on mathematical probability and experience discusses further the postulates of von Mises and also logical systems.

The book, throughout, is written in an entertaining style, free from many details that would be uninteresting to the average reader. Although the reviewer was unable to verify the formula in the middle of page 123 and the one at the foot of page 128, the book seemed to be exceptionally free from misprints and infelicities. It will be welcomed by those who are interested in the foundations of probability.

E. L. DODD

Curve Sghembe Speciali Algebriche e Trascendenti. Volume II: *Curve Sferiche, Curve Definite da una Relazione fra Flessione e Torsione, Curve Particolare situate sopra Superficie Assegnate.* By Gino Loria. Bologna, N. Zanichelli, 1925. 255 pp.

The second volume of the treatise on special space curves* treats both algebraic and transcendental curves. Those having tangents belonging to a linear complex base are discussed at length, followed by an outline of those belonging to quadratic and higher complex. Differential properties and methods of proof are particularly featured. Over a fifth of the volume is devoted to spherical curves; it is fairly exhaustive and is well written. Another fifth is given to curves defined by intrinsic equations. The last and longest chapter discusses curves on given surfaces, including helices, lines of curvature, geodesics, and asymptotic lines. The application of the latter to ruled surfaces contained in linear congruences does not take account of a number of important articles.

Extensive references are given, and a list of all the authors quoted in both volumes is given at the end. This feature is a particularly valuable one for bibliographic purposes. The proof reading has been very well done, except that German titles in the footnotes must occasionally suffer.

VIRGIL SNYDER

La Série de Taylor et son Prolongement Analytique. By J. Hadamard and S. Mandelbrojt. Scientia, No. 41. Deuxième édition, revue et mise au courant des progrès récents. Paris, Gauthier-Villars, 1926. 104 pp.

The systematic study of the singularities of analytic functions was begun by Hadamard. In 1901, a very valuable account of his own investigations together with those of other early workers, as Fabry, Leau, LeRoy, Borel and others, was presented by Hadamard in his now classic little book *La Série de Taylor et son Prolongement Analytique* published in the Collection Scientia (No. 12).

This work has now been revised and brought up to date by Hadamard, with the assistance of the brilliant young mathematician Mandelbrojt, who has published in the last few years a number of valuable papers bearing on the subject. In this edition, the authors present in addition to the

* The first volume was reviewed in the Bulletin, vol. 31 (1925), p. 557.

results of the original edition all recent researches treating of the singularities and the analytic continuation of analytic functions defined by a Taylor's series, and, in the words of the authors, "presenting a real interest."

On account of the amount of new material incorporated in this new edition, the work is being issued in two volumes, the first of these two volumes having been published in 1926, while the second volume is in preparation. This first volume contains a revised treatment of the subject matter of the first five chapters making up the first half of the original work, together with the newer researches relating to these topics. The second volume will contain a similar treatment of the other half of the original book. The bibliography has been greatly extended and brought up to date, the original 36 references of the first edition bearing on the first five chapters having now been increased to 91. All mathematicians interested in the study of analytic functions and their singularities will surely welcome this revised edition of a classic in its field.

L. L. Smail

La Méthode de Darboux et les Equations $s=f(x, y, z, p, q)$. Mémorial des Sciences Mathématiques, No. 12. By R. Gosse. Paris, Gauthier-Villars, 1926. 52 pp.

The first three chapters of this work are devoted almost exclusively to summarizing results and methods developed more at length in Chapters 4, 6, 7, and 8 of Goursat's *Leçons sur l'Intégration des Equations aux Dérivées Partielles du Second Ordre*. Chapter I concerns the theory of characteristics for the general partial differential equation of the second order in one unknown and two independent variables. It contains a neat proof of the uniqueness of the solution of Cauchy's problem for such an equation. Chapter II deals with invariants of the given equation and with equations of order n in involution with it. In addition to a short exposition of Darboux's method, Chapter III contains some theorems, due to Gau, on the formation of invariants and their reduction to a canonical form.

The last two chapters discuss the problem of determining what equations of the particular type mentioned in the title of the book are integrable by Darboux's method. An assemblage of results contained chiefly in papers by Gau, Goursat, and the author shows that all such equations which do not have an intermediate integral can be reduced by simple transformations to standard types. Some results are also given for two special forms of the equation having an intermediate integral.

The treatment is of necessity very sketchy. For this reason the general mathematical reader will doubtless prefer a standard treatise when seeking information about Darboux's method. The present pamphlet should, therefore, make its appeal to specialists in the field treated in its last two chapters. To them it should be valuable because it contains a synopsis of the present state of the subject, though its usefulness in this respect is apt to be impaired by the absence of a systematic bibliography.

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