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STATESMANSHIP AND BUREAUCRACY

Four Essays by Edward C. Banfield, Gustave H. Shubert,
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CONTENTS

POLICY SCIENCE AS METAPHYSICAL MADNESS

by Edward C. Banfield

POLICY ANALYSIS AND PUBLIC CHOICE

by Gustave H. Shubert

REFLECTIONS ON STATESMANSHIP AND BUREAUCRACY

by Werner J. Dannhauser

AMERICAN STATESMANSHIP: OLD AND NEW

by Herbert J. Storing

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POLICY SCIENCE AS METAPHYSICAL MADNESS

by Edward C. Banfield

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A statesman differs from a professor in a university; the latter has only the general view of society; the former, the statesman, has a number of circumstances to combine with those general ideas, and to take into his consideration. Circumstances are infinite, are infinitely combined, are variable and transient; he who does not take them into consideration is not erroneous, but stark mad--dat operam ut cum ratione insaniat--he is metaphysically mad.
--Edmund Burke, Speech on the Petition of the Unitarians

In the past dozen years or so policy-oriented social science research and analysis has become a growth industry in the United States. This has occurred in response to demand created by the spate of social welfare programs initiated by the Great Society and, for the most part, continued and expanded by the later administrations. Whereas in 1965 Federal agencies spent about \$235 million on applied social science research, in 1975 they spent almost \$1 billion. Of the approximately \$7.4 billion spent in these eleven years about two-thirds was under contract.¹ This brought into being several large independent research bodies, some quasi-public and others private, and it greatly increased the amount of university-based policy-oriented social research and the supply of social scientists. (According to the 1970 Census, the number of social scientists increased by 163 percent in the 1960's; this was larger than the increase

of any other major occupational group and nearly three times that of professional and technical workers as a whole.)

The Federal agencies' enthusiasm for policy-oriented research quickly communicated itself to the colleges and universities. They now take a lively interest in whatever may plausibly have the word "policy" attached to it.² Almost all of the major universities have established schools to give graduate training in what is now called "policy science" and these have already turned out hundreds of Ph.D.'s. To be sure, not many of the graduates occupy high posts in government (as long ago as 1970, however, the Civil Service Commission listed 563 "senior executive civil servants associated with program analysis"),³ but it is reasonable to expect that within a decade or two they will dominate the upper echelons of the Federal and state career services as well as those of some of the large cities.

The penetration of policy science into the executive branch has led to, or at any rate been paralleled by, a comparable penetration into the legislative branch. Congress now employs some 28,000 professionals, a significant and increasing proportion of whom are trained to do policy-related social science research or analysis. Some of these are employed by individual members and others by committee staffs;

most, however, are in one or another of several recently established bodies: the Congressional Research Service (1970), the Office of Technology Assessment (1972), the General Accounting Office's division for program evaluation (1974), and the Congressional Budget Office (1974). There is now serious talk of creating an additional body--an "Institute for Congress"--to be privately funded at first and staffed by professionals "whose stature and ability would earn the deference of the members."⁴

The scale and pace of these developments suggest that the American governmental system may be undergoing profound change. As "policy scientists" come to dominate the bureaucracy, not only its decision-making procedures but its style and ethos will change. In addition, those policy-makers--"politicians"--who are good at taking circumstances into account (they are "statesmen" only if they also take a general view of society) will find the bureaucracy more resistant than ever to control: policy science may make it a Fourth Branch, almost independent of the others. If the analytical techniques produced and propagated from the universities supercede the skills of the politician and (on the rare but all-important occasions when it is manifested) the wisdom of the statesman, the successful working of the political system will be very gravely jeopardized.

II

From a near perspective the sudden growth of the policy sciences appears as a by-product of the civil rights movement and the War on Poverty. In the 1960's these brought hundreds of new governmental agencies into existence--all of course providing new job opportunities--and stirred the imaginations of those who believed that government, if only it tried hard enough, could cure the various ills of the society.

Actually there has long been a symbiotic relationship between social science and social reform. In the 1880's, Frederick Winslow Taylor spread the gospel of "scientific management" to businessmen and, a little later, schools of business developed budgetary methods. Late in the century, chairs in social science were established, and by 1920 all self-respecting universities had social science departments. By then it was widely believed that government no less than business should--and therefore could--be expertly run (the city manager movement got underway in 1914); naturally the social scientists in the universities were looked to as a principal source of expertise for the organization and management of government and thus of society generally.

