bilities for "social order and control."

Cravens clearly is a reasonable person who possesses an unusually large store of goodwill toward his fellow human beings, including scientists who held or hold ideas with which he disagrees. He has written a clear and reasonable synthesis in line with recent scholarship dealing with the course of evolutionary ideas in the natural and social sciences. His optimistic assumptions about the future course of these ideas, however, have led him to what some readers will consider naïve conclusions about their present state. Nevertheless, *The Triumph of Evolution* now stands as the most thorough exploration of evolutionary thought in the United States during the period it covers, and it makes a persuasive case for the conclusion that, contrary to those who have stressed German, British, and French developments, the major and broadest scientific dispute about evolution in this era occurred in the United States. Cravens has explored and evaluated these arguments, including disputes that originated in Europe, so carefully that his book deserves a wide reading and his conclusions a decent amount of respect. Both his interpretations of facts and his broad ideas, however, will find challengers among other specialists in this field.

STANLEY COBEN
Department of History,
University of California,
Los Angeles 90024

Disordered Systems

La Matière Mal Condensée. Ill-Condensed Matter. Papers of a summer school, Les Houches, France, July 1978. ROGER BALIAN, ROGER MAYNARD, and GERARD TOULOUSE, Eds. North-Holland, Amsterdam, 1979 (U.S. distributor, Elsevier, New York). xxvi, 610 pp., illus. $97.50.

Solid state physicists have been gradually disappearing through metamorphosis into condensed matter physicists. The new term not only suggests a new image and a divorce from semiconductor devices, it is also more accurate in that it indicates the inclusion of fluids and glasses. Moreover, "solid state physics" has come to suggest the physics of ordered crystals, whereas there is now a rapid growth of interest in disordered materials. The title of this volume of lecture notes from a Les Houches summer school uses "ill" to restrict its referent to just these disordered materials, the perfect crystalline state presumably being regarded as well condensed. The pejorative flavor of "ill" is not entirely inappropriate; disorder has long been viewed as slightly unclean and certainly has been a source of great difficulty in both experimental characterization and theoretical understanding.

However, in the introduction to his own lectures, P. W. Anderson expresses the belief that a quiet revolution has taken place. He points out that we have largely abandoned trying to treat disordered materials as modified crystals and are now looking for the characteristic properties of disorder in its own right. Although we have as yet few answers, Anderson thinks that we are now asking much better questions, as is shown by the emergence of new concepts specific to disorder, such as localization, percolation, and frustration. Throughout the volume—especially in Anderson's lectures—there is a feeling of confidence and excitement in the blossoming of disordered system physics.

Anderson's introduction is the only general overview in the book, and one wishes it were longer. The bulk of the book is concerned with a detailed account of the current state of the art, mainly from a theoretical viewpoint. There is one experimental review, by J. Joffrin, summarizing the properties of glasses and spin glasses. These are the only major lectures in French. The remaining lectures (the book also contains some shorter seminars) cover most of the field theoretically and successfully avoid excessive overlap. The level of the lectures is such that any student reasonable versed in conventional well-condensed matter theory should be able to follow most without difficulty. The most notable exception must be the lectures by V. Poénaru on algebraic topology and its applications to defects in ordered systems. These provide a beautiful exposition of the subject from a mathematician's viewpoint but assume a background in algebra and topology uncommon among condensed matter physicists.

There is plenty more for the expert. Anderson in particular has the disarming habit of throwing out highly original ideas in the midst of a lecture. Indeed, many of the subjects and concepts discussed in the volume have their origins in his earlier comments. In his lectures he discusses glasses, random electronic systems, and especially spin glasses, which he dubs the "easy" case. He brings fresh insight to all these areas.

The remaining lectures are by D. J. Thouless, on percolation and localization, by S. Kirkpatrick, on real space renormalization group and computer simulation methods, and by T. C. Lubensky, on critical phenomena in random systems.

Disordered system physics is, of course, advancing so rapidly that the book is already out of date in some areas; the most obvious example is the recent progress in understanding one-dimensional localization and conductivity. But overall, these lectures are an excellent summary of our present understanding of disorder and provide much provocative speculation. All the lectures are by the leaders in the field. As the first review volume by such experts, the book will undoubtedly become a standard reference work. And so it should.

RICHARD G. PALMER
Department of Physics,
Duke University,
Durham, North Carolina 27706

High Energy Physics

Relativistic Particle Physics. HARTMUT M. PILKUHN. Springer-Verlag, New York, 1979. xii, 428 pp., illus. $42. Texts and Monographs in Physics.

During the past dozen years, a revolution has occurred in the prevailing view of particle physics. It is now generally believed that a fundamental description of subnuclear physics must be based upon the idea that strongly interacting particles (hadrons) are composed of quarks. Together with leptons, such as the electron and neutrino, and a variety of force particles, including the mediator of electromagnetism called the photon, quarks seem to be the elementary particles—at least at the present limits of resolution.

