



Phys. perspect. 11 (2009) 1–1  
1422-6944/09/030xxx-1  
DOI 10.1007/s00016-009-0425-7

© Birkhäuser Verlag, Basel, 2009

**Physics in Perspective**

Lillian Hoddeson, Adrienne W. Kolb, and Catherine Westfall, *Fermilab: Physics, the Frontier, and Megascience*. Chicago, The University of Chicago Press, 2008, 497 pages. \$45.00 (cloth).

This book is masterful in being both a major scholarly contribution to the history of physics and a riveting read, even for someone like this reviewer who was not involved in the planning or operation of Fermilab. The book's first hundred pages trace in a dramatic way the scientific and political discussions during the 1960s that led up to the selection of the Illinois site and the choice of Robert R. (Bob) Wilson as the lab's first director. This was far from a foregone conclusion, as the authors make abundantly clear, with proposals coming from all parts of the country, including Berkeley, with its successful thirty-year record of building particle accelerators, which seemingly had the inside track.

During this period numerous review committees studied proposals, fiscal issues shifted and the climate for the support of science underwent numerous changes. All of this made it difficult to progress systematically. Friendships and alliances were tested, but the ability and inspirational leadership of Bob Wilson shines clearly through the story: He appears to have been a combination of American frontier ingenuity, can-do hands-on technical skill, and Renaissance appreciation of the aesthetic. The innovative approaches he pioneered led to constructions under budget and in shorter than projected times.

The authors also make clear, however, that the picture was not altogether rosy for Fermilab's achievements in its first decade of operation; the 1970s were not as remarkable as might have been hoped. Certain opportunities, for example, the discovery of weak neutral currents and of the  $J/\psi$ , possible at Fermilab, occurred elsewhere. Besieged by continuing fiscal crises, Wilson resigned in 1978. Leon Lederman assumed the leadership and guided the continued growth of the lab. He is quoted as comparing himself to Wilson by saying, "I was a good physicist. Bob was a great man." This is surely an understatement, for Lederman, as well as being one of the most successful experimentalists of our time, was also an inspiring leader and a skillful politician.

By the mid-1980s, a program of colliding proton and antiproton beams was in place and two very large groups, CDF and D Zero, each numbering hundreds of physicists, had begun operating the giant detectors they had built. The chapter that describes this growth is aptly entitled, "Megascience Realized: Colliding Beams, 1967–1989," for it shows clearly the transition to a new mode in both organization and operation of high-energy physics experiments. Since Lederman, Fermilab has had three directors, John Peoples, Michal Witherell, and now Piermaria Oddone. Each has advanced the laboratory's program, maintaining its vitality and its position at the forefront of physics research.

The book concludes with a chapter on the Superconducting Super Collider debacle and an epilogue. There is also a very useful, comprehensive appendix that lists all of the approved Fermilab experiments up to 1992, the spokesperson for each of them, and the date they were completed.

The authors benefited from a long connection to Fermilab and complete access to personnel, files, and archives. They also display a sense of the historical changes and a thorough understanding of the physics. It is, however, to their great credit that they also have produced such a readable page turner. Fermilab, still working magnificently in 2009, has found the chroniclers it deserves.

Gino Segrè  
Department of Physics and Astronomy  
University of Pennsylvania  
Philadelphia, PA 19104 USA  
e-mail: segre@physics.upenn.edu

