2. SCIENCE ADVICE FOR THE PRESIDENT: A PERSPECTIVE

Evolution of the Presidential Advisory Mechanism

Van nevar Bush, perhaps, deserves the title of the first real presidential science adviser. There had been earlier attempts—particularly during the presidency of F. D. Roosevelt—to bring the benefits of science and the judgments of scientists into the White House. The appointment of Bush, however, as head of the Office of Scientific Research and Development, was the first serious attempt to couple scientific talent to the public policy machinery. Vannevar Bush’s fundamental charter was to mobilize science and its offspring, technology, in behalf of pursuing a successful conclusion to a World War. In this, he and his institution, the OSRD, were eminently successful. Bush later described himself as the “scientific adviser” to the President on “civilian scientific matters.” In performing this role, Bush saw himself as a link between the White House and the scientific and engineering communities.

The faith that was born of that now famous wartime experience was that the potential of science to help realize the betterment of human welfare, broadly speaking, was enormous but had barely been realized. The wartime record was held up as the model to be followed broadly. Optimism in general, and for the potential of science in particular, was at a high level. Roosevelt’s letter to Bush at the end of the war, inviting the latter’s appraisal of how best to utilize science for society’s needs generally, proposed that the government had only begun to utilize science in the nation’s welfare.

A key question concerned the proper form of the coupling. The admitted success of the OSRD experience was great. The national goal of winning a war was of extreme importance. This goal was not subject to national debate.
Rather, the war mobilized the electorate and "made it possible to cut against the grain of our political habits and prejudices." The particular institutional form of the OSRD was important. In Vannevar Bush's own appraisal, the two elements of greatest importance in regard to form were direct reporting to the President and funds of its own. A third element of importance was the fact that its work was transacted in secret—entirely out of the public's view. This again removed its activities from the give and take of political debate. Finally, there is every indication that the President desired the counsel of his scientific adviser.

*Science, the Endless Frontier*, Vannevar Bush's report to the President, urged that it was in the national interest to foster the growth and prosperity of science through public support. That notion was certainly accepted. Beginning in 1946, the Atomic Energy Commission was created, the Office of Naval Research was established, and the activities of the National Institutes of Health were placed into a mode of expansion which would not even begin to slow until the mid-1960s. However, the National Research Foundation, called for in Bush's report, eluded creation for half a decade. Its ultimate realization, in the form of the National Science Foundation, was due in part to expressed concerns over a "lack of coordination" among the evolving breadth of governmental scientific investments and, once again, to a new war—this time in Korea. In 1947, President Truman received five volumes of a report on federal scientific research (the "Steelman Report"). This, in effect, complemented the Vannevar Bush report of two years before. It recommended, among other things, a member of the White House staff for scientific liaison and an Interdepartmental Committee for Scientific Research. In 1951, President Truman attached eleven of the nation's top scientists to a Science Advisory Committee of the Office of Defense Mobilization. This body, the first of its kind to be implanted in the Executive Office of the President, was to "advise the President and the Mobilization Director on matters relating to scientific research and development for defense."

In 1957, the Science Advisory Committee became the President's Science Advisory Committee. President Eisenhower became persuaded of his need for objective and technically sound advice—especially on matters of military and security issues. He responded positively to the urging of one of his own counsellors and appointed a special assistant to the President for science and technology. The first to hold that position was James Killian, an engineer, president of MIT, and a member of the President's Science Advisory Committee (PSAC). Again (and importantly), this new and evolving entity was looked to principally for advice on military matters and on issues of national security.

Most of the elements of what were to become the "science advisory
mechanism" were now in place. The special assistant to the President was effectively the science adviser. The President's Science Advisory Committee was a visible and well-regarded vehicle for gathering expert advice from the scientific establishment in behalf of governmental and national decisions. A third element was put in place two years later in 1959 with the establishment of the Federal Council on Science and Technology. The Federal Council, composed of the highest ranking members of each federal agency responsible for science and technology, was designed to bring about an element of "coordination" of federal science and research.

Dr. George Kistiakowsky, who succeeded Killian in 1959 as special assistant for science and technology, continued in the pattern of his predecessor. As in Killian's case, Kistiakowsky's principal concerns were in fields of military and national security issues. His diary of those years reveals, for example, a sizable fraction of his effort and time devoted to technical aspects of a nuclear test ban treaty.* A new (but similar) preoccupation for the science adviser, the national space program, became prominent after the Russians orbited Sputnik I in 1957. In a sense, this set of issues was simply an extension of the general area of science and technology for military and national security purposes. At the same time, however, the electorate became fascinated by the combination of advances in both science and national prestige that were thought possible through a civilian space program. This latter eventually galvanized the electorate in behalf of a program of manned lunar exploration.

