

It is almost needless to add that there is no intention of detracting in any measure from the credit due to those who have recently been so successful in applying the spinning electron in connexion with the Bohr atom. There is satisfaction in finding that ideas for which the time was not ripe ten or more years ago now have a wide field of application, and are accepted by the leaders in physics, who were at one time unwilling to ascribe structure of any kind to the electron.

H. S. ALLEN.

The University, St. Andrews.

Rotation of Dielectric Bodies in Electrostatic Fields.

THE rotation of dielectric bodies when suspended between the knobs of a Wimshurst machine was first observed by me about a year ago. Since then the phenomenon has been studied by Messrs. L. G. Vedy and G. Gowlland and other pupils of mine. Experiments illustrating the phenomenon were shown at the recent Physical and Optical Societies' exhibition at the Imperial College of Science and Technology, particulars of some of which are given below.

Pieces of paraffin wax (including a sphere of 5 cm. radius), ebonite, sealing-wax, and a glass beaker rotated when suspended between the knobs of a Wimshurst machine. A covering of metal foil prevented rotation.

Brass spheres covered with paraffin wax rotated, the greatest rate being attained by the sphere with the thickest wax layer. Better results were obtained with bodies mounted on bearings (steel needles in glass sockets) as this arrangement prevented the bodies from swaying and striking the knobs.

By using an alternative gap it was shown that rotation did not occur in the absence of a brush discharge. Also sparking usually decreased the effect.

The presence of a charge on the bodies was shown by using a proof plane and an ordinary gold leaf electroscope. When the paraffin wax sphere was mounted symmetrically between two nearly similar knobs the charge was shown to be very small.

When the bodies were suspended inside a glass beaker or between ebonite plates, which shielded them from the discharge, rotation did not occur; but the ordinary orientation phenomenon was quite marked.

The general conclusion arrived at so far is that the phenomenon is due to the effect of the discharge, but that it is not wholly a surface effect. The influence of the presence of moisture on the surface and of the air surrounding the bodies, *inter alia*, deserve careful examination and further experiments are contemplated.

S. W. RICHARDSON.

The Royal Institution,
21 Albemarle Street, W.1,
Jan. 9.

Two-way Communication with the Antarctic.

CONTACT with the Norwegian whaler, *Sir James Clark Ross*, call sign AQE, by the south shore of the Ross Sea, 78° 30' south latitude, was obtained by C. W. Goyder from the Mill Hill School station, 2SZ, on Jan. 30, and the messages exchanged constituted the first two-way communication with the Antarctic. Contact was again established at 8.30 A.M. to-day with the double object of putting the whaler in touch with a Norwegian station and of getting particulars of the ship *C. A. Larsen*, with the call sign ARDI, which is within a few miles of AQE.

Two-way working was easy and expeditious, and the first object was partially secured, for the signals

of LGN (the Bergen Radio Coast station) and of AQE were both of good strength here. They were unable to hear one another, but an arrangement was made with each that they should attempt to get in touch with one another at 7.30 A.M. to-morrow (Feb. 7). Meanwhile AQE reports having been in touch yesterday with LA.IX (J. O. Berven, Stavanger).

The ship ARDI was thought to be a scientific expedition because the north-bound expedition into Norwegian waters, organised last summer from Cambridge, had the call sign ARDS, but was reported this morning by AQE to be another Norwegian whaler in their vicinity. ARDI was heard calling, but communication was not established. Direction-finding work, alluded to by AQE, is being carried on for the purpose of keeping in touch with the whaling boats in foggy weather.

W. H. BROWN.

Mill Hill School,
London, N.W.7,
Feb. 6.

The Fayum Lakes.

THE question of silting which is raised by Mr. G. W. Grabham (NATURE, 118, 911, 1926) depends on the velocity of the water. In water that is slackening, silt will be dropped; but if the flow is quickening, it will be carried on. In the case of the Fayum channel an inflow during two or three months had to make up for four or five feet of evaporation and also a previous outflow over a large area. As the water in this six miles of channel had therefore a gradient much greater than that of the Nile, it is unlikely that any silting would be caused during the inflow. During the stationary periods only suspended silt would be dropped, which only amounts to one inch in 15 or 20 years. During the outflow no rolled silt would be carried, as it would have slipped into deeper water in the lake. It does not therefore seem likely that any fluctuations of level could be caused by silt obstruction. Two queries that are asked may be noted here: (1) The high level taken appears to be due to a pre-human estuarine condition of the Nile; (2) there is no question about the sources of the flints which I bought in the Fayum, as they are like those found there, and none in similar condition are found in the Nile valley.

FLINDERS PETRIE.

Tell Jemmeh, Gaza.

The Supposed Law of Flame Speeds.

MR. A. G. WHITE, in his letter in NATURE of Jan. 8, p. 51, correctly recalls the fact, which we discussed fully in our original publications in the *Journal of the Chemical Society*, that deviations from the law of speeds may be expected if one of the combustible gases in a complex mixture interferes with the burning of another. The deviations are, however, small and their nature can be predicted.

The behaviour of mixtures, near the limit of inflammability, containing ether vapour or carbon disulphide, to which Mr. White refers, was considered during the discussion of Prof. Jorissen's paper at the meeting of the Faraday Society in June. We do not attach any importance to such mixtures from the point of view of the law of speeds, for the reason that they exhibit the peculiar phenomena of the 'cool flame' (cf. White, *J.C.S.*, 115, 1462, 1919), which is quite distinct from a normal flame.

WM. PAYMAN.

R. V. WHEELER.

Safety in Mines Research Laboratories,
University, Sheffield,
Jan. 12.