attractive material which the student may not appreciate until he has developed some skill in solving equations. As the authors suggest, some of this material may be inserted at convenient points throughout the text.

The treatment of power series solutions is exceptionally good. The student is first introduced to this topic in connection with first order linear equations. From this, he progresses gradually to series solutions of non-linear first order equations, second order equations, and nth order equations. The distinction between solutions at ordinary points and at regular singular points is clearly drawn. Many examples are used to clarify the discussion.

Systems of first order equations are treated without the use of matrix notation. This reviewer, in common with the earlier one, regards this as unfortunate. A similar comment applies to the failure to exploit the operator D in the solution of linear equations with constant coefficients.

The chapter on approximate solutions of differential equations leads up to a proof of Picard's existence and uniqueness theorem. There is a short chapter on finite difference equations.

The last chapter is devoted to partial differential equations which can be solved by finding solutions for corresponding ordinary equations. This reviewer, unlike the previous one, approves of this chapter.

Randal H. Cole, University of Western Ontario

<u>Les transformations intégrales a plusieurs variables et leurs applications</u>, H. Delavault. (Mémorial des sciences mathematiques, fascicule CXLVIII.) Gauthier Villars, Paris, 1961. 94 pages.

A number of books have been written on individual integral transformations in several variables. Here the salient facts on such transformations in general, and various particular transformations are collected. The purpose of the authoress in doing so is best expressed in her own words, "Un cours en Sorbonne du Professeur H. Villat nous montre tout l'intérêt qu'il y a à considérer les developpements en serie de fonctions propres, associées aux équations differentiélles du deuxième ordre, sous l'aspect de transformations intégrales finies.... C'est ce changement de point de vue qui justifie l'étude que nous allons faire."

The book comprises eight chapters, and three appendices, the first chapter being devoted to integral transformations in general.

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The next six chapters are devoted to particular transformations, namely the Fourier, Mellin-Laplace, Laplace-Hankel, finite, and Riesz transformations respectively, the last named being the generalization of fractional integration arising in Riesz' s method of solving hyperbolic differential equations. In the eighth chapter the various transformations are applied to solving partial differential equations in three variables. In the appendices, certain mathematical details are treated.

Throughout the work the authoress keeps her eyes firmly fixed on the physical applications of the various transformations, thus writing a book of considerable general utility.

P. G. Rooney, University of Toronto

Sets, Logic and Axiomatic Theories, by Robert R. Stoll. Freeman, Golden Gate Series, San Francisco, 1961. 206 pages. $2.25 (U. S.)

Intuitive set theory is introduced and the algebra of sets, relations, and functions developed. Only finite unions and intersections are used. No mention of countability or the axiom of choice is made. Then the statement and predicate calculi are introduced intuitively from a semantic viewpoint. Validity is defined by truth tables for the statement calculus and by a valuation procedure (in terms of sets and relations) for the predicate calculus. A proof procedure for the predicate calculus is presented in very brief outline.

The chapter dealing with axiomatic theories is the best section of the book. The nature of informal axiomatic theories is very clearly explained. It is pointed out that many informal theories are stated in the context of set theory, such as group theory. Formal axiomatic theories are then defined and exemplified by a rigorous definition of the statement and predicate calculi. First order theories are defined and a rigorous definition of model given. The chapter ends with a short section on metamathematics in which the problems involved are defined and the answers presented without proof.

A chapter on Boolean algebras, as an axiomatic theory, is included.

Throughout the author writes with exceptional clarity and a great wealth of exercises which illustrate the applications to mathematics (particularly in the chapter on axiomatic theories) are included. These two factors make this book ideal for an undergraduate course, as was intended by the author. It may be found necessary to supplement the material on set theory or to develop more fully proof procedures for the logical calculi.

K. W. Armstrong, McGill University