

two different points; half the wavelength of white light is 0.00025 mm . . ."; and "the order of the Actinomycetaceae comprises two families, namely Actinomycetes and Streptomycetes". The experiment quoted to demonstrate that "a streptomycin-sensitive population produces as a rule a few resistant organisms, though it has never been in contact with streptomycin before" is not proof of this. Odd, too, that the chapter on the pleuropneumonia-like organisms has been contributed by Dr. Ruth Lemeke when the jacket quotes, in regard to Dr. Klieneberger-Nobel's book on these organisms, a reviewer who states: "Dr. Klieneberger-Nobel is our greatest authority on this group". The table of contents is incomplete, and surely it was unnecessary to include 'descriptions' of oxygen, hydrogen and nitrogen in the glossary.

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## BACKGROUND TO MALARIA

### Migrants and Malaria

By R. Mansell Prothero. Pp. x+142. (London: Longmans, Green and Co., Ltd., 1965.) 15s. net.

HERE is something new by a geographer for the epidemiologist, which the latter can study with both interest and profit, whether his concern be in malaria or in any other communicable diseases. It is not new that there should be some overlap in the fields of interest of the two, but the overlap has in the past been usually approached from the medical side, with an effort to explain known epidemiological happenings and timings on the basis of geographical factors. In *Migrants and Malaria* the approach is reversed: the geographer explains one aspect of his own subject, developing it in its own right and then examining the effect which it might have on subsequent epidemiology.

On the basis of an original interest first expanded by contact with malaria prevention in Northern Nigeria, Dr. Prothero sets out a general statement of the nature of migration in Africa, and elaborates it by special studies of the forms which it takes in the Republic of Sudan, the Horn of Africa, east and south Central Africa, West Africa and Morocco. He prefaces this with an explanation of the nature of malaria and the means by which it is prevented, and in each case studied he refers to some malaria eradication project and the ways in which migration has affected its progress.

The section on migrants classifies and describes the different types of movement, pastoral, nomadic, transhumance (movement at particular times of the year from one grazing area to another by relatively well-defined routes), pilgrimage and local population movements. Each of these aspects is not only lucidly described, but is also well illustrated by maps sufficient to give a very clear impression to the geographical novice. Some types of migration are further analysed in the local studies with special reference to their effects on malaria eradication, and even the experienced malariologist may be brought up suddenly by the realization that 85 per cent of the population of the Horn of Africa is nomadic. He may be made thereby to think hard about possible consequences: re-introduction of malaria into places from which it may have been cleared; the difficulty of spraying insecticides in houses or shelters which are in fact evanescent; and the virtual impossibility of carrying out a case-finding and treatment mechanism among populations which move overnight. The Horn of Africa is an extreme case, but the author brings out the fact that, by the standards of Europe, migration in all African countries constitutes an extreme case and must be taken into account in the special context of malaria eradication and in all epidemiological studies.

The book is well written and, though a paper-back, is well produced. It is said to be a forerunner of a series to

be written by geographers and dealing essentially with their activities. If the other members of the series can keep up the standard set by Dr. Prothero, it will be a significant contribution to the understanding of geographers and of their work by followers of other disciplines.

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## LABORATORY DESIGN

### Chemistry and Biology Laboratories

Design-Construction-Equipment. By W. Schramm. Translated by Mrs. M. Jansen. Pp. x+255. (London: Oxford and New York: Pergamon Press, 1965.) 105s.

UNDOUBTEDLY there is a shortage of books on laboratory design, construction and equipment; any addition to their number, providing ideas and information which may assist in improving laboratories in these respects, is therefore welcome. *Chemistry and Biology Laboratories* is an international survey, although quite naturally Dr. W. Schramm has a predominant interest in German laboratories.

In general the translation of the text seems satisfactory; the odd strange expression does, however, creep in (such as service 'spline' by which is probably meant service duct). The use of German proprietary names for materials has also not been entirely avoided. A misleading statement is "to avoid the stroboscopic effects of fluorescent lighting the benches should be equipped with alternating current outlets".

Many interesting and highly specialized designs for benches and fume cupboards are described, including the use of movable benches with service ducts available on the walls or as floor standing columns. There is also a brief treatment of the problems and solutions of air balance difficulties in laboratories with fume cupboards. Other matters discussed include the layouts suitable for various types of laboratory and the arrangements for services. Many examples are given both of individual laboratories and specially designed buildings.

The book may well be criticized on various grounds. First, for a book selling at five guineas the quality of the reproduction of the photographs leaves much to be desired, so much so that some points they are supposed to illustrate are lost. It does not appear that any critical attention has been given in the selection of the illustrations, so that the reader is not given much help in selecting what is best, even if he is interested in designing a general purpose laboratory. While Britain is eventually to use the metric system, architects, builders and chemists still use feet and inches for measuring working space, so it is a pity that these measurements could not have been translated into familiar units.

The grading of laboratories on p. 142 is based on the curie level of radioactivity and not on the specific hazards of particular isotopes. Thus, according to the Medical Research Council memorandum, up to 10 curies of tritium or mercury-197 could be handled in a grade 'C' laboratory (any good conventional laboratory with an efficient fume cupboard), while from this book one would expect to have to use a 'hot' laboratory. In general the stress here is not 'hot' laboratories, whereas a great deal of radiochemical work needs less-elaborate accommodation.

The photographs of shielded cupboards, etc., give no idea of dimensions, thickness of shielding, etc. This was probably included in the statistical information omitted from the English edition. Glove boxes are mentioned for  $\beta$ -emitters, but no mention is made of  $\alpha$ -emitters, for example, plutonium. One might not need glove boxes for working with  $\beta$ -emitters in solution.

After all these criticisms have been made, the reader will nevertheless find a lot of useful information and the bibliography is considerable though mostly of German origin.

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