tive sense concerning some notions held by many physicists.

He takes to task the so-called instrumentalist view that knowledge is only a tool. Although later Einstein "repented", he was largely responsible for the wide-spread adoption of instrumentalism. Popper dismisses the closely related notion of operationalism by asserting that measurements presuppose theories. He is concerned with the naïve adoption of the instrumentalist "official view" of quantum theory held currently by most leading theorists and teachers of physics. He maintains that by adopting the Bohr principle of complementarity, they have accepted the subjective idealism of Berkeley and Bellarmino. Popper feels that this principle is ad hoc and has been completely sterile in

physics. Yet he does not believe in ultimate explanation by essences, but instead follows the theme set by Xenophenes twenty-five hundred years ago:

The gods did not reveal from the beginning
All things to us; but in the course of time
Through seeking, men find that which is the better.

But as for certain truth, no man has known it, Nor will he know it; neither of the gods, Nor yet of all the things of which I speak. And even if by chance he were to utter The final truth, he would himself not know it; For all is but a woven web of guesses.

Only in this way can scientific knowledge grow.

BOOKS RECEIVED

ACOUSTICS

Molekularakustik. Eine Einführung in die Zusammenhänge zwischen Ultraschall und Molekülstruktur in Flüssigkeiten und Gasen. By Werner Schaaffs. 497 pp. Springer-Verlag, Berlin, 1963. DM 78.

Random Vibration in Mechanical Systems. By Stephen H. Crandall and William D. Mark. 166 pp. Academic, New York, 1963. \$6.50.

Random Vibration, Volume 2. Summer Program (MIT, July 1963). Stephen H. Crandall, ed. 319 pp. M.I.T. Press, Cambridge, Mass., 1963. \$7.50.

Environmental Technologies in Architecture. (2nd ed.). By Bertram Y. Kinzey, Jr. and Howard M. Sharp. 788 pp. Prentice-Hall, Englewood Cliffs, N. J., 1963. \$16.00.

ASTRONOMY & ASTROPHYSICS

The Coming Age of Solar Energy. By D. S. Halacy, Jr. 241 pp. Harper & Row, New York, 1963. \$4.95.

Solar Flares. By Henry J. Smith and Elske v. P. Smith. 322 pp. (Collier-Macmillan, London) Macmillan, New York, 1963. \$12.95.

Interplanetary Dynamical Processes. By E. N. Parker. Vol. 8 of Monographs & Texts in Physics & Astronomy, edited by R. E. Marshak. 272 pp. Interscience, New York, 1963. \$12.50

Radio Astronomy. By J. L. Steinberg and J. Lequeux. Transl. from 1960 French ed. by R. N. Bracewell. 260 pp. McGraw-Hill, New York, 1963. \$9.95.

Origin of the Solar System. Conf. Proc. (New York, Jan. 1962). Robert Jastrow and A. G. W. Cameron, eds. 176 pp. Academic, New York, 1963. \$8.00.

CHEMISTRY & CHEMICAL PHYSICS

Colloidal Surfactants: Some Physicochemical Properties. By Kozo Shinoda, Toshio Nakagawa, Bun-Ichi Tamamushi, Toshizo Isemura. Vol. 12 of Physical Chemistry, edited by Eric Hutchinson and P. van Rysselberghe. 310 pp. Academic, New York, 1963. \$11.50.

Ultracentrifugal Analysis in Theory and Experiment. J. W. Williams, ed. Conf. Proc. (Rockefeller Inst., June 1962). 282 pp. Academic, New York, 1963. \$10.00.

The Physics and Chemistry of Ceramics. Symp. Proc. (Penn. State U., May 1962). Cyrus Klingsberg, ed. 361 pp. Gordon & Breach, New York, 1963. Cloth \$14.50, paper \$9.50.

Techniques of Polymer Science. Symp. Proc. (London, Sept. 1962). 319 pp. (Soc. of Chemical Industry, London) Gordon & Breach, New York, 1963. \$13.50.

Magnetism and the Chemical Bond. By John B. Goodenough. 393 pp. Interscience, New York, 1963. \$12.50.

