

**Laboratory Manual for Chemical and Bacterial Analysis of Water and Sewage**

By Prof. Frank R. Theroux, Edward F. Eldridge and Prof. W. LeRoy Mallman. Second edition, revised and enlarged. Pp. x+228. (New York and London: McGraw-Hill Book Co., Inc., 1936.) 15s.

THIS book is essentially a utilitarian product, greatly appreciated as proved by two editions appearing within nineteen months: the added bacteriological section further enhances its value.

The first part is chemical, subdivided into three sections, water, sewage and polluted water; these arbitrary divisions cause some duplication. The instructions are efficient, concise, well arranged and furnished with calculated examples from selected data. This part describes the preparation of the necessary solutions and reagents and concludes with chemical notes on analytical methods. Here the preparation of the caustic soda solution seems wasteful, while the diluting water for the B.O.D. (biological oxygen demand) misses the point by aeration after adding alkali.

Part 2 gives an efficient account of the bacteriological examination of water and sewage; also the composition of the required media; these follow on the lines of the American Public Health Association methods—hence *B. Welchii* is omitted. The number of media enumerated is excellent. However, the absence of Noble's official cyanide citrate medium for the *Coli-aerogenes* group is noted. The colon index method is used for routine comparative purposes; the Phelps and M.P.N. (most probable number) methods are given.

Calculations with numerous illustrative examples are prominent throughout. Unfortunately, small errors occur; p. 118, the atomic weight of iodine is a unit larger than usual; the equation is unbalanced; p. 119, the alkali equivalent is 0.1 per cent too high.

The organic determinations are, by a strange irony, the least satisfactory part of our present methods, due to unrealized errors and artefacts. The shepherding care here devoted to the nitric nitrogen in the Kjeldahl process deserves emulation even in more pretentious works; it would confer inestimable benefits upon all concerned and is fundamentally necessary to progress. J. W. HAIGH JOHNSON.

**Die Tsetsefliegen:**

ihre Erkennungsmerkmale, Lebensweise und Bekämpfung; ein Leitfaden für die Praxis. Von Dr. F. Zumpt. Pp. iv+149+15 plates. (Jena: Gustav Fischer, 1936.) 9 gold marks.

DR. F. ZUMPT, of the Institute of Tropical Diseases at Hamburg, has provided in the above work a concise and up-to-date manual on the tsetse flies. Within the compass of about 140 pages he has described the essential features of their structure, taxonomy, habits and the means for attempting their control.

The first section is devoted to general features of their morphology: this is followed by a short account of their methods of feeding and of reproduction. A longer section is given to taxonomy, wherein the characters employed for determining the various

species are dealt with, together with accounts of their habits and geographical distribution. A short general statement of tsetse ecology follows, together with a more detailed discussion of ecological methods of study. The concluding part is concerned with the problem of combating these insects, both by purely local methods, such as trapping, and by the more comprehensive schemes of destroying or altering their natural environment. At the end of the work is a very complete bibliography (up to 1936) comprising about 400 references to separate publications.

While this manual gives a good presentation of the subject as a whole, its most useful part will probably be found in the account of the taxonomy and specific characters of these insects. A. D. I.

**Forest Insects:**

a Textbook for the Use of Students in Forest Schools, Colleges and Universities, and for Forest Workers. By Prof. R. W. Doane, Prof. E. C. Van Dyke, Prof. W. J. Chamberlin and H. E. Burke. (American Forestry Series.) Pp. xii+463. (New York and London: McGraw-Hill Book Co., Inc., 1936.) 25s.

THE realization of the national importance of forestry, which has overtaken the North American continent in recent years, has manifested itself in various ways. Forest protection and reforestation, in particular, have come to the front. Under the term protection come not only the combating of forest fires but also of the many biological enemies of living trees. Among these latter, insects are the most important.

Practical people in forests and parks, as well as teachers and students in academic institutions, need properly documented information to which they can refer. The present book aims at filling requirements of this kind. In its first four chapters general principles are dealt with in a brief and elementary fashion. Nearly seven eighths of the book are given to accounts of forest insects themselves. The essential information about each species is provided, while the bibliographies at the ends of the chapters guide the reader to sources giving fuller details.

The book is well arranged and clearly illustrated, and should admirably fulfil its purpose as a manual for North American use.

**Méthode des caractéristiques pour l'intégration des équations aux dérivées partielles linéaires hyperboliques**

Par Mlle. Hélène Freda. (Mémoires des Sciences mathématiques, Fasc. 84.) Pp. vii+82. (Paris: Gauthier-Villars, 1937.) 15 francs.

WITH great skill and clarity, Mlle. Freda has presented an account of the origin, development and applications of one of the most powerful methods of mathematical analysis. Starting with Cauchy's problem and Riemann's original method, she traces the extensions due to Picard, Volterra, d'Adhémar, Tedone, Coulon and Hadamard, with modifications and additions due to herself. There are references to mechanical and physical applications, and to the history of the subject. Prof. V. Volterra contributes an appreciative preface. H. T. H. P.