

two main purposes: the provision of part of the approved capital cost of acquisition and installation of grain-drying equipment and storage facilities; and assistance in the provision of plant, equipment and working capital for agricultural co-operative societies and other approved associations of farmers.

AMERICAN PHILOSOPHICAL SOCIETY

YEAR BOOK FOR 1952

THE year book for 1952 of the American Philosophical Society* includes a brief history of the Society and a copy of the charter, together with the list of members and the customary obituary notices and list of publications during the year; besides this it gives, in the report of the committee on research, lists of grants made during the year January 1–December 31, 1952, from the three research funds administered by the Society as follows: from the Penrose Fund, which is unrestricted, 133 grants totalling 123,250 dollars; from the Johnson Fund, nine grants totalling 20,687 dollars; and from the Daland Fund, which is limited to research in clinical medicine, three grants totalling 3,750 dollars. Brief reports from recipients of grants, arranged alphabetically by sciences, are also included. Among the longer of these summaries may be mentioned those of the following: M. D. Taylor on the vapour-phase dissociation of formic, propionic and acetic acids, indicating that formic acid possesses by far the weakest hydrogen bond, acetic and propionic acids possessing bonds of nearly equal strength; R. W. Chaney, comparing the Cenozoic floras of Japan with those of corresponding age in North America, and indicating that *Metasequoia* was widely distributed and abundant at high northern latitudes during Cretaceous and Tertiary time; H. P. Hansen on his investigation of post-glacial forest migrations and climate in western Canada and Alaska by means of pollen analysis of peat sections; R. J. Drake on a study of the species (and distribution) of the non-marine mollusc fauna of Sonora (Mexico); W. B. Jackson on microclimatic factors in army ant behaviour and ecology; and A. Loveridge on ecological studies on the vanishing fauna of rain-forest remnants in tropical East Africa. F. A. McDermott reports further data on Jamaican Lampyridæ, M. C. Carlsen on plant collecting in southern Mexico and Honduras, H. A. Imshaug on a taxonomic and phytogeographic study of the lichen flora of the Rocky Mountains, Hui-Lin Li on a study of the Scrophulariaceæ of China, H. E. Moore, jun., on native and cultivated palms of the western hemisphere, and H. T. Skinner on character patterns in the American azaleas.

K. J. Hayes records an analysis of chimpanzee intelligence, and in biochemistry J. L. and E. M. Irvin report on their spectrophotometric study of the interaction of quinoline and acridine derivatives with plasma proteins, nucleic acids and nucleoproteins. W. J. Eversole summarizes studies which indicate a physiological role of secretions of the adrenal medullary hormones in water and electrolyte metabolism; G. R. Seaman, metabolic studies on the growth factor protogen; L. S. Crossman, studies

on the prehistory of the Oregon coast; and M. I. Hilger, an ethnological field study of the beliefs, customs and traditions in the development, rearing and training of the Araucanian Indian child of Chile. Besides E. M. Kampa's investigation of the photosensitive pigments in marine animals in the vicinity of Bermuda, which indicates the observation of at least one new photosensitive pigment, there are briefer reports on eight other investigations by scientists working at the Bermuda Biological Station for Research, including aspects of phosphate metabolism, the luminous bacteria-bacteriophage system, the metabolic effects of sinus gland removal in land Crustacea, the sponges of Bermuda, cell-growth and development as affected by changes in oxidation-reduction potential, and parasitological studies of fishes.

STANDARD FREQUENCY TRANSMISSIONS FROM THE UNITED KINGDOM

STANDARDS of frequency and time differ from other standards of measurement in that they can be made available continuously over wide areas by means of radio transmissions. The frequencies of 2.5, 5, 10, 15, 20 and 25 Mc./s. have, by international agreement, been allocated for this purpose; and for several years past, a continuous service on all these frequencies (and also on 30 and 35 Mc./s.) has been operating from station *WWV* of the National Bureau of Standards, near Washington, D.C.

Such transmissions enable the user to standardize his equipment without costly and elaborate apparatus, but to be fully effective they must be received in all parts of the world. The *WWV* transmissions do not meet this requirement, and experiments on an international scale are therefore being conducted under the general direction of the International Radio Consultative Committee in order to discover the best means of securing world-wide coverage.

As the United Kingdom's contribution to this work, a limited programme of transmissions has been made daily since February 1950 from the Post Office station at Rugby under the call-sign *MSF*. On May 26 this year the programme was extended to provide a continuous (twenty-four hours a day) service of transmissions on the three frequencies of 2.5, 5 and 10 Mc./s. Later, 15 and 20 Mc./s. may be used, but only three frequencies will be transmitted simultaneously. The signals are identified by a speech announcement made at fifteen-minute intervals, while during five-minute periods the carrier waves are modulated in turn by a 1,000-c./s. tone and by 1-c./s. pulses, the fifty-ninth pulse in each minute being omitted. A supplementary local service for use within the United Kingdom is also provided by a special transmission at a frequency of 60 kc./s. for a period of one hour daily.

Full details of these new transmissions are given in a pamphlet issued by the National Physical Laboratory, Teddington, under the title "*MSF*—New Programme of Experimental Frequency Transmissions from the United Kingdom". The carrier and modulation frequencies are all obtained from the same standard and are maintained within ± 2 parts in 10^6 of their nominal values. The transmissions are regularly monitored at the National Physical Laboratory, and the results of daily measurements on

* American Philosophical Society. Year Book, 1952. January 1, 1952–December 31, 1952. Pp. 486+1 plate. (From the Society, Philadelphia, Penn., 1953.)