

mental material, which also includes many details of data analysis and equipment design, is presented with great clarity by the authors, who are all experts in ultrasonics.

The second half is devoted to the causes of ultrasonic attenuation in solids. Dislocation damping is the subject treated in greatest detail; the "string" of Granato and Lücke is thoroughly reviewed, and the "kink" model is also discussed in connection with Bordoni peaks. The interaction of stress waves with conduction electrons in metals is well described, and several applications to Fermi surface studies are given. The interaction of ultrasonic waves with thermal lattice vibrations (phonon-phonon interaction) is presented in terms of several recent versions of Akhieser's statistical model as well as a quantum-mechanical approach. Other topics include scattering, thermoelastic, magnetoelastic and acoustoelastic effects, interaction of stress waves with nuclear and electron spins, and a treatment of stress waves in piezoelectric semiconductors.

The book is dedicated to the late Rohn Truell and stands as a tribute to his pioneering work in ultrasonics.

CARL GARLAND
Professor of Chemistry
Massachusetts Institute of Technology

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CONFERENCE PROCEEDINGS

Clustering Phenomena in Nuclei. (Conf. proc. International Conference on Clustering Phenomena in Nuclei, Bochum, Austria, 21-24 July, 1969). 354 pp. International Atomic Energy Agency, Vienna, 1969.

A Critical Review of Thermodynamics. (International Symposium on Thermodynamics, University of Pittsburgh, April 7-8, 1969.) E. B. Stuart, B. Gal-Or, A. J. Brainard, eds. 531 pp. Mono Book Corp., Baltimore, 1970. \$25.00

Eighth International Congress on Glass, Vols. I and II. (Conf. proc. 8th International Congress, London, 1-6 July, 1968.) 271 pp. Society of Glass Technology, England, 1969.

Global Effects of Environmental Pollution. (Symposium organized by the American Association for the Advancement of Science, Dallas, Texas, Dec. 1968.) S. F. Singer, ed. 218 pp. Springer-Verlag, New York 1970. \$12.00

Inelastic Behavior of Solids. (Batelle Institute Materials Science Colloquia, Columbus, Ohio, 15-19 Sept., 1969.) M. F. Kanninen, W. F. Adler, A. R. Rosenfield, R. I. Jaffee, eds. 743 pp. McGraw-Hill, New York, 1970. \$44.50

Polymers in Space Research. (Symposium on Polymers in Space Research, Pasadena, Calif., 15-17 July, 1968.) C. L. Segal, M. Shen, F. N. Kelley, eds. 462 pp. Marcel

Dekker, New York, 1970. \$24.50

Proceedings of the International Conference on Organic Superconductors. (Conference on Organic Superconductors, Honolulu, Hawaii, 5-9 Sept., 1969.) W. A. Little, ed. 224 pp. Wiley, New York, 1970. \$11.50

Proceedings of the Symposium on Nuclear Reaction Mechanisms and Polarization Phenomena (Quebec, Canada, Aug. 1970.) B. Cujec, Q. Ho Kim, and R. J. Slobodrian, eds. 503 pp. Les Presses De L'Université Laval, Quebec, 1970. \$15.00

Symmetries and Quark Models. (Proceedings of International Conference, Wayne State University, Detroit, Mich., 18-20 June 1969.) By R. Chand. 406 pp. Gordon and Breach, New York, 1970. Reference \$27.50; professional, \$14.50.

ATOMS, MOLECULES, CHEMICAL PHYSICS

Flames: Their Structure, Radiation and Temperature. By A. G. Gaydon and H. C. Wolfhard. 401 pp. Barnes and Noble (Chapman and Hall), New York, 1970. \$19.00

Orbitals and Symmetry. By D.S. Urch. 256 pp. Penguin, Baltimore, 1970. \$4.95

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Physical Acoustics, Vol. 7: Principles and Methods. W. P. Mason, R. N. Thurston, eds. 308 pp. Academic, New York, 1970. \$19.50

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La Physique des Transitions. By N. Boccaro. 126 pp. Presses Universitaires de France, Saint-Germain, Paris, 1970.

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SOLIDS

La Physique du Metal. By P. Peguin. 126 pp. Presses Universitaires de France, Saint-Germain, Paris, 1970.

