

south end of the Isle of Man from a depth of about 20 fathoms. It is about 1.5 cm. in length, and differs somewhat in shape from both *Chatodermis nitidulum*, Lovén, and the new species (*C. militare*, Selenka) found during the *Challenger* Expedition. The calcareous spicules are also different from those of both the previously described species, but they seem to vary considerably in shape. The specimen—along with the other Vermetes obtained during the various dredging expeditions carried on last summer by the members of the Liverpool Marine Biology Committee—has been placed in the hands of Mr. R. J. Harvey Gibson, M.A., for detailed examination, and will be described in the First Report upon the Fauna of Liverpool Bay, to be published shortly.

W. A. HERDMAN

University College, Liverpool, December 30, 1885

### A Solar Halo

AT about noon on this day a fine halo with its mock suns was well seen at the Radcliffe Observatory. Measurements of the vertical radii of the first circle gave  $22^{\circ} 24'$ , whilst the angular distance between the true and mock suns was  $22^{\circ} 30'$ . The radius of the second circle was rather difficult to determine, but the mean of several measures gave  $46^{\circ} 40'$ . The inverted arcs at the vertices of the two circles were clearly seen. The zenith distance of the sun's centre was nearly  $75^{\circ}$  at the time of the observation.

E. J. STONE,

Radcliffe Observer

Radcliffe Observatory, Oxford, December 30, 1885

### Ventilation

MR. FLETCHER'S letter in your issue of December 17 (p. 153) illustrates the difficulties encountered by people who adopt patent ventilators and so-called systems of ventilation without considering the natural laws ruling the flow of currents of air.

The exit-shafts recommended by the writer of your article on the subject, as he himself confesses, may act as inlets, and generally do, if there is no other free inlet for air. This there seldom is in cold weather when the windows are closed, unless a hot-air grate on the Galton or other model is adopted. There is very little objection to running the exit-tube from the chandelier into the chimney flue, on the same principle as that of the chimney to each ventilator, now so much used.

I think the writer of your article hardly appreciates the difficulties to be encountered in ventilating an English house or assembly-room. Irrespective of the ignorance of the public generally on the subject, we are met by the fact that in most town houses it is very difficult to place a stove, with proper fresh-air inlet, in the entrance, where it may afford a supply of fresh warmed air to the house. As a rule the nearest flue is a very long way off. Again, fire-places being as a rule on inside walls in such houses, the flue to supply a hot-air grate (by far the best method of warming) has to be very long, and there is difficulty in arranging for its due cleansing.

Your correspondent speaks of expense being no object in the erection of public buildings. This is far from my experience. In the cases of churches, schools, and assembly-rooms, the question of ventilation is entirely bound up with that of heating, and in conversation with various makers of heating apparatus I have found their views quite unanimous on the peculiarities of building Committees on this subject. The lowest tender is as a rule accepted, and this never provides for ventilation. They are asked to heat only.

The real objection to ventilation in large rooms is the cost of the necessary heating apparatus. For instance, a large concert-room has recently been erected in this neighbourhood to seat 3800 persons, with a cubical content of 514,800 feet.

Now to warm this in the ordinary manner by hot-water pipes would require about 2600 feet of four-inch piping. But to supply a thousand feet of air per head, heated from  $30^{\circ}$  to  $60^{\circ}$  Fahr. would, according to the formula given in Hood's work, require no less than 10,600 feet, or more than four times the amount, while the space occupied by more than two miles of large piping would have to be taken into consideration.

No doubt the heating could be done more economically by steam coils or large stoves if care be taken not to over-heat the air.

Until ventilation is considered as necessary as drainage, and is paid for accordingly, and till failure on the part of architect and builder to secure it is visited with as severe penalties as failure

in points of construction or design, I see no chance of improvement on the present state of chaos.

ERNEST H. JACOB

Leeds, December 22, 1885

### Travellers' Snake-Stories

TRAVELLERS' "stories" are not expected to be quite matter-of-fact. One of the best of these jokes occurs in an article on "Travellers' Snake-Stories" in the December number of *Good Words*. Among the natural enemies of snakes the mongoose is thus described:—

"The mongoose, a bird known as the kingfisher of Australia, and secretary-bird of Africa, is well known in some of the West Indian Islands almost always to come off victorious in its encounters with the rattlesnake, and it has even been proposed to breed it specially for its extirpation."

From the use of the singular number in the above extract it is clear that only one animal is intended to be described, and that one is a *bird*. Next follows an interesting description in considerable detail (quoted from the *Standard* of January 22, 1883), of fights between the *Indian* mongoose and the *Indian* cobra in Lucknow, ending with the sentence:—

"He adds that these birds make affectionate pets," &c.

This is the best joke of all. It may be that the Australian kingfisher and African secretary-bird are locally called "mongoose" (this is not within the present writer's experience), but the *Indian* mongoose is a small animal, in shape very like a weasel or a ferret. It is impossible that the writer in the *Standard* (who is stated to have himself arranged the mongoose and cobra duels) could have described the mongoose as a *bird*. What does the man mean?

ALLAN CUNNINGHAM

### Blackbird with White Feather

I NOTICE a letter from Mr. Murphy in your issue of December 24, 1885, about a blackbird with a white feather in its tail. Allow me to say that last month I saw a cock blackbird with a pure white tail; the rest of its plumage was natural. I saw it very distinctly, as it was flying away from me at the time, not more than ten yards off when I first noticed it, with its tail extended; I saw it again last week, within a few feet of the same place, this time running under a gate. My wife says she saw a similar bird, at the same spot, about a year ago.

THOMAS J. BUSK

Ford's Grove, Winchmore Hill, January 4

IT may interest your correspondent, Mr. J. J. Murphy, to know that for the last two years we have had a cock blackbird about our garden with a patch of pure white on each side of the head.

E. BROWN

Further Barton, Cirencester, January 3

DURING the frost of January 1880 I frequently noticed a hen blackbird with several white feathers on the head, breast, and back. It was quite tame, and came for food every day.

Hartford, Cheshire, December 30, 1885

E. K.

### ON THE METHOD OF RECIPROCATANTS AS CONTAINING AN EXHAUSTIVE THEORY OF THE SINGULARITIES OF CURVES<sup>1</sup>

IT is now two years and seven days since a message by the Atlantic cable containing the single word "elected" reached me in Baltimore informing me that I had been appointed Savilian Professor of Geometry in Oxford, so that for three weeks I was in the unique position of filling the post and drawing the pay of Professor of Mathematics in each of two Universities: one, the oldest and most renowned, the other—an infant Hercules—the most active and prolific in the world, and which realises what only existed as a dream in the mind of Bacon—the House of Solomon in the New Atlantis.

To Johns Hopkins, who endowed the latter, and in conjunction with it a great Hospital and Medical School, between which he divided a vast fortune accumulated

<sup>1</sup> Inaugural Lecture of Prof. Sylvester, F.R.S., delivered before the University of Oxford, December 12, 1885.