ELECTROMAGNETIC WAVES & ELECTRON PHYSICS

Low Noise Electronics. Conf. Proc. (Oslo, July-Aug. 1961). K. Endresen, ed. 359 pp. (Pergamon, London) Macmillan, New York, 1962. \$15.00.

Advances in Electronics and Electron Physics, Volume 17. L. Marton and Claire Marton, eds. 451 pp. Academic, New York, 1963. \$14.00.

Physics of Failure in Electronics. M. F. Goldberg and Joseph Vaccaro, eds. 255 pp. (Cleaver-Hume, London) Spartan, Baltimore, 1963.

HANDBOOKS, TABLES, ETC.

American Institute of Physics Handbook (2nd ed.) Dwight E. Gray, coordinating editor. 2062 pp. McGraw-Hill, New York, 1963. \$29.75.

HISTORY AND PHILOSOPHY OF SCIENCE

Ausgewählte Abhandlungen. Mit einem Verzeichnis der wissenschaftlichen Schriften. By Max Born. Vol. 1, 718 pp; Vol. 2, 706 pp. Vandenhoeck & Ruprecht, Göttingen, 1963. DM 100 per set.

The Role of Science in Civilization. By Robert Bruce Lindsay. 318 pp. Harper & Row, New York, 1963. \$6.50. La Notion de Temps. Equivalence avec l'Espace. By O. Costa de Beauregard. 207 pp. Hermann, Paris, 1963. 18 F. Pulse Height Analysis, Per Event-1 μsec Multichannel Scaling-20 Mc Buffer Memory Operation, Per Word-1 μsec Integrates Into Complex Data Systems



For More Information

Describe your interest in a letter to: Mr. Richard A. Karlin, Director of Engineering Linear Alpha, Inc., Dept. 102 823 Emerson Street, Evanston, Illinois, USA 60201 Tel. (312) 475-1731

Energy. By Bruce Chalmers. 289 pp. Academic, New York, 1963. \$5.75.

Rutherford at Manchester, J. B. Birks, ed. 364 pp. (Heywood, London) Benjamin, New York, 1963. \$12.50. The New World of Physics. By Arthur March and Ira M. Freeman. 195 pp. Random House, New York, 1962. \$4.95.

MATHEMATICS

Group Theory. The Application to Quantum Mechanics. By Paul H. E. Meijer and Edmond Bauer. 288 pp. North-Holland, Amsterdam, 1962. Distr. in US by Interscience, New York. \$9.75.

MECHANICS

Theory of Elasticity of an Anisotropic Elastic Body. By S. G. Lekhnitskii. Transl. from 1950 Russian ed. by P. Fern. Edited by Julius J. Brandstatter. 404 pp. Holden-Day, San Francisco, 1963. \$10.95.

Introductory Mechanics. By Edwin F. Taylor. 423 pp. John Wiley, New York, 1963. \$8.75.

NUCLEAR PHYSICS

Cosmic Rays. By A. W. Wolfendale. 222 pp. Philosophical Library, Inc., New York, 1963. \$10.00.

OPTICS & SPECTROSCOPY

Molecular Vib-Rotors. The Theory and Interpretation of High Resolution Infrared Spectra. By Harry C. Allen, Jr. and Paul C. Cross. 324 pp. Wiley, New York, 1963. \$13.50.

Light (2nd ed.). By R. W. Ditchburn. 833 pp. Interscience, New York, 1963. \$12.00.

Radiation and Optics. An Introduction to the Classical Theory. By John M. Stone. 544 pp. McGraw-Hill, New York, 1963. \$11.75.

PHYSICS OF FLUIDS

Viscosity and Flow Measurement. A Laboratory Handbook of Rheology. By J. R. Van Wazer, J. W. Lyons, K. Y. Kim, R. E. Colwell. 406 pp. Interscience, New York, 1963. \$14.00.

Fluid Mechanics. By Walther Kaufmann. Transl. from German by Ernest G. Chilton. 432 pp. McGraw-Hill Book Co., Inc., New York, 1963. \$12.75.

SOLID STATE PHYSICS

The Physics of Engineering Solids. By T. S. Hutchison and D. C. Baird. 368 pp. Wiley, New York, 1963, \$8.00.

