

tion of pions from nucleons"; "Nucleon-nucleus scattering"; "Nucleon-nucleon elastic scattering"; and "Pion production in nucleon-nucleon collisions." No consideration is given to muons, strange particles, cosmic ray phenomena, electron scattering, or detailed theoretical models. The discussion of such specific topics as phase shift analysis, dispersion relation applications, and various phenomenological theories is adequate for graduate students, who will be able to understand their significance in the over-all concepts of meson and nucleon physics. Although some of the data are already a little out of date, this inexpensive book is, nevertheless, a detailed, well-rounded, and inviting account that deserves to be a part of every physicist's home library, whether he requires an introductory or a refresher course in high-energy nuclear physics.

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Théorie Relativiste des Fluides à Spin.
Francis Halbwachs. Gauthier-Villars,
Paris, 1960. x + 294 pp.

This book gives an admirable account of researches on the properties and possible types of relativistic fluids possessing intrinsic angular momentum. The study of such fluids goes back to the early days of wave mechanics, when attempts were made to obtain a hydrodynamical interpretation of the then new quantum equations and, in particular, of the intrinsic spin of the electron. The recent revival of interest in the possibility of a causal interpretation of quantum phenomena has led to a deeper study of the hydrodynamical possibilities inherent in the theory of relativity.

After discussing the earlier relativistic hydrodynamical models proposed by Frenkel, Mathisson, and Weyssenhoff, the author turns to the recent advances made by Takabayasi and by Bohm and Vigier, and to the important developments due to Halbwachs himself.

Some people may feel inclined to liken these researches to the old attempts to construct gyroscopic models of the ether, but the work may not be dismissed so easily. The investigation of the full resources of relativistic hydrodynamics is of considerable interest in its own right, and contains many surprises; moreover, Bohm and Vigier, by relaxing a restriction imposed by Weyssenhoff, have already shown that two reasonable types of mass center exist which do not necessarily coincide, and that the resulting additional degrees of freedom give a possibility of new insight into the significance of the recent classification of elementary particles by means of strangeness and isotopic spin quantum numbers.

Though the book makes only passing reference to such quantized aspects of the work, it stresses the quantum motivation for the study of the often unexpected properties of these relativistic fluids. To those people who seek an authoritative, up-to-date, and unusually clear account of the whole field, the book is warmly recommended.

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New Books

Biological Sciences

Asexual Propagation and Regeneration. M. A. Vorontsova and L. D. Liosner. Translated from the Russian by P. M. Allen. F. Billett, Ed. Pergamon, New York, 1960. 511 pp. Illus. \$12.

Biology and Comparative Physiology of Birds. vol. 1. A. J. Marshall, Ed. Academic Press, New York, 1960. 530 pp. Illus. 100s.

Discussions on Child Development. A consideration of the biological, psychological, and cultural approaches to the understanding of human development and behavior. J. M. Tanner and Barbel Inhelder, Eds. International Universities Press, New York, 1960. 199 pp. \$5. Proceedings of the fourth meeting of the World Health Organization study group on the psychobiological development of the child, Geneva 1956.

Elementary Biochemistry. Edwin T. Mertz. Burgess, Minneapolis, Minn., ed. 2, 1960. 300 pp. Illus. \$6.50.

Encyclopedia of Plant Physiology. vol. 5, pts. 1 and 2, *The Assimilation of Carbon Dioxide*. W. Ruhland, Ed. Springer, Berlin, 1960. 1053 pp.; 894 pp. Illus. DM. 530.

Handbook of Physiology. A critical, comprehensive presentation of physiological knowledge and concepts. Section 1, *Neurophysiology*, vol. 3, John Field, Editor-in-Chief. H. W. Magoun, Section Ed. American Physiological Soc., Washington, D.C., 1960 (order from Williams and Wilkins, Baltimore, Md.). 578 pp. Illus. \$20.

The Metabolic Basis of Inherited Disease. John B. Stanbury, James B. Wyngaarden, and Donald S. Fredrickson, Eds. McGraw-Hill, New York, 1960. 1490 pp. Illus. \$30. This book is intended to give a critical and comprehensive account of those heritable disorders of metabolism for which an appreciable body of knowledge exists; "the editors enlisted the collaboration of investigators [47] actively

engaged in the . . . study of specific heritable diseases."

