

The two volumes represent an introduction to the theory of elasticity and fluid dynamics for the author's students at the École Polytechnique. The common starting point for the treatment of solids and fluids includes the kinematics and thermodynamics of continuous media. Fluid dynamics is developed appreciably more fully than elasticity. In the latter field attention is largely restricted to the linear theory and aside from general developments some consideration is given to problems of plane stress and St. Venant torsion and to the theory of the elastica. In fluid dynamics one finds the customary material on incompressible potential and vortex flow of frictionless fluids. In compressible flow theory considerable space is devoted to shock waves and their applications. In viscous flow theory consideration is given to boundary layer theory and turbulence. A concluding chapter deals with applications of hydrodynamics to hydraulic machinery. The mathematical level of the book is such that the reader must be well grounded in advanced calculus.

E. REISSNER

The theory of lattices. By B. C. Rennie. Cambridge, England, Foister and Jagg, 1951. 51 pp. Paper cover, \$1.00; stiff cover, \$1.50.

This little pamphlet which consists essentially of the author's Ph.D. dissertation could more properly have been entitled *Selected topics in the theory of topologies on lattices*. It carries on a program initiated by Birkhoff and Frink of investigating the relations which exist between the various topologies which can be defined on lattices. Some applications to special cases are also given.

The results presented in this work once again point up the fact that, except for special cases, none of the topologies which have been defined on lattices has yet proved useful in the study of lattice structure.

R. P. DILWORTH

Mathematische Maschinen und Instrumente. By F. A. Willers. Berlin, Akademie, 1952. 12+318+2 pp. \$8.16.

This book describes a fascinating collection of machines and instruments with appropriate emphasis on the modern developments in the various types. These include slide rules, desk machines, automatic sequence calculators, differential analyzers, harmonic analyzers, planimeters, including the Stieltjes type, and instruments for drawing curves and curve measurements. The desk machines described are the continental types, Brunsviga, Walther, Facit, Rheinmetal, Archimedes, Millionaire, Haman, and a new small

device, the Curta. The range of instruments involving graphical methods is quite remarkable and most of these seem to be current. The discussion of large scale digital computers gives a list of machines, including ENIAC, EDSAC, UNIVAC, SWAC, and SEAC. Various possibilities for the memory of such devices are described and the logical diagrams for serial addition, subtraction, and multiplication in these machines are given. There are brief descriptions of programming, checking, and procedures on these machines. The differential analyzers described include the machines built by Rosseland, Walther-Ott, Sauer-Pösch, and the latest Bush machine. The photographs and drawings are clear and the explanations easy to follow. The printing is excellent. There is a bibliography of 871 references at the end.

F. J. MURRAY