

drawn from life, and every one is unmistakable. The "littoral fauna" defines itself; and yet it took Edward Forbes to show its peculiar character. How in doing so he made good use of Örsted's "De regionibus marinis" and Audouin and Milne-Edwards' "Recherches pour servir à l'histoire naturelle du littoral de la France"; and how very beautifully he himself wrote about it all, and especially about his own so-called "Celtic province", is an old story and a fine chapter in the history of science.

To write like Edward Forbes or to draw like Gosse is no longer given to mortal man. But after the fashion of our own day Dr. Eales has done her

work well and handsomely, and many a student will find precisely what he wants in her book. I would cavil over one thing only—the extreme correctness, or modernity, of Dr. Eales's nomenclature. When Dr. Marion Newbigin wrote her "Life by the Seashore" she apologized for keeping to many old-fashioned and familiar names, without which such a book as Gosse's "Sea-anemones" could no longer be understood. But Dr. Eales will have no half-measures; we must call the once familiar *Trochus millegranus* *Cantharides clelandi*, and *Saxicava rugosa* *Hiatella gallicana*, and so on, whether we like it or no.

D. W. T.

MORE ABOUT MICROBES

Microbes by the Million

By Hugh Nicol. (Pelican Special, S28.) Pp. 248 + 8 plates. (Harmondsworth, Middx.: Penguin Books, Ltd., 1939.) 6d.

THIS is a wonderful six-pennyworth, and a very interesting and instructive little book. It is written in simple language understandable by ordinary folk, with a considerable sense of humour, and conveys much accurate information on microbes, what they are and what they do.

Commencing with an introduction dealing with the nature of microbes and describing their several kinds—fungi, protozoa, bacteria and algæ—successive chapters deal with the phenomena of their life and the processes associated with their growth and development. In the last hundred pages, chapters are devoted to microbes in the home, in the soil and in the garden, the mechanism of formation of fairy rings, the discharge of its spores by the fungus *Sphaerobolus*, the miracle of the bleeding host, and to a microbe foray on the Norfolk Broads.

Chapters at the middle of the book deal with laboratory technique, and a number of simple experiments are described for the study of microbes in the soil and their influence upon plant and crop life and development, and on the microbiology of disinfectants. All this is set out in interesting fashion, and the reader who has mastered the contents of this little book should have a good idea of the essentials of microbiology and of the importance of microbes for the growth of plants, in the firing of hay-stacks and in the production of silage, and as sources of certain perfumes, drugs, dyes, foods and drinks. A brief but useful chapter is also devoted to stereo-

chemistry—'looking-glass chemistry' as the author terms it—and Pasteur's work on the tartaric acids is related. No errors of moment have been detected, and the book is adequately illustrated with a number of line drawings and six excellent plates.

On the pasteurization of milk (pp. 138–140), the author tells but a part of the story, and gives an unfair and inaccurate idea of the objects of the process. Professors do not seem to meet with his approval (p. 52), nor do doctors and the medical profession, who are arrogant and ignorant, and—most unkindest cut of all—concerning milk pasteurization, have "become allies of the merely commercially-minded wholesalers, which may seem strange unless one understands medical mentality (p. 139)". A more kindly outlook might have been expected, for soil microbiologists owe much to the work of medical bacteriologists.

We gather that the author in writing this book intended not only to instruct his readers in soil and general microbiology, but also desired to extend the 'philosophy' of microbiology to science in general, and to impart ideas on the impacts of science upon the social order. In an epilogue, he discusses experimentation and the various meanings given to the term 'experiment', and the value of statistical analysis of experimental work, but we think that in his illustrative examples he is less happy than in other parts of the book. His remarks on company finance and on the 5½ per cent C stock of the London Passenger Transport Board, introduced in discussing ratios, also seem out of place and ill-conceived.

With these few criticisms, we leave the book in the hope that it will be widely read and appreciated.

R. T. HEWLETT.