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# New Books and Bulletins.

**Azucar y Cana de Azucar.** L. V. DE ABAD. 9 × 6 in.; 640 pages. (La Habana Editora Mercantil Cubana S.A.). 1945. Price: \$4.50.

This work, which in a sense may be looked on as supplementary to, and a continuation of, GEERLIG'S "World Sugar Industry, 1912," is a well printed and carefully produced volume of about 200,000 words. Of this about two-thirds is devoted to Cuba and the balance distributed over all other cane sugar producing countries.

The scheme followed in treating of the different countries is the presentation of a short historical survey covering the essential features and followed by an analysis of conditions as they now are. This analysis embraces not only sugar production, but also includes agricultural conditions generally, social and political questions, and a discussion on the economics of production. The racial question also receives attention, as well as statistics of immigration.

For Cuba, for which Sr. DE ABAD, not without justification, claims premier position as a sugar producing country after the low-grade production of India has been converted to terms of 96° crystal, the account is much more complete and gives in detail all the legislation which has been enacted in Cuba since 1920, the year of maximum price followed by a rapid fall and consequent financial distress. It is to be hoped that with this lesson before them the influence of the United Nations will be sufficient to prevent any similar calamity.

Throughout the book are to be found numerous tables and graphs, all specially prepared. One of the most detailed gives a list of all estates in Cuba whence may be derived that the area of all the estates in Cuba is 7,000,000 acres, of which three-quarters is held by the factories and one quarter by the colonos, who, however, rent much of the land held by the factory. To serve the 171 factories there have been laid down 6500 miles of railway track, mostly standard gauge.

Sr. DE ABAD has a way of making unexpected remarks, one of which we cannot refrain from quoting: "Cuba will always be indebted to the second ROOSEVELT—second in order of time, first in his position as a great statesman. His name will recall to Americans the great politician, philosopher and diplomat, founder of the United States of America; so there will stand out as grand geniuses of universal worth: BENJAMIN FRANKLIN and FRANKLIN D. ROOSEVELT."

To all interested in the economics of sugar production this monograph will appeal as a work of real value.

N.D.

**Methods of Analysis, A.O.A.C.** Compiled by the Committee on Editing. Sixth Edition, 1945; 932 pages; 75 illustrations; and 31 reference tables. (Association of Official Agricultural Chemists, Washington, D.C., U.S.A.). Price: \$6.75 (foreign).

In noticing this, the sixth edition of the "Book of Methods" of the A.O.A.C., some of the remarks made when reviewing previous issues may fitly be repeated.<sup>1</sup> It is the outcome of the most rigorous scrutiny of procedure by a body of specialists working in their separate sections, each under their "Referee." Even a "tentative" method is only adopted after having undergone a critical study, while to become "official" it must be submitted to a yet more prolonged examination before its final approval. Moreover, the descriptions of procedure are very carefully edited, and are intended to allow of no ambiguity of detail likely to interfere with the exact performance of the determination.

Such thoroughness has resulted in a work that is unique in the literature of analytical chemistry. Its range is quite considerable, and it can no longer be considered to be confined to agricultural work. Food products predominate, it is true, but some commercial products, as paints and varnishes, insecticides and fungicides, leathers and tanning materials, are now included. Chemists in our industry will turn with satisfaction to the section on "Sugars and Sugar Products," which contains the most precise information on well-approved methods of analysing sugars, syrups and molasses, confectionery, honey, commercial glucose and the like. In this new edition there are five new chapters, and a number of the others have been noticeably expanded. We repeat the remark made when noticing the last edition of the book, namely that great credit is due to those many American chemists who have so well collaborated in the evolution of such a remarkable collection of analytical methods.

**Studies on Rum.** By RAFAEL ARROYO. Research Bulletin No. 5. (Agricultural Experiment Station, University of Puerto Rico, Rio Piedras, P.R.). 1945.

A research scheme was projected by the Experiment Station in Puerto Rico in 1936 for the improvement of the rum then being made in that island. It was foreseen that the future of the product depended on its ability to compete on the United States and other markets on the basis of sheer quality, and not because of tariff protection. It was discovered at an early stage that, though very old, the process of rum making had received little real

scientific attention anywhere in the world. Erroneous conceptions were prevalent about it, and empirical practices predominated in its production. But the result of this scheme of research in P.R. has been to dispel most of the obscurity obtaining hitherto, so that more enlightened views on the fermentation, distillation and curing operations now prevail. Particulars of the many experiments carried out during this period of intensive research are given in this bulletin,<sup>1</sup> the appearance of which may be said to mark an epoch in the history of spirit manufacture in the tropics.