The support for this new point of view is multifarious and impressive. It derives from the familial patterns of hadrons, the experimental evidence for pointlike constituents within hadrons, the discovery of the atomic-like spectra of the heavy mesons J/ψ and Υ, the successful prediction of charm, and the triumph of the Weinberg-Salam model, with its implication of weak neutral currents. According to optimists, a grand synthesis of the strong, weak, and electromagnetic interactions is already at hand. A number of experiments are being mounted to search for the proton instability implied by specific grand unified theories. Some physicists with an appreciation for history, troubled by the proliferation of "fundamental" constituents, now are investigating the possibility that quarks and leptons may themselves be composite.

In view of this paradigm, the appear-

ance of a book for students of particle physics that mentions quarks only in passing is somewhat surprising. While I regard Pilkuhn's selection of topics as excessively reactionary, it is not without merit. It is important for students to become familiar with a broad range of the phenomena that are the concern of high energy physics. Many aspects of these phenomena cannot be described economically on the constituent level, although systematics frequently can be interpreted neatly in terms of quarks. Beyond this, the author seems to have in mind a wider audience than incipient particle physicists, including students of intermediate energy and classical nuclear physics. The reader of *Relativistic Particle Physics* will indeed gain an awareness of the general phenomenology of particle physics but will have a somewhat dated impression of what constitutes current theoretical and experimental research.

The strong point of the book is its treatment of nonstandard textbook topics in applied relativistic quantum mechanics. The classical applications are to problems in atomic structure, but these have served as prototypes for recent descriptions of hadron masses. Generally speaking, techniques are thoroughly explained but specific experimental facts are described only briefly. The discussion of the Weinberg-Salam model is quite condensed. The subtleties of spontaneous symmetry breaking are not adequately explained, and no comparison is made with data. In contrast, the chapters on hadron-hadron scattering contain good introductions to a number of useful methods.

For use as a textbook, *Relativistic Particle Physics* would be improved by the addition of sets of problems and by the inclusion in the bibliography of more review articles or summer school lectures that contain pedagogical discussions of specific topics. Several criticisms must be directed to the publisher. To conserve space, equations have been set in a most annoying format: $^3/_8\pi^{-1}2^{-1/2}$ is a typical infelicity. Many of the figures are sloppily executed, the proofreading is less than meticulous, and the style of the bibliography is inconsistent.

Relativistic Particle Physics is devoted to techniques of lasting interest. Although its viewpoint is not thoroughly modern, it provides a serviceable introduction to high energy physics on the graduate level, and individual sections may be read profitably by researchers.

CHRIS QUIGG

Fermi National Accelerator Laboratory, Batavia, Illinois 60510

Books Received

Advances in Archaeological Method and Theory. Vol. 2. Michael B. Schiffer, Ed. Academic Press, New York, 1979. xii, 340 pp., illus. $26.

Advances in Behavioral Pharmacology. Vol. 2. Travis Thompson and Peter B. Dews, Eds. Academic Press, New York, 1979. xii, 264 pp., illus. $23.50.

Advances in Desert and Arid Land Technology and Development. Vol. 1. Papers from a conference, Cairo, Sept. 1978. Adli Bishay and William G. McGinnies, Eds. Harwood Academic Publishers, New York, 1979. xii, 618 pp., illus. $66.

Biomembranes. Vol. 10. Lionel A. Manson, Ed. Plenum, New York, 1979. xii, 242 pp., illus. $29.50.

Breast Cancer. Advances in Research and Treatment. Vol. 3, Current Topics. William L. McGuire, Ed. Plenum, New York, 1979. xvi, 272 pp., illus. $39.50.

Bridge and Pier Protective Systems and Devices. Kenneth N. Derucher and Conrad P. Heins, Jr. Dekker, New York, 1979. xvi, 328 pp., illus. $29.50. Civil Engineering, 1.

Calculus in Vector Spaces. Lawrence J. Corwin and Robert H. Szczarba. Dekker, New York, 1979. xii, 782 pp., illus. $65. Monographs and Textbooks in Pure and Applied Mathematics, 52.

Cancer. Myths and Realities of Cause and Cure. Manu L. Kothari and Lopa A. Mehta. Marion Boyars, Salem, N.H., 1979. 160 pp. Cloth, $12; paper, $4.95. Ideas in Progress.

Cancer. Science and Society. John Cairns. Freeman, San Francisco, 1978. xiv, 200 pp., illus. Cloth, $13; paper, $7.50. A Series of Books in Biology.

Clinical Infant Intervention Research Programs. Selected Overview and Discussion. Alcohol, Drug Abuse, and Mental Health Administration, Rockville, Md., 1979 (available from the Superintendent of Documents, Washington, D.C.). x, 124 pp. Paper, $3.75. DHEW Publication No. (ADM)79-748.

Cognitive-Behavioral Interventions. Theory, Research and Procedures. Philip C. Kendall and Steven D. Hollon, Eds. Academic Press, New York, 1979. xx, 482 pp. $24. Personality and Psychopathology, 21.

Cognitive Psychology. Wayne A. Wickelgren. Prentice-Hall, Englewood Cliffs, N.J., 1979. xii, 436 pp., illus. $15.95.

