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polar in the absence of mechanical stress. The observed piezoelectric effects are quite strong and mechanical resonances are readily excited. The dielectric properties are, however, rather unsatisfactory and there is no indication that these Rochelle salt textures have found use outside the laboratory.

Electrically polarized polycrystalline ferroelectrics of the barium titanate type are another texture. Ceramic barium titanate, a highly practical piezoelectric, is mentioned only in passing to allow a detailed description of piezoelectric bodies made by incorporating barium titanate powder in a resin. Such bodies can be made cheaply in large shapes and to close tolerances, and their dielectric strength is superior to that of the corresponding ceramic bodies. Since, however, the embedding resin is the continuous component, the dielectric constant of the mixture is one order of magnitude below that of the ferroelectric material, and the piezoelectric coefficients (d_{33}) are reduced in a similar ratio. An interesting application of this development is a coating of resin-bonded barium titanate on a metal plate whose flexural resonances are studied by piezoelectric excitation of the coating.

The reviewer has the suspicion that some ambiguities in the theoretical part are a result of translation. Confidence in the translator's expertness is not increased by references to Russian imprint books by P. V. BRIDZHMEN and U. KEDI. One wonders if P. W. Bridgman and W. C. Cady ever received royalties. Nevertheless, the specialist in piezoelectricity will appreciate the convenient access to Russian work obtained through this monograph.

Frottement et Echanges thermiques dans les Gaz raréfiés. By F. Marcel Devienne. 135 pp. Gauthier-Villars, Paris, France, 1958. Paperbound \$4.93. Reviewed by R. Bruce Lindsay, Brown University.

THE advent of the age of rockets and missiles traveling in highly rarefied atmospheres has lent increased interest to theoretical study of the motion of solid bodies through gases at very low pressure. In such motion it is necessary in the calculation of physical effects to employ the molecular theory of gas constitution. The aim of the author of the present book, who is director of the Mediterranean Laboratory of Thermodynamic Investigations, is to provide a review of this field with special reference to ultrararefied gaseous media. The theory used is based essentially on the classical kinetic theory of gases and the Maxwell-Boltzmann velocity distribution, as modified by the Enskog-Chapman theory of real gases.

The first five chapters are devoted to flow of rarefied gases through tubes, with applications to pumping. The remainder of the book discusses the friction and heat exchange at the surface of a solid object moving through a gas at very low pressure. There is some comparison between theory and experimental results, though the author complains about the general lack of reliability of the latter and the present inadequacy of the former.

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There is a chapter devoted particularly to motion in the upper atmosphere.

The bibliography of five pages is a modest one and much recent aerodynamic literature is not mentioned.

Teaching High School Science: A Book of Methods. By Paul F. Brandwein, Fletcher G. Watson, Paul E. Blackwood. 568 pp. Harcourt, Brace and Co., Inc., New York, 1958. \$6.50. Reviewed by Sanborn C. Brown, Massachusetts Institute of Technology.

AS a physicist, do you know what is going on in the physics and science courses of your local high school? Do you know what is taught and how? Are you worried? This book will help by giving you a very complete survey of the best methods used in teaching science all over the country.

Unless you are a high-school or secondary-school teacher, you will share with me an automatic distrust of anything entitled *A Book of Methods* written by a director of a division of education, a professor of a graduate school of education, and a specialist in science in the United States Office of Education, particularly if you have read such books as *Johnny Can't Read* and *School Without Scholars*. This title sounds as if the authors could not help writing as Educators (with a capital E). This is far from the case, however, and their book is to be highly recommended to anybody who is genuinely interested in what is going on in physics education at the secondary-school level.

Although intended primarily for readers who are now teaching high-school science, many parts of this book could be used with profit by college and university instructors. It presents a good picture of the size of the problems our high schools face in teaching science, as well as some very concrete suggestions on better ways to handle some of the difficulties inherent in mass education of our boys and girls.

Books Received

ELECTRICAL ENGINEERING: Theory and Practice (2nd Revised Ed.). By William H. Erickson and Nelson H. Bryant. 614 pp. John Wiley & Sons, Inc., New York, 1959. \$8.00.

FUNDAMENTALS OF NUCLEAR ENERGY AND POWER REACTORS. By Henry Jacobowitz. 118 pp. John F. Rider Publisher, Inc., New York, 1959. Paperbound \$2.95.

NOISE IN ELECTRON DEVICES. Edited by Louis D. Smullin and Hermann A. Haus. 413 pp. The Technology Press of MIT & John Wiley & Sons, Inc., New York, 1959. \$12.00.

INSIDE THE LIVING CELL: Some Secrets of Life. By J. A. V. Butler. 174 pp. Basic Books, Inc., New York, 1959. \$3.50.

