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and for homogeneous materials, but hardly ever occur in the field. Most chapters contain some excellent descriptions of efforts to establish the actual rheological processes that take place during critical stages of operations and to connect micro- and macroscopic events. The book is best when it points out where rheometric data serve in the classification and ranking of materials, in quality control and as signals for internal changes due to time, temperature, working and so on, and when it discusses where correlations between rheometric data and events in practice must remain empirical. There are many valuable discussions but no general guidance on how the unlimited variety of nonhomogeneous materials might be characterized rheometrically.

Thus, the book is an extensive source of practical information, a starting point for theoretical understanding and an excellent review for inquisitive rheologists. However, it points to the need of a book that would give a sense of coherence and direction to a field of immense practical and scientific importance. Until such a book becomes available, *Rheometry, Industrial Applications* will be found useful and serviceable.

F. R. EIRICH

Polytechnic Institute of New York

new books

Particles, Nuclei and High-Energy Physics

Polarization Phenomena in Nuclear Physics—1980. Fifth International Symposium, Santa Fe. G. Ohlsen, R. Brown, N. Jarmie, W. McNaughton, G. Hale eds. 768 pp. AIP, New York, 1981. \$84.00

Physica Scripta: Proceedings from International Conference on Experimentation at LEP, Uppsala 1980, Vol. 2. G. Flügge, ed. 161 pp. Royal Swedish Academy of Sciences, Stockholm, 1981. no price stated

Physica Scripta: Topical Questions in QCD. Copenhagen, 1980. K. Hansen, P. Hoyer, P. Olesen, J. L. Petersen, eds. 168 pp. Royal Swedish Academy of Sciences, Stockholm, 1981. no price stated

Physica Scripta: Nuclei at Very High Spin. Sven Gosta Nilsson in Memoriam. Proceedings of Nobel Symposium 50, Orenas, Sweden, 1980. G. Leander, J. Ryde, eds. 291 pp. Royal Swedish Academy of Sciences, Stockholm, 1981. no price stated

Current Topics in Elementary Particle Physics. Contributions to International Summer Institute, Bad Honnef, 1980. K. Mütter, K. Schilling, eds. 343 pp. Plenum, New York, 1981. \$45.00

Physica Scripta: Proceedings from the International Conference on Experimentation on LEP. Uppsala, 1980, Vol. 1. T. Ekelöf, ed. 280 pp. Royal Swedish Academy of Sciences, Stockholm, 1981. no price stated

Photon-Photon Interactions. Fourth International Colloquium, 1981. G. London, ed. 529 pp. World Scientific, Singapore, 1981. \$32.00

Gauge Theories, Massive Neutrinos, and Proton Decay. Contributions Given at Orbis Scientiae, 1981. A. Perlmutter, ed. 392 pp. Plenum, New York, 1981. \$49.50

Atomic, Molecular and Chemical Physics

Modeling of Chemical Reaction Systems. Proceedings of an International Workshop, Heidelberg, 1980. K. Ebert, P. Deuflhard, W. Jäger, eds. 389 pp. Springer, New York, 1981. \$35.00

Rigorous Atomic and Molecular Physics. G. Velo, A. Wightman, eds. 495 pp. Plenum, New York, 1981. \$59.50

The Theory of Atomic Structure & Spectra. R. Cowan. 731 pp. U. of California P., Berkeley, 1981. \$45.00. *graduate text*

Thermodynamics and Statistical Physics

Handbook of Multiphase Systems. G. Hettroni, ed. c. 1450 pp. Hemisphere, New York, 1981. \$64.50

Irreversible Thermodynamics. Y. L. Lao. 357 pp. Van Nostrand/Reinhold, New York, 1981. \$29.50. *second-level text*

Radiation Heat Transfer Notes. D. K. Edwards. 370 pp. Hemisphere, New York, 1981. \$19.95. *undergraduate text*

Supplement of the Progress of Theoretical Physics: Progress in Statistical and Solid-State Physics. In Commemoration of the Sixtieth Birthday of Ryogo Kubo. H. Yukawa, ed. 485 pp. Kyoto, Japan, 1981. no price stated

History, Philosophy, Society & Government

Reduction, Time and Reality. R. Healy, ed. 202 pp. Cambridge U. P., New York, 1981. \$27.50. *essays*

