Union Pacific railroads, the Pullman Palace-Car Company, and the American and Union Pacific Express companies made the most liberal arrangements, and Mr. Galbraith, the superintendent of the Repair Works at Rawlins, gave us the free use of his private house and grounds. Of the citizens of Rawlins it is only necessary to say that we never even put the lock on the door of the observatory, and not a thing was disturbed or misplaced during our ten days' residence, though we had many visitors. They sent us away with a serenade. HENRY DRAPER

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.*]

Floating of Solid on Molten Metal

I OBSERVE in NATURE (vol. xviii. p. 397) a note of some experiments on this subject. The results of these experiments (unless with lead) are, I think, very similar to some which I have made, and described in your pages (see NATURE, vol. xvi. p. 23), viz., that with *heavy pieces* the metal first *sank* and then *rose to surface*; with light pieces the "skin" formed on the surface of the ladle was sufficient to keep them afloat. From these experiments I drew the conclusion that the cold solid metal was specifically *heavier* than the molten metal, but after a short immersion, depending on size of pieces, these pieces had *expanded* by the great heat around them so as to have *their bulk increased sufficiently* to enable them to float. My experiments with solid pieces of lead showed that they *sank* and did not come to the surface, and could be felt lying at bottom. Pieces of sheet lead rolled up floated.

In some recent experiments which I made, I found that *cold* pieces of steel rails placed in a furnace of molten steel sunk at first and floated afterwards, but that *hot pieces floated*, and did not sink. W. J. MILLAR

100, Wellington Street, Glasgow, August 10

A Meteorite?

THIS day, at 12.15 P.M., I was considerably startled by what was to me a remarkable phenomenon. The weather had been very "thundery" all the morning, and heavy rain was falling in torrents. I sat at my desk by a window looking out upon a court inclosed by high walls. Chancing to look out of the window I heard a sharp report, just like the crack of a Snider rifle sounding immediately outside, followed instantaneously by the descent of a ball of fire about the size of an ordinary gas-lamp globe. This fell vertically and with lightning speed, but when just on a line with the centre of my window burst into a splendid mass of rays, whitish-blue in colour, and of dazzling brilliancy. That is all I can tell you about it. Every one in the house heard the report, and quite a temporary panic ensued. No material effect of the meteorite's presence can be found.

Perhaps some of your readers may be able to explain the phenomenon. J. HARRIS STONE

67, Chandos Street, Strand, August 23

The Australian Monotremes

THE *Tachyglossus* was shot by me near Georgetown, in lat. 18° S. I have found it inhabiting the porphyritic ranges (Newcastle and Mount Turner) in this locality, where they are rather numerous. In my letter (NATURE, vol. xvi. p. 420) I should have written "integumentary" pouch. The *Orinthorhynchus paradoxus* I saw floating with its bill above water in a lagoon between Georgetown and Normanton, 150 miles west of the former town.

Owing to the noise made by my detachment in riding up, I was unable to capture this specimen, but I do not despair of securing one on my next trip westward. I certainly believe the *Tachyglossus* extends throughout the length of the Cape York peninsula on the east, and through the Gregory, Leichhardt, and Cloncurry ranges to the southward and south-westward of Georgetown. Its habit of burrowing beneath rocks precludes the possibility of its occurrence on the Lower Gilbert and Flinders River plains.

"P. L. S." will find my "notes" on this subject in the Linnæan Society's *Journal*, as I sent them, accompanied by the skull of an adult female, to the Society in March last.

Georgetown, June 1 W. E. A.

Microphone in Indirect Circuit

IT is not absolutely necessary that the microphone should form part of the direct circuit. It works just as well if connected so that, when the carbons are not touching, the whole of the current goes through the telephone. When the carbons are together a small portion will of course leak through them; upon this leakage depends the rise and fall of tension in the receiver. For some experiments it is even better to work the microphone in this indirect manner, as the circuit always remains closed, and prevents, in a great measure, the *jarring* noise resulting from a break. ALFRED CHIDDEY

Bristol Mining School, August 19

OUR ASTRONOMICAL COLUMN

THE SATELLITE OF NEPTUNE.—We here present in a tabular form the means of determining the approximate position and distance of the satellite of Neptune, with respect to the primary for any time during the months of September and October, or indeed by extending the epochs subjoined, for any time during the present opposition. The argument u is the distance of the satellite from the ascending node of the orbit upon the earth's equator, and $u = 0°$, at these Greenwich mean times:—

	h.	m.		h.	m.
Sept. 4 ...	18	38·3	Oct. 4 ...	3	52·0
,, 10 ...	15	41·0	,, 10 ...	0	54·7
,, 16 ...	12	43·8	,, 15 ...	21	57·5
,, 22 ...	9	46·5	,, 21 ...	19	0·2
,, 28 ...	6	49·3	,, 27 ...	16	3·0

The motion of u in one day is 61°·257, in one hour 2°·552, and in one minute 0°·0425. Having determined the value of u from these epochs and motions for the proposed time of observation, the angle of position and distance of the satellite from the centre of the planet may be taken from the following table, in which the first and second columns of angles apply to the respective columns of the argument u:—

Arg. u.		Angle of position.		Distance.	Arg. u.		Angle of position.		Distance.
°	°	°	°	"	°	°	°	°	"
0	180	71·6	251·6	9·8	90	270	29·8	209·8	15·0
10	190	63·1	243·1	11·7	100	280	25·0	205·0	13·6
20	200	56·9	236·9	13·5	110	290	18·9	198·9	11·8
30	210	52·0	232·0	14·9	120	300	10·6	190·6	9·9
40	220	48·0	228·0	16·0	130	310	358·2	178·2	8·0
50	230	44·3	224·3	16·7	140	320	338·9	158·9	6·4
60	240	40·9	220·9	17·0	150	330	311·7	131·7	5·8
70	250	37·5	217·5	16·8	160	340	284·2	104·2	6·4
80	260	33·8	213·8	16·1	170	350	264·4	84·4	7·9
90	270	29·8	209·8	15·0	180	360	251·6	71·6	9·8

The period of revolution of the satellite is 5d. 21h. 2·74m., and by successive additions of this period the epochs may be continued for November or later.

As an example of the application of the table, suppose it is desired to know the approximate position of the satellite on September 14 at Greenwich midnight. Strictly the time for aberration should be deducted, which, in minutes, is given by [0·9189] × log. distance of Neptune from the earth—this log. distance being taken from p. 269 of the *Nautical Almanac*. In the present case we find 4h. 1·9m. to be deducted from 12h., so that