mental physical principles. This is a somewhat difficult chapter owing largely to the number of transformations required before reasonable simplicity can be achieved. In Chapter 2 the author discusses the remarkable H function. It was discovered by Ambartsumian and Chandrasekhar, independently of each other, that problems of radiative transfer in semi-infinite atmospheres can often be reduced to the problem of solving a certain, unfortunately non-linear, integral equation. The solution of this equation is the H function. Chapters 3 and 4 are devoted to the study of the linear operators and associated integral equations which have gradually grown up around the subject of radiative transfer. Here the going, especially for the pure mathematician, is much easier. Chapter 5 shows how the well known Wiener-Hopf methods can be used to solve some of the problems which occur in this subject. All the discussion in Chapters 2, 3, 4 and 5, and also in Chapter 6, is devoted to the case of the semi-infinite atmosphere. In Chapters 7, 8 and 9, the author deals with the case of finite atmospheres. Here the H function must be replaced by two functions, the X and Y functions, which satisfy non-linear simultaneous integral equations. These functions are not completely understood yet and the author's account gives a brief, but reasonably comprehensive, description of them.

A final chapter is devoted to problems of anisotropic scattering in the case of axial symmetry. In spite of the complexity of the phase function the problems are once again reduced, in a rather beautiful manner, to the H function already mentioned.

On page 143 there is an index of notations which I hope will be very much amplified in future editions.

The production is of the usual high standard associated with the Cambridge University Press and the book can be thoroughly recommended to all those who are interested in radiation transfer problems either as learners or as researchers.

Charles Fox, McGill University

Boolean Algebra and Its Applications, by J. Eldon Whitesitt. Addison-Wesley, Reading, Mass. 1961. x + 182 pages. $ 6.75.

In this introductory text the author develops his subject in a way which requires a minimum of formal mathematical knowledge. This is done through concrete applications of Boolean algebra, viz. the algebra of sets, symbolic logic, and with principal emphasis on the engineering application to switching algebra. In addition, the second chapter develops Boolean algebra axiomatically and, as if as an afterthought, the last chapter deals with some combinatorics and elementary probability theory.

In the first chapter Venn diagrams are used to introduce the algebra of sets in an intuitive manner up to the point of solution of equations in Boolean algebra. This approach is formalised in the second chapter on an axiomatic basis and extended to the realisation of a Boolean algebra as a symbolic logic (Chapter 3). There is a large number of examples and exercises ranging from routine computations to problems in logic of the kind devised by Lewis Carroll.

Chapters 4-6 are a detailed application of Boolean algebra to switching circuits, specifically circuits involving two-state devices such as simple switches, relays, diodes, etc. Beginning from simple series-parallel circuits the algebraic methods are extended to deal with more general 'bridge' circuits and it is shown how these methods assist in the design of circuits with a given output function. The use of relays (or similar devices) makes feedback and 'memory' possible; then sequential circuits (circuits with various given outputs in sequence) and recycling circuits can be constructed. Finally, Chapter 6 discusses some circuits which will perform arithmetic operations on binary numbers.

The book is carefully written and particular care is taken to clarify the basic logical and mathematical concepts. The numerous examples and exercises (with some answers) help to make this a useful introduction to the applications of Boolean algebra.

J. D. Dixon, McGill University

Numerical Methods for Science and Engineering by Ralph G. Stanton. Prentice-Hall, Englewood Cliffs, New Jersey, 1961. 266 + xii pages.

This book is written as a text for a first course in numerical analysis suitable for science and engineering students with a background of calculus and co-ordinate geometry. It is based upon the author's experience in preparing and teaching such a course to Engineering Physics students in their second year at the University of Toronto.

The first three chapters of the book are concerned with the inevitable finite difference notations and formulae, including a nine-page section on least squares. In this connection, a significant and interesting distinction is drawn between problems of curve-fitting and regression. These chapters might well have included a discussion of the propagation of errors in a difference table, and of the use of such tables for checking the accuracy of tabulated functions. The fourth chapter is concerned with the solution of equations, especially