function depending on n arbitrary functions can be obtained. As mentioned above, Chapter VII also contains separating variables and expansion of boundary conditions in Fourier series. The equations treated include the vibrating string, the cable, fluid flow, and heat flow. These equations have already been derived from physics in Chapter III.

Chapter VIII on nonlinear equations of second order is devoted largely to obtaining solutions of Monge's equation depending on arbitrary functions.

The book contains very few examples from physics except in the boundary value problems solved with Fourier series. However, the book contains an exceptionally large number of problems in which the student is asked to find a solution depending on arbitrary constants or functions. In a large proportion of these the partial differential equation is proposed as a problem in geometry.

The multiple integration approach to partial differential equations is not touched upon. The concept of characteristics of a second order equation and the classification of second order equations does not appear. Also there is no mention of successive integrations.

<div style="text-align: right">Edwin W. Titt</div>

The calculi of lambda-conversion. By Alonzo Church. (Annals of Mathematics Studies, no. 6.) Princeton, Princeton University Press; London, Humphrey Milford and Oxford University Press, 1941. 2+77 pp. $1.25.

This is a brief and attractively written introduction to the remarkable formal systems discovered by Church and called by him calculi of lambda-conversion. These systems were developed by Church in collaboration with his students, S. C. Kleene and J. B. Rosser. The present booklet, which is lithoprinted, is in most respects a considerable improvement over the same author's mimeographed Princeton lecture notes of 1936, of which it may be considered a revision. The notation has been simplified and improved, and the treatment of Gödel numbers is much simpler than in the former version. The proof of the fundamental Church-Rosser consistency theorem is now given in full detail, and the section on recursive arithmetic has been considerably expanded.

Nevertheless the text of the present version totals only 71 pages. This brevity is partly accounted for by the plan which the author has wisely adopted of considering only the calculus of lambda-conversion proper in full detail. In fact, the first four chapters are devoted to this, the most elementary of the lambda-calculi. The more com-