

*Lehrbuch der Algebra.* By Robert Fricke. Volume II. *Ausführungen über Gleichungen niederen Grades.* Vieweg und Sohn, Braunschweig, F., 1926. vii+418 pp.

Fricke's *Algebra* is a worthy successor to Weber's *Algebra*, which it henceforth displaces. The present volume is a very attractive exposition of the modern theory of equations of degrees 5, 6, 7. The approach is quite different from that by Weber and more attractive since extensive use is made of the geometric and function-theoretic methods developed by Klein in his *Ikosaeder* and books on elliptic modular functions. Fricke's long experience with the latter subject made it easy for him to give a simple authoritative exposition of those portions of it which suffice for the transcendental solutions of equations of low degrees.

Part I treats finite groups of linear substitutions on two variables and quintic equations (181 pages). Part II deals with finite linear groups on three variables and equations of degrees 6 and 7 (158 pages). Part III gives applications to the inflexion points of a plane cubic curve and to the bitangents to a quartic curve (85 pages); it is similar to Weber's account, but with important improvements.

Any one interested either in the theory of algebraic equations or in elliptic modular functions will find this book indispensable.

L. E. DICKSON

*The Theory of Functions of a Real Variable and the Theory of Fourier's Series.* By E. W. Hobson. Volume I. Third edition. Cambridge University Press, 1927. xv+736 pp.

For reviews of volumes I and II of the second edition see this *Bulletin*, vol. 28 (1922), pp. 266-270, and vol. 33 (1927), pp. 115-118, respectively. In preparing the third edition of volume I the author has revised his work throughout and has enlarged the volume by more than sixty pages. (He has also included three pages of additions and corrections to volume II.) There has been no change in plan, and section numbers have been left unaltered so that the references in volume II to the material in volume I are still applicable. Various sections have been rewritten and several new sections have been inserted. In the theory of Riemann-Stieltjes integration particularly changes and additions have been made. The references are ample though they do not provide a means of compiling a complete bibliography of the subject; they are rendered more useful in this new edition by the insertion of dates. In view of the size of the volume and the extraordinary richness of its material, the short general index of but little more than two pages seems quite inadequate; even after having read the volume with some care, one frequently finds it unduly difficult, owing to the inadequacy of the index, to find the treatment of a specific topic which he wishes to reexamine. The improvements and the addition of new matter in this edition will increase the value of this work, already far and away the most useful existent treatise on the theory of functions of a real variable.

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