It commences by showing that the raw material most used, viz., molasses, is lacking in certain respects for the setting up of the wash to the best advantage, and that when corrected a better quality and a better yield results. It deals with the selection of the yeast, with the nutrients to be added, with the proper temperature to be used, with the optimum sugar content, with the *pH*, and with other conditions that are to be observed for the production of rum of a standard high quality. It discusses the interesting question of symbiotic fermentation, using selected yeasts and bacterial pure cultures for the production of so-called heavy rums of the Jamaica export type. It debates the advantages and disadvantages of the batch and continuous distillation methods and such points in spirit distillation. Lastly, there is a lengthy chapter on rum maturing, disclosing facts which have led to the hastening of this stage of the process, a subject "the surface of which has been merely scratched, yet its awards have been abundant."

As the result of this important and comprehensive work by Dr. ARROYO and his colleagues at Rio Piedras, new types of rum have been created, "and the famous types of Jamaica heavy export rums have been duplicated," as has been proved by eminent European tasting experts in this field. "The development of these types of rums, so popular in the European markets, may mean much in an economic way to our Island, since that market, the greatest in the world, has not even been touched by our rum industry. The fact that we can produce faster, with better yields and superior efficiency, should weigh heavily in the acquisition of a place in the above-mentioned markets." Thus concludes this remarkable Bulletin, the substance of which, we predict, will point the way to the efficient and economic manufacture of rum in the future.

**The South African Sugar Year-book, 1944-45.** 15th Year of Publication. (*The South African Sugar Journal*, Durban). 1946. Price: 5s.

This issue of the Year-book contains "The Sugar Industry and its Critics," an article recently reproduced in our columns;<sup>2</sup> also "The World Sugar

Situation" by Messrs. C. Czarnikow, Ltd.; the annual reports of the South African Sugar Association and of the South African Cane Growers' Association; the annual summary for 1944-45 of the chemical laboratory reports from the various South African factories; and lastly the comprehensive report of the Director of the Sugar Association Experiment Station at Mt. Edgecombe, Natal. All the information concerning the production of cane sugar in South Africa in the past crop year is presented with relative statistics for the information of those interested. It is a valuable compilation.

(A) **Yeast Production from Wood-Sugar, at the Dessau Works.** C.I.O.S., Item No. 22; Files Nos. XXIII-8 and XXIX-5. (B) **Basic Phosphate Fertilizer Manufacture at the Rhenania Phosphat Werke.** B.I.O.S., Item No. 22; Final Report No. 94.

(A) Dessau factory is primarily concerned with the production of wood sugar and alcohol and food yeast. Fermentation of the wort is conducted with *Saccharomyces* yeast to give alcohol, and the remaining sugars, which are largely pentoses, and unfermentable with ordinary yeast, fermented by *Candida arborea* or *Torula utilis* to give food yeast. It was stated by the manager, Dr. BRETSCHNEIDER, that 100 kg. of dry wood yield 19-20 kg. of 100 per cent. alcohol, and 33 kg. of dry lignin, which is separated in a battery of Westphalic centrifugal machines.

(B) An examination of these works shows that the production of a basic phosphate fertilizer containing about 24 per cent. of soluble  $P_2O_5$  by sintering phosphate rock with soda ash (the *schwartz Lauge* of the paper industry) and sand has been technically and economically successful, but the process is one requiring careful control and experience in operation. Different types of phosphate rock may be used, and from 90-95 per cent. of the  $P_2O_5$  content is converted into a form soluble in ammonium citrate. Details are given of the process.

**Tests on Volumetric Glassware.** (The National Physical Laboratory, Teddington, Middlesex). 1946.

Contents: Regulations governing A and B Tests. Laboratory Marks and Certificates. Units of Volume. Methods of Test. Tolerances. British Standard Volumetric Glassware. General Volumetric Glassware.

**Patents and Designs Act: Second Interim Report of the Departmental Committee.** Cmd. 6789. 1946. (H.M. Stationery Office, London). Price: 9d.

This important Report on the reform of British Patent Law has already been dealt with in our columns.<sup>3</sup>

<sup>1</sup> Most of it has already been recorded in our columns; see 1942, pp. 78, 107, 163; 1943, pp. 53, 135, 219 and elsewhere (see the General Index and Patents). <sup>2</sup> *I.S.J.*, 1945, p. 7. <sup>3</sup> *I.S.J.*, 1946, p. 115.