

THURSDAY, JUNE 26, 1913.

ORGANIC CHEMISTRY IN  
MANUFACTURES.

*Industrial and Manufacturing Chemistry, Organic.*  
A Practical Treatise. By Dr. Geoffrey Martin.  
Assisted by Wm. Barbour, T. Beacall, and  
others. Pp. xx+726+plates. (London:  
Crosby Lockwood and Son, 1913.) Price 21s.  
net.

THE editor of this volume has set himself a rather formidable task. His aim has been "to cover the whole range of subjects," based on organic chemistry, with which the industrial chemist and the manufacturer are usually concerned. In pursuance of this aim the book is arranged with the intention of meeting "the requirements of all business and practical men interested in chemical processes"; and the list of these given includes "manufacturers, consulting chemists, chemical engineers, patent workers, inventors, technical lawyers, students in technical institutions, lecturers on technology, fire insurance inspectors, and others." This is a somewhat motley crew to cater for; but a good attempt has been made to do it, and on the whole a successful one.

The text is divided into twenty-three sections, each dealing with one branch of chemical industry—*e.g.* the sugar industry, the cellulose industry, and so on. With so large a number, even in a work of 700 pages, there could be no such detailed and comprehensive treatment of the subjects as is found in works devoted to only one or two—as, for instance, Lunge's treatise on coal-tar and ammonia. Nevertheless, the volume is not a mere dictionary. Space for detailed discussion and for chemical formulæ, even complicated structural formulæ, is not begrudged (see, for example, the chapter on synthetic dyes); and there are plenty of diagrams and photographs.

A number of experts have collaborated with the editor in the production of the book, and contribute authoritative articles on their special subjects. A very good list of references to the literature of each branch is supplied; this will often be a valuable help to users of the book. Statistics of production, value, imports and exports are given, and frequent references to patents. Furthermore, it is claimed that much of the information respecting the processes is now published for the first time, many descriptions of methods and modern plant having been privately supplied.

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As a typical section dealing with well-established manufactures may be instanced that devoted to the fermentation industries. In about 100 pages this gives a good condensed account of enzymes and ferments, and of their applications to the production of wine, beer, alcohol, vinegar, lactic acid, and butyric acid. It includes an article on modern distilling plant, in which the principles of the "continuous" stills are lucidly explained, and illustrated with photographs and lettered diagrams. A subsection of different type is that on the new industry of synthetic rubber. Here the descriptions are largely given by means of chemical formulæ; apparatus is represented by a small form of chlorinating still only. The various methods of obtaining butadiene and its homologues (for example, from butyl alcohol, petroleum, aldehyde, phenol, acetylene, turpentine, starch, or acetone) are explained at some length, together with the processes of polymerising the products to form synthetic rubber.

In addition to the larger industries dealt with—sugar, oils and fats, dyes, explosives, coal-tar products, and so on—there are articles devoted to smaller branches such as inks, glue and albumen, synthetic drugs, and photographic chemicals. The author directs attention to minor industries on account of their potential importance in some cases as the germs of future large undertakings, remarking that they often afford through absence of competition larger profits than those of fully-developed manufactures.

The impression gained on reading through a number of the sections is that a very good outline of the subject is presented, but one that would often want filling up. Looking at the work for a moment from the point of view of a young chemist who contemplates taking up some branch of chemical technology, one may say that the descriptions would serve as an excellent introduction, and the list of books indicated would show him where to supplement his knowledge to any extent he might require.

Very few slips of importance have been noted. There is an error on p. 281, where the composition of "industrial methylated spirit" is given quite wrongly. Such phrases as "the majority of the vinegar" (p. 315), "the great majority of the formaldehyde" (p. 375), "potato manufacturers" (p. 176) are rather slipshod; and it should surely be unnecessary (p. 638) to explain 0.023 as  $(\frac{23}{1000})$ . Nor was it really necessary to tell readers four times on the same page (314) that the fusel oils obtainable by Fernbach's fermentation process can be produced at 35*l.* to 45*l.* per ton.

C. S.  
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