

that day, and who are so greedy for instruction that on a summer evening, instead of playing at some game during their only hours of leisure, they will spend one part of it in reading, and the other part in listening to a lecturer, the intricacies of whose demonstrations require the most unhalting attention. Suppose I were to start a lecture on some scientific subject at Cambridge, probably none, or at most a score, would come. I am not setting this down to their blame, for the truth is that they have not the same need, for they have many men able to teach them anything they could possibly want to learn. I am not here stating the reasons why there should be so small a demand for scientific teaching at the University; the reasons are various and complicated, although we have not to go far to seek them; but the fact is certain. Now all this ought not to be so. There is a supply without a demand, and a demand without a supply; and the matter calls for the gravest consideration of those scientific men who care that the benefits which are to be got from the true study of science should be diffused among the people of this country. Of all things in the world, this is a demand which, wherever it exists, it is right to foster and encourage, and it can only be successfully fostered and encouraged by men whose intimate acquaintance with the subjects with which they deal renders them competent for a task at once of such magnitude and of such importance. It is not any want of teachers at the University, but the almost absolute want of teaching and teachers for those classes that presses upon us.

JAMES STUART

Trinity College, Cambridge, Nov. 8

#### Fertilisation of Winter-flowering Plants

MR. DARWIN has done me the honour of calling my attention to one or two points in my paper, published in your last number, "On the Fertilisation of Winter-flowering Plants." He thinks there must be some error in my including *Vinca major* among the plants of which the pollen is discharged in the bud, as he "knows from experiment that some species of *Vinca* absolutely require insect aid for fertilisation." On referring to my notes, I find them perfectly clear with respect to the time at which the pollen is discharged. My observation, however, so far agrees with Mr. Darwin's, that I find no record of any fruit being produced in January; it was, in fact, the absence of capsules on the *Vinca* which induced me to qualify the sentence on this subject, and to say "in nearly all these cases, abundance of fully formed seed-bearing capsules were observed." It is worthy of remark, that the *Vinca* is the only species in my list of apparently bud-fertilised plants not indigenous to this country. The second point relates to the white dead-nettle, with respect to which Mr. Darwin says, "I covered up *Lamium album* early in June, and the plants produced no seed, although surrounding plants produced plenty." This again would agree with my conjecture that it is only the flowers produced in winter that are self-fertilised. I may, however, be permitted to suggest that the test of covering up a plant with a bell-glass is not conclusive on the point of cross-fertilisation, as it is quite probable that with plants that are ordinarily self-fertilised, the mere fact of a complete stoppage of a free circulation of air may prevent the impregnation taking place. Has the experiment ever been tried with grasses, which, according to the French observer, M. Bidard are necessarily self-fertilised?

ALFRED W. BENNETT

3, Park Village East, Nov. 8, 1869

#### A Meteor

THIS evening, at 6.50, Greenwich time, I was called to my door by the letter-carrier, who pointed out a serpentine band in the sky, having a brightness rather above that of the Milky Way. It was about  $3^\circ$  in greatest breadth, and  $20^\circ$  in length. Its longest axis was in the line from the north-west point of the horizon to the pole star, from which, where nearest, it was about  $20^\circ$  distant. Its other extremity was very near the Milky Way, and surpassed every other part in brightness. Its pole-ward termination was faint, filmy, and bifurcated.

The postman said, "About five minutes ago," i.e. 6.45 p.m., "whilst waiting at another house, I suddenly became aware of a great light, but on looking up, instead of a shooting star, as I expected, I saw a fixed crooked line, as broad as my finger, and quite as bright as that star" (pointing to Jupiter). It gradually became broader and fainter, but not longer; and I came on here as fast as I could to let you know about it."

I observed it at intervals of five minutes; and observed that it gradually grew fainter and straighter, and moved slowly towards the north-east, its axis remaining apparently parallel to itself throughout. I saw it distinctly at 7.35, but was not satisfied that I did so at 7.40. It must have remained visible from 50 to 55 minutes.

W. PENGELLY

Lamorna, Torquay, Nov. 6, 1869

[It is to be hoped that advantage was taken of this almost unprecedented opportunity to bring the spectroscope to bear upon a meteor cloud. From other accounts the meteor itself appears to have been exceptionally brilliant, and to have burst with noise, as of a rocket (Falmouth); to have changed its colour from yellowish red and lurid red to brilliant green at the moment of explosion, and then from violet to orange (Birmingham.) Another account (Wimborne) states, that at the moment of explosion the colour was dazzling purple and blueish, fading into white at its upper extremity. The cloud was observed to assume a serpentine form both at Bristol and Stokesay. Mr. Pengelly's 50 or 55 minutes' duration was most nearly equalled at the latter place, where it was observed for half an hour. There are ample elements for the determination of the meteor's path.—ED.]

#### Tempel's Comet

I ENCLOSE an orbit for the comet discovered by Tempel on October 11, of which no elements have yet been published in the *Astronomische Nachrichten*. Indeed, but for an observation kindly sent me by Dr. Winnecke, and not yet printed, it would not have been practicable to work out an orbit.

*Elements of the Orbit of Tempel's Comet, 1869, Oct. 11.*

Elements calculated from an observation at Bonn, Oct. 12, one by Dr. Winnecke, at Carlsruhe, Oct. 17, and a third at Leipzig, Oct. 23:—

Perihelion Passage, 1869, Oct.	8 <sup>h</sup> 44 <sup>m</sup> 21 <sup>s</sup>	Greenwich M. T.
Longitude of Perihelion	. . . 124° 41' 1"	} From appt. Equinox.
" Ascending Node	311° 24' 4"	
Inclination to Ecliptic	. . . 68° 48' 8"	
Log. perihelion distance	. . . 0° 08995	
Heliocentric Motion Retrograde.		

The above orbit does not resemble that of any comet previously computed.

J. R. HIND

Observatory, Twickenham, Nov. 8.

#### NOTES

THE argument that British manufacturing and commercial superiority cannot be maintained unless the means of a sound scientific education be placed within the reach of all classes all over the kingdom, seems likely to be put to the proof. Oxford and Cambridge local examinations, the examinations by the Society of Arts and the South Kensington Museum, we are told, only serve to show how backward we are in real knowledge, and that we want more schools, more places of instruction. Well, by act of parliament, a number of our Public Schools are to be ruled by new "Governing Bodies," the members of which are to be appointed by different authorities; but we confine ourselves here to the fact that among those authorities are "the President and Council of the Royal Society." These gentlemen, the very head and front of British science, are to nominate a member of the "Governing Body" of each of seven schools, namely, Westminster, Eton, Winchester, Harrow, Charterhouse, Rugby, and Shrewsbury. Here is, indeed, an innovation! The President and Council of the Royal Society will of course nominate men of science. Consequently, science will be taught in all those schools, side by side with the classics. Can the two run together? If science goes up, will Greek and Latin and scholarship go down? We hope not; but these are questions for the future to answer. Meanwhile, we have much pleasure in stating that the two nominations already made by the Council of the Royal Society are such as will command universal approval. Prof. G. G. Stokes, Secretary of the Royal Society and President of the British Association, has been nominated for Eton School, and Mr. W. Spottiswoode, F.R.S., for Westminster School. The interests of science could not be in better hands than these, and