In the early 1960s, important changes occurred in the pattern of presidential science advice. Dr. Jerome Wiesner replaced Kistiakowsky as special assistant in March 1961. A subcommittee of the Senate Government Operations Committee was moving toward recommendations for organizational changes in the President's office to improve the application of science and technology in behalf of defense and security. These recommendations culminated in a proposal for a specific organizational structure, a much augmented staff, a series of specific and structured activities, and a statutory basis for those activities. Partly as a result of these pressures from the legislature, the President transmitted to the Congress on March 29, 1962, a Reorganization Plan that formally established the Office of Science and Technology and brought together the functions of the President's science adviser. A part of the process of "institutionalizing" the science advisory apparatus was to place in the hands of the President's science adviser some of the functions that had

*An exception occurred when Kistiakowsky became embroiled in the controversy over the use of a herbicide, aminotriazole, in the growing of cranberries.
been in the charter of the National Science Foundation but had never been adequately fulfilled. Among these tasks were the responsibilities for "planning" and for "looking ahead" to long-term national needs. There was, in brief, an expressed need for something (as yet undefined) called a national science policy. One of the Congress's motivations in fostering this charge was to render this portion of the President's staff, which had up until that time been unavailable to the Congress, more accessible and accountable to public (i.e., congressional) scrutiny and questioning.

The other feature that was subject to a marked shift in the early 1960s was a broadening of the agenda of concerns and issues for the Office of the Science Adviser from almost purely military ones to a much expanded series of domestic issues. Presidents and their staffs generally sought scientific and technical advice on questions of military preparedness and national security. National priorities had begun to shift in the 1960s. Social issues of health and welfare, employment, and urban decay joined those of energy, transportation, and the integrity of the environment in vying for national and government attention. In corresponding fashion, the role of the presidential science advisory apparatus was broadened to accommodate this shift. In the immediate sense, the shift was a result of an increasing difficulty which Wiesner experienced in trying to assist the President on national security matters. McGeorge Bundy, as special assistant for national security, had assumed a larger role than had his predecessors, and the staff of the National Security Council was enlarged. In addition, there evolved a series of specialized if ad hoc White House advisory offices on national issues, each with a substantial scientific component. Beginning in the 1960s, there arose a National Aeronautics and Space Council and a National Council on Marine Resources and Engineering Development. The Atomic Energy Commission had been established some years earlier. (This trend continued into the 1970s with the creation of a Federal Energy Office and the establishment of a Council on Environmental Policy in the Executive Office.)

This broadening of activities of the science adviser and his staff together with establishment of other related agencies in the Executive Office has been seen by some as contributing to a weakening of the functions and influence of the Science Adviser. What perhaps is yet unclear is whether the "weakening" was simply due to bureaucratic competitiveness, whether it accrued from an intrinsic inability of hard science to deliver useful ideas and solutions to "soft" domestic and social issues, or whether it came principally from President Johnson's antipathy toward scientists.

Eleven years later, in 1973, President Nixon provoked a new rearrangement (or disarrangement) of the presidential science advisory apparatus—again
through a reorganization plan. The arrangements solidified in 1962 had given the Science Adviser four interrelated roles. He was, first of all, the President's science advisor—a function in which he served formally in the White House as a counsellor to the President. He was chairman of the President's Science Advisory Committee—a group of eighteen to twenty persons who met formally for two days each month. Associated with the PSAC organization was an assemblage of approximately two hundred consultants whose counsel and judgment were sought when they served as members of PSAC panels. Thirdly, he was chairman of the Intragovernmental Federal Council on Science and Technology. Finally, he was the director of his own staff—formally known as the Office of Science and Technology. This latter position was, strictly speaking, a part of the Executive Office of the President. In practice, this distinction meant that the Congress could summon the director to testify with his Executive Office hat but not the science adviser with his White House title.

The changes brought about in 1973 amounted to a translation of some functions and an abolition of others. The title and most of the functions of science adviser were handed to Dr. H. Guyford Stever who also served as the director of the government agency, the National Science Foundation. Importantly in this new setting, the science adviser was relieved of his responsibilities for defense and security issues. The President's Science Advisory Committee was abolished while the Federal Council on Science and Technology was retained. Finally, a new staff office was created to take the place of the Office of Science and Technology.

