QUOTATIONS

ELECTRICAL RESEARCH

A LITTLE more than a year ago attention was drawn to the financial difficulties by which the research association established in 1920 by the electrical and allied industries of this country was being faced both in insuring the maintenance of the income, about £25,000 a year, needed to enable it to continue its work on the existing scale, and still more in securing the additional money that would permit it to extend its operations. One of the research associations brought into existence with the pecuniary aid of the department of scientific and industrial research, it was originally an association of manufacturers, and, although it has received some support from the users of electrical plant, as represented by the electricity supply undertakings, its funds have hitherto been derived chiefly from the manufacturing side of the industry. This fact has given rise to an anomaly, for, while some of the researches it has carried out have been of importance to the manufacturers and have helped them to improve the technical quality of their products, many others have been mainly to the advantage of the suppliers, who indeed, presumably together with the consumers, are said to have received the larger share of the benefits.

In these circumstances it is thought that the supply undertakings, both private and municipal, may fairly be asked to find a greater proportion than hitherto of the annual income required, and an appeal—which has the support of the Electricity Commissioners, the Central Electricity Board, the Institution of Electrical Engineers and the chief associations concerned with the business of supplying electricity—is now being made to them to contribute individually on the basis of a subscription of £10 for each £25,000 of annual revenue derived from their sales. At the same time their claims to increased influence in the management of the association are recognized, and accordingly it is proposed that the constitution of the governing council shall be so modified as to give equal representation to them with the manufacturers, provision being also made for the cooption of a limited number of consumers and others. The excellence of the work already done by the association is admitted. While a money value can not readily be placed upon all its results, it is computed that some of them, through savings in capital, running and maintenance costs, have brought about a reduction in the cost of electricity supply amounting to something like a million pounds annually. Nor is there any reason to suppose that the field is exhausted, or that future effort will not be attended by equally substantial rewards, for many problems requiring solution are already in sight and one technical advance commonly shows the need for another. It is to be hoped, therefore, that the supply undertakings of all kinds, mindful of the interests alike of themselves and of their customers, will do their part in bringing the association's new plans to a successful issue, if only as a token of that gratitude which consists of a lively expectation of favors to come.—*The London Times.*

SCIENTIFIC BOOKS

Plant Ecology. By JOHN E. WEAVER and FREDERIC E. CLEMENTS. McGraw-Hill Book Company, New York, 1929. Large octavo, 522 pp., with 262 figures and one colored map.

AT the beginning of the present century the only book dealing with ecology in the modern sense was a small one by Warming which had recently been translated into German from the Danish. Now there are many, among them the greatly enlarged and extended work of Warming, besides various smaller and larger volumes by writers in England and America.

The book of Weaver and Clements exhibits a great advance over all others in comprehensiveness. In it are presented facts and principles together with practical applications to forestry, grazing and agriculture. Botanists who have not followed the progress of plant ecology will be surprised at the very large amount of material which is now so well known that it may be included in a text-book. Some may, perhaps, question the rather definite and unqualified statements which characterize much of the work, especially the chapter on "Climax Formations of North America."

Terminology and nomenclature are, in general, understandable, and there is only a moderate obtrusion of Clementsian terms. To the reviewer, the short chapter on "Units of Vegetation" is a bit disappointing as compared with Nichols's well-known lucid presentation of the subject.[1] An occasional anthropomorphism appears, as "water-loving" plants. It is unfortunate that the authors did not secure the help of an animal ecologist in preparing the chapter on "Relations between Plants and Animals," a chapter which seems wholly inadequate in a work of the present size and of this present year.

Most of the book deals with the standard material of ecology, as soil, water, temperature, humidity and light. The "Relation of Underground Plant Parts to Environment" is treated in one of the outstanding

[1] *Ecology*, 4: 11–23, 154–170, 1923.

chapters, and another equally to be commended is on "Plants and Plant Communities as Indicators" [of climate, soil, overgrazing, forest and agricultural possibilities].

Throughout the entire book there is evidence of the highest scholarship and painstaking desire for accuracy. The work is likely to be a standard text-book in ecology for many years to come.

Typographically, the volume is well-nigh perfect; one would need to seek far for a more satisfactory example of the printer's art.

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Grundlinien der experimentellen Planktonforschung. By EINAR NAUMANN. Bd. VI of Thienemann's Binnengewässer, 1929, 100 pp., 18 figs. Published by E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart.

IN 1908 a limnological laboratory was established at Aneboda, Sweden, in the midst of a series of lakes whose waters contain a great deal of humus. As might be expected the chief activity of this station has been a study of the relation of these humic waters to the biota of the lakes, more especially to the plankton organisms found therein. These studies have involved a large amount of experimental work and the present book is based in a large measure upon these investigations. The author emphasizes the point, however, that actual observations on the lake must go hand in hand with the experimental work in order to secure reliable results.

The first two sections of the book contain brief descriptions of the Aneboda laboratory and its equipment, including the apparatus used for getting samples of the water and of the plankton; the remainder of the book is devoted to a discussion of methods of experimentation upon plankton organisms. Such topics as the vital staining and narcotizing of zooplankton forms, the use of various organisms as indicators for testing the different types of water, the regulation of the reaction and of the dissolved substances in the water used for experimental purposes, and the control of such factors as light, temperature and the mechanical agitation of the water are discussed in some detail. Culture media for rearing different kinds of algae are given, as well as the kinds of food best suited to the various zooplankton forms. The book is an important contribution to the experimental phase of limnological research.

The bibliography contains a list of 205 titles.

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WISCONSIN GEOLOGICAL SURVEY

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A SIMPLE METHOD FOR FINDING ANY PARTICULAR OBJECT IN A MICROSCOPIC SLIDE PREPARATION[1]

THE various methods proposed from time to time for locating particular fields of a microscopic slide, although fairly satisfactory for work with the low power, are not sufficiently accurate for high-power or oil-immersion work. In all the methods yet proposed, random search, although in limited areas which are determined in various ways, as by readings of mechanical stages, is necessary. The following simple method in which random search is eliminated was thought of a number of years ago. It has proved so satisfactory in my hands in locating organisms difficult of demonstration in stained smears or sections that its description seems worth while. The diplococci represented in the accompanying sketch, for instance, were found in a section of the spinal cord of a monkey in which poliomyelitis developed following injection of virus, and it was very desirable to be able to locate the organisms at will.

The method consists simply of the use of a blank slide, on one side of which is pasted a fairly thin sheet of gummed paper trimmed accurately along the edges of the slide. On either end of this a circle is drawn with a five-cent piece (2.2 cm in diameter). When a micro-organism or another object of particular importance which is to be photographed or demonstrated later is found, a rough sketch (Fig. 1) of the high-power (*H.P.*) of oil-immersion field is drawn in the circle at the left end, and a rough sketch of the low-power (*L.P.*) field in the circle at the right end of the paper-covered slide. In each case, the object of interest is drawn and its position relative to particularly conspicuous material is indicated. Examples of such conspicuous material are masses of pigment, partitions, margins of section, ganglion cells, round cells, (*R.C.*), blood vessels (*B.V.*), and central canal (*C.C.*). The same is done if the slide preparation is a smear instead of a section.

The slide in which a field of special interest has been found is then removed from the mechanical stage and the paper-covered slide, on which the high-power and low-power sketches have been drawn, is put in its place; it is necessary to make sure that the mechanical stage is not jarred and that the slide is in the proper position. A dot is then made with pen and ink as nearly as possible in the center of the bright area transmitted from the condenser. The low-

[1] Submitted for publication April 15, 1929.