This book grew out of my experience in the early 1970s in the Office of Science and Technology, the supporting staff for the science adviser to the President. As a physician and a scientist, I had come to that position after several years on the faculty at Harvard, where I had been engaged in biomedical research and teaching. Fortunately, my preparation for Washington had been broadened through a joint appointment at the John F. Kennedy School of Government, which gave me an initial window on the world of science policy.

I had been warned by my predecessors more than once before coming to Washington that one of the things one did not do as a member of the presidential science advisory apparatus was to sit back and make something called science policy. The instructions about what one was supposed to do, however, were less clear.

My initiation ceremony was as abrupt as it was instructive. As I walked through the halls of government for the first time, I was handed the issue of 2, 4, 5-T—the shorthand chemical designation for a herbicide used heavily in the United States and as a defoliant in the war in Southeast Asia. 2, 4, 5-T was implicated as a cause of birth defects among those born of mothers exposed to the chemical. 2, 4, 5-T exploded suddenly as a political/scientific issue with a large number of derivative and far-reaching aspects. This one issue became immediately instructive in indicating the dimensions of the subjects which were to link the public policy machinery to the world of science.

There followed for me a long series of issues covering a very wide territory. The menu of activities brought to the science adviser’s office is inevitably a broad one. In my case, it covered such items as nutrition and the world food question, national health insurance, medical education and policies for the training of physicians, family planning and population, regulation designed to
protect human health and the integrity of the physical environment, and policies governing the federal support of biomedical research.

There were a great many short-term issues—protection of uranium miners from exposure to ionizing radiation, bilateral international scientific exchanges with a variety of nations, the establishment of air pollution standards, appointment of the directors of the National Institutes of Health and the National Cancer Program, and interaction with a constant stream of legislative initiatives. An anchoring feature with recurrent and periodic aspects was the budget process of the executive branch. The annual budget “cycle” reached a climax each fall (budget season) in a ritual of supplication, special pleading, and final decision. Somewhat in the spirit of a newspaper reporter, each member of the staff of the Office of Science and Technology had his own “beat” or territory made up of the agencies which corresponded to his professional skills and interests.

There was, however, an array of longer-term issues. Here the process of articulation with the public policy machinery became substantially less effective. The reasons for this became apparent. In part, they turned around matters of timing. The democratic political process is by nature a responsive one. Public policy issues raised well ahead of time are of academic importance to public office holders whose terms are only two or four years. At the other extreme, issues which are so imminent that no deliberate decision making can be influential are outside the realm of useful manipulation by politicians. Consideration of these is similarly academic. The window of opportunity was a narrow one and it focused principally on issues just over the horizon—likely to break on the public scene within the foreseeable future.

However, there were more fundamental problems that colored the match between the science adviser and his advisee. One of these problem areas was an inevitable dual role for the science adviser. This concerned the duality of functions of supposed advocate or at least representative of the interests of the scientific community on the one hand and objective, third-party counsel on important national issues on the other. The Science Adviser did have a constituency of sorts of his own—generally in the academic scientific community. However, compared to his counterpart, the chairman of the Council on Environmental Quality, the science adviser’s following was always less well organized, less vocal, and less of a political force.* This conflict between

*The dual role played by the Council on Environmental Quality has generally proved to be an impossible one. In part because the chairman of the CEQ represented a large vocal constituency of environmentalists, the effectiveness of the CEQ in dealing with “inside” matters, national projects and issues, was substantially diminished over time.
"inside" and "outside" interests was probably not as prominent as some observers of the scene have contended.

There were, in a sense, far larger problems. These turned around fundamental differences between the incentives that were important to politicians and those that operated on scientists and engineers who staffed the Office of Science and Technology. This fundamental conflict was nowhere more apparent than in those instances where the Science Adviser attempted to embrace a fundamental issue with far-reaching implications for the nation. If a President really wished to improve the health of the American populace, where should his initiatives be directed to be most effective? What was regulation, designed nominally to protect against hazards of environmental chemicals or unsafe medical devices or ionizing radiation, really "purchasing" in the way of health? What was the value of national investments in fundamental biological and medical research toward the improvement in health of the population? Questions such as these, which at least one line of logic could judge to be fundamental to reasonable policy making, were of little use to the public policy machinery in real life. Worse than that, there was frequently an active fear generated whenever study was begun for such a question. To address such broad questions deliberately and analytically was to question conventional wisdom on several fronts and threatened (if only on paper) to disrupt elements of national stability. Such an activity too closely borders on the stuff of national planning—an activity not known for its political attractiveness in the United States.

The present book reflects a period of experience. It seeks to compare the nominal charter for the President's science adviser and his staff with the realities of that office. It is a view of that White House function over a brief period of six years. During those years, I volunteered some ideas to others in the form of published papers and talks before professional peers. I was urged to share some of these ideas with a broader audience. Two of the published papers have been drawn upon rather heavily for a portion of this present book, although the original material was adapted and brought up to date. In this regard, I am indebted to the Elsevier Publishing Company for permission to reprint and otherwise reflect portions of an article published in 1976 in *Technological Forecasting and Social Change* (in Chapter 2) and to the Federation of American Societies for Experimental Biology for material first seen in *Federation Proceedings* in 1975 (in Chapter 4).

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