gration des équations hyperboliques à deux variables (méthode de Riemann); Chapitre III. Intégration de l'équation

$$\theta(u) = \frac{\partial^2 u}{\partial x_1^2} + \frac{\partial^2 u}{\partial x_2^2} - \frac{\partial^2 u}{\partial x_3^2} = f(x_1, x_2, x_3)$$

(méthode de Volterra); Chapitre IV. Quelques extensions de la méthode de Volterra; Chapitre V. Intégration, par la méthode des caractéristiques, de l'équation générale, linéaire, hyperbolique, du type normal; Bibliographie.

The exposition is restricted in general to the solution of second order partial differential equations of the hyperbolic type

$$\sum_{ij} A_{ij} \frac{\partial^2 u}{\partial x_i \partial x_j} + \sum B_i \frac{\partial u}{\partial x_i} + C - U = f,$$

in which case the *characteristics* used for generating the integral are real. In the general case these characteristic manifolds are *conoids*. When the A_{ij} are constants the characteristic conoid reduces to a cone, and in other more special cases to straight lines.

The pamphlet is the result of a course of lectures given by Mlle. Freda at the University of Rome, 1931. The treatment is classical following the researches of d'Adhémar, Tédoue and Coulon, Picard, and Volterra, with extensions and modifications by Mlle. Freda. Consideration is also given the applications to mechanics and physics.

The exposition is clear but very compact. One unfamiliar with the subject would profitably read a more elementary treatment. As Volterra points out in the preface and as the bibliography indicates, the preparation of this monograph was long and difficult, depending on the researches of many writers spread over a number of years.

Mlle. Freda is to be congratulated not only on her perseverance but also on the excellence of her accomplishment.

V. C. Poor

Elemente der Funktionentheorie. By K. Knopp. Berlin, de Gruyter, 1937. 144 pp.

This little book is Number 1109 in the well-known and highly regarded Sammlung Göschen. The author restricts himself to the treatment of only the simplest parts of the theory that are important for a more detailed and extensive study. The selection of material has been made with the discrimination of a scholar and is written with the clarity of style we have come to expect from the pen of the author.

The thirteen chapters are grouped in five parts: 1. Complex numbers and their geometric representation. 2. Linear functions and the circular transformation. 3. Aggregates and sequences. Power series. 4. Analytic functions and conformal representation. 5. The elementary functions.

To a reader already acquainted with the subject it may seem strange that the integral calculus of complex functions is omitted entirely. However, this enables the author to treat the topics included with amazing thoroughness in the small compass of 135 pages of text. One wishing to go further will find ex-