The Nixon reorganization proposal evoked effectively no opposition in the Congress and, in the immediate term, none of the cries of anguish and surprise that one might have anticipated from the academic and scientific communities. Professional and scientific groups, however, did eventually mobilize themselves in ways which were effective in lobbying the Congress for their eventual return to the White House. The National Academy of Sciences proffered a report in 1974 which recommended a role for scientists in presidential policy making and offered a plan which included three scientific counsellors. Former science advisers, individual scientists and engineers, and spokesmen for professional societies all urged on the Congress the point of view that it was in the best interest of both the nation and the President to have good scientific and technical advice formally and institutionally available at his right hand.

A number of legislative proposals were put forward. Finally, in May 1976, the National Science and Technology Policy, Organization and Priorities Act of 1976 was enacted into law—giving the presidential science advisory apparatus
a congressionally initiated statutory basis for the first time. This new law established the position and the functions of the science adviser; it charged him with developing and fostering a "national science policy"; it gave him responsibilities for coordinating federal scientific activities and provided him with a new intragovernmental coordinating committee. The new law did not name a single, visible advisory committee of part-time advisers (to replace the former President’s Science Advisory Committee). Most significantly, the science adviser was given specific functions in relation to national security affairs and in relation to the federal budgeting process—perhaps the most important of the pieces of leverage he was to possess in articulating with the governmental processes. The Congress was careful to reserve an element of accountability to themselves. The new law obliged the writing of an annual report on the state of science and technology and a periodically revised five-year outlook for science and technology. Finally, the Congress charged the science adviser with the development and articulation of explicit “National Science Policy.”

Once again, science and technology were assumed to be of potential value to major domestic challenges in areas of health, transportation, social welfare, and environment. The Congress accepted the urgings of those scientists and engineers who had insisted that there was positive national gain to be realized from the making of scientific and technical advice available to the President for major national policy issues. Killian, himself, speaking in 1974 as the chairman of the National Academy of Sciences’ Ad Hoc Panel on Science Policy, declared that “the proposal we make, the instrument which we describe, is not in our minds an advocacy group for science. We propose an instrument to share in national policy making.”

Analysis for Priority Setting: Past Failures and Present Need

Killian’s and others’ proposal that it is in the President’s and the nation’s interest to have good scientific advice and judgment available to aid in policy making assumes certain key features about governmental processes. The proposal assumes that there is in place a reasonably orderly process dedicated to the establishment of national objectives and to the analysis of optional strategies for achieving those objectives. It assumes, of course even before this stage, that there is a political desire to undertake this orderly process. Finally, implicit in all of this, is an assumption that such an exercise should have some element of forward thinking or future orientation—to allow it to do more than simply
react hastily to the never-ending series of crises brought to the government.

There had indeed been serious attempts at evolving explicit and analytic attempts at policy making. Most of these have been coupled to the government budgeting process. There have been many admonitions to apply the skills of systems analysis and operations research to governmental planning for domestic policies and programs. Planning, Programming, and Budgeting (PPBS) achieved what was considered utility, if not success, in the Department of Defense in the early 1960s. Advocates of PPBS urged its translation into the domestic agencies beginning in 1965. In the early and mid-1970s, a structured process known as Management by Objectives was imposed upon the federal budgeting processes for domestic programs. Currently, the budget-setting functions are governed by yet another structured system—Zero Based Budgeting. In addition, in recent years a good deal of attention has been focused on the application of mathematical modeling techniques—both to simulate and to project for large, complex domestic issues. The underlying notion in each of these cases was that one could articulate goals and propose objectives. By careful study and analysis, one could arrange programs and expenditures in a ranked or priority fashion and then act on the results of those analyses. In spite of the logic behind these planning and budgeting tools, in spite of the basic soundness of some of the methods, these instruments and methods have generally not been eagerly adopted and embraced by the public policy machinery.

In the first approximation, systematic methods for establishing priorities, and for sorting through alternative pathways to the achievement of national goals, would seem to represent a substantial improvement over less systematic methods. Charles Schultze, former Budget Bureau director and now chairman of the Council of Economic Advisers, was one of the most enthusiastic spokesmen for PPBS. He claimed as advantages of PPBS:

1. Careful identification of goals and activities in governmental processes.
2. Analysis of output of a given program in terms of its objectives.
3. Measurement of total program costs for not one but several years into the future.
4. Formulation of objectives and progress extending beyond a single year of the annual budget submission.
5. Establishment of analytic procedures as a systematic part of the budget review.  

