BOOK REVIEWS

Metabolic Integrations. By P. G. WATSON, B.A., Queens' College, Cambridge, England. W. Heffer and Sons, Ltd., Cambridge, England. 1954. 12 pp. 22 by 28 cm. Price, Four Shillings.

This pamphlet is a compendium of diagrams summarizing and integrating the main pathways of metabolism. It is almost without discussion or text of any sort; however, the facts upon which the nine charts are based may be gleaned from some thirty-two leading review articles that are topically listed. While it is debatable whether Mr. Watson has served well the students of Biochemistry and Physiology by doing for them that which they could most profitably do for themselves, this leaflet may nevertheless gratify the general chemist or biologist who seeks a thumbnail sketch of the interrelations of the better understood reactions of general metabolism.

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Statistical Analysis in Chemistry and the Chemical Industry. By CARL A. BENNETT, Chief Statistician, General Electric Company, Richland, Washington, and NORMAN L. FRANKLIN, Lecturer in Chemical Engineering, University of Leeds, England. John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, New York, 1954. xvi + 724 pp. 16 × 23.5 cm. Price, $8.00.

Following discussion at one of its meetings in June, 1949, the Committee on Applied Mathematical Statistics of the National Research Council decided to sponsor "a comprehensive book on applied mathematical statistics with illustrative examples and material from chemistry and the chemical industry." "It was furthermore decided that the manuscript should be prepared jointly by two authors: a mathematical statistician with some knowledge of chemistry and a chemist with some knowledge of mathematical statistics, both persons to have had considerable experience in the application of modern statistical methods to problems in the field of chemistry."[1] The book under review is the result of these decisions—a result in which the Committee may take great pride.

The authors have provided a book which maintains with remarkable consistency a happy balance between theory and application. The theory has been developed to a level which should lead to a solid understanding of the rationale of statistical methodology and which at the same time should not tax the mathematical ability of chemistry and engineering graduates. The more tedious and difficult parts of the mathematical theory have been separated off in appendices. The illustrative examples cover a wide range of chemical interests including both very simple ones which illustrate statistical technology and rather complex ones where problems of interpretation may be emphasized. The style is business-like and the presentation clear.

There are eleven chapters in the book. The first six develop the basic notions, the mathematical machinery and the elementary methodology. Chapter seven with its appendix consists of about 150 pages devoted to a properly detailed treatment of analysis of variance techniques and models. The design of experiments, with special emphasis on factorial experiments, is treated in chapter eight. The last three chapters discuss briefly Counted Data, Control Charts and Tests for Randomness. The viewpoint throughout is modern and the facts correct. The inclusion of new non-parametric and short-cut methodology in several sections is noteworthy.

(1) The quotations are from the Committee's foreward to the book.

This reviewer would prefer more extensive references to the statistical literature than are given, and a more detailed index. These complaints, however, are minor and do not condition my opinion that this is an excellent book.

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Chemotherapy of Infections. By H. O. J. COLLIER, B.A., Ph.D., M.I. Biol., Chief Pharmacologist, Allen and Hanburys Ltd. John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. 1954. xvi + 248 pp. 14 × 19 cm. Price, $4.00.

This is a very readable book on chemotherapy of parasitic infections (excluding worms and viruses) which, despite its small format, manages to cover the subject remarkably well in its 248 pages, which include many tables, structural formulas and illustrations. It is written by a British pharmacologist and stresses the biological side of the subject rather more than the chemical. It should have an appeal to chemists, particularly those organic chemists who may be embarking on a career in chemotherapy and find themselves lacking knowledge of parasitology, bacteriology, pharmacology and clinical uses of chemotherapeutic drugs. It may also be useful as a text in teaching a short course on modern chemotherapy in medical schools.

The author starts the book with the principles fundamental to the subject, such as the body's defenses against microbial attack, the problem of getting the chemical to the microbe and development of drug resistance. The mechanism of action of some of the drugs is then discussed. Later chapters deal with more specific groups of drugs, such as the antibiotics, sulfa drugs, heavy metal drugs, antimalarials and drugs for tropical diseases.

The book reflects to some extent British opinion and pride. Thus penicillin occupies two chapters out of sixteen, and is mentioned on fifty other pages in the book. "The discovery of penicillin and the establishment of its therapeutic value constitutes the most important medical discovery made in this country since Harvey's demonstration of the circulation of the blood." In contrast, the broad spectrum antibiotics, Aureomycin and Terramycin are mentioned on eight pages each, part of which they share, while there is no mention of tetracycline as a useful drug, although this is shown as a parent ring system. Inexplicably, the author then gives "aureomycin (chlortetracline)—and terramycin (oxytetracline)," thereby misspelling the generic names and failing to recognize the trademarked names of these antibiotics.

Another statement with which a chemist would quibble is, "Thus succinyl and phthalyl sulphathiazoles have been derived from sulphathiazole, and sulphamerazine and sulphadimidine (sulphadimethylpyrimidine) from sulphadiazine." This is neither historically nor chemically true as regards the pyrimidine drugs.

This passing reference to danger in use of penicillin appears on page 120: "Moreover, apart from reactions of an allergic type, it lives up to the expectation, based on animal experiments, that it is of very low toxicity compared with its antibacterial activity." In view of the fact that penicillin causes a variety of allergic responses in one out of five people treated with it, varying from mild skin rash to fatal exfoliative dermatitis and from mild glandular swelling to death by strangulation, this could well be the British understatement of the year.

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