

REVIEW

Whale Oil: An Economic Analysis, by KARL BRANDT. *Fats and Oils Studies*, No. 7, June 1940, Food Research Institute, Stanford University, California. 8½ × 6 in., pp. xii + 264. \$3.00.

This authoritative work is an important contribution to the knowledge of whaling and the whale-oil industry. It has topical as well as long-term interest since whale oil, although providing only 9.4 per cent. by volume of the total world trade in fats, is of great value both in war and peace. In 1935 Germany used whale oil for 54 per cent. of her margarine and lard compound; while in Great Britain in 1937 whale oil constituted 41 per cent. of the margarine, 28 per cent. of the lard compound, and 16 per cent. of the soap.

The book is divided into three parts, respectively devoted to the history and modern practice of whaling, an economic analysis of the whale-oil industry, and an estimate of possible future developments. The first two chapters of Part I are concerned with the classification, life histories and products of whales, a knowledge which is essential for an understanding of the history and economic problems of the whaling industry. There follows a valuable summary of the long and dramatic history of whaling with special regard to the factors responsible for its repeated rise and decline. Appendix tables supplement the text, and include statistics of Dutch whaling, 1669–1778, German whaling, 1670–1789, British whaling in Greenland waters, 1750–88, and United States whaling, 1818–38.

After surveying the recent technical developments in whaling and the modern competitive struggle between Norwegian-British interests on the one hand and Japanese-German interests on the other, Professor Brandt discusses the various attempts at international co-operation. The International Convention signed by twenty-six nations at Geneva in 1931 failed to bring about an effective limitation of the annual slaughter of whales or the wasteful utilization of carcasses. After the whale-oil crisis of 1931 all the Norwegian and all but one of the English whaling companies formed a production cartel for the seasons 1932–33 and 1933–34. The cartel estimated the total quantity of whale oil which could be placed on the world market at a fair price, and distributed quotas among the members. These quotas stimulated greater efficiency, with the result that the output per whale unit rose considerably. The Norwegian-British arrangements fell short of their aim, for increased efficiency offset the imposed restrictions. Moreover, the restrictions were limited to Antarctic

waters south of Lat. 40° S., so that whalers could pursue the whales into warmer seas at any time, without being bound by the regulations. Two international conferences held at London, in 1937 and 1938, further sought to control the industry, but neither achieved important practical results. Professor Brandt observes that, while the experiments toward international regulation of whaling have reduced the slaughter of young whales, the prevention of over-fishing has not been attained.

Part II comprises a detailed analysis of whale-oil economy. The world's whale-oil supplies, the cost of production, the changing demands and the marketing conditions are in turn discussed. Many useful tables and figures are included in the text. The quantity of whale oil produced in any one year depends mainly on the costs involved in catching, on the number of whales required for a standard unit of oil, and on the price of oil in the world market. Recent improvements in equipment, operation and utilization have reduced costs to such an extent that there is now only slight opportunity for further refinements. The demand for whale oil is a demand exerted by manufacturing industries rather than by the consumer. These industries consist of oil mills, margarine factories and soap-manufacturing plants. The factories decide what quantity of whale oil they require only after comparing the prices of various competing oils and fats that can be made to serve the same purpose. On the marketing side, the usual trade channel through which whale oil passes leads from the whaling company to an agent who sells the oil direct to the factories. The powerful Unilever Trust dominates the whale-oil market. Complicated tariff duties and excise taxes are imposed by the various countries interested, and Professor Brandt discusses these with special reference to the United States. He also gives a detailed study of the fluctuating price of whale oil and its close relationship to the price of other oils and fats.

Part III summarizes the future prospects of the industry. Whale oil is, and seems likely to remain, the chief product. Whalebone will continue to be a significant by-product. Whale meat will probably remain of negligible importance, since consumers find it inferior to the meat of land animals. Frozen whale meat has found little favour with the Japanese, and other methods of preservation for human use introduce costs and complications that seem unlikely to be radically reduced. Most of the whale carcass left after thorough extraction of the oil seems likely to continue to be converted into feed for domestic animals, the decreasing balance being used for the less valuable fertiliser. The extraction of hormones, vitamins, and miscellaneous other pharmaceutical products

will probably become of increasing importance. Whale oil, now available after hydrogenation for both edible and industrial uses, has within the past decade probably attained its full significance among the fats, with its virtues fully recognized and its few technical limitations well known. Further revolutionary changes from the standpoint of demand, such as those introduced by hydrogenation, seem improbable, and new whaling grounds are unlikely to be discovered. Thus no great new disturbance of the world's fat market is to be expected from whaling. Professor Brandt considers that, except under war conditions, the most extreme event that is likely to occur would be a lay-off of the major part of the world's whaling fleet, and the temporary stoppage of supplies, as happened in 1931-32. Apart from such periods, due to depressions in the price of all fats, he estimates that a reasonably steady production of 450,000-500,000 tons can be maintained annually under peace conditions.

The book under review concludes with thirty-two tables presenting statistics which cover the whole history of the industry. There is also a useful Bibliography and an Index.

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