At the beginning of the century, according to historian Barry D. Karl, there developed a methodology of social re-

form consisting of variations upon three basic steps: first a core group of specialists and influentials, coming together perhaps at a meeting of a professional group, would define a needed social reform or "problem"; then a conference would be called to broaden the coalition by bringing in journalists, philanthropists, and political leaders; and, finally, a survey would be made and a document produced "containing all the information and interpretation on which reasonable men, presumably in government, would base programs for reform."⁵

This was the method used in 1929 when President Herbert Hoover appointed his Research Committee on Social Trends whose 1,200-page report, Karl tells us, established the principles that "social" behavior came within the purview of the national government, that "science" could do better at framing programs of reform than could legislators or citizens, and that "social welfare" was as fit a subject for national debate as, say, currency reform or the tariff.⁶

In the 1960's this method was used again and these principles were further extended in order to bring the social science establishment and the Great Society into mutually advantageous relations. This time the specialists and their allies acted through that most prestigious of professional associations, the National Academy of Sciences. A

report issued under its aegis in 1968 defined the view that reasonable men should take toward the claims of the social scientists to be brought into the policy-forming process:

The federal government confronts increasingly complex problems in foreign affairs, defense strategy and management, urban reconstruction, civil rights, economic growth and stability, public health, social welfare, and education and training. The decisions and actions taken by the President, the Congress, and the executive departments and agencies must be based on valid social and economic information and involve a high degree of judgment about human behavior. The knowledge and methods of the behavioral sciences, devoted as they are to an understanding of human behavior and social institutions, should be applied as effectively as possible to the programs and policy processes of the federal government. Finally, the behavioral sciences, like the physical and biological sciences, require financial support from the federal government to continue to develop that knowledge and those methods that can lead to greater understanding of the basic processes of individual and group behavior.⁷

Although the report was remarkably adroit in the ambiguity, even confusion, of its wording, it succeeded in conveying the impression that social science had much to contribute to the making of sound policy. Its spirit, although not its letter, reflected the "social science utopianism" which Karl says, was espoused by Hoover "to be a revolution against politics, committed to the rational, unemotional

building of a new, scientific society."⁸

Policy science, in this perspective, appears as one in a long series of efforts by the Progressive Movement and its heirs to change the character of the American political system--to transfer power from the corrupt, the ignorant, and the self-serving to the virtuous, the educated, and the public-spirited, and to enhance the capacity of the executive to make and carry out internally-consistent, comprehensive plans for implementing the public interest. These were the motives that inspired the Pendleton Act of 1881, establishing a civil service system based on the merit principle; the Budget and Accounting Act of 1921; the President's Committee on Administrative Management in 1937 and the two Hoover Commissions in 1949 and 1955; and the Council of Economic Advisers in 1946. They were the motives that inspired proposals to replace politicians with experts in legislatures and to do away with political parties (ideas favored by, among others, Herbert Croly in his Progressive Democracy, 1914) and, when these proved utopian, to lesser reforms that were steps in the same general direction--for example, changes in the organization and practices of Congress to make it an assembly of statesmen deliberating upon the great issues instead of one of politicians arranging deals and running errands, and also changes to require

the political parties to "bring forth programs to which they commit themselves" (the quoted words are from the 1950 report of a committee of the American Political Science Association, Toward a More Responsible Party System).

Today's proponents of policy science are not as naively antipolitical as were the reformers of a generation or two ago. They do not think of themselves as engaged in a "revolution against politics." The old bias is still there, however. Witness the intention to provide Congress with a staff of professionals who will earn the deference of members. (Why not just their respect?) Now and then distaste for politicians and their ways is made explicit, as, for example, when an economist, after finding that the structure of Congress falls "enormously short" of what is required for an "ideal" legislative process, takes some comfort in developments to which the Congressional Budget Act of 1974 may give rise: "With a well-trained, nonpartisan professional staff in both the budget committees and the Budget Office, it will be possible to reduce congressional reliance on the hearings process with its domination by special interests and the executive branch."

III

The persistent efforts of reformers to do away with politics and to put social science and other expertise in

its place are not to be accounted for by the existence of a body of knowledge about how to solve social problems. There was a time when social scientists thought that eventually they would find laws governing behavior, and most of them seem to have persuaded themselves that the discovery of such laws somehow would make for more democratic, or at least more effective, government. Pending the discovery of such laws, what social research had to offer was not solutions but problems. Recent Social Trends, for example, the monumental report of the committee appointed by President Hoover, attempted to establish the facts of social life in a way that would display to the public and its leaders the hitherto unappreciated extent and nature of social problems, but it offered no "solutions."

