

cludes the descriptive part of the book. In this as in other chapters extensive use is made of the classic work of Haberlandt.

The remaining 125 pages are devoted to the subject of technique and the micro-chemistry of plant products, added to which is an introduction to the study of adulterations in foods and drugs. The section on technique contains concise and clear directions for fixing, imbedding and staining, but unfortunately can not be regarded as up to date in all respects. Celloidin is undoubtedly the best imbedding material for the very tissues studied in this book, yet the author says "celloidin is to be looked upon as a last resort in a difficult situation." He says, moreover, "It is difficult to get sections as thin as ten mikrons." These statements can be easily accounted for by the celloidin method which he advocates and which has been greatly improved by Jeffrey. The method of applying the hematoxylin-safranin stain described on page 235 would be made more manageable by using the hematoxylin first, and improved by substituting Ehrlich's for Delafield's hematoxylin.

The chapter on reagents contains some useful recipes, and the directions are concise and to the point. A few inaccuracies occur, *e. g.*, on page 257 "vapor of sulphuric acid" evidently means sulphur dioxide. Further, it is not necessary to ripen aqueous solution of hematoxylin for two months, as stated on page 233.

In a general way the book has much to commend it. The freedom from typographical errors is agreeable ("gram" is printed "grain" on page 227), the typography is excellent, and the large number of new figures is refreshing. In this connection it is unfortunate that Vines's poor figure of a root should have been copied for Fig. 26. Reference has already been made to the diagrams, which are a distinct feature of the book. An index is provided, but the only hint of a bibliography is in the preface. A few terms of doubtful utility have been introduced, *e. g.*, the borrowing of the German word "Borke," and the use of "fixative" for fixing fluid.

To those who consider anatomy as an ad-

junct of physiology rather than the handmaid of phylogeny the book will form a valuable text for class use, and to all working botanists the book may well find a place on the laboratory shelf.

M. A. CHRYSLER

SCIENTIFIC JOURNALS AND ARTICLES

The American Naturalist for December contains "Preliminary Notes on Some American Chalicotheres," by O. A. Peterson, based on some fine specimens of *Moropus elatus* in the Carnegie Museum. The author concludes that *Moropus* is essentially a perissodactyl, save in its unguiculate feet, and that the evidence points to an European ancestry. Charles R. Stockhard presents some "Observations on the Natural History of *Polyodon spathula*." The fish has become of considerable importance for food and will probably soon be greatly reduced in numbers. It is fished for with seines running up to one and two miles in length, and on one occasion more than 150 barrels were taken at a single haul. C. H. Eigenmann reviews "Fowler's 'Heterognathous Fishes' with a Note on the Stethaprioninae," noting that while certain genera and species have been well established new names have been added that in many instances are synonyms. William M. Wheeler discusses "Pink Insect Mutants," considering that they, as well as many brown individuals, are simply sports and belong in the same category as albinos.

Bird Lore for January-February contains articles on the "American Dipper in Colorado," by Junius Henderson; the Canada jay, "The Bird that Nests in the Snow," S. S. Stansell; "Redpoll Linnets," by Lottie A. Lacey; the second paper on "The Migration of Flycatchers," by W. W. Cooke, accompanied by a fine colored plate. There is a list of the members of "Bird Lore's Advisory Council," and "The Eighth Christmas Bird Census," representing the work of a large number of observers from Maine to Oregon, though mainly in the eastern states. In general birds are reported as scarce. The Audubon leaflet is devoted to the snowflake and it

is noted that a patrol boat has been placed on Lake Klamath, Oregon.

The American Museum Journal for February records the receipt of two specimens of the rare Haitian *Solenodon*, heretofore known from a single specimen sent to St. Petersburg in 1833. It is stated that only five specimens of the Cuban *Solenodon* have found their way to museums, but are there not more than this? There are notes on "An Archeological Reconnaissance in Wyoming" and on new or rare minerals added to the collection.

The Bulletin of the Charleston Museum for January contains the report of the director for 1907, which states that the main changes in the new museum building are nearly completed. An appeal is made for more funds, which are very much needed, not merely for the extension of work, but for the proper care and exhibition of material already in hand.

The Museum News of the Brooklyn Institute for February has articles on "Insects and Arachnids as Carriers of Disease," "Zuni Weapons and Hunting the Matamata." It notes the acquisition of the collection of shells made by the late Charles A. Dayton, which comprises 3,700 species. This with collections already received gives this museum an unusually fine series of mollusks. It is noted that the library has been moved to larger quarters in the new wing recently opened.

The Plant World for February opens with an article by Dr. G. H. Shull on the aims and methods of pedigree-cultures, in which a detailed description is given of the technique of pure-bred and sterilized cultures. The authors of various criticisms upon this method of study of heredity will be surprised to learn that such cultures not only do not isolate the species being tested, but bring numbers of nearly related forms into close proximity under conditions which permit their inter-reactions to be exactly estimated. Dr. D. T. MacDougal discusses the principal features of the problems in genetics and botany which may be attacked with greatest hope of success in the desert and the use of

xerophytic forms. The structural and physiological relations of forms known as adaptations are being taken up basally at the Desert Laboratory and its mountain stations.

SOCIETIES AND ACADEMIES

THE PHILOSOPHICAL SOCIETY OF WASHINGTON

THE 643d meeting of the society was held at Hubbard Memorial Hall on January 18, 1908, President Bauer in the chair. The meeting was devoted exclusively to hearing addresses commemorative of the life and labors of the late Lord Kelvin.

The first paper of the evening was entitled "Lord Kelvin, His Life and Works," delivered by invitation, by Professor Arthur G. Webster, of Worcester, Mass.

Dr. R. S. Woodward spoke of "Lord Kelvin's Contributions to Geophysics."

Professor Simon Newcomb told of "Lord Kelvin's Character and Personality."

By invitation, his excellency the British ambassador, Mr. James Bryce, favored the meeting with an interesting sketch of Lord Kelvin's life, bearing testimony to the simplicity of Lord Kelvin's character and the greatness of his wonderful mind.

The full text of the foregoing addresses are soon to be published as a part of *Bulletin XV.* of the Philosophical Society of Washington.

THE 644th meeting was held on February 1, 1908.

Professor C. F. Marvin gave a description of "A Universal Seismograph for Horizontal Motion," recently designed by him at the U. S. Weather Bureau. A full description of this instrument, prepared by Professor Marvin, is soon to appear in the *Monthly Weather Review*.

The second paper of the evening was presented by Professor Frank H. Bigelow upon "Relations of the Temperatures of the United States to Solar Radiation."

The natural synchronism between the variable action of the solar radiation and the terrestrial temperatures may be missed in an investigation in three ways: (1) The use of non-homogeneous data at the sun and at the