points in mathematics. For the simple calculi the reviewer's completeness theorem is established and then the addition of formal axioms of infinity, and of well-ordering, is considered.

At various points in the book reference is made to topics which are to appear in a projected second volume. A tentative table of contents for this volume is given, listing chapters on higher-order functional calculi, second-order arithmetic, Gödel's incompleteness theorems, recursive arithmetic, an alternative formulation of the simple theory of types, axiomatic set-theory, and mathematical intuitionism. The appearance of this volume promises to complete a work of great usefulness both for students and scholars, and it is to be hoped that a way can be found to shorten the publication time.

LEON HENKIN

Fundamental Concepts of Higher Algebra, by A. Adrian Albert, University of Chicago Press, 1956. 9+165 pp.

Finite fields are soiled: computing machines are beginning to use them. Dickson's *Linear groups and the Galois theory* is the classical exposition of the subject, but since it was written modern algebra has come into existence; Albert's avowed purpose is therefore to give us a timely, modern version of the theory, setting it within its proper context as part of general field theory. But books behave waywardly while they are being written; in a sort of Tristram Shandy fashion four-fifths of this one is over before we get around to the finite fields, and then what we do read about turns out to be a rather brief and odd assortment of material—perhaps representing what will be most useful to those with practical applications in mind. On the other hand, the main part of the book consists of a good, compact presentation of the essentials of modern algebra. As such, it has a wide potential audience and has in fact been written with a wide class of readers in mind. In short: a nice, lightweight algebra text with an addendum on finite fields.

A great deal is covered in its 150-odd pages. The first two chapters discuss in turn group theory (no operators) through the Jordan-Hölder theorem and basis theorem for abelian groups, then elementary ring and ideal theory, with a discussion of factorization for polynomials in one variable. Chapter three treats vector spaces and matrices; elementary transformations of matrices, the characteristic function, and elementary divisor theory are discussed in some detail and there is in the problems a heavy classical emphasis on matricial computations: triangularization, determination of rank, inverse, and invariant factors. The fourth chapter deals with field extensions and