

sealing in. As the cutting, polishing and sealing take some time, it is desirable to select, with a polariser, specimens comparatively free from strain. With the above precautions the probability of failure is small.

We wish to thank Prof. Brice, through whose courtesy we obtained samples before the material was regularly available.

Physical Laboratory,
Trinity College,
Dublin.
June 21.

R. W. DITCHBURN.
J. HARDING.

¹ *Bull. Amer. Phys. Soc.*, 9, No. 6, 6, Dec. 1934.
² W. P. Davey and E. O. Hoffman, *Phys. Rev.*, 15, 333; 1920.
W. Gerlach and O. Pauli, *Z. Phys.*, 7, 116; 1921.

Electrical Units and the I.E.C.

THE interesting note on Electric Units in NATURE of July 6, p. 15, is perhaps too definite in one important particular.

It is recognised that in addition to the three accepted units of length, mass and time a fourth unit is required for the specification of electrical quantities.

Prof. Giorgi, as is well known, desires the adoption of one of the International Units, and I understand prefers the International Ohm. But no decision on this point was reached at the recent I.E.C. meeting.

In a letter dated June 27, 1935, and sent to me as chairman of the S.U.N. Commission of the International Union of Pure and Applied Physics, Dr. Kennelly, chairman of the Electric and Magnetic Units Committee of the I.E.C., after referring to possible quantities for the fourth unit, writes:

"It was decided that the choice should not be made before consulting the International Union of Physics S.U.N. Commission and the Comité International des Poids et Mesures Comité Consultatif d'Electricité".

He asks that the matter should be brought to the attention of the S.U.N. Commission of the International Union "as it would evidently be most regrettable if the choice and definition of the fourth fundamental and practical unit should lead in the future to incomplete agreement between the Practical Electrical Units used in Physics and in Electro-technics".

Accordingly, I am taking steps to bring the matter to the attention of the S.U.N. Commission. A difference between the standards of the physicist and the engineer would be not merely regrettable but a disaster of the first order.

R. T. GLAZEBROOK,
Chairman of the Commission on
Symbols, Units and Nomenclature
of the International Union of Pure
and Applied Physics.
Ballards Oak,
Limpsfield,
Surrey.
July 6.

Points from Foregoing Letters

PROF. NIELS BOHR announces his disagreement with the recently-expressed opinion by Prof. A. Einstein, B. Podolsky and N. Rosen that the quantum mechanics description of physical reality is incomplete, owing to the uncertainty principle, which states that the position and velocity of a particle cannot both be accurately known at the same time.

Using the ions from a high-frequency spark, Prof. A. J. Dempster has analysed palladium and gold by means of the mass-spectrograph. The results show six isotopes for palladium and the only one component for gold. The atomic weight of gold, if it has no isotopes, should be an integer, and the accepted value (197.2) may have to be revised.

Prof. B. Venkatesachar and L. Sibaiya identify certain components in the arc spectrum of platinum with its various isotopes (at. wt. 192, 194, 196, 195) and estimate roughly their relative abundance. As shown by the positive isotopic shift of the spectral components, the heaviest isotope lies deepest, as is generally the case in nuclei containing an odd number of alpha particles, of which platinum has 39.

Mr. J. R. Tillman and Dr. P. B. Moon find that the absorption coefficients of silver, iodine and copper for slow neutrons vary with the detector used. This indicates that the elements in question absorb selectively neutrons of different velocities. The authors also give the ratio of the activity at 90° and 290° K., and point out some of the factors that must be considered when determining the effect of temperature on the activity of the neutrons.

From the difference in the spectra of a typical giant star and a typical dwarf star (due to absorption of light in the region of wave-lengths 4100-4600 Å.) Prof. Bertil Lindblad infers the presence of excited calcium molecules and deduces that the value of

the gravitational constant g for the giant and the dwarf is in the ratio 1 : 4000.

The nature and origin of the membranes surrounding the eggs of the lobster and the means whereby the eggs are attached to the swimming limbs of the female are described by Prof. C. M. Yonge and compared with conditions in other marine animals.

Dr. D. M. Wrinch draws a picture of a chromosome as a sequence of protein molecules linked end to end by their acidic and basic groups, to satisfy the essential requirements of genetics that genes form a linear array. She interprets the banded structure of the salivary gland chromosome of the fruit fly as due to the alternation of basic and non-basic units in the protein pattern.

Dr. E. N. Miles Thomas and Mr. J. Hewitt describe the X-ray patterns of sisal, coir and oak. Sisal gives the usual cellulose pattern; the coir pattern may be interpreted either as one spiral of crystallites or as two distinct spirals at right-angles to each other, running in opposite directions at 45° round the fibre. In oak, the crystallites appear to lie parallel to the longitudinal axis of the wood cells (tracheids) and are almost perfectly orientated. The effect of chlorination upon the X-ray patterns supports the view that lignin is amorphous.

An apparatus by means of which the ionisation produced by a single alpha particle or by a proton can be directly registered is described by Dr. Hannes Alfvén. It may prove useful in the study of nuclear reactions leading to atomic disintegrations.

Prof. R. W. Ditchburn and Mr. J. Harding describe some properties of crystalline magnesium oxide, which is now commercially available. The crystal can be polished and sealed into soda glass, and is very resistant to attack by metal vapours.