significant criticism of basic concepts by Jaegwon Kim and a restatement of fundamentals by Mark Bickhard and the late Donald Campbell.

Robert Artigiani

Cao, Tian Yu, ed. *Conceptual foundations of quantum field theory*. Cambridge: Cambridge University Press, 1999. 399 pp.

The volume reviewed here contains the talks and discussions of physicists, mathematicians, philosophers, and historians who took part in a three-day conference held at Boston University, March 1-3, 1993. Although some historians, such as John Stachel, Laurie M. Brown, and David Kaiser contributed to the conference, it was devoted to mainly conceptual and non-historical analyses of quantum field theory.

Conceptual foundations of quantum field theory can be recommended not only to specialists but also to general readers interested in the relation and communication between physicists and philosophers (and historians) of physics. In addition to the texts of the talks, the book contains extensive transcripts of interruptions, session discussions, and panel discussions. Differences of disciplinary cultures and difficulties of communication between physicists and philosophers emerge in several places. For example, Steven Weinberg did not submit a paper to the commentators (Brown and Fritz Rohrlich), because, as is his custom, he had none: "I have only once in my life prepared a written version of a talk in advance, and although the written version was pretty good, the actual talk was terrible." A physicist, Michael Fischer, disrupted Cao's talk twice: "If he's misunderstood line one, why should I bother to listen to his line three, four and five [?]." Foster rejected a call for mutual respect between different disciplines, because "you cannot ask respect for people who are not prepared to define terms!" A physicist, Carlo Rovelli admitted embarrassment of his fellow physicists' "attitude of lecturing." In sum, as the editor himself states, "although the experiment in dialogue was not completely successful," this volume presents an "interesting material about the tension between two groups of scholars."

Kenji Ito

Fan, Dainian, and Robert S. Cohen, eds. *Chinese studies in the history and philosophy of science and technology*. Kathleen Dugan and Jiang Mingshan, trans. Boston: Kluwer Academic Publishers, 1996. (*Boston studies in the philosophy of science, 179*) 471 pp.

This is a collection of the English translations of articles that originally appeared in *The journal of the dialectics of nature*, the premiere publication on the history, philosophy, and sociology of science and technology in China, during the period 1979-1985. Topics include general treatises on science, democracy, and society, essays on the philosophical implications of traditional Chinese science,

and papers on the history of science and technology, mainly in the Chinese context. Readers of *HSPS* might be particularly interested in three papers on the experiences of Niels Bohr, Robert Millikan, and Norbert Wiener in China during the first half of the 20th century. Essays by Yu Guangyuan and Xu Liangying on the relations of science and society, by Fang Lizhi on the philosophy of physics, and by Jin Guantao and his co-authors on why China lagged behind the West in modern science were enormously influential during the pivotal discussion on science and politics in China in the early 1980s under Deng Xiaoping. Unfortunately the volume stops at 1985, just before a new round of intense national debate over science and Marxism began to rage in the pages of the journal. Thus, this book should be read together with H. Lyman Miller's *Science and dissent in Post-Mao China* (1996) which provides the background and analyses the impact of that debate.

Zuoyue Wang

Goddard, Peter, ed. *Paul Dirac: The man and his work.* Cambridge: Cambridge University Press, 1998. xv, 124 pp.

This volume consists of four lectures given at the Royal Society celebrating Dirac's life and work plus Stephen Hawking's brief memorial address at the erection of a plaque to Dirac in Westminster Abbey. Abraham Pais charmingly and insightfully conveys the flavor of both Dirac's life and his scientific thinking. That is, first play with mathematics for its own sake, and only later see if it leads to new physics. The other three essays, on antimatter, the monopole, and the differential operator introduced by Dirac in his study of quantum theory, pale in comparison with Pais' contribution.

Norriss S. Hetherington

Hars, Florian. *Ferdinand Braun 1850-918. Ein Wilheminischer Physiker*. Berlin: GNT-Verlag 1999. 272 pp.

The emergence of modern physics is commonly connected to the rise of theoretical physics culminating in quantum theory and special relativity. Ferdinand Braun's notion of physics closer to its applications and to technology was neglected in the first half of the 20th century by university physicists anwd, later, by historians of science. Florian Hars' book is the first full-length biography of Braun that meets modern standards of historical research. It draws on a wealth of previously unknown and unexamined archival resources.

After a short period as a schoolteacher in Leipzig, Braun received an "Extraordinariat" professorship for theoretical physics in Marburg. Later, he was appointed to a full professorship of physics at the Technical University in Karlsruhe and, finally, a full professorship of physics at the (then German) University of Strasburg. Braun's scientific contributions included experiments on mineral metal