formal; but it would appear that he did not revise, as we understand the term, but merely read the manuscript, placing also at the service of the author certain discrete sections for possible inclusion. The footnote is misleading. THE REVIEWER.

Numerical Relations between Fundamental Constants.

IN connexion with the letter from Dr. Ernest Dorsey in NATURE of October 6, p. 505, it may be pointed out that most of the numerical relations which he describes are implied in the statement given in a paper in the Proceedings of the Physical Society of London (vol. 27, p. 425, 1915), that all units derived from e, m, and c can be expressed (with considerable accuracy) in the C.G.S. system in terms of simple integers (2, 3, or 4), powers of 10, q and π. Here q is a pure number, which represents the value of $2\pi e^2/hc$. This constant is the same as that employed in Sommerfeld's papers on the fine structure of spectrum lines, where it is denoted by α. If the relation of Lewis and Adams (*Phys. Rev.* vol. 3, p. 92, 1914) be accepted, the numerical value of q or α is $(15/\pi^2)^{\frac{1}{3}}/(4\pi)^2 = 7{\cdot}28077 \times 10^{-3}$.

Whether this be the correct value or not, the number represents one of the most important physical constants, and corresponds to a deep-seated relation between the ultimate nature of electric force and that of magnetic force. The quantum theory indicates the existence of discrete magnetic tubes of induction determined by the fundamental unit (h/e), and it has been suggested to me by Mr. W. H. Watson, of the University of Edinburgh, that the constant may be interpreted as giving the relation between a quantum magnetic tube and a unit electrostatic tube of force.

As regards the occurrence of integral powers of 10 in the expressions for physical constants, it must be remembered that the units of length, mass, and time in the C.G.S. system are not entirely arbitrary. The assumption is made that the gram is the mass of 1 c.c. of water at the temperature at which its density is a maximum, and the fact that the "molecular number" (Trans. Chem. Soc. vol. 113, p. 389, 1918) of water is 10 possibly accounts for the relations concerned. Dr. Dorsey includes the gas constant in his list, and here again the physical properties of water are involved through the definition of the Centigrade scale of temperature.

H. S. ALLEN.

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Insects in Korean Amber.

ON the morning of September 1 I saw a piece of carved amber, containing Diptera of several species, in the shop of G. M. T. De Silva in Yokohama. I was informed that it came from Korea (Chosen), but as the exact locality and geological horizon were unknown, and the price was rather high, I did not purchase it. At noon of the same day the earthquake occurred, resulting in the destruction of the whole of Yokohama, including De Silva's shop. I should be greatly interested to learn anything more about this Korean amber, the insects in which should be described. Some days earlier I saw in Mr. Y. Nawa's museum at Gifu a very fine lot of fossil insects, apparently of late Tertiary age. These have never been critically studied or described, but it is to be hoped that they will eventually be properly recorded. I could not discuss them with Mr. Nawa, as he knows no English, and no interpreter could be found at the time of my visit.

T. D. A. COCKERELL.

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Tidal Dissipation of Energy.

IF g denote the intensity of surface gravity, ρ the density of water, and h the elevation of the water surface above its mean position, the potential energy of the oceanic tide is $\frac{1}{2}g\rho h^2$ per unit area. The kinetic energy must be comparable. If h has the equilibrium amplitude of 35 cm., the total energy of the ocean, the area of which is $3{\cdot}7 \times 10^{18}$ cm.^{2}, must be about $2{\cdot}2 \times 10^{24}$ ergs.

Now the mean rate of dissipation of energy by tidal friction is about $1{\cdot}4 \times 10^{19}$ ergs/sec. Thus the whole energy of the tides would be dissipated in about $1{\cdot}6 \times 10^5$ sec., or two days, if dissipation continued at its average rate and no new energy was supplied.

It follows that tidal friction in shallow seas must absorb so much of the energy in the tidal waves that reach these seas, that the lags of the tides in the open ocean may differ by some hours from those calculated on the usual assumption that the coasts may be treated as simple reflecting boundaries.

HAROLD JEFFREYS.

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Repellents of Clothes Moths.

IN NATURE of September 8, p. 376, appears a report of a lecture on "Plants in Relation to the Health of Man," in which Dr. A. W. Hill refers to the supposed property of camphor as a preservative of clothing against moth. Henri Fabre found camphor and naphthalene to have no effect upon moths, and I have found these insects utterly indifferent to such odoriferous substances. In fact, I doubt if they can smell at all. It would be interesting to hear of some definite experimental result bearing upon this point.

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SOMEWHAT surprisingly, no precise experiments with the object of discovering effective repellents of clothes moths, of which at least three distinct species occur in this country, appear to have been carried out by any one. Mr. R. G. Johnston is perfectly correct in regarding as devoid of any real foundation the popular belief in the efficacy of camphor as a preservative of clothing against moth, although there is no reason for supposing the insects in question to be deficient in olfactory sense. Naphthalene again, if merely scattered loosely in a drawer or wardrobe containing clothes, will certainly afford no protection whatever. On the other hand, naphthalene is quite satisfactory as a repellent if placed inside clothing which is afforded the additional protection of a wrapping of stout paper, the edges of which freely overlap, and are tightly secured by means of pins. E. E. A.

Amanita muscaria on Hampstead Heath.

THE difficulty of obtaining a supply of this mushroom for scientific investigation is well known to physiologists and chemists. Its disappearance, except in unfrequented woods, is probably accounted for by its attractive colouring and its subsequent destruction as one of the most poisonous representatives of its family. Therefore its occurrence near London deserves to be put on record. A fine specimen, weighing 140 gm. and measuring 12 cm. in diameter, was brought to me for identification by Mr. H. C. Simmons, who found it, after the heavy rains of last week, on the West Heath in the low-lying ground between the North End and Spaniard's Roads.

O. ROSENHEIM.

75 Hampstead Way, London, N.W.11,
October 17.