A Technological Controversy

Clipped Wings. The American SST Conflict. MEL HORWITCH. MIT Press, Cambridge, Mass., 1982. xx, 474 pp., illus. $25.

The effort to develop an American supersonic transport plane touched off one of the most fascinating technological controversies of the 20th century. During the late 1960's and early 1970's, a diverse coalition of public and environmental interest groups confronted the aerospace industry and its Washington lobby in a highly visible and extremely emotional battle that determined the fate of the SST. The conflict was structured and focused, because the financial support of the United States government was indispensable for the development of the aircraft. Congress became pivotal to the fortunes of the SST, and the American public was afforded a rare opportunity to assess the costs and benefits of a technological innovation before crucial decisions were made.

The publication of Mel Horwitch's *Clipped Wings* provides the occasion for reflection and analysis of a conflict that spanned more than a decade and involved four presidential administrations. *Clipped Wings* is the product of a prodigious research effort involving extensive primary sources assembled from federal agencies, presidential libraries, citizen groups, and the National Academy of Sciences. It offers a detailed account of the SST program from its origins in the late 1950's through the final congressional vote in March 1971, and it provides a revealing glimpse of the institutions and actors that participated in the debate.

Horwitch describes the interagency disputes and personality conflicts that bedeviled the project from the outset. The effort of the Federal Aviation Administration (FAA) to maintain control over development of the SST in opposition to the President's Advisory Committee on Supersonic Transport (PAC) consumed the energies of scores of public officials during the mid-1960's. Key actors, such as Najeeb Halaby, William McKee, and Jewell Maxwell of FAA and Robert McNamara and Stephen Enke of PAC, emerge from these pages as bureaucrats who sought to defend the interests of their agencies while implementing their perception of the public interest.

Clipped Wings also chronicles the rise, and ultimate triumph, of the anti-SST lobby. Horwitch details both the activities of the various citizen groups that campaigned against development of the aircraft and the efforts of federal agencies and SST supporters to respond to criticism of the project. Although the author's sympathies clearly lie with SST opponents, he never consciously distorts his presentation of their activities to cast a more favorable light on them. But the bureaucrats in *Clipped Wings* are more complex and interesting characters than the activists, and Horwitch's portrait of bureaucratic politics is far more fascinating than his description of citizen group activities.

There are some interesting revelations in this book that will confirm many of the suspicions nurtured by project opponents throughout the battle. The marginal economic prospects of the SST were understood from the outset, and the commercial carriers, who would have been the primary consumers of the product, were privately skeptical even as they publically trumpeted the virtues of development. U.S. officials never regarded the Concorde as a serious competitor, even when they pointed to the European effort as evidence of the necessity for continuation of the project. No American president championed development of the SST; even Lyndon Johnson, who as vice president had lobbied on behalf of the aircraft, lost much of his enthusiasm for the project following his elevation to the presidency.

These revelations will make *Clipped Wings* an enjoyable reading experience for SST opponents. Readers who seek insight into the conflict, however, will be disappointed with the book. Although the empirical research is impressive, the author never succeeds in extracting himself from his data and providing the reader with an analysis and interpretation of the conflict. Was the SST project defeated by a new public interest lobby, or did it collapse of its own weight? How significant was bureaucratic conflict, as opposed to lingering technological problems or economic skepticism, in retarding development of the aircraft? How valid were the arguments raised by supporters and opponents of the SST during the public debate over development? And how did the demise of the project affect American leadership in aviation technology? Such issues are addressed only indirectly in this book.

The author, moreover, makes no effort to analyze the impact of the SST conflict on American attitudes toward science and technology. During the 1970's, students of technology and society generally regarded the decision to terminate the SST program as a turning point in America's love affair with technology. The socioenvironmental lobby that emerged victorious from the conflict proceeded to confront other technological objectives in the 1970's from a position of strength, as a wary public appeared increasingly skeptical of the virtues of technology. But public attitudes seem to be shifting once again in the 1980's, and environmentalists now appear to be on the defensive. Did the SST conflict, then, mark the dawn of a new era, or was it merely a temporary aberration reflecting the political climate of the late 1960's and early 1970's? Unfortunately, the author has chosen to ignore the issues of lasting importance that emerged from the conflict.

Clipped Wings may well be the definitive history of the SST controversy. Certainly, no other study is likely to produce the richness of detail that characterizes this book. But the reader would have been better served if Horwitch had been more selective with detail and more expansive with analysis. Nearly 350 pages of memoranda and explicit accounts of meetings make the book difficult to read, and those who complete the task are unlikely to emerge with a clear appreciation of the episode. *Clipped Wings* will be of interest to students of bureaucratic conflict and may prove useful in management training courses, but those who expect a detailed case study to provide analysis and interpretation along with description will be sorely disappointed.

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Relics of Solar System History

Meteorites. A Petrologic-Chemical Synthesis. ROBERT T. DODD. Cambridge University Press, New York, 1981. xii, 368 pp., illus. $69.50.

Meteorites preserve the record of numerous processes that occurred during the first 100 million years of the history of the solar system. Chondritic meteorites formed in the primitive solar nebula and have approximately solar abundances of all but the most volatile elements. Some chondrites underwent