ring, proves the "basis theorem" for finitely generated modules and introduces the elementary divisors. The theory is finally applied to the classical elementary divisor theory and yields the classification of the endomorphisms of a vector space.

In concluding I wish again to emphasize the complete success of the work. The presentation is abstract, mercilessly abstract. But the reader who can overcome the initial difficulties will be richly rewarded for his efforts by deeper insights and fuller understanding.

E. ARTIN

Inhalt und Mass. By K. Mayrhofer. Vienna, Springer, 1952. 8+269 pp. $9.30.

This is a very careful and detailed presentation of the Carathéodory measure theory, with special emphasis on Lebesgue measure in R^n. The first chapter, after a short paragraph on rings and fields of sets, defines and studies abstractly the notions of content and measure, the former being simply additive and defined on a field of sets, the latter countably additive and defined on a σ-field of sets (only positive set functions are considered). The usual notions related to content and measure (measurability, exterior and interior content or measure, measurable hull and measurable kernel of a set) are investigated with perhaps greater detail than in any other treatise on the subject; so are the relationship between content and measure, and the well known process of "completion" by which a completely additive content can be extended to a measure (on a larger field of sets). Also treated in this chapter are the products of two contents or measures, although one misses the corresponding facts for infinite products (this is probably the only important part of abstract measure theory which is not covered by the book).

The second chapter is devoted to Jordan content and quarrable sets ("quarrable" is to content as "measurable" is to measure), the third to Borel and Lebesgue measures in R^n; among the special features that should be mentioned are examples of nonquarrable Jordan curves, the Vitali covering theorem and the density theorem, and a study of nonmeasurable sets (for Lebesgue measure). Chapter IV deals with transformation of content and measure by a linear mapping in R^n; as an application the measures of various "elementary volumes" are computed. The general notion of measurable mapping from R^n into R^m is also considered, but, surprisingly enough, the author's definition is not the usual one: he defines a measurable mapping as one which sends measurable sets into measurable sets, with the consequence that a continuous function is not always measura-