

specialized in Chapter II (Carathéodory measure) and Chapter III (Functions of bounded variation and the Lebesgue-Stieltjes integral). Chapter IV (Derivation of additive functions of a set and of an interval) contains a considerable amount of new material, in particular an exposition of important investigations of Ward. It is followed by Chapter V (Area of a surface $z=f(x, y)$), and Chapter VI (Major and minor functions) which contains an elegant treatment of the Perron integral and applications to the theory of functions of a complex variable (Looman-Menchoff theorem). Results of Chapter VII (Functions of generalized bounded variation) are used in the subsequent Chapter VIII (Denjoy integrals). The last chapter, IX (Derivates of functions of one or two real variables), contains a thorough exposition of results of Banach, Besicovitch, Denjoy, Khintchine, Ward, and many other authors. The book closes with two appendices by Banach (On Haar's measure, and The Lebesgue integral in abstract spaces) and with a ten page list of references. The excellent qualities of the book were sufficiently pointed out in the review of the French edition; they explain the remarkable success of the book. The reviewer has no doubt that a fourth edition, still further improved and augmented, will appear before long.

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Modern Theories of Integration. By H. Kestelman. Oxford, Clarendon Press, 1937. 8+252 pp.

"The book is intended primarily for students who have covered the ground of G. H. Hardy's *Pure Mathematics* The account of the Lebesgue integral which is developed in this book follows the lines of C. Carathéodory's *Vorlesungen über reelle Funktionen*" The following list of contents gives an adequate idea of the material contained in the book; the numerals are chapter numbers: I, Sets of points; II, Riemann integration; III, Lebesgue measure; IV, Sets of ordinates and measurable functions; V, Lebesgue integral of a non-negative function; VI, Lebesgue integrals of functions which are sometimes negative; VII, Functions of a single variable; VIII, Evaluation of double integrals; IX, Extensions of the Lebesgue integral; X, Fourier series. Chapter IX contains a simplified treatment of the Denjoy integral due to Romanovski. The exposition is rather detailed, but the title of the book appears to the reviewer somewhat misleading inasmuch as Stieltjes integrals and integration in abstract spaces are not even mentioned.

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