Schultze argued in favor of special analysis for decision making in the domestic arena because of what he saw as the fast-rising proportion of government spending for domestic programs. In 1968, when he urged the use of PPBS, he pointed to the fact that the federal budget for civilian programs had
risen from less than 1 percent of the GNP in the 1920s to 5 percent after World War II and to nearly 10 percent in 1968. Interestingly, if a national health insurance scheme were to be enacted, health alone among domestic matters would account for approximately 10 percent of the federal budget by 1980.20

In spite of the apparent logic of these arguments, in spite of what may appear as compelling arguments in behalf of systematic, forward-looking, and explicit analysis for priority setting and budgeting, PPBS did not survive. Neither has there been any other recognized vehicle or established methodology for assisting public administrators (including the President) to formulate national policies and programs. It is against this background that the science advisory apparatus is placed. Specifically, it is the absence of any suitable analytic process in the White House for developing policy objectives and options that makes impossible or difficult the science adviser’s task of contributing to the policy process.

Historically, the leadership of the scientific community viewed its role in science policy conservatively. Assistance to the President in sorting out priorities among purely scientific ventures or decisions on how much federal money should be spent for research and development represent the boundaries of “science policy” with which scientists have traditionally felt comfortable. The grand plan to couple scientific and technical knowledge through research and education to the agricultural sector of the nation in the nineteenth century had been the brainchild of politicians, not of scientists.21 Without question, the OSRD, and through it the scientific establishment, had made very tangible contributions to the national project, victory in World War II. However, that momentum, that willingness to contribute to broad policy decisions in the company of other interests, such as economists and politicians, did not persist following the war. Among other things, the original legislation establishing the National Science Foundation in 1950 charged that body with developing a “national science policy.” In fact, it had been intended by some that the NSF would assume a lead role within the federal government through coordination and representation of scientific activities. Instead, the NSF chose to view its science policy role very narrowly. As late as 1960, its director, Dr. Alan Waterman, defined science policy as the policy governing the support for research (and, perhaps, development).22 It was understandable, in these terms, that Dr. Waterman, in reflecting on the first ten years of the National Science Foundation, considered that “national policy for science is a matter primarily to be determined by the scientists themselves.”23

With time, however, there grew a number of advocates of the point of view that scientists and engineers did have a useful contribution to make to the
public policy machinery for domestic issues. The implications of their recommendations were that a number of large, important decisions were made by the government in which a scientific and technical component was important and prominent. Appropriate judgments in these cases depended upon the availability of good technical advice. There was a role for scientists to contribute actively alongside others—other advocates and detractors with vested interests in the outcomes.

Again, in the instances in which a recommendation was made in behalf of this type of contribution, there was assumed to be a place for systematic planning and analysis for domestic issues and programs. The Report of the National Commission on Technology, Automation, and Economic Progress observed in 1966:

We are concerned with how we decide what to choose. Congress has asked us “How can human and community needs be met?” But there is a prior question: “How can they be more readily recognized and agreed upon?”

What concerns us is that we have no such ready means for agreement, that such decisions are often made piecemeal with no relation to each other, that vested interests are often able to obtain unjust shares, and that few mechanisms are available which allow us to see the range of alternatives and thus enable us to choose with a comprehension of the consequences of our choices.  

The Commission saw the strengthening and making more orderly the processes of forecasting and analysis for decision making in an increasingly technological and complex society as major, or even imperative challenges. However, even as they recommended the use of systems analysis as an aid to planning, the commission members recognized the basic strengths of government as a reflection of public desires:

The basic decisions on policy, of course, are made by the President and the Congress operating within the framework of constitutional processes and individual liberties as interpreted by the courts. And this system has been the political main stay of a free society. Our concern is to strengthen this system at a time when social and technological change begins to confront us so directly and when we need some means of assessing the consequences of such changes in a comprehensive way.

Still others saw something broader and more meaningful politically in the phrase, national science policy. In the legislative deliberations of 1961, concerned with science organization and the President’s office, a subcommittee staff study spoke of the “President’s Problem”—a need for valid and usable scientific advice in his tasks of sorting through competing options and programs of a variety of sorts. It was anticipated that a new, fully staffed office
in the White House would help the President "look ahead." The principal expressed concern was for programs and activities of a military and national security nature. However, among the advantages listed by those advocating the acceptance of the Reorganization Plan No. 2 in 1962 was that of an agency with authority in the area of across-the-board forward planning. The Reorganization Plan, itself, explicitly charged the Science Adviser with an "assessment of selected scientific and technical developments and programs in relation to their impact on national policies." Here was indeed a very different role than one of simply considering how monies for the furtherance of science were best allocated among various categories of research.

