I failed entirely to get any X-ray results when only the usual induction sparks bombarded the bulb, these sparks often destroying the vacuum. My Tesla apparatus gives a spark three inches long in air at normal pressure. The mica radiometer vanes after many experiments lost nearly all the black substance with which they were coated; it appeared in the form of a deposit on the inside of the bulb, and it was deposited in the form of concentric circles, the centres of which were situated exactly opposite to the ends of the pointed conductors attached to the Tesla coil.

Thinking that the mica vanes in the Crookes' radiometer might have played a considerable part in producing the X-ray photograph, I replaced the radiometer by a well-exhausted bulb 4 c.m. diameter, made of soda glass; the bulb was placed with respect to the conductors from the Tesla coil in the same position as the radiometer in the former experiment. I found that with the same exposure and distance, a good X-ray photograph of the bones in the hand was produced. During the experiment the bulb was lit up with a bright and yellowish green glow. Since the Tesla discharge rapidly produces ozonised air which is irritating to the nose, throat and lungs, it is best to place the terminals in a draught of air moving away from the operator.

Oxford, October 17. FREDERICK J. SMITH.

### Siemens's Domestic Gas Fire.

HAVING reference to the request, in your number of September 17, for information on this subject, it is worthy of remark that the chief feature in Sir William Siemens's invention, namely the general idea of using gas to aid the ordinary fire (instead of applying it merely to heat inert material), is capable of much simpler, cheaper, and more extensive application than it has yet met with. Some such gas-aided fires, which have answered well, will be found described in the *Builder* of October 26, 1889. Their only difference from the ordinary household fire consists in the introduction of a few common gas jets among the fuel, which may be either coal or coke, or, preferably, a combination of the two.

The same idea may be applied in other ways. I lately saw, in an artist's studio, a "gas torch," which was attached to a flexible tube, and thrust between the bars when wanted. And Prof. Ramsay, in a recent lecture, has proposed another ingenious contrivance with the same object. In any case, the easy command which the gas gives over the general management of the fire is a great domestic convenience. Its only drawback is a temptation to indulge in a somewhat lavish gas consumption. W. POLE.

Athenæum Club.

### The Variable Star *Z* Herculis.

IN the issue of NATURE for October 1, a note appears on the above variable, containing some important remarks on the general practice of smoothing curves, and rejecting outstanding observations. I fully agree with Mr. Yendell, that by carrying out this practice unduly, much valuable information may be lost. During eleven years' continuous observations of long-period variables, I have not rejected a single observation, and my light curves are produced by simply plotting down the observations (each of which is the mean of five comparisons with stars of known magnitude) on a squared form, and joining the dots by straight lines. The result has been to abundantly prove the existence of very many secondary and minor variations, both in the rise and fall of nearly all the stars under observation.

Specially marked instances of complex variation of light curve occur in the cases of R Aurigæ, T Ursæ Majoris, R Draconis, and S Cephei. In many cases the magnitudes and dates of maximum and minimum are very wide of the predictions; and I am forced to the conclusion, arrived at in the case of Z Herculis, "that the period of these stars must evidently be variable, though the character and value of the variation cannot at present be determined." CUTHBERT PEEK.

Rousdon Observatory, Lyme Regis, October 12.

### "Eozoon Canadensa."

ONCE more the long controverted point as to the organic origin of this remarkable body was brought before Section C at the meeting of the British Association at Liverpool, by that indefatigable naturalist, Principal Sir William Dawson, Montreal, and which, as on all former occasions when brought before a scientific audience, provoked considerable discussion both for and against. Amongst others, Prof. Bonney took part. There is one remark that he made, which I beg of you to allow me to emphatically contradict, *i.e.* that the late Dr. Carpenter had been deceived by the geologist who sent him sections of the specimens from the West Highlands of Scotland. It was the writer of the present note who sent the sections referred to, and he thought of contradicting the assertion of Prof. Bonney at the time, but conceived it would be a gross abuse of politeness, not only to Sir William Dawson, but also to the members of the Section, to take notice of a matter so foreign to the subject under discussion, and also from the conviction that Prof. Bonney must have been misinformed. This is like the old story of the three black crows which, from being black as a crow, got metamorphosed into three black crows, feathers and all. The correspondence with Prof. Carpenter and others is lying before me, but at present I shall simply give a copy of my own letter that accompanied the specimens, and which I hope will satisfy Prof. Bonney and others that there is no truth in the assertion that I deceived Prof. Carpenter, or any of the other naturalists who believed that the structure was of organic origin. JAMES THOMSON.

6 Stuart Street, Shawlands, Glasgow, October 2.

(*Copy of letter referred to.*)

*April* 22, 1876.

DEAR SIR,—You did me the honour, nearly two years ago, to send me a type specimen of *Eozoon Canadensa*, in order that I might know the characters of that fossil organism if I should discover anything like it in the Highlands of Scotland. Since then I have been through part of Argyllshire, Inverness-shire, Ross-shire, Sutherlandshire, and Caithness-shire, and have at last discovered in the neighbourhood of Tarbert Harris what seems to me to be organic structure; and the fact that the rocks of that district have been described by Sir R. Murchison and others as being of Laurentian age, suggests that the enclosed specimens have some little interest, and more especially after the article that appeared in the *Annals* of last month. [I then gave a list of the names of the geologists and naturalists who had examined the specimens, all of whom, with one exception, pronounced the structure to be of organic origin. These names I forbear to introduce at present, but will give the latter part of the letter.] The parent rock is found interstratified with a dark grey shale. About ten feet to the south of this section there is some very beautiful graphic granite *in situ*; a suite of the specimens of which I procured. None of the graphic granite shows the beautiful structure that is seen in the intercellular spaces of the enclosed. The outer margin of the mass from which the enclosed is obtained approximates in external aspect to some of the varieties of graphic granite, suggesting the problem: What is graphic granite? May it not be a highly metamorphosed organic body? the enclosed being less metamorphosed, hence the preservation of the organic-like structure. Such seems to me probable, but not having seen the graphic granites from other localities, I cannot give an opinion, and will leave the solution of the problem in your hands, and shall be pleased to hear your opinion at your earliest convenience.

I am, faithfully yours,
(Signed) JAMES THOMSON.

To Prof. W. B. Carpenter, M.D., F.R.S., &c., London.

### The Departure of the Swallows.

LORD HOBHOUSE's observations with regard to the "swallows," would lead one to suppose that all the birds would have gone away south before now; but yesterday I saw two swallows and three martins hard at work flying about. This may not be very late for the martin, but surely it is quite an unusual date for the swallow, though White of Selborne records having seen them as late as November 3, but does not say anything about the martin. He adds to his record, "None [swallows] have been observed at Selborne since October 11." E. P.

Newnham.

### Wasps and Flies.

MANY years ago I was in a country butcher's shop, and saw several wasps occupied in cutting out and carrying off small chunks of meat. (Kidney was most in demand, as being "short" in texture.)

I pointed out the marauders to the butcher, and was told that he was always glad to see wasps in his shop, as they kept the bluebottles away. E. H.

October 17.