

Studies in Logic and Probability

By George Boole. Pp. 500. (London: Watts and Co., Ltd., 1952.) 25s. net.

IF we accept the point of view of such eminent authorities as, for example, Whitehead and Russell that mathematics has its very roots in the principles of logic, even down to the most formalistic levels, it is not surprising that the attempt should have been made and continued to reinforce the somewhat open structure of probability theory by the application of the indisputably rigid rules of logic. Indeed, there arises a peculiar philosophical satisfaction from the display of the conjunction of the unassailably true laws of logic and of statements of something which one would ordinarily say is 'only probable'. True, the degree of being 'only probable' in the general conversational sense has been refined to a high degree of near certainty by the mathematics of the subject, but, even so, the essential uncertainty character inherent in all 'probability' remains.

The present volume applies the rules of both formal and symbolic logic to the study of mathematical probability theory, and it consists of the author's miscellaneous writings on logical subjects and his papers on related questions of probability. The period embraced by the papers is from 1847 to 1862, the latter year antedating the author's death by but two years. The book is a companion volume to "The Laws of Thought", which was first published in 1854 and reprinted in 1916 and 1951.

During recent years there has been a recrudescence of interest in applied logic and in Boolean algebra, notably perhaps in the industrial field, in connexion with the design of electrical switching circuits. This book should be welcomed by workers in that branch of endeavour as well as by those to whom it will appeal by its title subjects.

S. A. S.

General Network Analysis

By Prof. Wilbur R. LePage and Prof. Samuel Seely. (McGraw-Hill Electrical and Electronic Engineering Series.) Pp. vii+516. (London: McGraw-Hill Publishing Co., Ltd., 1952.) 68s.

THIS book gives a general and unified treatment of networks (electrical circuits), suitable for advanced work in either power or communications. There is also some filter-design theory. Each topic is developed from the fundamental principles, but it is assumed that the reader has already taken an elementary course in the subject. The first chapter explains the use of complex numbers. The second and third give a general treatment of networks, based on Kirchhoff's laws, and using determinants, a knowledge of which is assumed. Series and parallel circuits are considered simultaneously, and stress is laid on the duality between junction and loop analyses. Some of the terms are new—for example, copedance and comittance. The fourth chapter, based on Ampère's and Faraday's laws, introduces magnetic coupling and forms a link between the points of view of communication and power engineers. Chapters 5, 6 and 7 apply the general theory to networks restricted in some way—for example, four-terminal, lumped or selective. Matrices are defined and explained before being applied. In Chapter 8 previous results are extended to polyphase systems, using the method of symmetrical components. The remaining six chapters discuss respectively circuits with distributive properties, impedance and admit-

tance charts used in the design of transmission lines, Fourier series, transients in linear systems, the Fourier integral, and the Laplace integral applied in the operational calculus. The book concludes with a bibliography, two mathematical appendixes, but without the answers to the numerous examples for solution at the end of each chapter. It is a pity that the very high price may restrict the use of this interesting treatise.

H. T. H. PIAGGIO

Elements of the Topology of Plane Sets of Points

By Prof. M. H. A. Newman. Second edition. Pp. vii+214. (Cambridge: At the University Press, 1951.) 27s. 6d. net.

THE first edition of this book has for long been regarded as a standard introduction to the ideas and methods of topology.

In the second edition, substantial changes have been made, resulting in the rearrangement of the contents of Part 2 of the first edition. Thus Chapter 6 gives the 'homology' theory of simply- and multiply-connected domains, and Chapter 7 the 'homotopy' theory (paths and their deformations). The author states in the preface: "The treatment of homology on a grating has been modified so as to make clear the distinction between 'chains' and their point-set loci. The sections on boundary elements of domains, and on the connectivity of certain kinds of closed sets, have been omitted, and their place taken by a section on the orientation of plane curves. A number of topics, such as the properties of vector spaces of infinite dimension, the Jacobian theorems on implicit functions, and the Cauchy integral theorem (with one or more boundary curves), are treated as examples".

Part 1 remains practically the same as in the first edition, and consists of chapters on sets, closed and open sets in metric spaces, homeomorphism and continuous mappings, connexion, and separation theorems. The second edition is likely to become even more a standard work than the first edition.

R. G. COOKE

A Sanctuary Planted

By Walter J. C. Murray. Pp. 191+33 plates. (London: Phoenix House, Ltd., 1953.) 15s. net.

THIS book describes the evolution of a scheme, perhaps one should say a dream, by which a plot of unexciting ground was turned into a little Paradise, a sanctuary for birds, beasts and insects, where lovely wild flowers could flourish and shy birds could come to breed. The busy schoolmaster found joy and relaxation in his planting and planning, he learnt of the things attractive to birds, what trees and shrubs they prefer and of the necessity for food, shelter and water, particularly the last. He tells of his struggles and successes, of the Sanctuary through the changing seasons, of sunshine and storm, of its plants, insects, birds and animals and of its many delights. His experiences will aid others likewise bent on converting a waste corner of the garden, some old shrubbery or other piece of land into a place of delight. The author gives at the end of his book a helpful list of trees and shrubs that he has tried, with notes on flowering time and purpose. His photographic illustrations, from the colour snapshot on the jacket to the many black-and-white pictures in the book, are testimony to his skill with a camera. The photographs of different birds, including the bullfinch and the chaffinch bathing, are particularly good, and so are the butterfly pictures.

FRANCES PITT