By the early 1970s, scientists and engineers had become public advocates for a formal role and an institutionalized mechanism to bring scientific and technical advice to bear on the judgments and deliberations for large domestic issues of housing, health, transportation and social welfare. A Preinaugural Panel on Science and Technology in late 1968 had clearly outlined a series of pressing domestic issues, including health care and the environment, where scientists and science had something to offer. That panel recommended that the incoming President grant cabinet status to the President's science adviser and create a Council of Scientific Advisers. The tone of the introductory statement is revealing:

In times of national emergency, as in the world wars, science and technology have been mobilized and effectively utilized. The Panel believes the Federal Government should utilize scientists and engineers much more effectively in the current environmental crises, in the provision of education and health care to the people, and in the social crises of the cities.

In 1969, the White House invited the advice of a "President's Task Force on Science Policy." The effort was one of a series of study task forces put in place that year to demonstrate presidential interest in a variety of subjects. Its chairman, Ruben Mettler, in his letter to the President accompanying the final report, urged that this was a "time of unusual need and unusual reward for Presidential leadership in bringing the tools of science and technology more effectively to bear on critical social, urban, and environmental problems, as part of a broader program to properly relate science policy to the Nation's goals and purposes." The report itself was even more forthright in stating that "national policy governing science and technology should in principle, be a mirror image of our national goals and purposes."

At roughly the same time, a Panel on Science and Technology Policy of the President's Science Advisory Committee was studying the kinds of organizational improvements that could be made in bringing scientific advice to bear on policy making at the presidential level. Notably, that panel
considered it essential that the science and technology advisory mechanism adopt a "more policy oriented role."32

The same theme was amplified during the later deliberations over the question of a statutory basis for the presidential science adviser. The congressional committees which proposed restoring the Science Adviser to his White House location after 1973 were more forthright in their recognition of this need to consider science and technology—not by themselves but in the mainstream of economic, social, and national security issues. Those witnesses who testified before the Congress frankly stated the importance of long-range policy research and analysis of which science and technology were important components. An unsolicited NAS report to the House Committee on Science and Technology in 1974 concluded that "science and technology can fully serve the federal government—and the nation," but only if adequate organizational changes are made in the President's office to accommodate a source of scientific and technological analysis and judgment.*33

Here, indeed, were scientists talking about the "President's problem." The world was increasingly complex. The time constants for decision making were increasingly foreshortened. Big decisions about big and important programs invariably had substantial technical components. The President needed scientifically trained experts to help him make these decisions. Scientists were capable of that role and were willing to help.

The most cynical, of course, saw this move on the part of scientists as simply a different form of advocacy. That is, in the face of a somewhat more critical political view of federal budgets for the performance of research, and in the face of an "exile" of scientists from the White House structure, some suggested that this was an inevitable tack by a special interest trying to reestablish its claim on the political process. There was, too, a new brand of ambivalence among the scientists. The problem now was that science would promise too much. That is, in their zeal to appear to be "useful" to society, scientists would foster a public image of a scientific machine which

*Interestingly, this report, whose chairman was James Killian, did not proceed as far as one of its members, Donald Rice, had recommended. Rice, then the president of the Rand Corporation, and formerly an assistant director of the Office of Management and Budget, had foreseen the strong need for broad analysis in reaching informal judgments at the Presidential level. He, as did others, called for the establishment of some sort of a formal mechanism for analysis in the Executive Office as a necessary requisite to bringing scientific advice to bear on policy decisions. Donald B. Rice, "Scientific and Technical Capability of OMB Staff." Background paper prepared for the ad hoc Committee on Science and Technology, National Academy of Sciences, Washington, D. C., 2 March 1974 (unpublished).
inevitably could not deliver on its implied promises.* Symptomatic, perhaps, of their ambivalence, Philip Handler, president of the National Academy of Sciences, in testimony to the Congress, acknowledged in cursory fashion the importance of long-range policy research and analytic capability in the Executive Office, but suggested that the academy (Killian) committee "had no informed opinion" as to how to make it a reality.  

However, there was a new frame of mind. One version of the National Science, Engineering, and Technology Policy and Organization Act of 1975 declared that the President's office should establish and maintain "central policy planning elements." It was in this setting that science for governmental and national needs was to make its contribution. As a first step, even before a new science advisory apparatus was approved by the Congress, the President's office engaged a "planning" effort of a series of outside experts to provide guidance for a new office. This series of two advisory groups was designed to guide in the "wise use of science and technology in achieving important national objectives. One was to examine the contribution of technology to economic strength and the other was concerned with new advances in science and technology.  