Phenolics in Plants in Health and Disease. Proceedings of a plant phenolics group symposium held at Bristol, April 1959. J. B. Pridham, Ed. Pergamon, New York, 1960. 141 pp. \$7.50.

The Problem of Acute Hypothermia. P. M. Starkov. Translated from the Russian by R. E. Hammond. E. Neil, Ed. Pergamon, New York, 1960. 327 pp. \$12.

Radioactive Isotopes in Biochemistry. Engelbert Broda. Elsevier, Amsterdam; Van Nostrand, Princeton, N.J., 1960. 386 pp. Illus. \$11.50.

Reproduction in the Dog. A. E. Harrop. Williams and Wilkins, Baltimore, Md., 1960. 215 pp. \$7.

Steric Aspects of the Chemistry and Biochemistry of Natural Products. J. K. Grant and W. Klyne. Cambridge Univ. Press, New York, 1960. 144 pp. Illus. \$5.50. Biochemical Society Symposia No. 19.

Structure and Function of the Cerebral Cortex. D. B. Tower and J. P. Schade, Eds. Elsevier, Amsterdam; Van Nostrand, Princeton, N.J., 1960. 460 pp. Illus. \$17. Proceedings of the Second International Meeting of Neurobiologists, Amsterdam, 1959.

Toxicology. Mechanisms and analytical methods. vol. 1. C. P. Stewart and A. Stolman, Eds. Academic Press, New York, 1960. 791 pp. Illus. \$22.

Treatise on Invertebrate Paleontology. pt. 1, *Mollusca I*. Raymond C. Moore, Ed. Geological Soc. of America and Univ. of Kansas Press, Lawrence, 1960. 1374 pp. \$7.50.

Unity and Diversity in Biochemistry. An introduction to chemical biology. Marcel Florkin. Translated by T. Wood. Pergamon, New York, 1960. 410 pp. Illus. \$10.

Economics and the Social Sciences

Administration of Teaching in Social Sciences in the U.S.S.R. Syllabi for three required courses. Univ. of Michigan, Ann Arbor, 1960. 146 pp. The courses covered—dialectical and historical materialism, political economy, and history of the C.P.S.U.—are required of every Soviet college-level student, whatever his program of study.

The American Supreme Court. Robert G. McCloskey. Univ. of Chicago Press, Chicago, Ill., 1960. 272 pp. \$5.

Behaviour Therapy and the Neuroses. Readings in modern methods of treatment derived from learning theory. H. J. Eysenck, Ed. Permamon, New York, 1960. 490 pp. Illus. \$10.

Delinquency and Opportunity. A theory of delinquent gangs. Richard A. Cloward and Lloyd E. Ohlin. Free Press, Glencoe, Ill., 1960. 231 pp. \$4.

Doctoral Research on Russia and the Soviet Union. Jesse J. Dossick. New York Univ. Press, New York, 1960. 248 pp. \$6. The examination of 150,000 titles culled from several scores of sources resulted in a master list of 960 American, British, and Canadian doctoral dissertations on Russia and the Soviet Union. They are classified into sections, such as agriculture, anthro-

pology, art, communications, and education. Each dissertation is listed alphabetically with name of author, title, university, and date of acceptance.

The Emerging States of French Equatorial Africa. Virginia Thompson and Richard Adloff. Stanford Univ. Press, Stanford, Calif., 1960. 607 pp. \$8.75.

The Export Economies. Their pattern of development in historical perspective. Jonathan V. Levin. Harvard Univ. Press, Cambridge, Mass., 1960. 362 pp. Illus. \$6.75.

Handbook of Research Methods in Child Development. Paul H. Mussen, Ed. Wiley, New York, 1960. 1071 pp. \$15.25.

The History of Modern Culture. Maurice Parmelee. Philosophical Library, New York, 1960. 1305 pp. \$10.

Husbands and Wives. The dynamics of married living. Robert O. Blood, Jr., and Donald M. Wolfe. Free Press, Glencoe, Ill., 1960. 305 pp. \$5.

