



## American Science Policy since World War II

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conditions that have periodically made it necessary for social and behavioral scientists to explain their craft.

Larsen notes an ambivalence about social and behavioral research that permeated discussions from the very beginning of the NSF. The charter made no specific reference to such research, unlike its earmarking of research in the mathematical, physical, medical, biological, and engineering sciences. But it opened the door by its reference to other sciences. The social sciences entered that door in 1953, when the NSF established a program for anthropology "and related sciences" within the Division of Biological and Medical Sciences. Larsen describes the 1950s as an era of convergence and piecemeal expansion, for over that decade the foundation moved to consolidate and sometimes to enlarge its efforts in the social and behavioral sciences, generally in no systematic way.

The years that followed witnessed the waxing and waning of the fortunes of the social and behavioral sciences in the NSF. Larsen provides an especially detailed account of developments during the 1980s. He began his own affiliation during that time—as Division Director of Social and Economic Science, a unit of a larger directorate on Biological, Behavioral, and Social Sciences. This was the time, too, when the social and behavioral sciences lost ground. Political currents beyond the NSF that produced questions about the value of activities outside of the physical, mathematical, biological, and engineering sciences led to the demise of science education and draconian cuts in the behavioral and social science budgets at the NSF. Larsen shows that the behavioral and social sciences weathered the crises, partly through the efforts that coalitions mounted and partly because of changes in leadership in the science policy community. Whatever the confluence of factors, they served to make possible the creation in 1991 of an NSF directorate for the Social, Behavioral, and Economic Sciences, putting these disciplines on an organizational par with the mathematical and physical sciences, computer and information sciences, biological sciences, engineering sciences, and geosciences.

The Larsen account is a sobering one for proponents of the social and behavioral sciences. It suggests just how uncertain their course of development can be, as conditions outside of the fields themselves take shape. Clearly, the new directorate can benefit from

the detailed rendering of events that have produced both gains and losses for the disciplines whose health it is to promote. There are accounts yet to be written, however—a point Larsen would be unlikely to dispute. Larsen has traced the fortunes of the social and behavioral sciences within the NSF; circumstances influencing the foundation as a whole receive less attention in *Milestones and Millstones*. Yet the course of the entire foundation and its constituent elements outside of the social sciences has hardly remained fixed over the years. From the outset, policymakers differed on their goals for the new agency: some wanted it to assume much of the role for research that had fallen to the Defense Department; others saw it as but one element in a larger research enterprise. The latter view has gained precedence, as evident in the rise of other agencies—the National Aeronautics and Space Administration, for example—and the demands for increased budgets for medical research. *Milestones and Millstones* describes some of the shifts engineering research has experienced over time; the book attends less to changes in programs and priorities within the physical and biological sciences at the NSF. What remains to be developed, then, are analyses that connect the conditions affecting science policy overall to the fortunes of the NSF and the effect of those fortunes on the social sciences.

Larsen has provided a rich description of the social and behavioral sciences in a given organization. It must be left to others to link that description to the general course of the social sciences in the United States. The effect of developments at the NSF on the knowledge base and the evolution of the social and behavioral sciences remains to be probed. Such an undertaking requires an analysis that extends beyond the realm of the NSF. Larsen has contributed to such an analysis through his detailed and highly personal account of the experiences with these sciences at the premier U.S. agency for research in the public interest.

CORA BAGLEY MARRETT

**Bruce L. R. Smith.** *American Science Policy since World War II.* x + 230 pp., figs., tables, index. Washington, D.C.: Brookings Institution, 1990. \$34.95.

In recent years, history of science policy has increasingly become one of the best bridges

between the history of science and mainstream history. Yet if you want to create a course on the subject, you will find that little is available for use in the classroom. Bruce L. R. Smith's succinct overview, though imperfect, partially fills such a need.

Smith, a veteran science policy analyst at the Brookings Institution in Washington, D.C., paints the evolution of postwar U.S. science policy with a broad brush, giving emphasis to its technological and economic aspects. The postwar period is divided into three phases. The first, extending from 1945 to 1965, was marked by economic prosperity and a national endorsement of science and technology. The second phase, 1966 to 1980, witnessed the loss of this optimistic consensus amid the turmoil of the Vietnam War; while the third, encompassing the 1980s, is said to mark its partial revival.

Synthesizing a large body of literature, Smith examines, in each phase, the five elements of his definition of science policy: basic research, applied research, commercialization, regulation, and international affairs. The book's focus on government policy regarding civilian technology and technological innovations is particularly refreshing. Many charts and tables are used to good effect in illustrating national and international trends in science funding, technical manpower, and industrial productivity. In general, Smith concludes that the system of science policy that is based on pluralism, flexibility, and peer review has served the United States well and could continue to do so if it is given greater coherence and rationality.

Despite its attempt at comprehensiveness, however, historians of science will likely find this book wanting in several aspects, in particular because of its brevity. The discussion of many subjects, such as the evolution of patent policy, is tantalizingly short. One yearns for more historical texture in terms of explanation of specific events, players, and institutional developments in science policy.

The book is also clearly written from a present perspective, in the hope of using such a review to inform today's science policy debate and to reform the current system. While such use of history is quite justified, the approach might leave out key historical events that do not seem to be of current concern. In Smith's discussion of the postwar consensus in the 1945–1965 period, for example, the deterioration in the relationship between scientists and government due to McCarthyism

is not mentioned at all. Consistent with the book's "presentist" orientation, the chapter on the Reagan era is by far the longest and most complete. There is also a relatively detailed discussion of the origin and evolution of the presidential science advisory system in the 1950s through the 1970s, although the demise of the system under Nixon is already foretold in a preceding chapter.

On balance, Smith presents a systematic and accessible survey of U.S. science policy that will be useful to students; historians of science will desire more information and analysis.

ZUOYUE WANG

**Christopher Sexton.** *The Seeds of Time: The Life of Sir Macfarlane Burnet.* x + 301 pp., illus., apps., bibl., index. Oxford/New York/Melbourne: Oxford University Press, 1991. \$39.95.

Born in 1899, Sir Macfarlane Burnet can lay claim to have been Australia's most distinguished scientist this century. He is certainly among its most internationally well known. One of only ten Australians (including Patrick White) to have won a Nobel Prize, "Mac" has been to Australian science what Manning Clark has been to Australian history. He is, by the same token, a tantalizing subject for a biographer, a challenge made no easier by the mystique surrounding the Anglo-Australian "scientific establishment." That challenge is formidable. Burnet was an adamantly private man, the very soul of the "detached scientist." Or perhaps "soul" is inappropriate, as Burnet was a humanist, and in that important respect distant from his fellow Australian Nobelist and friend, Sir John Eccles, a confirmed Catholic. He was also a rationalist, uncomfortable with many modern social tendencies, who saw the future prophetically, at times in Wellsian terms.

Christopher Sexton has skillfully woven living memories, technical details, and personal facts into a seamless narrative fabric. His account is, by intention, not a traditional scientific biography—rather, a "book of voices," in the words of its author, a practicing barrister-cum-political and cultural biographer. Conventionally enough, however, Sexton presents Burnet's life through a predictable sequence of family and research portraits, ultimately canvassing his accep-