

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.

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*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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