

## Book review

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*By-products of the Cane Sugar Industry*; by J. M. PATURAU. Elsevier, Amsterdam, 1969, viii + 274 pp., 8 × 12", Dfl. 85.00.

From the outset, this book faces two facts that are well known to anyone with experience in the operation of a raw-sugar factory. The principal use of bagasse, the most plentiful by-product, is fuel, and in this era of cheap petrochemicals (compared to the price of sugar, very cheap), most molasses is used as animal feed, competing in price with other agricultural commodities.

The book opens with a brief description of the cane sugar industry, and the second chapter is a brief synopsis of sucrose chemistry, with special detail given to sucrose esters for use in biodegradable detergents. The three main by-products of a cane sugar factory—bagasse, filter mud, and molasses—are then discussed in detail. Most known uses for them, either directly or as a starting material for modification or derivatives, are explored. Accepting that bagasse is the primary fuel in almost all factories, the book examines the uses for excess bagasse, and attention is paid to ways of increasing this excess, with emphasis on the major uses of pulp, paper, and particle board. As these products are under actual production in many countries, the discussion is complete and detailed. Furfural is reviewed, as are such less-known uses as methane production and poultry litter. The use of cane mud as animal feed, fertilizer, and as a source of cane wax is explored. Molasses is considered as a fermentation medium for the production of alcohol, several organic acids, glycerol, and yeast. There is an especially fine section on rum, one product, at least, that is unique to the cane sugar industry.

As a reference source for the cane-factory manager, engineer, or chemist interested in the by-products of his industry, this book is the best single source of information now available. Each separate topic is covered by a general introduction, a history of present and past attempts at manufacturing, and, where they exist, descriptions of manufacturing facilities in use throughout the world. A discussion of the economics of manufacturing is included for many of the products, giving recognition to local factors that alter costs and control markets. An up-to-date bibliography ends each topical section. The basic chemistry is discussed where pertinent, and numerous tables and figures illustrate the text.

The role of cane sugar in the world's agriculture is traditionally that of a crop developing areas where both land and labor are cheap. A rapidly industrializing world that is becoming short of both calories and fiber will require more utilization of land, both in yield of products and in value. As that day comes, mill operators and owners will turn more seriously to by-product potentials within the economics of each area. This book is an excellent source for anyone desiring to study the subject of utilization of cane sugar by-products.

*American Sugar Company, New York*

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