

Beet-Sugar Manufacture. By H. CLAASSEN, Ph.D. Authorized translation from the second German edition by WILLIAM T. HALL, S.B., and GEORGE WILLIAM ROLFE, A.M. New York, John Wiley and Sons. 1906. Pp. xiv + 280.

Claassen's 'Die Zuckerfabrikation' was first published in 1901. Its sterling merits soon won for it such general recognition that the second edition in German followed within a few years, and now we have an authorized English translation of the work.

The scope and plan of the book embraces the entire process of beet-sugar manufacture from the time of the receiving of the beets to the finished product.

Individual chapters are devoted to the delivery of beets, their transportation and washing, weighing and slicing, utilization and disposal of exhausted chips, the process of defecation and of carbonatation, evaporation, the boiling of sugar, the preparation of raw sugar and the preparation of sugar crystals, the treatment of after-products and the utilization of molasses.

In addition to these themes the book discusses the boiler-house, the questions of economy of fuel, high-pressure and low-pressure boilers, heat losses, the construction and operation of lime-kilns, the factory control and determination of sugar losses, the setting up and running of a beet-sugar factory and the utilization of waste products incidentally produced in the process.

This mere enumeration of the contents of the work well indicates that the author has intended to prepare a monograph of beet-sugar manufacture which should not lack a single essential detail—and Claassen has succeeded in doing all which he has set out to do.

His thorough practical knowledge of beet-sugar manufacture—for many years he has been the director of one of the leading beet-sugar houses of Germany—joined to an exceptional ability to express his thoughts in a clear and concise manner, has resulted in the production of a book which ranks with the very best in the sugar literature of the day.

Turning from the work of the author to that of the translators, it is a pleasure to state

that their work, too, is everything that could be desired.

In their preface they state that they have introduced into the English text data of factory practise in units which are employed in American houses. In many beet-sugar houses in this country the metric system is well understood and the centigrade thermometer is used; it is to be hoped that the introduction by the translators of the American equivalent weights and measures will tend to a greater familiarity with, and ultimately to the sole use of, the metric system in this important and growing industry.

Several of the tables appearing in the German edition have been omitted in the English text; also Appendix II., which treats of the construction of an evaporating-plant and the steam consumption for working 100 kg. beets per minute, and Appendix III., which deals with sugar statistics. These omissions seem well warranted, as the matter thus left out is presumably of very little importance to the general reader.

A few typographical errors and slips have crept in, but these will unquestionably be noted and corrected in a future edition, which, no doubt, will soon be warranted.

The American sugar industry is certainly to be congratulated on having so valuable and practical a book placed at its disposal.

F. G. WIECHMANN

SCIENTIFIC JOURNALS AND ARTICLES

THE *American Naturalist* for December contains the second, and concluding instalment of 'The Causes of Extinction of Mammalia,' by Henry F. Osborn. This discusses such matters as infectious diseases and insects, competing and hostile mammalia, internal causes of extinction, and the inadaptation of extreme size or specialization, with many references to literature on the subject and citation of examples. And yet, in summing up, Professor Osborn says: "The chief induction which can be made from this extensive survey of the causes of extinction seems to be this: following the diminution in number which may arise from a chief or original cause, various other causes conspire or are

cumulative in effect." This conservatism is particularly refreshing in view of the many positive utterances as to the natural extinction of animals, the truth being that we actually *know* very little about it. T. D. A. Cockerell discusses at length 'The Alpine Flora of Colorado,' giving many tables showing the northerly range and vertical distribution of various species: The third long paper, by Thomas J. Headlee deals with the 'Blood Gills of *Simulium Pictipes*.' The number contains the title page and index for the volume.

The Museum News of the Brooklyn institute for January notes 'An Interesting Case of Retardation of Pupæ of a Texas Moth,' *Agapema galbina*, a number of cocoons obtained in 1903 having yielded perfect insects for three consecutive years with the probability that one or two more may appear in 1907. It is stated that the museum has obtained by the bequest of Mr. Henry Mumford the fine series of shells secured by the late Isaiah Greegor comprising 2,400 species and 15,000 specimens. This collection by the terms of the will is henceforth to be known as the Phebe L. Mumford Collection. A brief description is given of the exhibit of the museum, under the auspices of the New York Academy of Sciences, to illustrate progress in zoology. The leading article in the section devoted to the Children's Museum is on the skunk. It is stated that while the general attendance at the Children's Museum is less than during 1905 the attendance of teachers is much greater.

SOCIETIES AND ACADEMIES

THE BIOLOGICAL SOCIETY OF WASHINGTON

THE 420th meeting was held on November 17, 1906, with President Knowlton in the chair and an audience of forty persons.

Professor A. S. Hitchcock remarked on the code of nomenclature recently adopted by the International Congress of Zoologists, comparing its provisions with similar codes adopted in this country. Mr. A. A. Doolittle exhibited an abnormal rose, lacking a pistil and with the stem continued into the flower.

Dr. E. L. Greene spoke 'On So-called *Rhus Toxicodendron*.' The purpose of the paper was twofold. First, that of demonstrating fundamental distinctions between *Rhus* and *Toxicodendron* as perfectly distinct genera, according to which view no such name as *Rhus Toxicodendron* should be used. Proper *Rhus* has always a many-pinnated foliage, and its inflorescence is always one only to each branch and that strictly terminal. *Toxicodendron* as universally exhibits but three leaflets to each leaf, and as many inflorescences, almost, as there are leaves on the branch, namely, one in each axil, none ever terminal. The individual fruits are again as widely different in the two genera. Moreover, *Rhus* in all its species is innocuous. *Toxicodendron* is acridly poisonous in all its forms. A historic sketch of *Toxicodendron* was given, beginning with its first publication as a three-leaved ivy, by Cornutus, at Paris in 1635; after that, separated from the Ivy, and proposed as a genus *Toxicodendron* by Tournefort in 1694; augmented by Dillenius in 1732; suppressed by Linnæus, who made the name *Rhus Toxicodendron* in 1753; restored to generic rank as *Toxicodendron vulgare* by Philip Miller in 1768. Secondly, a long series of *Toxicodendron* specimens was exhibited, from almost all parts of North America from the Atlantic to the Pacific, and from Maine to central Mexico; these portraying as much diversity of foliage, fruit and modes of growth as, were they oaks or maples, would be accepted for two dozen species. *Rhus Toxicodendron*, so-called, is really a genus *Toxicodendron* made up of probably twenty or more valid species. Some remarks followed, chiefly on that part of the paper in which the action of *Toxicodendron* poison and its reputed remedies were touched upon.

The second paper was by Dr. Barton W. Evermann on 'Fish Culture and Fish and Game Protection in the Cornell and Yale Forest Schools.' He explained the relation of fish culture and the protection of fish and game to forestry and to the practical work of the forester, and the consequent incorporation of instruction on these subjects as a regular part of technical forestry courses. His re-