representation of a Hermitean H, locating the successive eigenvalues as maxima of (Hx,x) on sections of the unit sphere; this argument has a Hilbert space analogue only for completely continuous operators. After some study of resolvents and other functions of Hermitian operators, the chapter closes with extension of the preceding results to unitary and normal operators.

Chapter IV discusses principal manifolds, the minimal polynomial, and elementary divisors, gives the Jordan canonical form and Segre characteristic for a general linear transformation, and closes with a study of commutativity. Chapter V discusses the effect of introducing a new scalar product (Gx,y), where G is positive definite. This study is needed to make up for the original concrete choice of V_n; it is then possible to characterize the transformations with simple elementary divisors as those which are normal relative to some such scalar product.

Interesting historical notes, some referring to work of a century ago, show the authors' knowledge of the deep roots of their subject in the structure of classical mathematics. That their presentation is faithful to that same classical tradition may make the book easier for a student to begin, but it seems to this reviewer to make the secondary goal, the introduction of the reader to Hilbert space, so much the more difficult to reach in a small book.

This reviewer can (as the pre-publication reviewer for Mathematical Reviews could not), and therefore should, attempt to compare this book with *Finite dimensional vector spaces* by P. R. Halmos. The books overlap much more in subject matter than in attitude; Halmos acknowledges great indebtedness to von Neumann, whose name does not appear in bibliography or index of the book under review. A student unaccustomed, as so many of our undergraduates are, to axiomatic methods might profit more from this concrete and detailed study than from a surfeit of abstractions. On the other hand, Halmos's book, with its racy style and its steady slant toward Hilbert space, when contrasted with this formal, workmanlike, and detailed discussion, seems to offer one of the few examples of a paperbound book suited better than its slick-paper competitor to the education of any student who has been bent to the appropriate axiomatic attitude.

MAHLON M. DAY

BRIEF MENTION

Mecanique des milieux continus et deformables. By M. Roy. Paris, Gauthier-Villars, 1950. Vol. 1, 22+198+166 pp.; vol. 2, 212+126 +12 pp.

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