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tems, which of course is in line with the remark I quoted about valid theorems. However, the more difficult two-dimensional systems, such as the eight-vertex model, are not discussed in detail, and many powerful techniques in statistical mechanics, such as the proof of exponential decay of correlation at high temperatures, are ignored. Although he includes a short section on scaling and renormalization, the author does not seem to have come to terms with the importance of length scales in this subject. For example, the difference between "topological" and cellular disorder, which is emphasized throughout this book, is unimportant when long length scales are involved. In addition, length scales determine whether systems behave one-dimensionally or three-dimensionally. The failure to mention Sir Nevill Mott's theory of minimum metallic conductivity underlines one of the most serious weaknesses of this book, a weakness that derives from the author's exclusion of the more speculative recent work in the field.

My reaction to this book comes partly from my different view of what theoretical physics is about. In several places Ziman seems to be putting forward the point of view that good theoretical physics involves calculating from first principles the properties of more or less realistic models, and from that point of view progress in the theoretical physics of disordered systems has been unsatisfactory. I think that our task is to develop useful ways of thinking about physical systems. Ziman and his colleagues at Bristol have done some good work on the electronic properties of disordered metals. At one point in the book he would clearly like to argue in favor of this work, but unfortunately he has denied himself the possibility of talking about experimental results.

DAVID THOULESS

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new books

Atomic, Molecular and Chemical Physics

Theory of Chemisorption. J. R. Smith, ed. 249 pp. Springer, New York, 1980. \$34.30

Introduction to Radiochemistry. D. J. Malcolm-Lawes. 152 pp. Halsted (Wiley), New York, 1979. \$24.95

Symmetry Groups: Theory and Chemical Applications. R. L. Flurry, Jr. 366 pp. Prentice-Hall, Englewood Cliffs, N. J., 1980. \$26.50

Intercalated Layered Materials. F. Lévy,

ed. 585 pp. Riedel, Hingham, Mass., 1979. \$78.00

Nuclear Magnetic Resonance in Rare Earth Metals. M. A. H. McCausland, I. S. Mackenzie. 159 pp. Taylor & Francis, London, UK, 1980. £7.00

Polymers, Part C: Physical Properties. R. A. Fava. 550 pp. Academic, New York, 1980. \$59.00

Recent Advances in the Quantum Theory of Polymers (Proc. of a workshop, Namur, Belgium, February 1979). J. M. André, J. L. Brédas, J. Delhalle, J. Ladik, G. Leroy, C. Moser, eds. 306 pp. Springer, New York, 1980. \$22.00

Electron-Molecule Scattering (Papers presented at a lecture, New Haven, Conn., October 1979). S. C. Brown, ed. 206 pp. Wiley-Interscience, New York 1979. \$22.95.

Advances in Chemical Physics, Vol. 18. I. Prigogine, S. A. Rice. 287 pp. Wiley-Interscience, New York, 1980. \$36.50

Rezonanța magnetică în compuși cu uraniu. I. Ursu. 235 pp. Editura Academiei Republicii Socialiste România, Bucharest, Romania, 1979. (Price not stated)

Magnetic Properties of Free Radicals: Organic Anion Radicals (Landolt-Börnstein). H. Fischer, K. H. Hellwege, eds. 904 pp. Springer, New York, 1980. \$548.80

Optics and Acoustics

Ultrasonics. A. P. Cracknell. 200 pp. Wykeham (Taylor & Francis), London, UK, 1980 (US dist.: Crane, Russak, New York). \$15.95

Cavitation and Inhomogeneities in Underwater Acoustics (Proc. of an int. conf., Göttingen, Fed. Rep. Germany, July 1979). W. Lauterborn, ed. 328 pp. Springer, New York, 1980. \$36.00

The Optical Design of Reflectors (Second Edition). W. B. Elmer. 302 pp. Wiley-Interscience, New York, 1980. \$24.95

Condensed Matter and Materials Science

Electron and Magnetization Densities in Molecules and Crystals (Proc. of a NATO Adv. Study Inst., Arles, France, August 1978). P. Becker, 917 pp. Plenum, New York, 1980. \$75.00

The Molecular Physics of Liquid Crystals (Lectures presented at a NATO Adv. Study Inst., Cambridge, UK, August 1977). G. R. Luckhurst, G. W. Gray, eds. 503 pp. Academic, London, UK, 1979. £20.00

Excitation of Plasmons and Interband Transitions by Electrons. H. Raether. 196 pp. Springer, New York, 1980. \$32.50

Condensed Matter Physics: Dynamic Correlations. S. W. Lovesey. 204 pp. Benjamin/Cummings Adv. Book Program, Reading, Mass., 1980. \$26.50 hardbound, \$14.50 paperback

High Pressure Properties of Matter (Landolt-Börnstein) G. Beggerow. 427 pp. Springer, New York, 1980. \$257.60

Physics of Nonlinear Transport in Semiconductors (Proc. of a NATO Adv. Study Inst., Urbino, Italy, July 1979). D. K. Ferry, J. R. Barker, C. Jacoboni, eds. 634 pp. Plenum, New York, 1980. \$65.00