ATOMIC MEDICINE (3rd Revised Ed.). Edited by Charles F. Behrens. 705 pp. The Williams & Wilkins Co., Baltimore, Md., 1959. \$15.00.

THE TECHNICAL WRITER: an aid to the presentation and production of technical literature. By J. W. Godfrey and G. Parr. 340 pp. John Wiley & Sons, Inc., New York, 1959. \$8.50.

SEMICONDUCTORS. Edited by N. B. Hannay. 767 pp. (ACS) Reinhold Publishing Corp., New York, 1959. \$15.00.

ATOMS III—MOLECULES I. Vol. 37, Part 1 of *Handbuch der Physik*. Edited by S. Flügge. 439 pp. Springer-Verlag, Berlin, Germany, 1959. DM 120.00 (subscription price DM 96.00).

ATOMPHYSIK IN VERSUCHEN: Ein methodischer Leitfaden für den Unterricht. Edited by Heinz Schröder. 239 pp. Friedr. Vieweg & Sohn, Braunschweig, Germany, 1959. DM 28.00.

THE FOURIER INTEGRAL AND CERTAIN OF ITS APPLICATIONS (Reprint of 1933 Ed.). By Norbert Wiener. 201 pp. Dover Publications, Inc., New York, 1959. Paperbound \$1.50.

LECTURES ON NUCLEAR THEORY (Reprint of 1958 Translated Ed., Consultants Bureau, paperbound \$15.00). By L. D. Landau and Ya. Smorodinsky. 108 pp. Plenum Press, Inc., New York, 1959. \$5.25.

THE NEW SCIENCE (Reprint of 1931, 1933, & 1936 translations). By Max Planck. Translated by James Murphy and W. H. Johnston. 328 pp. Meridian Books, Inc., New York, 1959. \$5.00.

THE PHYSICS OF INTERMEDIATE SPECTRUM REACTORS. Edited by J. R. Stehn. 38 chapters. UC-81. Naval Reactors Branch, Div. of Reactor Development, US Atomic Energy Comm., 1958. Paperbound.

CONFERENCE ON ELECTRICAL INSULATION: Annual Report, 1958. 57 pp. NAS-NRC Publ. 650. Nat'l Academy of Sciences—Nat'l Research Council, Washington, D. C., 1959. Paperbound \$3.00.

RADIATION FROM SLOTS IN CIRCULAR CYLINDERS. By Hans Lottrup Knudsen. 83 pp. Physics, Engineering & Chemistry Corp., Boulder, Colo., 1959. Paperbound \$5.50.

CLASSICAL MECHANICS. By J. W. Leech. 149 pp. (Methuen & Co.) John Wiley & Sons, Inc., New York, 1959. \$2.50.

FUNDAMENTAL ASPECTS OF REACTOR SHIELDING. By Herbert Goldstein. 416 pp. Addison-Wesley Publishing Co., Inc., Reading, Mass., 1959. \$9.50.

APPLIED MATHEMATICS FOR ENGINEERS AND SCIENTISTS. By C. G. Lambe. 518 pp. The Macmillan Co., New York, 1959. \$8.50.

BASIC PHYSICS OF ATOMS AND MOLECULES. By U. Fano and L. Fano. 414 pp. John Wiley & Sons, Inc., New York, 1959. \$10.00.

INTRODUCTION TO THE THEORY OF COMPRESSIBLE FLOW. By Shih-I Pai. 385 pp. D. Van Nostrand Co., Inc., Princeton, N. J., 1959. \$9.75.

CRYOGENIC ENGINEERING. By Russell B. Scott. 368 pp. (AEC) D. Van Nostrand Co., Inc., Princeton, N. J., 1959. \$5.60.

A HISTORY OF WESTERN TECHNOLOGY. By Friedrich Klemm. Translated from German by Dorothea Waley Singer. 401 pp. Charles Scribner's Sons, New York, 1959. \$6.50.

MÉCANIQUE QUANTIQUE, Vol. 1. By Albert Messiah. 430 pp. Dunod, Paris, France, 1959. 3900 fr.

THE SPECTRUM OF BETA LYRAE. Vol. 49, Part 1 of *Transactions of the Am. Philosophical Soc.* By J. Sahade, S.-S. Huang, O. Struve, V. Zeberg. 64 pp. The Am. Philosophical Soc., Philadelphia, Pa., 1959. Paperbound \$2.00.

CRYSTAL STRUCTURES, Suppl. 4. Edited by Ralph W. G. Wyckoff. Additions to Chapters 9, 10, 13–15. Interscience Publishers, Inc., New York, 1959. Unbound \$22.00.

PRINCIPLES OF MODERN PHYSICS. By Robert B. Leighton. 795 pp. McGraw-Hill Book Co., Inc., New York, 1959. \$12.50.