

distortion of the molecule should not occur. A small moment, however, of the same order of magnitude, is also found in this case. The tetramethyl derivative was used rather than *cyclobutane-dione* itself, since with the latter compound there is the possibility of enolisation.

From these results it would appear that the values observed for the moments are due either to a general effect of the solvent or to an abnormally large atom polarisation. The question can best be settled by measuring the moments of the substances in the vapour state, and this work is being undertaken.

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¹ *Z. phys. Chem.*, B, 6, 441; 1930.

² *Ann. Rep.*, 65; 1932.

³ *J. Chem. Phys.*, 1, 104; 1933.

Occurrence of the Dipterocarpaceæ-Dipterocarpoideæ in Africa

In a paper read before the Imperial Botanical Conference last August, which is being published in the forthcoming number of the *Empire Forestry Journal*, I referred to the Monotoideæ as "the only

known living African representatives of the family Dipterocarpaceæ".

The Imperial Forestry Institute has now received herbarium material of a true Dipterocarpoideæ tree, from Nigeria, where it was found by Mr. J. H. Mackay, assistant conservator of forests, growing in primitive forest. Two further records of a similar species, and from other areas, have now been reported by Dr. Helen Bancroft, who has recently described the structure of true dipterocarp wood found in a fossil condition at Mount Elgon (Kenya-Uganda). Records of similar wood from Italian Somaliland, by Prof. A. Chiarugi, of Pisa, have indicated that the sub-family Dipterocarpoideæ was well represented in Africa in Tertiary times.

The discovery of living members of the Dipterocarpoideæ, a sub-family noted for its very valuable timbers, opens up further possibilities, from the practical point of view, with regard to the utilisation and development of tropical African forest areas. Academically, it adds further evidence of an inter-relationship of African-Asiatic types which indicates that in some earlier period there has been a closer connexion between Africa and the Indo-Malayan region, to which I referred in my paper.

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Points from Foregoing Letters

IN order to increase the usefulness of herbarium material, and to enable investigators to ascertain not only the range of variation of certain species but also the comparative frequency of different variants, Dr. E. Anderson and Dr. W. B. Turrill recommend that, in addition to the ordinary herbarium material, a carefully selected random sample consisting of 25-50 specimens of some critical part of the plant (such as leaf or seed) should be collected.

The late Sir Richard Glazebrook directs attention to the fact that not only the electrical and magnetic constants μ , K and A , but also many other coefficients used in physics, such as those of compressibility or rigidity, Young's modulus and Joule's equivalent, are in fact ratios between two different methods of measuring force, or energy, in terms of dynamical ('absolute') units.

Drs. F. Bloch and C. Møller have estimated the rate of transition of a hydrogen atom into a neutron, from the theory of Fermi, which allows the formation of a neutron by the combination of a proton with an electron plus a neutrino. They conclude that the transformation of protons into neutrons could only occur by bombardment with electrons of high energy.

Dr. J. Brentano discusses the conditions determining the intensity of X-ray reflections from crystal lattices. He suggests that the technique for obtaining X-ray powder patterns described in a recent letter by Messrs. Stephen and Barnes can be fully accounted for by the general conditions of focusing, which form the basis of his flat layer method previously published.

The lattice constants of zinc oxide films are found by Mr. V. E. Cosslett, using electron diffraction methods, to vary from 3.234 Å., immediately after formation from a zinc melt, to 3.279 Å. eighteen

months later. The latter appeared to be a limiting value. The lattice constant of gold films remained the same over this time, showing that experimental conditions were unchanged. It is, therefore, inadvisable to use such oxide films as standards in electron diffraction work.

Injections of ascorbic acid (vitamin C) into tomato plants are found by László Havas to increase the size of the tumours produced in those plants by *Bacillus tumefaciens*. Mr. Havas recently described similar effects obtained with sex hormones.

A new pigment, myxoxanthin, has been extracted by Prof. I. M. Heilbron, B. Lythgoe and R. F. Phipers from *Rivularia nitida*, one of the blue-green algae. The new pigment belongs to the carotene series, but unlike other plant pigments of that nature it has a single absorption band in carbon disulphide solution (maximum at 4880-4900 Å.), and resembles in this respect the pigment astacene obtained from crustacea.

If we had independent knowledge of the composition of the sub-Pacific crust, observations of the surface waves of earthquakes would enable the thickness to be calculated. Dr. R. Stoneley, in commenting on a letter by Mr. H. F. Baird (*NATURE*, Nov. 2, p. 723), points out that valuable information about the Pacific floor could be obtained if a number of seismological stations were established on Pacific islands.

D. Ll. Hammick, G. C. Hampson and G. I. Jenkins have found that *p*-benzoquinone, its symmetrically substituted derivatives and tetramethyl-*cyclobutane* - 1 : 3-dione all have small but finite electrical moments when measured by the solution method. This is anomalous in view of the symmetrical structure usually assigned to these compounds and may be due to a general effect of the solvent or to an abnormally large atom polarisation.