

*Einführung in die Theorie der Gewöhnlichen Differentialgleichungen auf Funktionentheoretischer Grundlage.* By Ludwig Schlesinger. Dritte, neubearbeitete Auflage. Berlin, Vereinigung wissenschaftlicher Verleger, 1922. 8 + 326 pp.

The first edition of this work appeared in 1900 under the title *Einführung in die Theorie der Differentialgleichungen mit einer unabhängigen Variablen*, and was reviewed for the BULLETIN by Maxime Bôcher. The second edition appeared in 1903 and was merely a reprint of the first. The present edition, however, is thoroughly revised and enlarged, and merits the new title which it has received, for even the first edition was written from the point of view of the theory of functions of a complex variable.

Scarcely half of the original work reappears in the present edition, and even that has been rearranged and more thoroughly germanized by the substitution of words of purely germanic origin for words of a latin origin. For example, *Problem* is erased and *Aufgabe* is substituted, *determinieren* is replaced by *bestimmen*, *Relationen* by *Beziehungen*, etc. This part includes existence theorems for integrals of differential equations of the first order and the discussion of Gauss' and Bessel's equations.

The introduction of the original edition has been expanded into a chapter interpreting the differential equation for real values of the variables. The discussion of linear equations has been simplified by the use of the calculus of matrices. There is a good discussion of differential equations of order higher than the first with fixed critical points, and in the last chapter even the linear integral equations have been touched upon.

All writers upon differential equations insist upon the importance of their subject from the point of view of the applications, and the present writer is no exception. It seems strange therefore that all of them should maintain such a profound silence upon the method, generally known as mechanical quadrature, of following a particular solution in numerical cases. It has been in use, particularly among the astronomers, for a hundred years, and in many cases gives us all of the information which we desire when analytic methods fail. It is much as though writers on the theory of algebraic equations should conspire to ignore Horner's Method and other processes which show us how to find the roots in numerical cases. From the point of view of applications, it merits more attention.

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*La Matière et l'Énergie selon la Théorie de la Relativité et la Théorie des Quanta.* By Louis Rougier. Nouvelle édition, revue et augmentée. Paris, Gauthier-Villars, 1921. 112 pp.

A notice of an English translation, by M. Masius, of the earlier edition of this book has appeared in this BULLETIN (vol. 28, p. 319). As the translator had access to the revised version of the first edition, it is, essentially, the same book. The author appears too ready to accept extreme views with respect both to the theory of relativity and the quantum theory, without subjecting them to a critical survey. On the other hand, he has given a very lucid account of the way in which our conceptions of the interaction of matter and radiant energy have been undergoing a change.

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