

most desirable. The hydrocarbons themselves are unsuitable for this purpose, but the fatty acids with their crystalline derivatives afford much more desirable material for research.

While in no way depreciating the enormous amount of information contained in the book, which virtually makes it an exhaustive dictionary, it is permissible to suggest that from the point of view of the user, a much more careful selection and limitation of the material would be an advantage.

E. F. A.

### Our Bookshelf.

*Die chemische Analyse.* Herausgegeben von Dr. B. M. Margosches. VIII.-IX. Band: Methoden zur Untersuchung von Milch und Molkereiprodukten. Von Dr. Kurt Teichert. Pp. 374. (Stuttgart: F. Enke, 1909.) 11.40 marks (England: 45.60 marks).

ON account of the interest now being shown in the quality of our milk supply, attention may be usefully directed to this book. It deals exclusively with milk and dairy products and forms the eighth and ninth volume of the general treatise on chemical analysis. The greater part of the space is devoted to the standard methods of analysis, but there is in addition a large amount of information which ought to be of help to the analyst and medical officer of health.

A preliminary section deals with the composition and properties of milk and the factors which are responsible for any change in the normal composition. Following this comes the portion which is concerned with the detailed analytical methods for the determination of fat, milk sugar, protein, etc. The chapter on cleanliness of milk and its freedom from bacterial contamination puts the facts in a clear and convincing manner, and is very valuable in view of the recognition of the dangers of uncleanness both from the standpoint of public health and the manufacture of such products as butter and cheese. In this connexion the employment of the reductase and catalase tests has not become so general as was at one time expected, although the direct determination of dirt is now a regular practice in all analytical and public health laboratories, and leads to the punishment of those who dispose of filthy and insanitary milk.

Purely bacteriological methods of examination are shown to be difficult, particularly when applied to the detection of pathogenic organisms. The fermentation test, which is easily and rapidly carried out, is now being used to a greater extent both in connexion with the public milk supply and the cheese factory.

The chapter on the adulteration of milk, and the interpretation of the results of analysis obtained in this connexion, is valuable, as is also the one on the testing of cream, skim milk, whey, condensed milk, etc.

As in the case of milk, so with butter and cheese there are given details of analytical methods and hints on the interpretation of results. The detection of adulteration by the addition of foreign fats is dealt with, and other sections are concerned with the analysis of materials used in the preparation of cheese.

The volume is one for reference and the details appear to be scientifically sound.

*Aeroplane Performance Calculations.* By Harris Booth. (The Directly-Useful Technical Series.) Pp. xv+207. (London: Chapman and Hall, Ltd., 1921.) 21s. net.

THE development of aviation appears to be entering on a new phase in which "safety in the air" is singled out as of primary present importance. This follows an era of military devotion to the cult of "performance," and the object of the book under review appears to be the statement of the detailed steps which have hitherto been taken to secure the greatest speed and maximum rate of climb of an aeroplane.

It is probable that the actual arithmetical processes described will rapidly fall out of use, but that the principles invoked will have a greater degree of permanence. The interest of the book is not so much in the relative merits of the four methods of prediction of aeroplane performance described in chapter 11, as in the statement of the problem as it appears to a designer. Much of the book shows the individuality of the author, but the general outlook is typically that of the community of aeroplane designers.

It is perhaps desirable at this point to indicate the established position as to aeroplane design and its relation to performance. The data used by all are common—derived mainly from sources external to the aviation industry—and have been used with almost equal success by a number of designers. In the result it is found possible to predict the consequences of the best efforts from preliminary sketch designs. To realise completely the maximum performance, it is necessary for a designer to consider the details of his craft carefully, and Mr. Harris Booth's book shows how that may be done. Further, it illustrates an essential element of progress, for it assesses in numerical form the importance of separate items in the complete whole. In illustration of this point, it will be found that 14 lbs. is estimated to be the resistance of a flying-boat hull if the open cockpits and hydroplaning steps are excluded. A further estimate shows that the steps account for 52 lbs. at the same speed and each cockpit for a further 17 lbs. Here is a striking example of the fact that the very small resistance of a smooth streamline body may be increased five- or six-fold by departures required for various reasons.

It is just because of its indications of the need for care in design that the present volume may fairly be accorded a place on the shelves of an aeronautical or design office library. So far as can be judged its importance is limited to such function, since the writer is following common practice in supposing that "performance" does not include "safety."

*Building Contracts: The Principles and Practice of their Administration.* By Edwin J. Evans. (The Directly-Useful Technical Series.) Pp. xviii+304. (London: Chapman and Hall, Ltd., 1922.) 10s. 6d. net.

THE building trade resembles a good many others in that, while liberally supplied with works on the technical side, there is very little literature dealing with the business side. The present volume is intended to fill this gap. The subject matter is divided into four