Now, tens of thousands of Ph.D. dissertations later, there are few social science theories or findings that could be of much help to a policymaker--so few, indeed, that when the would-be writer of a "Handbook of Behavioral Sciences for Policy Making" went through the 600-odd pages of the "inventory of scientific findings" put together some years ago at great expense to the Ford Foundation, the results were "insufficient for a short article, not to speak of a 'handbook.'"¹⁰

To be sure, some social science theories did have an

important influence on the development of the new government programs in the 1960's: those of Lloyd Ohlin and Richard Cloward on "opportunity structures" and those of Gary Becker on "human capital," for example, entered significantly into the conception of the Great Society's poverty program. Policy science, however, is the application of methods and techniques, not of substantive theories.

For several decades social scientists had been developing ways of assessing the relative importance of causal factors where several operated simultaneously. Further statistical advances occurred during the Second World War when engineers, mathematicians, and statisticians were called upon by the military services to find answers to a wide range of very practical questions: what, for example, was the optimal search pattern for locating a pilot down at sea? Wartime experience produced a set of techniques--Operations Research--the usefulness of which in dealing with a certain class of problems was, many times dramatically demonstrated. The class of problems was, however, a sharply restricted one: objectives had to be well defined, operations to be describable by a mathematical model the parameters of which could be readily estimated from available data, and the current practices to be ones leaving ample room for improvement.¹¹

During the war there were also important developments in statistical inference, probability theory, and what is

now game theory. These developments were readily assimilated into economic theory along with the methods of Operations Research. Although economists were relative late-comers to the scene (the RAND Corporation had been in business for some time before it hired its first economist, Charles Hitch), they soon became the main force in the development and application of theories of decision-making. The rapid concurrent development of computer technology encouraged the elaboration of highly abstract theory by making practicable the working out of computations that had previously been prohibitively time-consuming.

When in 1961 Robert McNamara became Secretary of Defense he brought Hitch and several of Hitch's RAND associates into the Department where they introduced the new techniques of formal policy analysis. President Johnson, impressed, it has been said, by McNamara's performance at cabinet meetings and also, one suspects, by the attention the Defense Department's "whiz kids" were receiving from the press, ordered all agencies of the executive branch to introduce "...a very new and very revolutionary system" for program planning and analysis along the lines laid out by Defense. Most agencies found ways to avoid carrying out the order, which was soon rescinded by the Nixon Administration. The idea of policy analysis, however, made an enduring im-

pression on many bureau chiefs (perhaps because it offered them a means of establishing control over their subordinates) and also on those upper-echelon career civil servants--especially economists--whose exposure to the realities of the policy-making process had not yet made them complete cynics. Today most agencies have offices, headed in some instances by an assistant secretary, to clarify the agency's objectives, monitor its performance, and assess systematically the costs and benefits of alternative courses of action. In order to cope with the often highly technical reports produced by the analysts in the executive branch, Congress has, as was noted above, added many analysts to its own staffs.

In the universities, economists, statisticians, political scientists, and others, excited by the new intellectual problems, challenged by opportunities to contribute to the solution of urgent social problems, and eager to share in the money and power of government have hastened to develop policy science as an important field of graduate study. As one might expect, the curricula developed for the prospective policy scientists consist in most places largely of highly abstract methodological courses. Students without a considerable aptitude for mathematics cannot take these courses; that the student may have good practical judgment

and a strong feeling for institutional realities will not overcome this fatal handicap. After all, the purpose of training in policy science is to improve upon practical judgment and to substitute for it. It is not surprising, then, to find prospective students being told that they can hope to play an important part in public affairs if--but only if--they pass courses in formal analysis. (This presumably is what the Kennedy School of Government at Harvard means by a remarkable sentence in its Official Register for 1977-78: "What the basic curriculum imparts to all individuals is essential to the effective functions of any individual who wishes to play an important role in the policy arena.") The curriculum of the RAND Graduate Institute is reasonably representative of that of most such schools:

Microeconomics
Data Analysis and Statistics
Organizational Behavior and Analysis
Econometrics
Technology and Public Policy
The Scope of the Policy Sciences
The Adviser and Society

IV

In the past 15 years policy scientists have approached the policymaking process from several directions, none of which has brought them into intimate connection with it.

