second by offset lithography. It is unchanged except for the correction of errors and the removal of misprints. A review of the second edition appears in an earlier issue of the BULLETIN.

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Introduction to Commutative Algebra. BY M. F. ATIYAH and I. G. MACDONALD. Addison-Wesley, Reading, Mass. (1969). xx IX + 128 pp.

An amazing amount of information is included in the 128 pages of this book. A considerable amount of this information is included in the exercises to the eleven tersely yet clearly written chapters. In the body of each chapter the basic ideas and techniques are exposed. The chapters are: (1) Rings and Ideals (2) Modules (3) Rings and Modules of Fractions (4) Primary Decomposition (5) Integral dependance and Valuations (6) Chain Conditions (7) Noetherian Rings (8) Artin Rings (9) Discrete Valuation Rings and Dedekind Domains (10) Completions (11) Dimension Theory.

The authors make no claim to have written a substitute for more voluminous texts on Commutative Algebra such as Zariski-Samuel or Bourbaki, but on the other hand do cover more ground than Northcott's Ideal Theory. The approach emphasises modules and localisation. The role of homological algebra in the subject is acknowledged, but only some of the more elementary methods and theorems are included — some work with exact sequences, diagrams, the serpent lemma, exactness properties of the tensor product.

That the roots of the subject lie in Algebraic Geometry and Algebraic Number Theory is continually emphasized through the examples and the exercises. This book can be recommended to any graduate student wanting to learn Commutative Algebra.

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Introduction to the Theory of Abstract Algebras. BY RICHARD S. PIERCE. Holt, Reinehart & Winston Canada Ltd., Toronto (1968). vii + 148 pp.

This book is a presentation of some basic results of universal algebra. After an introduction on set-theoretical preliminaries there is a chapter presenting in great generality the concepts of concern in universal algebra; most concepts are defined for relational systems and then specialized to partial algebras and (full) algebras.

Each of the remaining four chapters is devoted to a classical result of universal algebra.

Chapter 2 is centered around Birkhoff's subdirect decomposition theorem. Chapter 3 presents Ore's result on direct decompositions. Chapter 4 is concerned with free algebras and free extensions of partial algebras. Finally, Chapter 5 is a presentation of Birkhoff's characterization of varieties (equational classes) of algebras.

After Chapter 1, relational systems are seldom referred to. However, an interesting feature of this book is that most of the results are established for *infinitary* algebras. Throughout the book the close interplay between universal algebra and lattice theory is stressed. There are many problems, some simple applications of the text material, and other substantial excursions into interesting sidelines.

Even though this book is not nearly as comprehensive as those of P. M. Cohn and G. Grätzer, nor was it intended to be, it provides a different perspective to some of the results and so could be studied profitably before, or in conjunction with, either of the above books.

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Classical Harmonic Analysis and Locally Compact Groups. By Hans Reiter. Oxford Univ. Press, 70 Wynford Drive, Don Mills (1968). xi+200 pp.

If the title is to indicate the subject matter of a book, this one should have been entitled "Wiener's (general Tauberian) theorem and locally compact groups". In fact, Wiener's theorem and its generalizations to (a) various types of algebras on groups and (b) the problem of structure of closed ideals or, by duality, spectral synthesis, are the only topics of "classical harmonic analysis" which are discussed at any length (i.e. with proofs).

On the topic of spectral synthesis the discussion is fairly extensive and includes most of the general theory as well as some concrete examples showing e.g. that the unit sphere in R^n, $n \geq 3$, is not a set of spectral synthesis for L^∞ (Schwartz), while the unit circle in R^2 is (Herz). It does not go so far as proving Malliavin's general result on the failure of spectral synthesis in $L^\infty(G)$ for any noncompact abelian group G, or discussing his notion of "set of spectral resolution".

The other topic studied in the book is integration on locally compact groups. Various properties of the Haar measure are discussed and although no existence proof is given, the reader is really offered a choice of proofs by means of many references, and a feeling for what the Haar measure looks like by means of examples. Harmonic analysis on locally compact abelian groups is described rather than done (as it is for the classical cases), a fact which in my opinion somewhat reduces the