LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.*]

The Electric Railway in Paris

I HAVE within the last few days received a letter from a friend in Paris, who writes that he had last week travelled on the electric railway in that city. There is still much, he adds, to be done before it can be brought into general use; but nevertheless the train moved satisfactorily. There were fifty-four passengers in the carriage, which was propelled by a large Gramme machine and 160 cells of Faure's battery. The experiments are to be recommenced very shortly with a new motor by M. de Méritens, and a Faure's battery.

W. SPOTTISWOODE

41, Grosvenor Place, S.W., June 16

Probably New Variable and Red Star

ON May 22 I found, 2° 51′·7 north of α Cygni, a deep red or crimson star, which is not in the Bonn Catalogue. The nearest to it there is + 47° 3167, which in declination corresponds with a white star that I observed at the same time, but not in R.A.

Dr. Doberck writes to me as follows:—"Markree Observatory, 1881, May 29; observed the *new* star; brick-red, the nicest I ever saw, 8·7 mag."; and "1881, May 31: 1h. a.m., colour same as before; 8·4 m."

Mr. Ward of Belfast, who observed in the early morning of May 31 in strong twilight, describes the star as "deep crimson; beautiful object; two or three comites."

Mr. Gledhill, in Mr. Crossley's observatory, Halifax, found it, on May 30, "strikingly red."

Dr. Ball, the Astronomer-Royal for Ireland, observing at Dunsink, saw it "a superb crimson."

Prof. Krueger, director of the Kiel Observatory, described it as "*auffallend roth*" (remarkably red), on May 30.

On June 2 it appeared to me unchanged in colour, and increased from 9 mag. to 8·4.—June 7 and 8, colour still the same, and 8·3 or 8·4 magnitude.

Dr. H. Kreutz, writing from the Bonn Observatory, states that he finds an observation of the star recorded on June 19, 1857, but not at any other time during the progress of the observations for the Bonn Catalogue, in which it has not been published. There does not appear to be any note of its colour, and I think it will most likely prove a variable of a very remarkable character. Prof. Krueger makes its position for 1855 = α 20h. 36m. 37s.·9; δ 47° 37′ 33″. Herr Kreutz's position is α 20h. 36m. 37s.·0; δ 47° 37′·9. The white star mentioned above is not recorded in any of the Bonn observations; and, on the other hand, I may add that I do not identify + 47° 3167 in the telescope. I estimated the white star at about 9·5 mag. of Argeländer's scale, and therefore within the limits of the *Durchmusterung*.

The small stars seen by Mr. Ward are perhaps too distant to be strictly considered as comites to the red star. They are sufficiently difficult to me, though probably easy to his well-known extraordinary sight. The position of the nearest that I see is about 0°, and I find two others more distant—one at 350°, and one at 110°, with a power of 120° on a 4½ inch O.G.

There seems a peculiar dimness about the star, referable, probably, to the dark shade of its red. An uneducated person with a very excellent eye, and who never heard a description of a red star, compared it, at first view, to "a drop of *black* blood." It may be conveniently and well compared with Nos. 448 and 553 of my "Red Star Catalogue," especially with the former, the colour of which was described by Secchi as "intense"; and in the glowing red of the one object will be remarked a striking contrast with the deep sombre tint of the other.

I make the approximate positions of the red and the white stars for 1855, and corrected from my first observations, as follows:—

	h.	m.	s.	°	′
The red	20	36	27	+ 47	37·5
The white	20	36	18	+ 47	46·8
Argeländer's position of his + 47° 3167	20	36	28	+ 47	46·8

Millbrook, Tuam, June 3

JOHN BIRMINGHAM

The Doctrine of the Conservation of Electricity

I WISH to take the earliest opportunity of responding to the courteous letter of M. Lippmann, which appears in the current issue of NATURE, with the acknowledgment that his quotation from the *Comptes rendus* of 1876 establishes in the most conclusive manner his priority of date in the enunciation of the doctrine of the *Conservation of Electricity*. As to my own independent enunciation of this doctrine, it was arrived at without any knowledge of the comparison drawn by M. Lippmann in 1876 between the cyclical flow of heat (of Carnot's theorem) and the cyclical flow of electricity. I approached the matter upon somewhat different and less clearly defined lines, and finally struck upon the fundamental notion of the Conservation of Electricity when endeavouring to think out the relations between electromotive and ponderomotive force in an electric theory of radiation based upon Clerk-Maxwell's Electromagnetic Theory of Light. My speculations on this point were committed to writing some weeks ago, and will shortly be published. I content myself in the meantime with pointing out how near Clerk-Maxwell came to a similar conclusion. In Article 35 of his well-known treatise, he says emphatically: "While admitting electricity, as we have now done, to the rank of a physical quantity, we must not too hastily assume that it is, or is not, a substance, or that it is, or is not, a form of energy, or that it belongs to any known category of physical quantities. All that we have hitherto proved is that *it cannot be created or annihilated*" (the italics are mine). Nevertheless the immediate and logical conclusion that electricity, like matter and like energy, is subject to a law of conservation, appears to have been rejected by Clerk-Maxwell for reasons explained in Article 574 of his treatise, consequent on his inability to discover whether an electric current possessed momentum or could exert a mechanical reaction upon the matter of the conductor through which it flows. The unfortunate dilemma which suggested this experiment could hardly have been raised if it had then been as clearly understood as it now is that there is the same distinction between electrokinetic and ponderokinetic energy as between electromotive and ponderomotive force. But to discuss this matter further would lead me to take up too much space.

SILVANUS P. THOMPSON

University College, Bristol, June 19

Thought-Reading

IT would seem that the "discovery" of reading people's thoughts, lately mentioned in the daily papers, is in no way essentially different from the well-known "game" of "wishing" often played by young ladies. It consists of the following procedure. One person goes out of the room, while others arrange upon what she is to do. She enters blindfolded, and in the particular instance now alluded to, was turned round several times so as to be quite unconscious of the direction in which she was facing. Two persons now place their hands on either side of each shoulder, making their fingers meet at the back of the neck and under the chin; or they may be placed round the waist; but as the forehead appears to be equally sensitive, perhaps it is immaterial where the hands be situated. After standing still a moment or two, the lady moved slowly round in the direction of a sofa under the impression, as she afterwards said, that she was walking in quite another way. Having reached it, she sat down (not even knowing the sofa was close by), and deliberately put out her hand, took up an antimacassar which lay upon the sofa, and raised it, asking, "Is this what I was to do?" This was perfectly correct, the antimacassar having been expressly laid there for the purpose.

It was settled that another lady should walk into the conservatory. To do this she had to pull up a blind, lift an iron bar and open the shutters, then undo the glass door behind them which led into the conservatory. All this she did unhesitatingly, and walked straight into it. I could describe several other instances where ornaments and other things had to be selected out of various groups of objects, &c.: but the above will illustrate the process.

One essential condition of success is that the individual must voluntarily and entirely surrender the will, while those who hold the person blindfolded must *determine* as powerfully as they can that the latter shall do what they wish. Care should be taken not to *push* the individual in the desired direction. This however may be done involuntarily, but it will not account for the person doing all that has been previously determined after