The New Science of Management Decision. Herbert A. Simon. Harper, New York, 1960. 62 pp. \$2.50. Lectures delivered at New York University (1960) in which Simon discusses the types of business problems that can be handled successfully at the present time by automated processes and describes some current scientific investigations into the possibilities of automating nonrepetitive types of decisions.

Psychological Techniques in Diagnosis and Evaluation. Theodore C. Kahn and Martin B. Giffen. Pergamon, New York, 1960. 175 pp. \$6.50.

Reading and the Psychology of Perception. Hunter Diack. Philosophical Library, New York, 1960. 178 pp. \$6.

Records of the American-Australian Scientific Expedition to Arnhem Land. vol. 2, *Anthropology and Nutrition*. Charles P. Mountford, Ed. Melbourne Univ. Press, Melbourne, Australia; Cambridge Univ. Press, New York, 1960. 528 pp. Illus. \$19.50.

Sources of Information on Behavioral Problems of Adolescence. An index of scientific studies and their sources dealing with youth from ages 14 to 22. Compiled by the Committee on Academic Education. American Psychiatric Assoc., Washington 9, 1960. 96 pp. Paper, \$3.

The Structural Basis of Behavior. J. A. Deutsch. Univ. of Chicago Press, Chicago, Ill., 1960. 195 pp. \$3.50.

The Transformation of Russian Society. Aspects of social change since 1861. Cyril E. Black, Ed. Harvard Univ. Press, Cambridge, Mass., 1960. 702 pp. \$9.75.

Trends in the American Economy in the Nineteenth Century. Princeton Univ. Press, Princeton, N.J., 1960. 791 pp. \$15.

General

About Chemistry. Magnus Pyke. Macmillan, New York, 1960. 218 pp. Illus. \$4.50.

Air Pollution Manual. pt. 1, *Evaluation*. American Industrial Hygiene Assoc., Detroit, Mich., 1960. 194 pp.

The Amateur Scientist. C. L. Strong. Simon and Schuster, New York, 1960. 606 pp. Illus. \$5.95. Contains projects presented in Strong's monthly column in the *Scientific American*.

American Forestry. Six decades of growth. Henry Clepper and Arthur B. Meyer, Eds. Society of American Foresters, Washington, D.C., 1960. 331 pp. \$5. The volume, published in commemoration of the 60th anniversary of the American Foresters Society, is intended to be a factual account of the development of forestry in all its branches during the past 60 years.

The Autobiography of Science. Forest Ray Moulton and Justus J. Schifferes, Eds. Revised and enlarged by Justus J. Schifferes. Doubleday, Garden City, N.Y., ed. 2, 1960. 781 pp. \$5.95. An anthology containing more than 100 selections from scientists' own explanations of their work: Newton, Harvey, Franklin, Madame Curie, and others.

The Breaking of the Circle. Studies in the effect of the "New Science" upon 17th-century poetry. Marjorie Hope Nicholson. Columbia Univ. Press, New York, ed. 2, 1960. 227 pp. Illus. \$3.75.

Careers and Opportunities in Science. A survey of all fields. Philip Pollack. Dutton, New York, rev. ed., 1960. 200 pp. + plates. \$3.95.

The Commonsense Book of Drinking. Leon D. Adams. McKay, New York, 1960. 224 pp. \$3.95.

Flight Facts for Private Pilots. Merrill E. Tower. Aero, Los Angeles, Calif., 1960. 212 pp. Illus. \$5.

The Foundations of Science. Sheldon J. Lachman. Vantage Press, New York, 1960. 121 pp. \$2.95.

Glenn's New Auto Repair Manual. With 1950-1960 specifications. Harold T. Glenn. Chilton, Philadelphia, Pa., 1960. 955 pp. Illus. \$7.95.

Goldfish Varieties and Water Gardens. William T. Innes. Innes, Philadelphia, Pa., 1960. 385 pp. Illus. \$6.95.

The Human Use of the Earth. Philip L. Wagner. Free Press, Glencoe, Ill., 1960. 285 pp. Illus. \$6.

Imperfect Picture. An appreciation of the scientific and philosophic thought of Alfred Claude Jessup. Edward F. Emley. Heffer, Cambridge, England, 1960. 202 pp. 15s.