Developmental Craniofacial Biology. Harold C. Slavkin. Illustrations by Maureen Dubois. Lea and Febiger, Philadelphia, 1979. xvi, 464 pp., illus. $45.

Developmental Disabilities. Etiologies, Manifestations, Diagnoses, and Treatments. Robert J. Thompson, Jr., and Aglaia N. O'Quinn. Oxford University Press, New York, 1979. x, 308 pp., illus. Cloth, $13.95; paper, $8.95.

Differential and Integral Equations. Boundary Value Problems and Adjoints. Štefan Schwabik, Milan Tvrdý, and Otto Vejvoda. Reidel, Boston, 1979. 248 pp. $39.50.

Dislocations in Solids. Vol. 1, The Elastic Theory. F. R. N. Nabarro, Ed. North-Holland, Amsterdam, 1979 (U.S. distributor, Elsevier, New York). viii, 350 pp., illus. $61.

Electrons in Disordered Metals and at Metallic Surfaces. Papers from a NATO Advanced Study Institute, Ghent, Belgium, Aug. 1978. P. Phariseau, B. L. Györffy, and L. Scheire, Eds. Plenum, New York, 1979. viii, 574 pp., illus. $59.50. NATO Advanced Study Institutes Series B, vol. 42.

Electro-Optics and Dielectrics of Macromolecules and Colloids. Proceedings of a conference, Uxbridge, England, Apr. 1978. Barry R. Jennings, Ed. Plenum, New York, 1979. xvi, 408 pp., illus. $42.50.

Elie Cartan-Albert Einstein Letters on Absolute Parallelism, 1929–1932. Robert Debever, Ed. English translation by Jules Leroy and Jim Ritter. Princeton University Press, Princeton, N.J., 1979. xvii, 236 pp. $20.

Encyclopedia of Medical Tests. Cathey Pinckney and Edward R. Pinckney. Pocket Books, New York, 1978. 222 pp. Paper, $4.95. A Wallaby Book.

Freud, Biologist of the Mind. Beyond the Psychoanalytic Legend. Frank J. Sulloway. Basic Books, New York, 1979. xxvi, 612 pp., illus. $20.

From Panic to Power. The Positive Use of Stress. John J. Parrino. Wiley, New York, 1979. xviii, 260 pp., illus. $12.95.

Function and Structure of the Immune System. Proceedings of a conference, Damp/Kiel, Germany, June 1978. Wolfgang Müller-Ruchholtz and Hans Konrad Müller-Hermelink, Eds. Plenum, New York, 1979. xxii, 850 pp., illus. $75. Advances in Experimental Medicine and Biology, vol. 114.

Functional Integration and Quantum Physics. Barry Simon. Academic Press, New York, 1979. xii, 298 pp. $29.50. Pure and Applied Mathematics, vol. 86.

Fundamentals of Contemporary Set Theory. Keith J. Devlin. Springer-Verlag, New York, 1979. viii, 184 pp. Paper, $9.50.

Good Laboratory Practice. Papers from a conference. G. E. Paget, Ed. University Park Press, Baltimore, 1979. xiv, 204 pp., illus. $24.50. Topics in Toxicology.

Group Psychotherapy and Personality. Intersecting Structures. Henry Kellerman. Grune and Stratton, New York, 1979. xxii, 346 pp. $19.50.

Guide to Gas Chromatography Literature. Vol. 4. Austin V. Signeur. IFI/Plenum, New York, 1979. x, 1322 pp. $145.

Handbook of the Birds of India and Pakistan. Together with Those of Bangladesh, Nepal, Bhutan and Sri Lanka. Vol. 1, Divers to Hawks. Sálim Ali and S. Dillon Ripley. Oxford University Press, New York, ed. 2, 1978. lviii, 382 pp., illus. + plates. $29.95.

Heat Pumps. R. D. Heap. Spon, London, and Halsted (Wiley), New York, 1979. xii, 156 pp., illus. $9.95.

Immunoserology in the Diagnosis of Infectious Diseases. Proceedings of a symposium, Philadelphia, Nov. 1977. Herman Friedman, T. Juhani Linna, and James E. Prier, Eds. University Park Press, Baltimore, 1979. xii, 194 pp., illus. $19.50.

The Impact of Piagetian Theory on Education, Philosophy, Psychiatry, and Psychology. Papers from a symposium. Frank B. Murray, Ed. University Park Press, Baltimore, 1979. xvi, 232 pp. $14.95. A Publication of the Jean Piaget Society.

Inborn Errors of Immunity and Phagocytosis. Papers from a symposium, Elsinore, Denmark, Sept. 1977. F. Güttler, J. W. T. Seakins, and R. A. Harkness, Eds. University Park Press, Baltimore, 1979. xvi, 392 pp., illus. $27.50.

Kinins—II. Biochemistry, Pathophysiology, and Clinical Aspects. Proceedings of a symposium, Tokyo, Nov. 1978. Setsuro Fujii, Hiroshi Moriya, and Tomoji Suzuki, Eds. Plenum, New York, 1979. xii, 610 pp., illus. $59.50. Advances in Experimental Medicine and Biology, vol. 120A.

(Continued on page 1066)