tral and principal planes and the classification of conicoids are then briefly treated. There is a short discussion of the invariants of the general equation under a transformation from one orthogonal system of axes to another orthogonal system.

The text proper is followed by six short tables, which deal with algebraic and trigonometric formulas, derivatives and partial derivatives, four-place table of logarithms of a few numbers, lengths of arcs in radians, and the letters of the Greek alphabet. The book is concluded by a set of nine very good plates showing the silk thread figures of the ruled surfaces of the second order, as well as the usual plaster models of the conicoids. Indeed, one of the best features of the book is to be found in the excellence of the numerous figures. The young man in whose hands this text is placed will probably note first of all that it is small enough to fit into his pocket. By employing rather thin backs and paper that is not too heavy and by lessening the margins, the size and weight of the volume have been reduced to a minimum. Perhaps the strongest feature of the book is to be found in the abundant supply of examples. After each bit of theory there are some exercises, and at the end of each of the longer chapters there is a set of about fifty carefully graded problems.

E. B. COWLEY.

Leçons sur les Fonctions définies par les Equations différentielles du premier Ordre. Par PIERRE BOUTROUX. Paris, Gauthier-Villars, 1908. 190 pp.

THE little volume bearing the above title is one of the series of monographs on the theory of functions published under the editorship of E. Borel. The author's aim is to set forth the theory of functions defined by a differential equation as based on the work of Painlevé. He abandons the "local point of view" of Cauchy and studies the ensemble and form of the integral not only in the neighborhood of a point but in general. The particular question discussed is one raised by Painlevé, viz., how does the solution behave when the initial point x_0 at which it is considered varies from point to point in an arbitrary manner.

The book is divided into five chapters. Chapter I presents the fundamental notions. After a review of the usual theory of singular points the following theorem of Painlevé's is dem-