Information Please Almanac. Atlas and yearbook, 1961. McGraw-Hill, New York, 1960. 895 pp. Illus. Paper, \$1.35.

The Living Laboratory. James D. Witherspoon and Rebecca H. Witherspoon. Doubleday, Garden City, N.Y., 1960. 256 pp. Illus. \$3.95. Witherspoon, director of a graduate school laboratory at Purdue University, and his wife, a member of the entomology department at Purdue, have assembled 200 experiments for amateur biologists.

Men of Space. Profiles of the leaders in space research, development, and exploration. vol. 1. Shirley Thomas. Chilton, Philadelphia, Pa., 1960. 255 pp. Illus. \$3.95. Profiles of Ehricke, Goddard, Schriever, Stapp, Tsiolkovsky, Van Allen, von Braun, von Kármán, von Neumann, and Yeager.

101 Simple Experiments with Insects. H. Kalmus. Doubleday, Garden City, N.Y., 1960. 194 pp. Illus. \$2.95. Kalmus is on the staff of Galton Laboratory, University of London.

The Orphic Voice. Poetry and natural history. Elizabeth Sewell. Yale Univ. Press,

New Haven, Conn., 1960. 473 pp. \$7.50.

People. Challenge to survival. William Vogt. Sloane, New York, 1960. 272 pp. \$4.50.

Protestant Thought and Natural Science. A historical interpretation. John Dillenberger. Doubleday, Garden City, N.Y., 1960. 310 pp. \$4.50.

Russian Science in the 21st Century. Sergei Goushev and Mikhail Vassiliev. McGraw-Hill, New York, 1960. 222 pp. \$4.95. The authors, Russian science writers, interviewed outstanding figures in every field of Russia today, asking them to point out the trends and logical results of projects now in preliminary stages.

Russian for Scientists. A grammar and reader. C. R. Buxton and H. Sheldon Jackson. Interscience, New York, 1960. 318 pp. \$5.25.

Science Book List for Children. Hilary J. Deason, Ed. AAAS, Washington, D.C., 1960. 151 pp. \$1. The list is intended as a guide to recreational and collateral reading in science (including mathematics) for elementary school students up to and including the eighth grade. Ruth N. Foy served as a consultant.

Science Ponders Religion. Harlow Shapley, Ed. Appleton-Century-Crofts, New York, 1960. 318 pp. \$5.

Scientists Who Changed the World. Lynn and Gray Poole. Dodd, Mead, New York, 1960. 177 pp. \$3.

Self-Developing America. Harold J. Rutenberg. Harper, New York, 1960. 267 pp. \$4.50.

The Southern Regional Education Board: Ten Years of Regional Cooperation in Higher Education. Redding S. Sugg, Jr., and George Hilton Jones. Louisiana State Univ., Baton Rouge, 1960. 194 pp. \$4.

Soviet Education Programs. Foundations, curriculums, teacher preparation. William K. Medlin, Clarence B. Lindquist, and Marshall L. Schmitt. U.S. Office of Education, Washington, D.C. (order from Supt. of Documents, GPO, Washington 25). 281 pp. \$1.25.

A Structure of Science. Joseph H. Simons. Philosophical Library, New York, 1960. 281 pp. \$4.75.

That All May Learn to Read. Papers presented at the the First Annual Reading Conference, Reading Center, School of Education, University Division of the Summer Session, Syracuse University, 1959. Roy A. Kress, Ed. Reading Center, Syracuse Univ., Syracuse, N.Y., 1960. 94 pp.

Mathematics, Physical Sciences, and Engineering

Inertial Guidance. Charles S. Draper, Walter Wrigley, and John Hovorka. Pergamon, New York, 1960. 136 pp. Illus. \$6.50.

Infrared Methods. Principles and applications. G. K. T. Conn and D. G. Avery. Academic Press, New York, 1960. 211 pp. Illus. \$6.80.

Mathematical Tables for the Approximation of Geophysical Anomalies and Reductions by Interpolation Polynomials. V. A. Kazinskii. Translated by D. E. Brown. Pergamon, New York, 1960. 98 pp. \$5.50.