON Saturday, 12th inst., in his forty-first year, after an illness of only four days' duration, died Dr. F. E. Anstie, from the consequences of a dissection-wound inflicted while he was investigating the causes of a serious and somewhat mysterious disease which had for some time prevailed in a large school at Wandsworth, and had rapidly carried off several of the pupils. Thus he must