American texts. The author is of the English School, as appears both from his references, chiefly to Forsyth, and from his methods of proof. He is interested more in geodesics than in any other topic, as may be seen from his devotion of over one hundred pages to the subject. Towards the end of the book there is occasional use of vector methods. There are a number of discussions of problems of algebra and mechanics, some extraordinarily elementary.

In other texts with which we are familiar, the general theory of curves is studied before the special "organic" curves of surfaces, that is to say the minimal lines, the asymptotic lines and the lines of curvature; then some simple surfaces, for example surfaces of revolution, are studied before the general theory. In this book it is not so; an idea of the arrangement is given by the titles of the first six of the eight chapters: I. Organic Curves of a Surface, II. Genesis of the Fundamental Magnitudes, III. Choice of Parameters and Geodesic Parallels, IV. General Theory of Geodesics, V. Surface of Revolution, VI. General Theory of Curves.

The book is remarkably free from errors and misprints.

J. K. WHITTEMORE

Leçons sur les Systèmes d'Équations aux Dérivées Partielles. By Maurice Janet. Paris, Gauthier-Villars, 1929. viii+122 pp.

This book (volume IV of the interesting new collection "Cahiers scientifiques" edited by G. Julia) is a welcome introduction to the general theory of systems of partial differential equations. In the preface the author proposes two standpoints from which the subject might have been treated, the analytical one and that of mathematical physics. Only the former of these two points of view is given consideration in the book. It deals with analytic functions of complex variables and can be characterized as being purely local, while the latter is interested primarily in real variables and prescribes in advance the domains in which the solutions in question have to be determined. That such a classification is somewhat artificial is clearly shown by several recent investigations where the fusion of the Cauchy and Dirichlet problems has been used to great advantage. It also led the author to exclude from consideration many an important problem of the general theory of partial differential equations. Such an exclusion, however, was wise lest the number of pages should increase beyond a reasonable limit. Anyhow, the author has succeeded in giving an interesting and easily accessible exposition of the Cauchy problem for general systems of partial differential equations in any number of unknown functions. A large number of examples and exercises help the reader considerably in mastering the subject, whose main difficulty is of algebraic rather than of a purely analytic nature. At the end of the book we find a "Bibliographie sommaire" which contains several references to the author's own work (7 out of a total of 15). The fundamental work of N. Günther who, together with Ch. Riquier, should be considered as a main contributor to the subject, deserves more than a reference to a Comptes Rendus note and a short footnote (1) on page 119, where the important doctor's thesis of Günther* figures under the heading "nombreux travaux en langue russe."

J. TAMARKIN

**On the theory of characteristics of systems of partial differential equations*, St. Petersburg, 1913, xiv+378 pp. (in Russian).