The effect of the changes is that what was already a good book is now even better. The most difficult part of the book has been subjected to the greatest change: section 7, on projective and inductive limits, is much more readable than its corresponding part in the first edition, but it is still difficult. The exercises play as important a part in section 7 as they do in the rest of Bourbaki's work; that is, valuable results and counter-examples are given as exerises.

R. M. DICKER

Infinitistic Methods. Proceedings of the Symposium on Foundations of Mathematics, Warsaw, 2-9 September 1959 (Pergamon, 1961), 362 pp., £5.

This is a record of the proceedings of the Symposium on the foundations of mathematics which was held in Warsaw in 1959. Of the 27 papers presented at the Symposium, 22 are included in this book, and 12 of these are written in English. The subject of the Symposium was declared to be " infinitistic methods in the foundations of mathematics " and to a large extent that also describes the book. Most of the papers are on mathematical logic and are naturally classified in that way. However, there are four titles that suggest other connexions: " Some properties of inaccessible numbers "; " Locally small categories and the foundations of set theory "; " Les logiques à plusieurs valeurs et l'automatique "; and " A practical infinitistic computer ".

It is clear that this book will be important to logicians, but other mathematicians will probably find little of interest in it. An irritating feature is the occasional appearance of spelling mistakes: the book was edited and produced in Poland.

R. M. DICKER

KNEEBONE, G. T., *Mathematical Logic and the Foundations of Mathematics* (Van Nostrand, 1963), xiv+435 pp., 65s.

This book is intended as an introductory survey, or guide-book, on mathematical logic. It is very readable and can be recommended as a source of knowledge and instruction. It is not a textbook on the mathematical details of the subject; indeed, most of the mathematics is omitted and the reader is expected to refer to other books for complete proofs. This is certainly not a disadvantage. The author is able to write an account of the various topics which is suitable for a wide readership and which serves as an introduction to the existing textbooks on mathematical logic. Furthermore, by adding supplementary notes, the author is able to survey the literature and give references without disrupting his text. Thus this book is useful in several ways: it is sufficiently self-contained and simple to be read by students; it is an introduction to the more mathematical texts; and it surveys the field for those who need to dig deeper. It will be valuable to the beginner as well as to the advanced student; however, the latter should not expect too much of the book—it does not contain everything you need, but it does contain a lot that is worth having.

The book covers a wide range of knowledge; the size and depth of this coverage is indicated in what follows. Part I, on mathematical logic, consists of chapters on traditional logic, the propositional calculus, the calculus of predicates, and some further developments. Part II, on the foundations of mathematics, considers the history and development of formalised mathematics. the limitations of formal systems, and intuitionism. There are also chapters on recursive arithmetic, and the theory of sets. Part III is on the philosophy of mathematics; and there is an appendix on the recent developments in mathematical logic. Part I is a clear exposition of the fundamentals of the subject and the supplementary notes at the ends of the chapters indicate the extent of our knowledge. Part II is treated in much the same way as

E.M.S.—Z