

particularly overrelaxation methods. Variational procedures for estimating eigenvalues are discussed, and numerical methods for solving the finite systems obtained are described. Finally, the chapter concludes with an interesting discussion of the problems involved in organizing these calculations for a computer, pointing out that the machines should be applied to obtain the difference equations as well as to solve them.

The final chapter contains, among other topics, a discussion of the problem of weather forecasting by direct solution of the relevant hydrodynamical and thermodynamical equations.

This book is certainly a useful guide to persons faced with the numerical solution of any problem in this field. The material presented is clearly set forth, and the techniques described can be adapted to a wide variety of situations. It is valuable also as a text or reference work for graduate courses in Numerical Analysis.

James L. Howland, University of Ottawa

Introduction to the Mechanics of Continua, by W. Prager.
Ginn and Company, Boston, 1961. x + 230 pages. \$8.00.

The book consists of an introductory chapter of 38 pages containing the necessary mathematical preliminaries and nine chapters (179 pages) of text proper.

The author attempts a difficult task in attempting to present an integrated picture of the principal theories of the mechanics of continuous media and succeeds very well in the space of only 179 pages. Argument could, of course, arise as to what should be included in such a book but in my opinion the author makes a very intelligent selection of material from this vast field.

Tensor notation is chiefly used throughout the book and the first chapter contains a good introduction to tensor analysis. The next three chapters discuss general kinematical and physical foundations that are applicable without assuming a specific mechanical behavior for the medium. Chapters V, VI and VII are titled Perfect Fluids, Viscous Fluids, and Visco-plastic and Perfectly Plastic Materials, respectively, and give good accounts of the basic ideas of these subjects. Chapter VIII, titled Hypoelastic Materials; Classical Theory of Elasticity, treats the mechanical behavior of mediums defined by a homogeneous relation between the stress rate and deformation rate tensors (hypoelastic) and in particular the classical elastic behavior. In Chapter IX, titled Finite Strain, several strain and corresponding stress tensors are introduced without assumptions as to any specific mechanical

behavior of the medium. The concluding chapter, titled Elastic and Hyperelastic Materials, discusses more general elastic behavior of materials and concludes with a section on stability.

A good number of examples are worked out in the text and, with the exception of the last two chapters, each chapter ends with a good set of problems. The notation at times is somewhat cumbersome, involving excessive use of Roman numerals and starred symbols.

The book would be useful as a beginning for any student who plans a specialized study of any of the branches of the mechanics of continua or to someone who wishes to get an idea of the field without specializing in any of its branches. The presentation is clear and simple and the book is easy to read.

J. Abramowich, Essex College
Assumption University of Windsor

The following books have also been received; they are in most cases, new editions or reprints, of older, well-known books or table works.

Lectures on the Calculus of Variations, by O. Bolza. 2nd edition. Dover Publications Inc., New York, 1961. ix + 271 pages. \$1.65.

Lectures on the Calculus of Variations, by O. Bolza. 2nd edition. Chelsea Publishing Company, New York, 1961 (1904). ix + 271 pages. \$1.19.

The Calculus of Finite Differences, by G. Boole. Edited by J. F. Moulton. Fourth edition. Reprint 1960 from 1872 edition. Chelsea Publishing Company, New York, 1960. \$1.39. Cloth \$3.95.

The Mathematical Theory of Non-uniform Gases, by Chapman, Sand, T. G. Cowling. Cambridge 1960. MacMillan Company of Canada. xxiii + 431 pages. \$2.95.

Exploitation de relevés expérimentaux, by Geneviève Coulmy. *Manuels de calculs techniques*, Vol. IV. Gauthier Villars et Cie, Paris, 1962 (2 May). xiii + 186 pages. 20NF.