Semiconductors and Semimetals, Vol. 5: Infrared Detectors. R. K. Willardsen, A. C. Beer, eds. 551 pp. Academic, New York, 1970. \$26.00

The Solid State Maser. J. W. Orton, D. H. Paxman, J. C. Walling, eds. 283 pp. Pergamon, New York, 1970. Hard, \$7.00; paper, \$5.50

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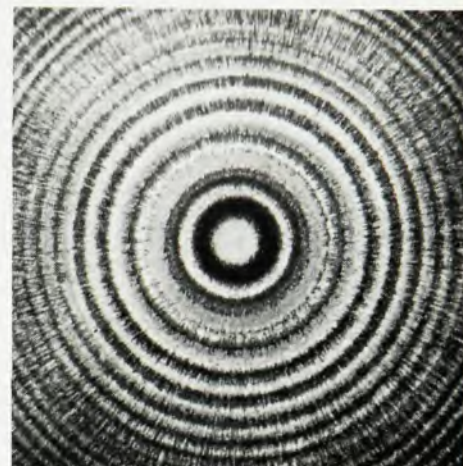
Debate about the Earth. By H. Takeuchi, S. Uyeda, H. Kanamori. (Trans. Keiko Kanamori) (Revised edition) 281 pp. Freeman, San Francisco, 1970. Cloth, \$5.25; paper \$2.80

Dynamics of Geomagnetically Trapped Radiation. By J. G. Roederer. 166 pp. Springer-Verlag, New York, 1970. \$9.90

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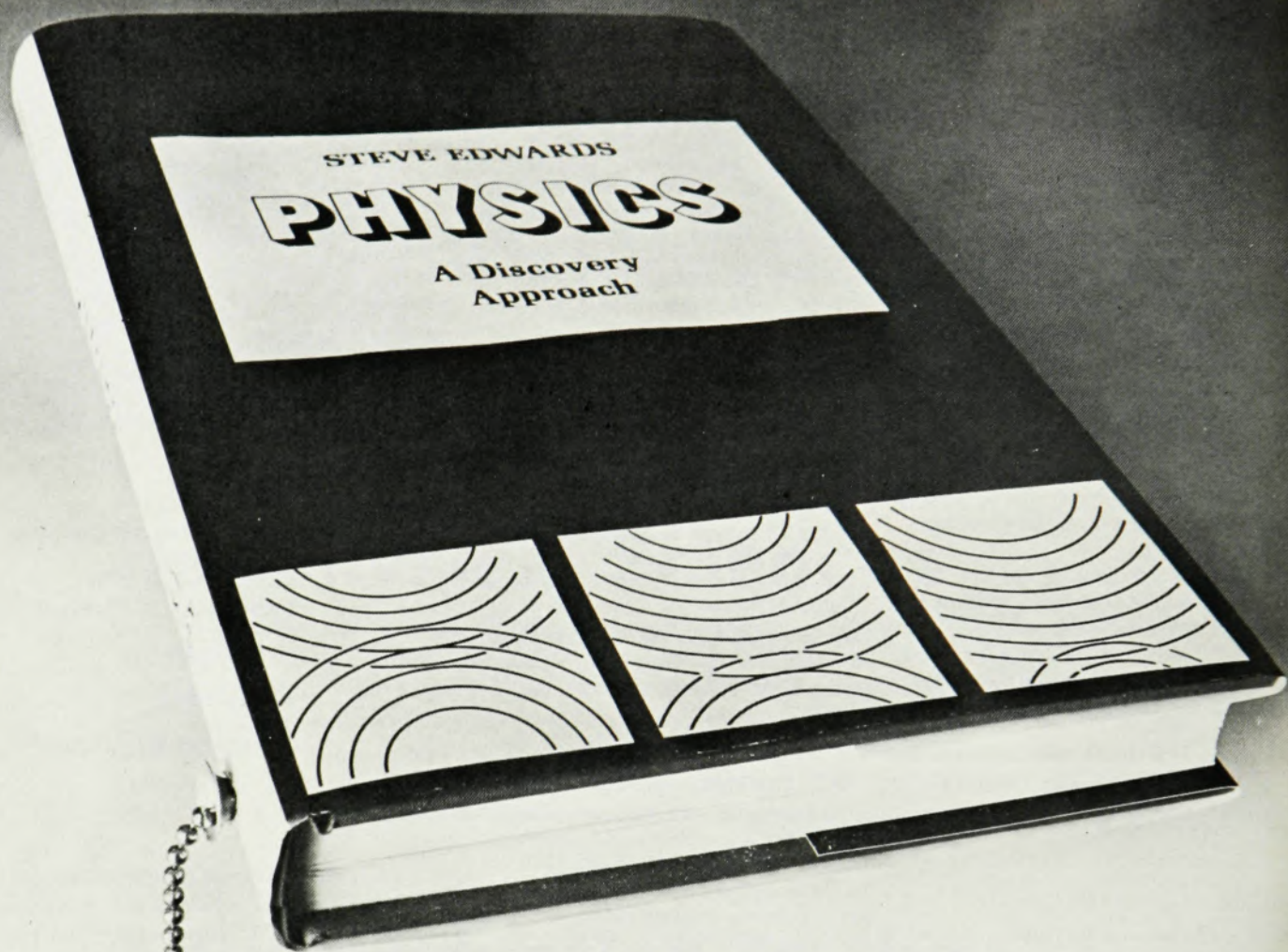
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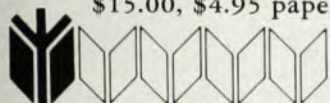
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