

REVIEWS

Two-Dimensional Problems in Hydrodynamics and Aerodynamics.

By L. SEDOV. John Wiley, 1965. 427 pp. 126s.

This is a translation of the second edition, published in 1950, of a classical Russian text-book. Much of this work was completed before 1939, and is associated with the names (among others) of Joukowski, Chaplygin, Nekrasov, Keldysh, Lavrent'ev, Khaskind and the author, and the Central Aero-Hydrodynamical Institute. The chapter headings are: (1) The motion of an air-foil with constant circulation, (2) Theory of thin airfoils, (3) Cascade theory, (4) Impulsive motion in incompressible fluids, (5) Theory of jets and wakes, (6) Flows in doubly connected regions (the biplane problem), (7) Hydrodynamic planing, (8) General theory of steady gas flow, (9) Steady potential flows of gases, (10) Gas jets.

The book is not an up-to-date account of these topics but is rather a masterly presentation of the fundamental work of this early period, characterized by its great mathematical elegance and practical importance. This work will never be out of date and (like Lamb's *Hydrodynamics*) it will remain a living monument of a great epoch of fluid mechanics. Workers on fluid mechanics are indebted to the publishers and the able translators (partially supported by the U.S. Office of Naval Research) for making this work available in English. The mathematical tools are taken mostly from the theory of functions of a complex variable, at a level above the usual U.S. graduate lectures, and the results are practical as well as elegant.

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SHORTER NOTICES

Grenzschicht-Theorie. By HERMANN SCHLICHTING. 5th edition, in German. Verlag G. Braun, 1965. 736 pp. DM 96.

This well-known and important book by an authority on boundary layers has again been enlarged and revised. The scope and arrangement of the book have not been changed, but additions have been made to the chapters on unsteady, compressible, thermal, and turbulent boundary layers in order to bring them up-to-date. The book is now larger by 130 pages, and will continue to be a useful reference work.

Second-Order Effects in Elasticity, Plasticity and Fluid Dynamics.

Edited by M. REINER and D. ABIR. Pergamon Press, 1964. 795 pp. £10.

This is the complete record of an international symposium at Haifa in April 1962. The standard of contributions is high, on the whole. The division into mechanics of solids and of fluids is roughly 2:1. Verbal and written discussions are included, and there are some lively and illuminating exchanges. The book is very well produced, though it is evident that the proof-reading was distinctly deficient.

An Introduction to Plasma Physics. By W. B. THOMPSON. 2nd edition. Pergamon Press, 1964. 247 pp. 70s.

This new edition contains 18 pages of problems and their solutions, and otherwise differs from the first edition only by minor corrections and amendments.

Modern Developments in Fluid Dynamics, vols. I and II. Edited by S. GOLDSTEIN. Dover Publications, 1965. 702 pp. \$5.00.

An old friend, out of print in the original Oxford University Press edition, and happily now reproduced in Dover paperback form at an attractive price. The book has not been revised since its first publication in 1938 but is still a valuable account of the many subtle ways in which the viscosity of a fluid may affect its motion.

Fluid Dynamics Transactions. Edited by W. FISZDON. Pergamon Press, 1964. 397 pp.

This volume contains the twenty-six papers presented at a meeting at Jablonna in 1961, the fifth of a series of biennial symposia on fluid dynamics organized by the Polish Academy of Sciences. There is an interesting mixture of contributions from east and west.

Proceedings of the 1965 Heat Transfer and Fluid Mechanics Institute. Edited by A. F. CHARWAT. Stanford University Press, 1965. 372 pp. \$10.00.

The texts of 19 papers contributed to the latest of a well-known series of meetings.

Heterogeneous Combustion. Edited by H. G. WOLFHARD, I. GLASSMAN and L. GREEN. Academic Press, 1964. 765 pp. 88s.

Most of the papers contained in this volume were presented at a conference organized by the American Institute of Aeronautics and Astronautics in 1963. There are eleven papers on combustion and ignition of metals, seven on high-energy propellant combustion, seven on aerodynamic effects, and five on condensation.

Liquids: Structure, Properties, Solid Interactions. Edited by T. J. HUGHEL. Elsevier, 1965. 384 pp. 110s.

The seventh in the series of annual two-day symposia held at the General Motors Research Laboratories was concerned with the liquid state, and this handsomely produced volume records the texts of the fourteen papers presented there and the subsequent discussion. The average standard of the papers is high, and the book is likely to interest those concerned with this difficult subject.