

R. Beer and **Agnes Arber**: The occurrence of multinucleate cells in vegetative tissues. Binucleate or multinucleate cells have been observed by the authors in 174 plant species belonging to fifty-nine families. They have been found in each of the five classes of living Pteridophyta, in Gymnosperms, and in Angiosperms. They occur in a wide range of tissues belonging to stem, root, and leaf. The multinucleate condition has, in all cases, been found to arise by mitotic division of the nucleus, and in no instance have amitotic divisions been seen to play a part.—**Dr. J. H. Mummery**: The epithelial sheath of Hertwig in the teeth of man, with notes on the follicle and Nasmyth's membrane. The author shows that the "epithelial sheath of Hertwig" is present as a complete organ in human teeth, and, as shown by von Brunn in many mammalia, is the moulding or limiting organ of the dentine of the root, being constantly present where dentine is being deposited.—**H. H. Jeffcott**: The periods of lateral vibration of loaded shafts. The rational derivation of Dunkerley's empirical rule for determining whirling speeds. This paper deals with the periods of lateral vibration of loaded shafts, and gives the rational basis of Dunkerley's empirical method for determining the first whirling speed of a shaft carrying a number of loads. Results obtained by the Dunkerley formula are compared with the exact solutions in a few simple cases. The method employed is of general application, and leads to a theorem connecting the several speeds of vibration of a system of masses elastically connected with the speeds of vibration of the partial systems obtained by reducing to zero a given number of the masses in turn in all possible combinations.—**Prof. Norman Collie** and **Dr. H. E. Watson**: The spectrum of cadmium in the inactive gases.—**C. F. Brush**, **Sir Robert Hadfield**, and **S. A. Main**: Further experiments on spontaneous generation of heat in recently hardened steel.—**T. Matsushita**: The slow contraction of hardened carbon steels.

DUBLIN.

Royal Dublin Society, June 25.—**Dr. G. H. Pethybridge** in the chair.—**Dr. F. E. Hackett**: The twist and magnetisation of a steel tube in a spiral magnetic field. This paper deals with the verification of a formula given by Knott in 1888 relating the Wiedemann effect to the Joule effect, viz. twist=length (radius)⁻¹ sin 2 α (e_1+e_2), where e_1 and e_2 are the longitudinal elongation and transverse contraction in a given magnetic field. The theory was tested by keeping the spiral field constant and varying the pitch-angle α . Examination of the longitudinal magnetisation under the same conditions shows that the slight deviations observed from the expected linear relation of the twist to sin 2 α are due mainly to the demagnetising effects at the ends.—**R. G. Allen**: The absorption of water by vulcanised fibre and erinoid on exposure to moist air, and the consequent change of electrical resistance. Results were given for thoroughly dried samples of vulcanised fibre and erinoid which were immersed in nearly saturated air for measured intervals of time. The quantity of water absorbed was found to be approximately related to the time of immersion by a simple equation, and fibre was demonstrated to be much more hygroscopic than erinoid. Other results were given for these materials, showing the change of electrical resistance with quantity of water absorbed from moist air and the rapidity of decrease in resistance, especially in the case of fibre, with increase of this quantity. It was also shown that, whatever the quantity of absorbed water in fibre and erinoid, the same simple relation between temperature and resist-

ance, common to many materials, including water, was followed in every case. The latter result was pointed out as giving strong support to the theory that electricity is conducted through the material of an insulator by the vehicle of water-films.

BOOKS RECEIVED.

Colour in Relation to Chemical Constitution. By Dr. E. R. Watson. (Monographs on Industrial Chemistry.) Pp. xii+197. (London: Longmans, Green, and Co.) 12s. 6d. net.

Wireless Telegraphy and Telephony: A Handbook of Formulæ, Data, and Information. By Prof. W. H. Eccles. Second edition, revised and enlarged. Pp. xxiv+514. (London: Benn Bros., Ltd.)

War Nursing: What Every Woman Should Know. Red Cross lectures by Prof. C. Richet. Translated by H. de Vere Beauclerk. Pp. xi+119. (London: W. Heinemann.) 3s. 6d. net.

Natural Science and the Classical System in Education. Essays New and Old. Edited for the Committee on the Neglect of Science by Sir Ray Lankester. Pp. ix+268. (London: W. Heinemann.) 2s. 6d. net.

The Practice of Soft Cheesemaking: A Guide to the Manufacture of Soft Cheese and the Preparation of Cream for Market. Fourth revision by C. W. Walker-Tisdale and T. R. Robinson. Pp. 106. (London: J. North.) 3s. net.

The War and the Coming Peace: The Moral Issue. By Prof. M. Jastrow, jun. Pp. 144. (Philadelphia and London: J. P. Lippincott Co.) 5s. net.

A Short Handbook of Oil Analysis. By Dr. A. H. Gill. Revised, eighth edition. Pp. 209. (Philadelphia and London: J. P. Lippincott Co.) 10s. 6d. net.

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