

which the author would have regarded as available by which this problem can be attacked: *first*, the method suggested by Briot and Bouquet (théorie des fonctions elliptiques §130), or the modification of this method suggested by C. Neumann (Abelsche Integrale, Chap. VI., §2); and *second* the theory of implicit functions of two real variables involving the use of Jacobians.\* It is to be regretted that the author did not include a brief and elementary account of this last mentioned method, which has so many other important applications, rather than some of the more difficult parts of Chapter III.

After all has been said however the volume before us remains an excellent treatment of the subject; good as an introduction, in so far as it does not prove too difficult; excellent for the mature student who already knows something of the subject; and invaluable to the teacher.

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### DARBOUX'S ORTHOGONAL SYSTEMS.

*Leçons sur les Systèmes Orthogonaux et les Coordonnées Curvilignes.*

Par GASTON DARBOUX, Membre de l'Institut, Doyen de la Faculté des Sciences et Professeur de Géométrie Supérieure à l'Université de Paris. Tome I, Paris, Gauthier-Villars et fils, 1898. 8vo, i+338 pp.

THE present volume is the fifth which Professor Darboux has prepared during the last decade for the Course in Geometry of the Faculty of Sciences of the University of Paris. This new work is to be devoted to the exposition of a theory which has its origin in the writings of Lamé and which has been the subject of a large number of researches in recent years. It is a direct sequel to the author's admirable treatise on the theory of surfaces in which he presented incidentally various properties of orthogonal systems and curvilinear coördinates, but reserved the organic and systematic development of these theories for a separate treatise of which the above is the first volume. The work glistens with originality both in material and in modes of presentation; the exposition exhibits the elegance and clearness characteristic of the author's writings, and the volume, as

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\* Cf. Jordan, Cours d'Analyse, vol. 1, pp. 80-89.