# NEW BOOKS

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*Seiyu rokū (On Oil Manufacturing),* by Ōkura Nagatsume; illustrated by Matsukawa Hanzan. (An English translation of the original 1836 Japanese Edition translated by Eiko Ariga and edited by Carter Litchfield with added commentaries by Richard C. Rudolph and Professor Litchfield.) (Olearius Editions, New Brunswick, N.J. 08903, 79 p., including 18 illustrations, 1974, $7.00).

With today's emphasis on technological assessment, so much of our attention is focused on where we are going, that we sometimes lose sight of where we have been. For many of us, this delightful little paperback will rekindle latent interest in the historical background of our profession and business; it presents an intriguing look backward to the vegetable oil processing technology of another age.

As the editor explains in his preface, the original edition of *Seiyū roku* was printed from hardcarved woodblocks containing both illustrations and text. In the traditional manner of oriental woodblock books, 2 pages which appear back to back in the final book are carved on the same block. After printing on only 1 side of the paper, the sheet is folded in half to produce 2 pages in the finished book. Dr. Litchfield has tried to preserve the historical flavor by arranging to have the English edition printed, insofar as possible, in the same size, style, format, and binding as the original.

Except for a brief section on cottonseed, the book is devoted entirely to processing rapeseed. Three chapters describe slight variations of the operation up through pressing the oil out of the crushed seed under mechanical pressure generated by a hammered wedge. A fourth chapter describes refining and bleaching the oil with ashes and lime. This final chapter of the original book is followed by Professor Rudolph's commentary on the author and the illustrators of the original Japanese edition. Professor Litchfield closes the book with a comparison of early Japanese and European oilseed technology. Interestingly, his thesis is that the technologies in the 2 areas developed independently. Striking similarities are rationalized as being due to the common raw material, rapeseed. The conclusion that "Clearly the inherent physical properties of the rapeseed had dictated the same technological approach to oil extraction in both cultures" seems to discount any substantial contribution by an early form of technology transfer. Yet the means for such transfer was certainly available, for Professor Rudolph states, " . . . many western scientific books circulated among Japanese scholars long before Okura's time, and a 'lost' collection of 3600 such works was found in the Ueno Library in Tokyo in 1954." And of course the Dutch ships that brought these books could have been, on their return voyages, the vehicles for an East-West transfer.

Whatever the genesis of the technology described by the original Japanese author, the soundness and familiarity of the concepts underlying it are somewhat humbling to those of us who might like to think profound twentieth century scientific principles were essential precursors for all of today's sophisticated industrial processes. For example, at least 4 passages emphasize the importance of properly parching the seed before crushing, such as this one (p. 49): "Considerable attention is given to this detail in Osaka. Overparching not only results in a low oil yield, but the oil is reddish and has an inferior appearance." On refining and bleaching (p. 51): " . . . Scoop up some of the oil from the kettle and pour it into four cups that are white on the inside. Should there be any tinge of color . . . , then the oil is not yet well refined." By implication, a sentence (p. 20) indirectly reveals awareness of potential problems that may be associated with feeding rapeseed meal to livestock: "Oilcake from which the oil has been completely extracted makes good fertilizer." Even public relations and management principles were recognized (p. 15): "Osaka oil extractors go to meetings of fellow traders and family gatherings wearing wadded silk garments from Ueda Island or Nambu Island, taking along a servant; but once they return home, they straightaway change into old quilted coats with narrow sleeves and a rope sash and join their hired men with the work."

Finally, the charmingly informal and unassuming style of the original Japanese author deserves comment. As he explains (p. 64), "Since the main purpose of this book is to help increase profits, the words used are unpretentious so that it may be the easier to understand and the style is vulgar and common, for which I beg the reader's pardon." Perhaps the best example is in his introduction (p. 12), where after relating the history of use of vegetable oil for lamp fuel, he concludes with "I write this, wiping my glasses, under the lamplight."

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*Bilayer Lipid Membranes (BLM): Theory and Practice,* by H. Ti Tien (Marcel Dekker, Inc., New York, N.Y., 1974, 655 p., $39.50).

There has been an extraordinary amount of interest and research in lipid bilayer membranes since Mueller, Rudin, Tien, and Wescott first published their technique for forming these structures. Workers and students in such diverse areas as biochemistry, physical chemistry, cell biology, and neutrophysiology are attracted to this subject, so that a survey of the field should be most welcome and useful to a variety of investigators. This book by H. Ti Tien, a pioneer in the field, touches on virtually every aspect of lipid bilayer membranes. The book is divided into 11 chapters: Introduction (10 p.); Formation and Chemical Composition (19 p.); Interfacial Chemistry of BLM (42 p.); Optical Properties and Thickness of BLM (51 p.). Electrical Properties of BLM (47 p.); Water and Solute Permeability of BLM (23 p.); Antibiotics and Ion Permeability of BLM (27 p.); Electronic Processes in BLM (24 p.); Quantum Phenomena in BLM (77 p.); BLM as Models of Biological Membranes (145 p.); and Experimental Methods in BLM Research (103 p.). In addition, there is a 56 page bibliography containing 625 references, plus an author and subject index.

Although this book is almost encyclopedic in its coverage, it so strongly reflects the area of the author's present research, that the uninitiated reader is likely to come away from it with a total misapprehension of what has been the most productive and one of the most interesting areas of investigation with these membranes, namely, the permeability and electrical properties induced in them with various small (~1000 mol. wt) molecules. A great deal is now known about the mechanisms by which some of these molecules function as highly specific carriers of alkali cations and how some form pores in membranes. There are