J. Robert Oppenheimer: Shatterer of Worlds. P. Goodchild. 301 pp. Houghton Mifflin, Boston, 1981. \$15.00

Robert Oppenheimer: Letters and Recollections. Paperback Edition. A. K. Smith, C. Weiner, eds. 376 pp. Harvard U. P., Cambridge, Mass., 1981. \$8.95

The Unified Model of the Universe: The Geometrically Unified Field Solution. S. Sheeter. 165 pp. Process, Berkeley, Cal., 1981. \$9.50. *speculative essay*

The Cosmology of Infinity: A Construction in Logic of the New Radiation-Dominant Universe. A. Firth. 109 pp. Morriss, Victoria, BC, 1981. \$10.95. *speculative essay*

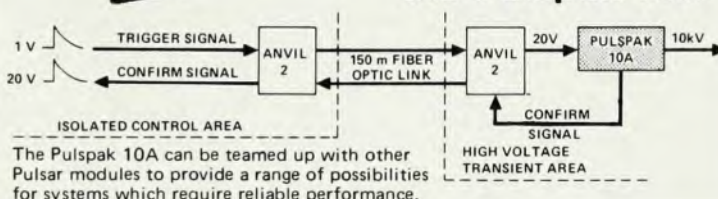
The Winning Weapon: The Atomic Bomb in the Cold War 1945-1950. G. Herken. 425 pp. Knopf, New York, 1980. \$15.00

The Night Sky: The Science and Anthropology of the Stars and Planets. R. Grosinger. 481 pp. Sierra Club, San Francisco, 1981. \$16.95

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Life After Nuclear War: The Economic and Social Impacts of Nuclear Attacks on the United States. A. M. Katz. 411 pp. Ballinger, Cambridge, Mass., 1981. \$35.00

Sciences and Cultures. E. Mendelsohn, Y. Elkana, ed. 270 pp. Reidel, Boston, 1981. \$34.00 cloth, \$14.95 paper. *essays*

The Role of Mathematics in the Rise of Science. S. Bochner. 386 pp. Princeton U. P., New Jersey, 1981. \$6.95. *essays on theory*

Newton on the Continent. H. Guerlac. 169 pp. Cornell U. P., Ithaca, N. Y., 1981. \$12.50. *essays*

Technology in America: A History of Individuals and Ideas. C. W. Pursell Jr., ed. 264 pp. MIT P., Cambridge, Mass., 1981. \$9.95. *essays*

Cause, Experiment, and Science: A Galilean Dialogue Incorporating a New English Translation of Galileo's "Bodies That Stay atop Water or Move on It." S. Drake. 237 pp. U of Chicago P., Illinois, 1981. \$20.00

The Land of Stevin and Huygens: A Sketch of Science and Technology in the Dutch Republic During the Golden Century. D. Struik. 162 pp. Reidel, Boston, 1981. \$40.00

Science in Contemporary China. L. A. Orleans, ed. 599 pp. Stanford U. P., Cal. 1980. \$35.00. *compendium*

The Peripheral Nature of Scientific and Technological Controversy in Federal Policy Formation. G. B. Doern. 108 pp. Science Council of Canada, Ottawa, 1981. \$4.95

Physics and Philosophy. J. Jeans. 222 pp. Dover, New York, 1981. \$3.50. *essays*

The Nuclear Revolution: International Politics Before and After Hiroshima. M. Mandelbaum. 283 pp. Cambridge, New York, 1981. \$29.95 cloth, \$8.95 paper. *monograph*

The Nuclear Question: The United States & Nuclear Weapons 1946-1976. M. Mandelbaum. 277 pp. Cambridge, New York, 1979. \$19.95. *monograph*

Instrumentation and Techniques

Mössbauer Spectroscopy II: The Exotic Side of the Method. U. Gonser, ed. 196 pp. Springer, New York, 1981. \$29.80. *compendium*

Data for Science & Technology. Proceedings of the Seventh International CO-DATA Conference, Kyoto, 1980. P. S. Glaeser, ed. 615 pp. Pergamon, New York, 1981. \$150.00 cloth, \$62.50 paper

Introduction to Modern Electronics. J. C. Sprott. 349 pp. Wiley, New York, 1981. \$24.95. *undergraduate text*

Laboratory Minicomputing. J. R. Bourne. 297 pp. Academic, New York, 1981. \$27.00. *undergraduate text*