Factors That Discourage Analysis for Policy Making

The case for deliberate and dedicated analysis for the purposes of policy consideration and decision seems compelling and logical. Yet, in spite of the logic expressed by its advocates, there has been remarkably little success in bringing systematic explicit methods of analysis to bear on the domestic policy process. PPBS did not survive as an instrument of public decision making for domestic governmental programs; nor is there any other vehicle or established methodology for assisting public administrators (including the President) to formulate national policies and programs.

Why is it that the explicit statement of objectives, the systematic establishment of priorities, and the analytic sorting of alternative pathways to those goals are received with essentially no enthusiasm? There are perhaps two principal reasons. On the one hand, the use of explicit and systematic methods by government clashes with the traditional, public consensus patterns of democratic decision making. The other reason is an "internal"

*The debate among the biomedical scientific community over the emerging National Cancer Program was perhaps one of the best illustrations of this ambivalence.
political one which relates to the relative amount of bargaining power held at any point in time by the President versus the legislature.

Charles Lindblom was perhaps the one most clearly identified with criticism of the use of Planning, Programming, and Budgeting in political decision making. Lindblom maintained that there was an important and inherent conflict between the traditional, advocacy-related, consensus formulation of public decisions and the analytic and studied attempt to make objectives explicit and to analyze alternative means of reaching them. It is Lindblom’s contention that the integrity and efficiency of consensus building and decisions through advocacy (which he maintains is the only way to reach “good” decisions) is threatened precisely by encouraging debate on objectives. Goals, in Lindblom’s view, should not receive specific attention as such attention renders consensus more rather than less difficult to reach.37 Decisions through advocacy and public consensus, in Lindblom’s litany “the science of muddling through,” are, in his view, an absolutely essential element in democratic decision making.38

One could add at this point that the Lindblom view is strongly held by those who occupy contemporary political office. Among the many results of this pattern of political thinking was the attempt to propose “national goals” by a presidentially appointed National Goals Research Staff. The final product, Toward Balanced Growth: Quantity with Quality,39 was so thoroughly diluted by the time of its publication that it was totally incapable of provoking any novel idea in the public’s mind. There is every indication that those in political office who started the national goals research effort found themselves with a project whose initiation they thoroughly regretted.

One rejoinder to the Lindblom point of view (and one expressed by Charles Schultze, for example) is that the advocacy process itself would be measurably strengthened by becoming a more informed advocacy process. All parties would benefit, so goes the argument, by arming the various points of view with good analysis and good information.

Fundamental to this nation’s concern for explicit objective setting and forward planning for establishing a political agenda are perhaps three closely related phenomena. One is a long-standing and deep-seated distrust of anything that borders on national economic planning.40 A second is simply the striking heterogeneity of interests (and “special interests”) for which this nation is notable. This heterogeneity is, of course, a source of enormous richness and strength and, at the same time, a basis for great divisiveness. The third, which in a way sets off the other two in even bolder relief, is the recent trend toward more openness in government.

The historian Robert Wiebe has explored at length the finely divided
character of the American nation in his provocative essay *The Segmented Society.* For Wiebe, segmentation of America into community groups, professional groups, economic interests, etc., began early in the nation’s history and continues to be the dominant force shaping the national political scene for purely domestic issues. Wiebe observed that “a segmented society with its special aversion to disorder charged politics with a particularly broad and basic range of responsibilities, a set of commandments to preserve liberty within the compartments while maintaining a common society among them.”

Grand visions and broad purposes expressed by presidents have been frustrated and rendered futile from the earliest days of the republic. Government is expected to maintain, not to step out in front of major national issues.

What politics expressed, government reflected. Over the centuries the most useful image of government was that of an empty vessel, a container into which power flowed and formed but which provided nothing of its own.

Planning in that setting, almost by definition, could never be a palatable, high-level governmental activity. With the passage of decades of history, Wiebe reminds us, the federal government and its President have increasingly assumed the role of presiding over an “elaborate scheme of brokerage.” The burdens of maintenance have been increased with time.

Again, what has been described here applies in particular (if not exclusively) to national domestic issues. In contrast to its preoccupation with regional and economic national interests, the electorate has shown itself repeatedly to be quite willing to defer to its government for essentially all of the issues involved in defense and national security.