Perhaps the least successful role of the policy scientist has been that of proposer of new program ideas. Ideas

that are really new are, of course, always hard to find, and, when one is found, it is very likely to prove either infeasible (perhaps because it requires skills or other resources that are not available) or politically unacceptable. At any rate, very few program innovations can be attributed to policy scientists. The Model Cities Program for example, although preceded by the labors of two task forces, each abundantly supported by consultant specialists, turned out to be altogether different from what the planners had in mind.

Formal modeling--the development of sets of equations describing in quantitative terms the functional relationships in a system of behavior (e.g., an economy)--is a mainstay of the policy scientist. There are models which purport to simulate the national economy, models which purport to simulate the impact of government policies on some part of the population (for example, of changes in welfare policies on welfare recipients), models which purport to simulate the effects of new transportation technology on regional growth, and so on. Unfortunately the models constructed by policy analysts are rarely operational. Unlike the operations researcher, whose problems characteristically involve technological relationships that are precisely measurable, the policy analyst typically models relationships that cannot be fully specified or exactly measured, and the results his equations yield--when they yield any at all--are therefore seldom of any help to the policymaker. "To the

extent that it could answer questions," a model-user complained to the author of Politicians, Bureaucrats and the Consultant, "they were questions that nobody was asking."¹²

Program evaluation--meaning usually the measurement of policy inputs and outputs with respect either to programs underway or ones that are contemplated--has doubtless absorbed more time and money in the last decade than all other policy research put together. The eruption in the 1960's of scores of new social programs, coinciding as it did with the vogue of policy research, led to serious, systematic efforts, often by "outside" research bodies, to measure the cost-effectiveness of the programs. Programs in health, manpower training, law enforcement, housing and so on are now more or less routinely studied in the administering agencies or in independent bodies under contract to them and by the General Accounting Office (the authority of which to make such studies was much extended by the Legislative Reorganization Act of 1970 and the Congressional Budget Act of 1974). Generally speaking, these evaluations, especially those done by outside agencies, have shown the social programs to be ineffective, or far less effective than their proponents claimed. They have, however, had remarkably little effect on policy: one can think of no program which was brought to an end, or even very substantially revised, be-

cause of an evaluation by policy scientists. Findings that do not support "what everyone knows" or that run contrary to the interest of some politically important group (organized teachers, for example) are especially likely to be ignored. The testimony of Peter Rossi, the sociologist, is instructive:

It is an article of faith among educators that the smaller the class per teacher, the greater the learning experience. Research on this question goes back to the very beginnings of empirical research in educational social science in the early 1920's. There has scarcely been a year since without several dissertations and theses on this topic, as well as larger researches by mature scholars--over 200 of them....Results? By and large, class size has no effect on learning by students, with the possible exception of the language arts.

What effect did all this have on policy? Virtually none. Almost every proposal for better education calls for reduced class size. Even researchers themselves have been apologetic, pointing out how they might have erred. ¹³

The technical inadequacies of retrospective evaluation have caused policy scientists increasingly to call for experimentation. Economic reasoning, sophisticated analysis, sample surveys, and observational studies, a team of distinguished statisticians writes, will give some good "guesses" ... "but we still will not know how things will work in prac-

tice until we try them in practice." ¹⁴ Policy scientists want to try policies out under conditions that are carefully controlled in order that they may measure the effects of a change in a specified variable (the teach-pupil ratio, say) on the achievement of an objective (improved learning). Social experiments--"randomized controlled field trials"--are of course far more expensive than retrospective evaluations (six conducted thus far cost a total of \$162 million whereas the Westinghouse Corporation's evaluation of Headstart cost \$585,000). ¹⁵ They are also difficult, sometimes impossible, to arrange, the manipulations of the experimenters often being unacceptable to the subjects, and they are so time-consuming--it takes several years to design and carry out one--that the situation is almost sure to have changed materially before the results are in. No experiment, moreover, can yield reliable information about long-term effects and these, of course, may often be the most important. That welfare recipients' willingness to work is not affected much by the introduction of a negative income tax, for example, tells nothing of the effects that an NIT might have on the work motivations of adults who were children in families whose incomes were guaranteed. Finally, it seems likely that policy may prove as immune to the results of experimentation as to those of evaluation. "After making a head-

piece," de Jouvenal reminds us, "Don Quixote tested it by striking it with his sword. The headpiece shattered. He reassembled it, but this time did not strike it, for fear of again losing a possibly worthless helmet."¹⁶

Recently policy analysts have been turning their attention to "implementation"--the systematic analysis of what is involved in carrying out a course of action. A leading practitioner, Alain Enthoven, formulates the key questions as follows:

[W]ill the people or organizations affected really respond as assumed? What incentives motivate them? Is the proposed course of action compatible with the institutions that must carry it out?