Physics of Thin Films: Advances in Research and Development, Volume 1. Georg Haas, ed. Academic, New York, 1963. \$13.00.

Color Centers in Solids. By James H. Schulman and W. Dale Compton. 368 pp. Pergamon, London, 1962. Distr. in US by Macmillan, New York. \$12.50.

Solid State Theory. By Mendel Sachs. 350 pp. McGraw-Hill, New York, 1963. \$10.75.

Vacuum Metallurgy. Rointan F. Bunshah, ed. Conf. Proc. (NYU, June 1962). 225 pp. American Vacuum Society, Boston, 1963, \$10.00.

SPACE SCIENCES & AERODYNAMICS

Electric Propulsion Development. Ernst Stuhlinger, ed. Conf. Proc. (Berkeley, Mar. 1962). Vol. 9 of Progress in Astronautics and Rocketry, edited by Martin Summerfield. 748 pp. Academic, New York, 1963. \$10.50.

Space Research III. Wolfgang Priester, ed. Symp. Proc. (Washington, D. C., May 1962). 1275 pp. North-Holland, Amsterdam, 1963. Distr. in US by Wiley, New York. \$35.00.

Rocket Propulsion Elements (3rd ed.). An Introduction to the Engineering of Rockets. By George P. Sutton. 464 pp. Wiley, New York, 1963. \$10.50.

TEXTBOOKS

Introduction to Wave Mechanics. By Louis Harris and Arthur L. Loeb. 300 pp. McGraw-Hill, New York, 1963. \$8.95.

Introduction to Theoretical Physics. Classical Mechanics and Electrodynamics. By Roald K. Wangsness. 413 pp. Wiley, New York, 1963. \$9.75.

Modern Physics (2nd ed.). The Quantum Physics of Atoms, Solids, and Nuclei. By Robert L. Sproull. 630 pp. Wiley, New York, 1963. \$9.75.

Physics for the Modern World, By E. N. da C. Andrade. 100 pp. Barnes & Noble, New York, 1963. Paper \$.95.

Matter and Energy. The Foundations of Modern Physics. By James H. MacLachlan, K. G. McNeill, John M. Bell. 408 pp. Clarke, Irwin & Co., Toronto, 1963. \$3.45.

General Physics (3rd ed.). By Oswald H. Blackwood, William C. Kelly, Raymond M. Bell. 685 pp. Wiley, New York, 1963. \$8,50.

THEORETICAL PHYSICS

The Quantum Theory of Molecular Structure (A Lecture-Note and Reprint Volume). By Robert G. Parr. 510 pp. Benjamin, New York, 1963. Cloth \$10.00, paper \$6.95.

Statistical Physics. By G. E. Uhlenbeck, N. Rosenzweig, A. J. F. Siegert, E. T. Jaynes, S. Fujita. Vol. 3 in 1962 Brandeis University Summer Institute Lectures in Theoretical Physics, edited by K. W. Ford. 252 pp. Benjamin, New York, 1963. Cloth \$8.00, paper \$4.95.

Elementary Particle Physics and Field Theory. By T. Fulton, G. Källén, J. D. Jackson, C. Fronsdal. Vol. 1 in 1962 Brandeis University Summer Institute Lectures in Theoretical Physics, edited by K. W. Ford. 532 pp. Benjamin, New York, 1963. Cloth \$9.00, paper \$5.95.

Quantum Mechanics. By Albert Messiah. Vol. 1, transl. from French by G. M. Temmer. 504 pp. \$8.00; Vol. 2 transl. from French by J. Potter. 632 pp., \$8.50. (North-Holland, Amsterdam) Wiley, New York, 1961. Both paper.

THERMAL PHENOMENA

Selected Values of Thermodynamic Properties of Metals and Alloys. By Ralph Hultgren, Raymond L. Orr, Philip D. Anderson, Kenneth K. Kelley. 963 pp. Wiley, New York, 1963. \$12.50.

Foundations of Thermodynamics. By Peter Fong. 94 pp. Oxford Univ. Press, New York, 1963. \$2.50.

Thermodynamics of Small Systems, Part 1. By Terrell L. Hill. 171 pp. Benjamin, New York, 1963. Cloth \$10.00, paper \$6.95.