of its derivative. Interesting contributions have been made to the theory of trigonometric integration, such as Verblunsky's approximate Denjoy integral and Burkill's Cesaro-Perron integral, in the intervening years between the author's original researches (1921) and the publication of this book, though there is no mention of them here.

Starting from de la Vallée-Poussin's result, the treatise covers all the ground that is necessary to reach the final result of the author. The fourth part, under review, comprises Chapters VII to IX, with a few Appendices at the end. In Chapter VII the author develops the theory of the Denjoy integral (*totalisation simple*) with the aid of a new notion of totalisation of series, presented here for the first time. In Chapter VIII he treats Stieltjes integrals relative to general measures. In Chapter IX he presents a complete solution of the main problem, explained above, and illustrates with examples the impossibility of relaxing any of the conditions formulated in his definition of the "trigonometric integral." The Appendices deal mainly with the special Denjoy integral using majorants and minorants, besides containing a rather severe criticism of Perron's definition of integral on the ground that it is nonconstructive.

In contrast with the earlier notes of the author which were brief, the present work is very elaborate and even diffuse. It bears witness to the highly ingenious and original mind of the author. To appreciate it, one has to read the book in full; no part of it can be detached from the rest. This, however, is not an unmixed blessing. Though the title of the book sounds very special, its content is not narrow; it is really a survey, in the singular fashion of the author, of the various sectors of the theory of functions of a real variable that surround the very difficult problem of the calculation of coefficients of trigonometrical series. The work that is embodied in this book has already had considerable influence on that of other mathematicians; in this sense, one regrets that the book did not appear sooner. Anyone interested in the theory of non-absolutely convergent integrals would consider the book valuable.

K. CHANDRASEKHARAN

Lectures on classical differential geometry. By D. J. Struik. Cambridge, Addison-Wesley, 1950. 8+221 pp. $6.00.

There is many a good reason to welcome this new book on differential geometry.

First of all, there is the very fact that it is devoted to *classical* differential geometry, that is, to the wealth of ideas from which all further developments have been derived. The comprehensive historical, biographical, and bibliographical information will convey to the student the enthusiasm of the pioneers in this field of research, put him in contact with the original ideas in their bare form (not overshadowed by symbolism, however powerful), and give him access to the more extensive treatises on this subject.

Another good reason is that the visual content of "geometry" is emphasized, also by a large use of appropriate illustrations. The geometric point of view, so helpful also in researches on more abstract spaces, pervades and illuminates these lectures.

The analytic apparatus (Gibbs vector notation) is appropriate to the subject and its use is always subordinate to the development of the geometric ideas.

A large collection of problems, some for class use and some serving as hints for advanced research, enriches the volume.

The presentation of ideas and of proofs and the typographical presentation are excellent.

E. Bompiani

Grundzüge der Galois'schen Theorie. By N. Tschebotaröw. Trans. and ed. by H. Schwerdtfeger. Groningen, Noordhoff, 1950. 16 +432 pp. f 20.00.

The present (German) edition is a reworked and annotated version of the original (Russian) edition, the date of which is unknown to the reviewer but is certainly prior to 1940; it is based on a series of lectures given at the University of Kasan. The author believes that the modern or abstract recasting of algebra is responsible for increased insight and spectacular advances, but that the abstract approach is not suited to the young student, who should have a thorough foundation of concrete mathematics on which subsequently to lay the abstractions and generalizations. In this book, which is intended to meet the needs of such students, he endeavors to preserve the spirit of classical concrete galois theory and at the same time to introduce such notions as will facilitate the readers' ability to assimilate and appreciate the abstract theory, presumably at some later time.

Chapter I (110 pages) is devoted to group theory, with emphasis on finite groups and, especially, permutation groups, and includes an appendix on A. Loewy's "Mischgruppen" (abstract system of which a realization is the set of all isomorphisms of a field extension of a field K into an algebraic closure of K, with multiplication only sometimes defined), and an appendix containing some remarks on a theorem of Bertrand concerning the symmetric group. Chapter II (76 pages) treats polynomials and fields (with emphasis on number