

MILK DISTRIBUTION

This Milk Business

A Study from 1895 to 1943. By Arthur Guy Enock. Pp. xi+243+xii—lii+13 plates. (London: H. K. Lewis and Co., Ltd., 1943.) 18s. net.

THIS argumentative book covers a wide field, a field almost as large as the milk industry itself; and as in the industry, so in the book, science and prejudice, sound sense and special pleading, clear vision and obscurantism, jostle one another. Although the author somewhat disarmingly assesses the book as an endeavour "to bring interesting and helpful things to light, and to aid in the movement for higher efficiency", and again "as a confession of faith from a convinced believer in the high value of milk", yet since substantial portions of the book are concerned with technical matters bearing on the important subject of the heat treatment of milk, it is legitimate to apply to these portions of the book the usual standards of scientific appraisal.

Mr. A. G. Enock has been interested in refrigeration problems, in the manufacture of dairy machinery and in dairy engineering generally for more than forty years. As a dairy engineer he has seen the development of heat treatment of milk in Great Britain almost from the beginning. He introduced some years ago a process which had been experimented with in the United States—the 'in-bottle' method of pasteurization. By this method, milk is heated to 'holder' pasteurization temperatures (that is, between 145° and 150° F.), and is run at that temperature into the bottles in which it is to be distributed. The latter are sealed and are then kept between the two temperatures for the necessary 30 minutes holding period before cooling. The resulting pasteurized product has remarkable keeping qualities, since post-pasteurization contamination of the milk, which frequently occurs (though it is not difficult to prevent) in ordinary pasteurization plants where bottles are filled with milk by a separate operation *after* pasteurization, is completely avoided.

From the consumer's point of view there is no doubt that this is an excellent method of heat treatment, but it has certain drawbacks from the distributor's point of view. Some of these have been overcome by Mr. Enock in his latest 'in bottle' plant, but this plant still occupies a great deal of space—a criticism that is applicable to most 'holder' plants—it has to run for the greater part of an hour before the first bottles are available for distribution, it is costly, and mechanical difficulties, though fewer now than formerly, are not yet eliminated.

Mr. Enock's main thesis is the supreme excellence of this particular method of pasteurization. He is not content, however, with making a good—perhaps too good—case for the method with which he has been so closely associated, but goes on to criticize rather bitterly the rival method—modern high-temperature short-time ('H.T.S.T.') pasteurization, in the development of which dairy engineers no less competent than himself have spent much effort and which is being used successfully in many parts of the world—on grounds which are sometimes dubious, and supports his arguments by *ex cathedra* statements some of which are ill founded. One of his principal grounds for criticism is that he considers that 'H.T.S.T.' pasteurization has been accepted, and the legal standards for it laid down, on an insufficient scientific basis. Actually the basis is a great deal wider than the ordinary reader of this book is told.

The author scarcely refers to the large amount of American work on the subject, and makes little mention of British and Continental work. He may, of course, be unaware of the quantity of information, some of it unpublished, that had accumulated before the Ministry of Health laid down in 1941 the present legal standards for H.T.S.T. pasteurization. To suggest, as the author does (p. 140), without quoting evidence, that sinister influences affected the Ministry's decision, is of subjective rather than objective significance, and to state (p. 150) that there is no evidence to support the belief that H.T.S.T. pasteurization at the temperature and time now legally adopted (milk exposed to at least 162° F. for at least 15 sec.) accomplishes the destruction of disease-bearing organisms which may occur in milk is to contradict the facts.

It would not be fair to the author to leave the impression that the book is not ably conceived and ably written, or that it suffers from anything more serious than occasional lapses, though some of these lapses, if taken at their face value by the uninitiated, might have unfortunate consequences. For anyone with a knowledge of the dairy industry, the book's presentation and arguments cannot be other than interesting and entertaining and in part, as this brief review has demonstrated, provocative.

While a large portion of the book is given to the discussion of pasteurization methods, it also contains valuable data and observations on milk production, and a thoughtful chapter on the future of "this milk business". Biographical and autobiographical touches and extracts from private correspondence add a certain lightness and provide some basis for the rather quizzical title.

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GEOLOGY FOR ENGINEERS

A Geology for Engineers

By F. G. H. Blyth. Pp. viii+302+16 plates. (London: Edward Arnold and Co., 1943.) 21s. net.

ENGINEERING covers such a wide field that students find little time available for courses which are outside the main scope of its studies. It can be argued that it is of benefit to those pursuing any vocational training to study some subject which tends to widen their interests, and from this point of view geology has many advantages, since most engineers are brought face to face with its teachings in areas and countries to which their vocation leads them. For this purpose the subject should be presented in an interesting form relieved so far as possible from the jargon which has gathered around it, in common with every other scientific subject at the present day.

It is admitted, too, that some knowledge of geology is of direct assistance to civil and mining engineers, and in most engineering schools students are required to take a course in geology which is given by teachers in a geological department. This is quite proper, since only those instructors who have practical experience in the field can adequately present the facts and principles of the subject. It is not always, however, that in such courses the special requirements of the engineer are kept sufficiently in mind. A great deal of the content of the subject which is useful or essential for a geologist to know is of little interest to an engineer, and he feels that the time which he has to devote to it is largely wasted. It becomes for him one more subject to be crammed as best he can.