material about non-semi-simple rings is included than is needed for modular representations. It would be ungracious to quarrel about personal taste in a work of this magnitude and scholarly excellence. But I was a little disappointed that some of the most interesting recent applications to structure problems of finite groups were merely mentioned without proof at the end of the book, albeit with references to the literature.

There is no doubt that the authors have rendered a great service to all algebraists, who will find in the book an invaluable mine of information. The Bibliography of 17 pages is especially welcomed.

W. LEDERMANN

HILDEBRANDT, T. H., *Introduction to the Theory of Integration* (Pure and Applied Mathematics Series, Vol. XIII, Academic Press, New York, 1963), ix+385 pp., 100s.

This is, to a first approximation, an account of some standard topics in the theory of Stieltjes and Lebesgue integration in their classical forms. The general level is rather above that of a final honours course in a British university (there is also much more material than the possible content of such a course). There is assumed " a basic knowledge of the topological properties of the real line, continuous functions, functions of bounded variation, derivatives, and Riemann integrals ". The chapters are: 1. A General Theory of Limits; 2. Riemannian Type of Integration; 3. Integrals of Riemann Type of Functions of Intervals in Two or Higher Dimension; 4. Sets; 5. Content and Measure; 6. Measurable Functions; 7. Lebesgue-Stieltjes Integration; 8. Classes of Measurable and Integrable Functions; 9. Other Methods of Defining the Class of Lebesgue Integrable Functions, Abstract Integrals; 10. Product Measures, Iterated Integrals, Fubini Theorem; 11. Derivatives and Integrals. The book ends with a list of about a dozen standard references (Lebesgue, Caratheodory, Saks, Halmos, Bourbaki, *et al.*), and an Index. References to original papers are found at the appropriate points in the text (not in footnotes or in a final Bibliography), a practice that has much to commend it. There are about one hundred and thirty exercises spread throughout the book.

The Riemann-Stieltjes integral is approached by way of the general concept of " functions of intervals " and their integrals. Measure and the Lebesgue integral are treated for the most part in the generality of a one-dimensional Lebesgue-Stieltjes theory. On the whole, the author confines himself to the one-dimensional case except in those chapters (3, 10) where a generalisation is necessary.

The presentation is clear and straightforward, and the book is easy to read. There are one or two places where a pedant might prefer a different treatment; for instance, the author's " many-valued functions " could well be replaced by one-valued functions with a different domain of definition. But no analyst with a classical training is likely to take offence. The book seems likely to be a convenient reference for many classical topics, and could with advantage be consulted by anyone giving a course of lectures on the subject.

There is more material here than a student needs to absorb before passing on to more general " abstract " integration theory. Indeed, not everyone may find a detailed discussion of special cases helpful; an abstract approach may be more congenial, in view of the current shift of emphasis in undergraduate mathematics courses. Others, again, may require a usable theory of integration in (at least) locally compact topological spaces, in the minimum time. The choice is like that facing the contemporary traveller: the scenic route through the village, or the by-pass? This is the scenic route.

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