That, however, is the end. The exposition is marred by a devastating lack of feeling for mathematical proof and logical proprieties, and by frequent infelicities of expression, which range from trivial departures from customary usage (e.g. in the use of the word 'the') to misleading phrases (e.g. 'more conveniently' at the foot of p. 145, masking the logical necessity to justify an approximation) and errors (e.g. 'values' on p. 183, l. 24, in place of 'ranges'). In compensation, it may be admitted that these features are fairly harmless, for they will be apparent to all except the most naive readers.

T.M. Cherry, University of Melbourne

Introduction to Logic and Sets, by Robert R. Christian. Preliminary edition, Ginn and Company, Boston 1958. 70 pages, 90 cents.

We might as well face it, there is a growing conspiracy among the younger mathematics instructors on this continent to introduce some logic and algebra of sets into the first year mathematics program. While some of the "modern" text-books have devoted one or two chapters to these esoteric topics, we have here a more leisurely and systematic exploration of the new ground. This booklet may be used profitably alongside the usual treatise on Trigonometry etc. It is written in a refreshing style and contains many humorous exercises in the tradition of Lewis Carroll. The student is introduced gently to the propositional connectives, "if ... then" being studiously deferred to the end. There is a rigorous distinction between propositions and their truth-values; truth-tables are studied, but tautologies are not mentioned. Applications are made to black boxes and switching networks. (Why not follow this up by the construction of a binary adder?) Part II is devoted to operations on sets and the process of set-abstraction, quantifiers and de Morgan's Law. Let us hope that many a reader's appetite will be whetted for more.

J. Lambek, McGill University

Integral Equations, by F. Smithies. Cambridge Tracts in Mathematics and Mathematical Physics, No. 49, 1958. The Macmillan Company of Canada, Ltd. Canadian list price $4.70.

This, the latest addition to the series of Cambridge Tracts, is intended as a successor to M. Bôcher's tract "An Introduction to the Study of Integral Equations", which was published in 1909. It is most interesting to compare the contents and the methods of the two tracts, published at an interval of almost half a century. Much of the content of the earlier tract remains in the new; the Fredholm theory still retains its central position.

The difference lies more in the methods, concepts and notations used. There is a great increase in the clarity of presentation; this is attained by use of modern matrix and operator notation, and especially by the systematic use of the idea of "relatively uniform convergence" for functions of L^2.

The tract is chiefly concerned with the linear integral equation of the second kind

$$x(s) = y(s) + \int_a^b K(s,t)x(t)dt, \qquad (a \leq s \leq b) .$$

After an introductory chapter the existence of resolvent kernels is discussed, the Neumann series for the resolvent kernel is found, and shown to be "relatively uniformly absolutely convergent".

The third chapter makes a start on the Fredholm theory, but the discussion is broken off in the fourth chapter to collect results needed on the L^2 theory of orthogonal systems of functions. The fifth and sixth chapters resume the Fredholm theory, dealing respectively with the classical theory for continuous functions and kernels, and with the L^2 version of the Fredholm theory developed by Smithies himself in 1941. The seventh chapter is on Hermitian kernels, and discusses expansions in terms of characteristic functions. The eighth and final chapter is on singular values and singular functions for the general L^2 kernel.

Altogether the tract is an excellent survey of the present state of the theory of linear integral equations of the first and second kinds. But readers whose interests are in physical applications of integral equations should be warned that the tract does not deal with the practice of finding explicit solutions of specific examples.

A.P. Guinand, University of Alberta

<u>Théorie générale des jeux à n personnes</u>, by C. Berge. Gauthier-Villars, Paris, 1957. 114 pages.

Those interested in the mathematical foundations of the theory of games must sift the economics from the lengthy treatise of von Neumann and Morgenstern, avoid the statistical digressions of Blackwell and Girshick, and skip to the appendix of Luce and Raiffa. In McKinsey one finds an elementary but incomplete mathematical introduction, but the book under review is of a different character. In contrast with Luce and Raiffa, the motivating ideas here are kept to a minimum, the book is addressed to the mathematician and is concerned mostly with n-person games.