The opening of the details of government to public viewing in recent years has further accentuated this phenomenon. A new awareness of what government is doing and even thinking in behalf of its citizenry has risen out of a period of national anxiety over what government is thinking and doing to its citizens. “Sunshine” and freedom of information are the particular windows of the moment through which public scrutiny pours. My point is not to render a value judgment about whether the doing of government in public is good or bad. It is certainly true, as Theodore Lowi declared nearly a decade ago, that participatory democracy is administratively more cumbersome. My only point, however, is that the segmentation of our society into a myriad of special interests and a general national concern for maintaining immediate and stable conditions among the segments combine with openness in government to further constrain any solely rational and analytically based judgments about domestic futures.
In addition to the view from the outside (that of the electorate), there is the equally important "view from the inside" of government. In Richard Neustadt's description of the government as "separate institutions sharing powers" the effective influence of a President accrues from three sources: (1) the bargaining advantage inherent in his job with which he persuades other men to enact his expectations by what their own responsibilities require them to do; (2) the expectations of those other men regarding his ability and will to use the various advantages they think he has; and (3) the estimates of those men as to how the President's public views him and how the public would view them if they follow his bidding.46

It may be assumed (or Congress would assume) that if the President were to establish an effective and adequately staffed "Office of Analysis and Planning," he would pose a threat to the existing balance of power in at least two ways. First, by arming himself with the necessary resources to reach systematic conclusions about national goals and priorities, he would thereby increase his share of influence and leverage over decisions in excess of that exercised by the Congress and by outside interest groups. Secondly, it may be expected that the President would deliberately use these augmented resources in various ways, not only for the performance of their substantive functions, but for increasing the "effectiveness" of his leadership and for magnifying his bargaining influence relative to all others having a voice in national management. Among the "separate institutions sharing power," the President's share would be increased relative to that wielded by others.*

The net result of all of this is that politically driven administrators (at all levels of government) do not find it to their advantage to engage in explicit planning for policy making. They find it incompatible with the rewards of their office to put in place an analytic and planning exercise in close proximity to their office. Those few elements of planning and analysis which do exist are characteristically and carefully kept at arm's length from the policy maker himself. The process of looking into the future, if done with care and rigor, and the data and the methods of projecting, if valid, inevitably raise red flags or threatening signals for some part of the electorate. The implied threat is that of rearrangement of some part of national life with seemingly favorable impacts on some segments and unfavorable effects on others. If the nation is to take seriously a desire for relative independence from foreign sources of petroleum, it may be obliged to dig more deeply into its own resources—offshore and onshore. An explicit policy to augment the

*The evolution in recent years of the Office of Technology Assessment and the Congressional Budget Office are, perhaps, examples of this phenomenon.
production of agricultural products could have implications for population shifts, transportation needs, and industries that compete with agriculture for land.

In each case, a perceptive electorate or its representatives will see certain threatening possibilities to long-term growth or to continued and stable well-being. In some cases, merely having it known that a "plan" or analysis is being considered makes it uncomfortable for an administrator as he becomes suspect or the target of criticism from his political adversaries. One of the accommodations to the phenomenon has been to maintain the terms of such planning activities secret. Another, more common, route is simply not to engage in the exercise at all and keep planning far away from "the house." In many ways, this is one of the most discouraging factors. In spite of the imperative for long-range (or even short-range) planning due to the size, complexity and the pronounced technological character of national programs, along with the large impacts and expenditures they imply, planning of this sort is not a luxury which the "system" has encouraged or permitted. The exceptions have been those instances such as war, national security, depression, and the national space program for which a national consensus was easily available.*

This phenomenon is not confined to the White House or Executive Office. Neither is it an entirely new phenomenon. One of the interesting and well-documented accounts of this matter concerns a group of social scientists and economists who were brought together in the 1920s in the service of agriculture. The Bureau of Agricultural Economics was created in 1922 as a focus for some of the nation's best economists, demographers, and other social scientists. Its immediate patron and client was the secretary of agriculture. Its aim was to bring some of the finest academic talent to bear on nonacademic problems such as profitability and productivity of agriculture. The scientists called together in that office were part of a group who became known as "service intellectuals"—persons well respected by their peers in academic departments who were willing and even eager to apply their talents to real and important problems of national life.

The Bureau of Agricultural Economics of U.S.D.A. was given a much augmented charter in 1933 with the passage in that year of the Agricultural

*In fairness, it must be admitted that, at any point in time, there is inevitably a certain amount of ambivalence toward planning in government. The abolition of the National Resources Planning Board was followed by the enactment of the Full Employment Act which constituted the Council of Economic Advisers. In the midst of continuing anti-planning sentiments, Congress itself established the Congressional Budget Office and the Office of Technology Assessment.
Adjustment Act (the Christgau bill). This new law thrust the national govern­ment squarely into the practical and immediate problems then facing agricul­ture in a way that up to that time was unknown. There was, of course, a crisis of that moment comparable to that of a war. The depression gave the President and his government a charter in favor of national mobilization in kind.

