A HUNDRED YEARS OF CHEMICAL INDUSTRY

The Chemical Industry during the Nineteenth Century

A Study of the Economic Aspect of Applied Chemistry in Europe and North America. By Dr. L. F. Haber. Pp. x+292. (Oxford: Clarendon Press; London: Oxford University Press, 1958.) 45*s*. net.

THERE is no more rewarding background study for a young man entering the chemical industry than the history of its development during the past hundred years or so. The research chemist will learn much from the successes and failures of his predecessors. Almost unconsciously he will acquire a sense of scale and a perception of values which will help him to relate the worth of his individual work to the future prosperity and expansion of the industry in which he is engaged. The young plant manager will derive encouragement from the accounts of the start of new processes and of operating difficulties successfully overcome by resourceful engineering. A study of the rise and fall of varying methods of manufacture due to different raw materials, different chemical efficiencies and the changing requirements of customers cannot fail to stimulate interest in the economic prosperity of the process he is operating or developing.

The publication of Dr. L. F. Haber's book, "The Chemical Industry during the Nineteenth Century" is therefore to be warmly welcomed.

The book is a mine of detailed information and the accuracy is of a high order. Particularly valuable for the student are the ample footnotes with their references to the original sources. The compilation of the book must have involved the author in an immense amount of devoted labour.

It is not, however, very easy reading, partly on account of the number of detailed facts, some of which, though interesting in themselves, are to a certain extent irrelevant to the main themes of the book, but also because of the rather curious division of the chapters. Some of them deal with special topics, such as "New Schools of Science", "New Technologies" and "The Workers in the Nineteenth Century Chemical Industry", over the whole of the period under review, whereas others deal with the history of such processes as Leblanc soda manufacture and the ammonia–soda process in sections divided into arbitrary periods of time which have no special relation to technical changes or commercial competition. The author, in his introduction, rightly emphasizes the great interest of the changing role of the Leblanc soda trade, but in the book the story is cut into half a dozen sections unrelated except by a certain degree of repetition.

It would be of great interest to the student if the author, at some future date, could write the fascinating story of the development of the alkali industry as a thesis in itself. The main facts and factors involved are already in the present book, but their presentation as a continuous story would bring out far more clearly the reasons for the decline and fall of the Leblanc process and the technical and economic changes behind it.

The chemical industry exists primarily to serve the raw material requirements of other industries. As the standard of living increases, so does the extent and prosperity of consumer industries grow. The chemical industry grows with them.

In the nineteenth century, the remarkable increase in the textile industry in the United Kingdom, and to a lesser extent in the production of glass, paper and soap, brought with it a rapidly increasing demand for soda ash, for bleach, for sulphuric acid and for saltcake. It is difficult to realize to-day that in the decade 1870–80 the demand for bleaching powder, owing to the enormous size of the cotton textile industry, was nearly as big as the demand for soda ash. It was for this reason that, in spite of the chemical elegance of the ammonia–soda process and the great technical advantage of a continuous process as opposed to the batch working of the Leblanc manufacturers, Brunner Mond and Co. were forced to make chlorine and bleaching powder from the liquor of the ammonia–soda process. The daring and technically successful achievement of Dr. Mond in producing chlorine from ammonium chloride (incorrectly described as "calcium chloride" on p. 159) by vaporizing it and passing it over nickel oxide pills was costly, but it served its commercial purpose by preventing the Leblanc manufacturers from increasing the price of bleach and selling soda ash as a by-product at give-away prices. The interesting graph of bleaching powder prices in Appendix 5 illustrates this well.

The sections of the book dealing with the development of the dyestuffs industry make interesting reading, though here again the story suffers from a certain lack of continuity which makes it difficult to follow the economic factors involved.

The chapter entitled "Chemical Manufacturers and their Problems" gives a number of tables illustrating movements in international trade in chemicals and directs special attention to the effect of tariff changes. A particularly vivid example which is quoted is that of the Dingley tariff in the United States. Until the early 'nineties, the United States was by far the most important export market for British alkali manufacturers, taking the enormous quantity of more than 150,000 mixed tons. Within a year or two of the imposition of the tariff, British exports had diminished to a mere trickle.

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THE STATISTICAL DESCRIPTION OF VEGETATION

Quantitative Plant Ecology

By P. Greig-Smith. Pp. ix+198. (London: Butterworths Scientific Publications; New York: Academic Press, Inc., 1957.) 30*s*.; 6 dollars.

THIS book deals primarily with some of the statistical approaches to the problems of describing the distribution of vegetation and, in a few cases, of species. The basis of these techniques involves concepts such as those of density, frequency and cover, which are first explained and then used to introduce the principles involved in sampling, the arrangement and size of the units of estimation and the comparison of the results of different sets of observations. A considerable part of the book is devoted to the analysis of what is called 'pattern' in vegetation—defined as the departure from randomness of distribution of individuals within the plant community—and then to the possible relationships between the patterns shown by different species and their correlation or lack of correlation in distribution. Finally, consideration is given to the possibility of