The National Labs: Science in an American System, 1947–1974

Peter J. Westwick
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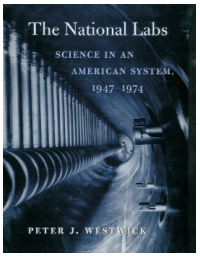
Peter Westwick's carefully researched history of America's important national laboratories—Los Alamos, Brookhaven, Argonne, Lawrence Berkeley, Oak Ridge, and Lawrence Livermore—spanning the period from 1947 to 1974, adds significantly to our understanding of American science during a volatile part of the cold war, because historians of science have generally focused on covering events in academia and industry. *The National Labs* seeks to explain the relationship between national security and the national lab system and should interest both scientists and historians.



Westwick unfolds the book's central theme of, as he describes it, "systemicity" using his designated periods of cold war history—its "winter" (1947–54) of tension during the Berlin blockade and the formation of the North Atlantic Treaty Organization; its "false spring" (1954–62) of political and military unrest during the Hungarian revolution and the Cuban missile crisis; and its period of adaptation (1963–74) as nations resolved to cooperate despite their suspicions of one another. He treats the laboratories as components of a coordinated entity resembling the Solar System, with the Atomic Energy Commission, which emerged out of the Manhattan Project, playing the role of the Sun. As a historian who, for many years, has researched portions of this larger story of the national labs, I find Westwick's integrated framework of considerable interest.

The book, however, suffers from the weight of its thematic objective. The historical content is vast, encompassing the work of thousands of researchers, most of which Westwick is forced to summarize or ignore. In a few cases, the elimination of some detailed information in the history is misleading, especially when comparisons are made. For example, although Westwick's distinction between the academic model of Brookhaven and the "more functional" arrangement of Director Norris E. Bradbury's Los Alamos laboratory is certainly valid with respect to the organizational charts of the time, his comparison washes over the fact that Los Alamos was also originally organized along academic disciplinary lines. The shift at Los Alamos to a more functional institution was motivated by a crisis in the summer of 1944: The discovery of spontaneous fission in pile-produced plutonium demanded an abrupt change in the design of the plutonium weapon. The laboratory's reorganization did not, however, erase the academic organizational tradition that J. Robert Oppenheimer (the lab's first director and Bradbury's predecessor) established. Also debatable is Westwick's provocative statement that the "provision of big machines and technologies . . . seemed to provide no place for theorists." The statement can be contested in numerous cases: Theorists served as far more than mere "calculators" or "number crunchers."

Westwick's discussion of the "truly national laboratory" (TNL), designated as "truly national" to indicate that outside researchers were accommodated, connects with an important discussion by physicist and later Nobel laureate Leon Lederman who coined the initials TNL in a 1963 position paper. Lederman wrote the paper when he was representing the discontented outside users of the Brookhaven (BNL) and Berkeley facilities. He claimed that BNL was not a TNL because it was giving preference to regional researchers. By the mid-1960s, the TNL notion played an influential role in events that brought the Fermi National Accelerator Laboratory to the Midwest. The TNL concept helped to redefine what Westwick refers to as the "core meaning" of a national lab: a multipurpose laboratory providing facilities for outside researchers.

Westwick touches upon the national laboratories' turn toward internationalism in the mid-1950s with participation in such efforts as Atoms for Peace and the International Conferences on Peaceful Uses of Atomic Energy. These meetings and the international discussions about building a "Very Big Accelerator" would form a crucial part of the prehistory of the effort to build the Superconducting Super Collider (SSC).

The National Labs is almost free of the aspirations, disappointments, achievements, and quirks of individuals. But when Westwick does stop to tell a story about people—like the one about the lab director's club and its unsuc-

cessful Yosemite Revolution in 1957—he does so clearly and well. From that particular story, we learn of the critical tension between regional and national lab systems. Each director defended his own lab "and diverted the group from common problems of organization." Such tension would later haunt the SSC and contribute to its demise.

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