Phase Transitions in Surface Films (Proc. of a NATO Adv. Study Inst., Erice, Italy, June 1979). J. G. Dash, J. Ruvalds, eds. 374 pp. Plenum, New York, 1980. \$42.50

Chemistry and Physics of Solid Surfaces, Vol. 2. R. Vanselow, ed. 526 pp. CRC, Boca Raton, Florida, 1979. \$57.95

Semiconductor Devices and Integrated Electronics. A. G. Milnes. 1016 pp. Van Nostrand Reinhold, New York, 1980. \$26.50

Ordering in Strongly Fluctuating Condensed Matter Systems (Proc. of a NATO Adv. Study Inst., Geilo, Norway, April 1979). T. Riste, ed. 489 pp. Plenum, New York, 1980. \$55.00

Astronomy, Cosmology and Space Physics

Discovering the Universe. C. Long. 526 pp. Harper & Row, San Francisco, Cal., 1980. \$14.95

Stellar Turbulence (Proc. of an int. colloquium, London, Ontario, Canada, August 1979). D. F. Gray, J. L. Linsky, eds. 317 pp. Springer, New York, 1980. \$22.00

Realm of the Universe (Second Edition). G. O. Abell. 450 pp. Saunders (Holt, Rinehart and Winston), Philadelphia, Pa., 1980. \$17.95

Language of the Stars: A Discourse on the Theory of the Light Changes of Eclipsing Variables. Z. Kopal. 287 pp. Reidel, Hingham, Mass., 1979. \$63.00 cloth-bound, \$28.95 paperbound

Monsters in the Sky. P. Maffei. 348 pp. MIT, Cambridge, Mass., 1980 (first Italian ed., 1976). \$15.00

Black Holes, Quasars and the Universe (Second Edition). H. L. Shipman. 352 pp. Houghton Mifflin, Boston, Mass., 1980 (first ed. 1976). \$8.50

Geophysics and Planetary Science

Quantitative Seismology: Theory and Methods, Vols. 1 and 2. K. Aki, P. G. Richards. 573 and 389 pp. Freeman, San Francisco, Cal., 1980. \$35.00 each

Biological and Medical Physics

Neutronen-Personendosimetrie. B. Dörschel, L. Herforth. 363 pp. Birkhäuser, Boston, Mass., 1979. (Price not stated)

Health Physics: A Backward Glance. R. L. Kathren, P. L. Ziemer, eds. 243 pp. Pergamon, Elmsford, N. Y., 1980. \$25.00

Theory and Mathematical Physics

Starting All Over Again in Physics. M. G. Barnard. 141 pp. M. G. Barnard, Oxford, UK, 1980 (first published, 1978). (Price not stated)

Principles of Mathematical Modeling. C. L. Dym, E. S. Ivey. 269 pp. Academic, New York, 1980. \$17.95

Instrumentation and Techniques

Computers and Instrumentation: A Practical Handbook of Measurement, Interfacing and Control Circuits. A. Car-

rick, 256 pp. Heyden, Philadelphia, Pa., 1980. \$19.50

Computer Techniques in Radiation Transport and Dosimetry. W. R. Nelson, T. M. Jenkins, eds. 530 pp. Plenum, New York, 1980. \$55.00

History, Philosophy, Society and Government

Albert Einstein: Four Commemorative Lectures. L. S. Swenson, Jr., C. P. Snow, H. Stein, I. Prigogine. 64 pp. Humanities Res. Ctr., U. Texas at Austin, Austin, Texas (reprint from *The Library Chronicle*), 1979. \$3.50

Chain Reaction: Twenty Years of Nuclear Research and Development in South Africa. A. R. Newby-Fraser. 212 pp. Atomic Energy Board. Rep. of South Africa, Pretoria, 1979. (Price not stated)

Aesthetics and Science (Proc. of an int. symp. in honor of Robert R. Wilson, Batavia, Illinois, April 1979). 119 pp. Fermilab, Batavia, Illinois, 1979. \$20.00

Theory and Evidence. C. Glymour. 394 pp. Princeton U., Princeton, N. J., 1980. \$25.00 hardbound, \$9.95 paperbound

Experience Science: Profiles in Discovery. J. Bernstein. 288 pp. Dutton, New York, 1980 (first published, 1978). \$5.95 □

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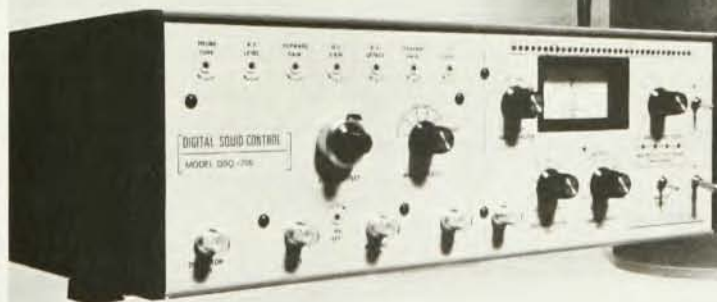
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