

RESEARCHES ON MEDUSAE.

The Cubomedusae. By Franklin Story Conant. (Memoirs from the Biological Laboratory of the Johns Hopkins University, vol. iv. No. 1.) Pp. xvi + 61, and plates. (Baltimore : Johns Hopkins Press, 1898.)

IT is one of the characteristics of some of the more important American Universities that they advance knowledge, employ the best of their young graduates, and at the same time add to the treasures of their museums by equipping expeditions to explore unknown regions, both of sea and land. In this way the archaeology, ethnology, geology, palaeontology, and marine zoology of Central and North America have all benefited largely; and the results of these College expeditions are to be seen in several of the Transatlantic Museums and Universities.

Last year (1897) was unfortunately most disastrous to the marine biological expeditions of two of the leading American Universities: Columbia at New York, and the Johns Hopkins at Baltimore. The Columbia University Expedition to Alaska was wrecked on the return voyage by running on the West Devil rock in Dixon entrance, the steamer sinking almost at once in deep water, and the party barely escaping with their lives (one of them, young Mr. B. B. Griffin, has unfortunately died since), while all their collections, notes, drawings, theses, and other property were lost. The Johns Hopkins Expedition to Port Antonio, in Jamaica, had even a more tragic termination. Prof. Humphrey, the leader of the expedition, died of yellow fever after a few hours' illness the day (August 17) they were to have sailed for home. Dr. Conant, the second in command, and Dr. Clark considered it their duty, under the circumstances, not to leave. Clark was then taken ill and recovered; but when they eventually sailed from Port Antonio, on September 6, Conant became ill on the second day at sea, and died on September 13 in Boston.

The present volume consists of Dr. Conant's researches on the Cubomedusae completed, and accepted by the Johns Hopkins University as a dissertation for the degree of Doctor of Philosophy, just before the author sailed on the fatal expedition to Port Antonio, and now published as a memorial by his friends, fellow-students and instructors at the University. Dr. Conant had been with the Johns Hopkins marine laboratory party at Jamaica in June 1896, and the discovery then of two new species of Cubomedusae in Kingston Harbour led him to the further study of the group. Cubomedusae are comparatively rare jelly-fish, and are of morphological interest because of the relatively high degree of development attained by their nervous system and sense-organs. After a systematic review of the position of his new species (one of them the type of a new family), Dr. Conant gives an excellent account of the anatomy and histology, with a specially full description of the nervous system and of the highly-developed eyes and associated sense-organs. Eight clearly drawn plates, nearly all the figures being from drawings by the author, illustrate satisfactorily this monograph, which is of special interest, first as giving an account of a rare group of medusae, and secondly because of its sad associations. Dr. Conant was a talented and high-souled

young zoologist, who seems to have sacrificed his life to a sense of duty and devotion to others.

During this last stay in Jamaica, Conant seems to have been working largely on physiological problems especially of the sense-organs, such as the action of retinal pigment-cells under the influence of light and darkness; and also on the embryology of the Cubomedusae. We are glad to learn from Prof. W. K. Brooks, that Conant's notes are so full and so advanced that he hopes to be able to have them completed and published before long. W. A. H.

OUR BOOK SHELF.

Special Report on the Beet-Sugar Industry in the United States. Pp. 240. (Washington: Government Printing Office, 1898.)

FOR some time the United States Department of Agriculture has been instituting and directing experiments to ascertain where sugar-producing plants can be grown most profitably. The present volume contains the results of this investigation so far as concerns the beet-sugar industry. It is divided into two parts, one part consisting of the report of the chemist of the Department, Dr. H. W. Wiley, while the other consists of the report of the field agent, Mr. C. F. Saylor, who has personally visited and examined the plantations and factories concerned in the beet-sugar industry in a large number of districts.

The facts and figures presented in the volume justify the attention which the Department of Agriculture has given to the development of this important industry. How widespread is the interest taken in the subject may be judged by the fact that 150,000 copies of a farmers' bulletin upon sugar-beet were applied for last year, and 60,000 copies of the present report have been printed for distribution.

Numerous packets of sugar-beet seed were sent to different parts of the United States last year with the object of obtaining information as to the regions in which the sugar industry is most likely to succeed. There are, however, such great differences in soils and climatic conditions in the United States, that seeds which are suitable for one locality may not succeed in another. Dr. Wiley therefore points out that the experiments which the Department of Agriculture has conducted for several years in the analysis of beets, and the delimitation of areas suited to beet culture, require now to be supplemented by a more rigid scientific attempt to develop beets of characteristics best suited to the various localities.

The opinion of Mr. Saylor upon the industry is decidedly optimistic. He says: "There is no doubt that the United States has a wide and varied extent of land that will successfully grow high-grade beets, that the enterprise of the people of this country will appreciate this fact, and that in a short time all the sugar consumed in this country will be furnished by our own people." Whether this prediction will be fulfilled during the next few years remains to be proved; but, in any case, the Department of Agriculture is doing its best to educate and assist the farmers who cultivate lands upon which the sugar-beet can be successfully grown.

Traité d'Algèbre Supérieure. Par Henri Weber. Traduit de l'allemand sur la deuxième édition par J. Griess. Pp. 764. (Paris: Gauthier-Villars, 1898.)

THIS is a translation of the first volume of the second edition of Prof. Weber's "Lehrbuch der Algebra," and will doubtless be welcome to those who are more familiar with French than with German. The translation appears to be trustworthy, although a few misprints have crept in here and there which are not in the original; thus on pp. 71, 72, the indices a_1, a_2, \dots, a_m should be replaced by