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.

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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.

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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-