

LETTERS TO THE EDITOR.

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On the Meaning of Symbols in Applied Algebra.

REFERRING as briefly as possible to Prof. McAulay's letter on page 588, I contend (1) that no complex reasoning is necessary to show that the commutative and associative laws hold for the symbols of units or (better term) standards; a simple method was indicated in vol. xxxviii. p. 281; and (2) that meaningless things like the square root of a foot do not appear in any correct final result. It is true that the square of an hour is meaningless too, but the *apparent* occurrence of such a thing, in acceleration for instance, is otherwise explicable; for velocity is a real and simple physical quantity.

Magnetic intensity is not really the time rate of the square root of a linear density, as Prof. McAulay imagines that physicists suppose it to be; he has omitted an essential factor; and when we discover the real nature of μ , we shall find it such as to satisfactorily rationalise the gibberish he properly "abhors." If, for instance, μ turns out to be an ethereal density, the specification of H would be length divided by time.

University College, Liverpool, OLIVER J. LODGE.
October 22.

Strange Instinct of Fear in the Orang.

THE following circumstance which occurred at the Zoo on Sunday last, and was witnessed by Mr. W. E. de Winton and myself, is perhaps worth putting on record.

We were watching and making friends with the baby orang, and my wife was standing by, holding on her hand a muff manufactured out of the skin of the Indian flying-squirrel, with the unstuffed skin of the head to the front, and the bushy tail hanging loosely over it. Suddenly, but quite gently, she stretched out the muff towards the orang, but at the sight of the advancing fur a light of unmistakable terror sprang into the creature's eyes. Upon repeating the experiment, the ape promptly rolled over backwards as the quickest way of removing himself from the immediate vicinity of the terrifying object; then gathering himself together, climbed up the branches of his tree, and retreated to the back of the cage, keeping all the while a wary and frightened eye upon the muff, as if in fear of an attack from behind. It is interesting that the whole performance was carried through without the utterance of a sound on the part of the orang; but that he was acting under the influence of fear, there is, I am persuaded, no doubt. His behaviour, in fact, reminded me irresistibly of the behaviour of a friend's little child of ten months old, who evinced similar signs of fright upon being shown a toy fur monkey for the first time.

R. I. POCKOCK.

Natural History Museum, October 25.

Hereditary Colour in Horses.

MR. FRANCIS GALTON'S very characteristic article in the current number of NATURE, page 598, upon hereditary colour in horses, appealed to me with more than usual interest, as for some months I have been planning a somewhat extensive investigation into the hereditary transmission of various characteristics amongst the higher members of the animal kingdom, including that of colour in horses.

It may be of interest to your readers if I summarise a recent quite preliminary investigation upon the same matter, which I shall hope at some future time to work out more thoroughly. I may add that, contrary to what Mr. Galton experienced with the data he used, all the grey foals in my data did *not* come from grey dams.

An examination of the offspring, numbering in all 1566, of one special class of mares shows that there were 686 offspring which resembled the general colour of the dam, and 880 which differed; or a preponderance of 28 per cent. dissimilar. Of these:—

313 colts	were the same in general colour as the dam.
394 " "	not " " " " "
373 fillies	,, the same " " " "
486 " "	not " " " "

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Hence we have two broad results: (1) the excessive preponderance of fillies over colts; and (2) that the colts more frequently resemble the colour of the dam than do the fillies. For every hundred fillies there would be 102 colts resembling the dam.

Truly this is not a large difference, but, based as it is upon over 1500 cases accurately described and exactly tabulated, it seems worth calling attention to, as it carries Mr. Galton's analysis a step further, and points to the possibility of a further development in an exceedingly interesting branch of heredity.

Churchfield, Edgbaston. F. HOWARD COLLINS.

Dog Running on Two Legs.

IT is not necessary that a dog should be compelled by accident to resort to this mode of progression (p. 588). Some years ago I had a clever little Scotch terrier which would occasionally run in this way. It would balance itself on two legs, sometimes on one side and sometimes on the other, holding the other pair up, and run with perfect ease for a considerable distance. As this is the only instance I ever met with, or heard of, I do not suppose that the accomplishment is a common one with dogs.

Highfield, Gainsborough. F. M. BURTON.

THE OBSERVATION OF METEORS, WITH ESPECIAL REFERENCE TO THE LEONIDS.

DURING the next few years a large amount of attention will be given to meteoric astronomy in general and to the great shower of Leonids in particular. The present may, therefore, be an appropriate time to refer to a few points connected with this interesting branch. It has often occurred to the writer that it would greatly facilitate the comparison of different materials if observers adopted one uniform method of recording meteor-flights. Some merely give estimated compass bearings, and a rough guess at the altitude and inclination of path, others give the place and direction according to conspicuous stars near, others simply mark the courses on a map without reading off the individual positions, while others give the R.A. and Decl. of both beginning and ending of every object observed. It would be a great advantage if every one tabulated results according to the latter method. It can easily be done if the tracks, as observed, are pencilled upon a celestial globe or star chart, and the positions read off; and this is a much more exact method than describing the flights by stars near which they happen to pass.

Another point is that the accurate observation of meteors demands a considerable amount of practice. It would, therefore, be a most useful preparation for intending observers of the Leonids if they carefully watched the Perseids of August, Orionids of October, and some other prominent displays, and gained a little practical experience of the work. They would find it of material assistance to them, and would enable the Leonids to be observed more expeditiously and correctly than must otherwise be the case. Accounts are sometimes published of meteoric showers by persons who are reporting a perfectly novel experience, and it is not too much to say that such descriptions are useless as regards many essential details. A perfect novice may of course stand and count the number of meteors visible, and may be capable of describing a star-shower in a general way, but he is heavily handicapped when it comes to recording the more difficult features with precision.

What photography may achieve in meteoric work we can not definitely foresee, but it is quite certain that the proper observation of meteors, as at present conducted, demands the work of a lifetime. A man must watch for meteors all night, and suitably record them, and by day he must analyse the observations and determine the radiant points. The observer need not, perhaps, absolutely isolate himself from all other work; but the meteoric