The new law called for agricultural production control and marketing agreements. Planning for appropriate land use was suddenly a legitimate activity and the government appropriated a sum of money to assist in the withdrawal of submarginal land. Most important, the Department of Agricult­ure was given a congressional charter to establish the administrative machinery needed to build a program of national planning. The Bureau of Agricultural Economics was made the central, analytical, and intellectual instrument responsible for that planning.

In time, the Bureau of Agricultural Economics was, in a sense, eminently successful in its mission. In fact, it was too successful and was eventually put out of business because it had performed its intended job only too well. There were inevitably different factions within the agricultural community who re­ceived the government’s thinking about agricultural futures differently. While there were some strong supporters, there arose some overwhelming detractors.

There did indeed develop some blurring of the roles of analysis and plan­ning with action and management. Yet, the bureau began with perhaps a stronger commission for meaningful, action-oriented government programs than ever before. In any case, there developed great divisions of opinion among farm leaders and businessmen.

The Bureau of Agricultural Economics in 1935 turned its sights toward the lot of agriculture in the South where cotton had been king. The social scientists quickly became aware of growing problems of land tenancy, of emerging rac­ial conflicts, of problems related to the use of migrant labor, and of migra­tion away from the rural landscape. When these red flags were raised, they provoked a storm of protest.

Most important, the bureau economists foresaw a declining market for cot­ton. They recognized that government efforts to maintain cotton prices at high levels would eventually drive American cotton out of the world market. As a result, the economists evolved a series of plans to accommodate the di­lemma and ease the dependency of the South away from the exclusiveness of the cotton based economy. It was hoped that many farmers eventually would be encouraged to move out of cotton production. Economic incentives were developed to encourage agricultural diversity of replacement of some agricul­ture with industrialization.

As Kirkendall, who has documented this story in great detail, noted, the
criticism of this Cotton Conversion Program developed "at least as rapidly as support for it." This opposition combined with outrage over a fact-finding survey performed by some of the bureau’s sociologists of race relations and class structure (the Coahoma County Affair). Even some of the basic statistical work brought troubles for the bureau. Congress accused the bureau of "misbehaving" when its economists supplied the Office of Price Administration with factual information which the latter office used as a basis for the 1946 cotton price ceiling.

Members of Congress were outraged. Members of the executive were embarrassed. The fact that the government would even contemplate the possibility of ultimate conversion from cotton and would look into broad social implications of programs aroused the organized ire of agricultural pressure groups and drew condemnation from members of Congress.

The bureau was prohibited from conducting social surveys and from doing agricultural planning. Research administrators who accepted the challenge to deal explicitly with real problems and to assist in the matters of policy making and planning found themselves severely attacked. In fact, their negative rewards seemed to bear a direct relationship to the quality of their effort. The better the quality and the fuller the research effort for agricultural policies, the greater the political penalties that were ultimately visited upon the administrators. Economic research received its greatest support at times when agriculture and farmers were undergoing the most stress and change. One other problem which arose was an ever present conflict between policies aimed at benefiting the farmer and those directed toward a broader "national interest." (This, of course, implies that the two are not necessarily the same.) During the course of the history of the Bureau of Agricultural Economics, those administrators who stood aside from their current problems made little impact. Those who devoted the research efforts of the department to "safe" areas, isolated from programs and policies, had little influence on its policies or programs.

The development of a source of data and a strong and competent analytic capacity in close proximity to policy makers inevitably proved threatening to others who wished to control the "information." Thus, it was in the interest of advocate or pressure groups, in the sense of preserving their bargaining power, to keep the government relatively uninformed.

In 1953, the Bureau of Agricultural Economics was abolished and its functions were distributed to other sections of the Department of Agriculture but were purposely placed two steps removed from the secretary of agriculture. In 1964, upon his resignation as director of agricultural economics, Willard Cochrane contended that the Economic Research Service had no congressional
backing for its appropriations, since it enjoyed no constituency. Many congressmen would oppose it unless its research results turned out “right” and its fate would inevitably be uncertain without the very strong backing of a secretary of agriculture.\textsuperscript{48}

Thus, the major problem is not the technical hurdle of predicting futures, but instead the challenge, above all, is to make the products of analysis and forecasting politically palatable. The experience to date shows that as the processes of systematic analysis and prediction become better and better, they may become correspondingly less and less politically attractive.