

## BOOK REVIEWS

*THE PRINCIPLES OF BIOLOGICAL ASSAY*, by C. W. Emmens. Pp. 204 and Index. Chapman and Hall, Ltd., London, 1948. 21s. 0d.

As Sir Percival Hartley says in the opening words of his introduction to this work "biological assay is now a recognised tool for the study of certain properties of living matter." The use of techniques of biological assay has increased from that of standardisation of drugs, important and expanding in scope as that work may be, to include methods of biological assay as a tool of research. The worker in this field must ever hold clearly before his mind's eye the facts that biological assays are of necessity conducted by comparing the unknown with a standard preparation of the same substance, and that the methods of comparison are such that the dominant factor of biological variation may not be excluded. This volume has been written with these precepts in mind. The author emphasises the duty of the experimenter not merely to analyse his data by known statistical methods but to plan his experiment beforehand so that the results are readily capable of analyses by recognised methods. It is fitting that such a clear, concise and stimulating volume should appear from the National Institute for Medical Research, Hampstead, which has been the site of so much endeavour in this field. The reader will not find in the contents list or the index of this book any mention of a recognised method of assay, or of any substance which is normally subjected to assay—such topics are adequately treated elsewhere—but he or she will find in these pages a readable, understandable and thought-provoking account of the principles underlying the choice and arrangement of experimental designs which may be expected to yield the optimum quantity of useful information, and of the statistical methods of analysing that information so as to extract the demonstrable truth from it. This is a book for the advanced student of biological assay methods, for the teacher, research worker, and planner of laboratory procedures. If one may plagiarise Lord Kelvin's dictum that "mathematics is like a mill, one cannot take out more than one has put in" this book should stimulate workers so to design their investigations that more is "put in" and therefore one may reasonably hope that more may be "taken out." Common fallacies in procedure are emphasised and undoubtedly any worker who reads and digests this volume will benefit greatly. This may be termed a book of statistics "with a difference."

J. D. P. GRAHAM.

*LA CHIMIE DES VITAMINES ET DES HORMONES*, by Joseph Svadjian. Vol. 1. Pp. 479 and Index. Gauthier-Villars, Paris (6<sup>e</sup>), 1949.

The third edition of this book is published in two parts, the first being devoted to Vitamins and the second to Hormones. The writing of Part I was completed in June, 1946, but owing to difficulties in publication (at least as great in France as elsewhere), it has only just appeared (1949). It cannot therefore contain accounts of work published since 1946; e.g., the synthesis of vitamin A and the latest work on folic acid, biotin and pantothenic acid. On the other hand, the chemistry of vitamins E, K, C., riboflavine, aneurine, pyridoxine and nicotine acid is established. New chapters have been added in this edition on the antihæmorrhagic factors, the acrodynia factor and the antipellagrous factor, biotin, pantothenic acid, essential fatty acids and folic acid. Well-known substances such as choline, *p*-aminobenzoic acid and