

IN his letter in NATURE of March 13, Prof. Howe avoids the very plain question put to him by Sir James Henderson. That question is: "What justification has he for writing $\mu \equiv 1/A'$?" The only suggestion put forward by Prof. Howe is that "the forces between magnetic poles and those between electric currents must involve the same property of

space". But that condition is equally met by writing $\mu \equiv A'$ —which is Henderson's proposal. In view of the strictures in Prof. Howe's review, it is clearly incumbent upon him to face this issue, and make his reasons for his choice as clear as those of Sir James; and I hope that he will do this.

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Points from Foregoing Letters

NEW experiments on the winter development of the gonads in the migratory finch, *Junco hyemalis*, under the influence of artificial illumination are described by Prof. Wm. Rowan. The author also submits photographs showing that starlings in the West End of London have in winter larger testes or ovaries than those in the country. He finds, however, that the light intensity at night, at the spot where the London birds roosted, was below that known to induce development of the sex organs, and he suggests that in this case the effect may be due to the noise which keeps the birds intermittently awake until the early hours of the morning.

The non-exponential and the exponential terms of the equilibrium constant and of the bimolecular rate constant of the reaction 2 cyclopentadienes \rightleftharpoons dicyclopentadiene and of similar associations have been measured in the gas phase and in solution by Dr. G. A. Benford, Miss B. S. Khambata and Dr. A. Wassermann. They compare the solubility of cyclopentadiene and of dicyclopentadiene with the solubility of the cyclopentadiene-cyclopentadiene transition state.

Indirect support for Hallpike and Rawdon-Smith's membrane theory of origin of the cochlear component of the Wever and Bray effect has been obtained by O. Gatty and Dr. A. F. Rawdon-Smith, who have shown that potential waves of similar characteristics can be obtained from isolated strips of frog's skin, immersed in Ringer's solution. A type of artificial cochlea was constructed, and from this synchronous potential changes were recorded, in response to sound.

W. Ross and E. C. Slow have measured the phase velocity of radio waves (of frequency 2.5–15 Mc. per second) travelling along the ground, by observing the shape of the ellipse traced by an oscillograph to which was applied the suitably amplified output from two similar aerials placed a known distance apart. Though the observed values, for the phase velocity of the radio waves investigated, differ slightly from the velocity of light (possibly due to re-radiation from disturbing bodies near the receiving aerials), these variations are small and without marked dependence upon frequency. The authors conclude that the group velocity of radio waves along the ground is also within a few per cent of 3×10^{10} cm. per sec., which is not in agreement with the findings of Colwell and his co-workers.

Curves showing 'coincidence' discharges in 'counters' arranged in groups of three, four and five, indicating the number of cosmic ray showers as affected by the thickness of the material (lead) in which they are produced are submitted by Y. Watase. The curves obtained by means of the groups of four and five counters are nearly straight lines, and show that some, at any rate, of the showers are produced by a single elementary process, as suggested by Heisenberg. The curve obtained with three counters

is of a quadratic type, which may mean that in some cases a succession of elementary processes is involved, or the quadratic character may be due to the presence of soft radiation of tertiary origin.

A. Luyckx reports that when nitrogen and iron oxide are simultaneously irradiated by α -rays, an intense green glow is emitted by the gas. Spectroscopic study shows that mercury lines are only observable in presence of nitrogen; iron oxide increases their intensity, and causes new mercury lines to appear.

A simple experiment showing how a rotating fluid comes rapidly to rest when given a second rotation non-parallel to the first, is described by Prof. Kerr Grant. The experiment was devised as an analogy to the resistance to motion, due to electrical eddy currents, experienced by a conducting body rotating in a magnetic field.

The 'F-type' of potato virus recently isolated in Ireland has been found by J. G. Bald also in Australian potato plants with a slight 'aucuba' mottling of the foliage. The virus causes necroses on pepper. *Solanum nigrum* acts readily as host for the virus, showing no symptoms except an occasional transitory vein-clearing or mottle.

Panus stypticus (Bull.) Fries, as found in North America and in Europe, is shown by Miss Ruth Macrae to be heterothallic and tetrapolar. The two forms are fertile among themselves and with each other. When monosporous mycelia of the luminous American form and the non-luminous European form are paired, the diploid mycelium produced is luminous.

A table showing the water and fat percentage of tsetse flies of different ages and at different stages of hunger, is given by Dr. C. H. N. Jackson. The author had come independently to the same conclusion as R. W. Jack concerning the importance of excluding the weight of fat when calculating the percentage of water, and gives instances showing that the new way of calculating the water content gives more significant results.

Dr. G. Bond reports that analysis of the sand in which soya bean plants had been grown failed to give evidence of excretion of fixed nitrogen from the root nodules of the plants. Prof. Virtanen has shown that such excretion takes place in the case of peas, vetch and clover.

Sir James Henderson, continuing the discussion on the dimensions of electrical and magnetic concepts, points out that insufficient consideration was given by the International Committee in arriving at their decision concerning those factors. He reiterates his contention that taking Ampère's theory into consideration, the magnetic field H , and the magnetic flux B , differ only in magnitude and direction and are physically identical, so that their ratio μ , the magnetic permeability, is undimensional.