objects are real solar spots, differing from the ordinary sun-spots perhaps only in their smaller size and their shorter duration. I wish particularly to insist upon this point, because it bears directly upon the theory of sun-spots and on the constitution of the photosphere. So far, it has been admitted that the solar spots are the result of forces acting only on a central zone extending about 35° on either side of the solar equator. The evanescent spots which have been described, show clearly that this is not exactly the case, and that these forces, although they are much reduced in energy, act in the same manner all over the solar surface, and create spots even at the very poles of the Sun. Yours truly,

Meudon, 1884, June 25. E. L. Trouvelot.

## *Montaigne of Limoges.*

Sir,—

Something has been said again lately regarding a possible satellite of Venus. Now although I do not know that we are called upon to subscribe positively to the opinion of Mr. Proctor ('Encyclopædia Britannica,' 9th edition, vol. ii. p. 792) that "there can be now no doubt whatever that Venus is without a satellite," and we are rather, it seems to me, in the same position on the question as we were with regard to a satellite or satellites of Mars before the year 1877, yet I conceive there is little doubt that no satellite of Venus *has ever been actually seen*. Had one existed at all approaching in size to the object which J. D. Cassini and Montaigne thought they saw, we should certainly be in no doubt whatever about it now, or be still in the position on the matter well expressed by Bailly ('Histoire de l'Astronomie Moderne,' vol. ii. p. 409), "on ne possède point ce qu'on n'est pas maître de retrouver." It will be remembered that Montaigne's observations were made in the year 1761, and were stated to be of an object the diameter of which was equal to a quarter of that of Venus.

Although therefore I cannot doubt that the objects seen by Cassini, Short, Montaigne, and others were merely ghosts, yet I cannot help thinking that it would be interesting to know more about Montaigne himself, as the discoverer of three comets, than appears to be at present within our reach; and I write this in the hope that some of the French astronomers amongst your readers may be able to supply something on the subject. Hitherto all I can find is that which is given in Lalande's 'Bibliographie Astronomique,' p. 477, where we read of Montaigne, under date 1761, "Il s'appelait Jacques Leibax; il naquit le 6 Septembre 1716 à Narbonne. Il avait été Doctrinaire dans sa jeunesse. Il a vécu longtemps à Limoges."

It is well known that Montaigne was the first to discover in 1772 the comet which at its third observed appearance in 1846 was found to be moving in an elliptic orbit of short period, and

acquired the name of Biela's comet, from its discoverer on that occasion. Montaigne's discovery was made on the 8th March, 1772; and he afterwards discovered a comet (the only one observed that year) in 1774, on the 11th of August; also the second comet of 1780, which was discovered independently by Olbers on the same day, viz. the 18th of October.

Surely some further particulars would be interesting about Montaigne (Bailly and Pingré spell the name Montagne), of whom I have not been even able to ascertain the date of his death.

Yours faithfully,

Blackheath, 1884, July 2. W. T. Lynn.

## *The Eclipse of Pericles.*

Sir,—

In an interesting communication in the July number of the 'Observatory,' Mr. Lynn takes exception to certain doubts I have expressed about the solar eclipse of B.C. 431 being that of Pericles.

W. D. Snooke, in his little work on this subject (published by Highley and Son, 32 Fleet Street), 1852, refers to the position of the brightest stars at the time. He remarks, "Lyra was high in the east or near the zenith, Arcturus high in the south-west, and Spica nearer the horizon; farther west were Regulus, and the planet Venus a little eastward of the Sun." A writer so accurate as Thucydides would hardly have said that "some of the stars shone out" if only Venus was meant; and it is perfectly certain that an eclipse of seven-tenths of the Sun's disk could bring out no star except the planet Venus: nor would this be even the case if she were only "a little eastward of the Sun." It seems impossible, therefore, that the magnitude of the eclipse of B.C. 431 was sufficient to cause any of the stars to shine out.

Yours faithfully,

Melplash Vicarage, Bridport, July 8. S. J. Johnson.

## *The Variable Star S Cygni.*

Sir,—

A recent examination of my observations of the variable star S Cygni ($\alpha = 20^h\ 3^m\ 6^s$, $\delta = +57^\circ\ 39'{\cdot}3$, 1885·0) has brought to light some irregularities, to which, with your permission, I should like to call attention.

In the annexed table I give my observed times of maximum, and the differences between the observed times and the times calculated from the elements given by Prof. Schönfeld in his 'Zweiter Catalog von veränderlichen Sternen,' viz.:—Epoch 1869, Jan. 20·1; Period 322·8 days.