Remote Sensing in Meteorology, Oceanography and Hydrology. A. P. Cracknell,

ed. 542 pp. Horwood, New York, 1981. \$104.95. *second-level text and reference*

Wind Tunnels of NASA. D. Baals, W. R. Corliss. 154 pp. NASA, Washington, D. C., 1981. \$12.00. *monograph*

Handbook of Materials Testing Reactors and Associated Hot Laboratories in the European Community: Nuclear Science and Technology. P. von der Hardt, H. Rottger, eds. 151 pp. Reidel, Boston, 1981. \$55.00

Digital Circuits and Microprocessors. H. Taub. 541 pp. McGraw-Hill, New York, 1981. \$28.95. *undergraduate text*

An Introduction to Optical Waveguides. M. J. Adams. 401 pp. Wiley, New York, 1981. \$51.95. *undergraduate text*

Image Sequence Analysis. T. Huang, ed. 437 pp. Springer, New York, 1981. \$39.00. *reference*

Robot Manipulators: Mathematics, Programming, and Control. R. Paul. 279 pp. MIT P., Cambridge, Mass., 1981. \$25.00. *monograph*

Preparation of Nuclear Targets for Particle Accelerators. J. Jaklovsky, ed. 289 pp. Plenum, New York, 1981. \$35.00. *reference*

Electromagnetic Scattering and Its Applications. L. Bayvel, A. Jones. 289 pp. Applied Science, Englewood, N. J., 1981. \$56.00. *monograph*

Student Texts and Popularizations

Discovering Astronomy. W. H. Jefferys, R. R. Robbins. 466 pp. Wiley, New York, 1981. \$29.95

Thinking Physics: Questions with Conceptual Explanations. L. C. Epstein, P. G. Hewitt. 515 pp. Insight, San Francisco, 1981. \$9.95

Taking the Quantum Leap. F. A. Wolf. 262 pp. Harper & Row, San Francisco, 1981. \$9.50

Modern Physics for Applied Science. B. C. Robertson. 271 pp. Wiley, New York, 1981. \$21.95

College Physics. J. O'Dwyer. 710 pp. Wadsworth, Belmont, Cal. 1981. no price stated

Thunder, Singing Sands, and Other Wonders: Sound in the Atmosphere. K. Heuer. 124 pp. Dodd, Mead, New York, 1981. \$8.95

Physics for Scientists and Engineers. S. Radin, R. Folk. 790 pp. Prentice-Hall, Englewood Cliff, N. J., 1982. \$29.95

Puzzles, Problems and Enigmas: Occasional Pieces on the Human Aspects of Science. J. Ziman. 373 pp. Cambridge, New York, 1981. \$24.95

Science and the Paranormal: Probing the Existence of the Supernatural. G. Abell, B. Singer, eds. Scribner's, New York, 1981. \$17.95

Quantum Electronics and Lasers

Lasers: Theory and Applications. K. Thyagarajan, A. Ghatak. 431 pp. Plenum, New York, 1981. \$39.50. *second-level text*

Laser Spectroscopy V. Proceedings of the Fifth International Conference, Al-

berta, Canada, 1981. A. McKellar, T. Oka, B. Stoicheff, eds. 495 pp. Springer, New York, 1981. \$29.50

Astronomy, Cosmology and Space Physics

The Cosmogonic Chart on Phobos. D. Lahoz. 163 pp. No publisher stated, Canada, 1981. \$10.00. *speculative essay*

Introduction to Comets. J. Brandt, R. Chapman. 238 pp. Cambridge, New York, 1981. \$45.00. *undergraduate text*

Type 1 Supernovae. Proceedings of the Texas Workshop, Austin, 1980. J. C. Wheeler, ed. 216 pp. U. of Texas & Mc-

Donald Observatory, Austin, 1980. \$5.00 (individuals), \$10.00 (libraries)

Miscellaneous

Physics Reviews, Vol. 3: Soviet Scientific Reviews, Section A. I. M. Khalatnikov, ed. 593 pp. Harwood, New York, 1981. \$115.00

Actos Commemorativos en el 75 Aniversario de su Fundacion (1978). Real Sociedad Espanola De Fisica Y Quimica, Madrid, 1980. no price stated

Concise Dictionary of Scientific Biography. J. Maurer, ed. 773 pp. Scribner's, New York, 1981. \$100.00 □

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