To illustrate what is involved, Enthoven recalls that in 1967 he advised the Secretary of Defense, McNamara, to approve a "thin veil" ABM defense system designed to protect ICBM silos. The Army, which for years had been planning a national ABM system to protect cities, persisted with its plan despite the Secretary's order in favor of the "thin veil" system. "A deeper insight into how the Army would actually respond to the decision," Enthoven writes, "would probably have led to a different recommendation."¹⁷ One wonders, however, how an analyst could have gained a deep enough insight into how the Army would respond to justify a

different recommendation. Could a policy scientist have told the Secretary that the Army would have its way no matter what he (the Secretary) might decide? Dealing as it must with such extreme uncertainties, "implementation" appears a most unsuitable subject for policy science.

V

Enough has been said of these principal employments of the policy scientist to reveal sharp limitations on his techniques. Some of these are of such a nature that they cannot be eliminated or even much reduced by better theorizing or by further advances in computer technology. There can be no "scientific method" for getting new program ideas. It will always be impossible to construct a formal model that will be of use to policymakers when, as is invariably the case with the "important" problems, one cannot identify all of the crucial parameters or match them with adequate data. No one will ever find a technique for discovering the concrete implications of vague, contradictory and fluctuating purposes; there is no logic by which one can pass from axiological principles to particular value judgments and there can be no nonarbitrary way of finding the optimal terms of trade at the margin among governmental objectives when--as is always the case--they are not given to begin with. Finally there is no "objective" way of making correct

probability judgments: some ways of making such judgments are surely better than others, but none can altogether exclude guesswork. Even if the policy scientist could know precisely what constitutes "good housing," "good schooling," and so on, he could not know (except in cases so obvious as to be uninteresting) which policy alternative would yield the preferred set of consequences. In a world in which everything, including of course opinions as to what is preferable, is subject to rapid change, this limitation must be of enormous importance. Despite his claims to method and technique, the policy scientist must in all of these matters make up his mind very much as other persons do and always have done.

If to the inherent limitations on analytical techniques one adds the existential ones, policy science appears feeble still. Consider, for example, the practical difficulties in the way of getting reliable data on almost anything --for example, that in 1960 and again in 1970 the Bureau of the Census failed to count one black male in ten, and that in 1970 the Bureau, having concluded that its 1960 and 1950 data on housing conditions were highly inaccurate, then collected none at all.

There are practical difficulties, too, sometimes insuperable ones, in getting policy-makers to take the work of

the analyst seriously, and these are likely to exist even if the analyst's work deserves to be taken seriously. Some arise from the analyst's failure to speak a language that the policy-maker understands. To be sure, many of those who have been trained in the techniques of policy science adapt, when placed in a policy-making setting, by subordinating "science" to common sense. A policy scientist who lacks this flexibility, however, is likely to find that he can communicate only with other policy scientists. The political executive, whether elected or appointed, and the lawmaker and his staff, although intelligent and well informed, do not know now and are not likely in the future to know enough statistics to interpret the analyst's reports; indeed, the method and mode of thought of the analyst are likely to strike the practical man as perverse, even ridiculous.

The widest gulf between the analyst and the policy-maker is not the communications one, however. The more important fact is that what is of first importance to the former is generally of little or no importance to the latter. Typically the agency head is chiefly concerned with maintaining and enhancing his organization and therefore with things that may make a good impression on those (the White House, congressional committees, interest groups, media, and

so on) who can help or hurt in this; the analyst's words will carry weight with him only when and only insofar as they are useful in his day-to-day task of fending off the agency's enemies and bringing its friends into a closer embrace. The elected official's case is not essentially different: typically his main concern is in being re-elected, and to spend time and effort on matters that do not promise to improve his position with his constituents by the time of the next election--six years hence at the most--is a luxury he rarely can afford. The conclusions ("hypotheses") of a study of the responses of a Senate committee and of officials of the Food and Drug Administration to policy analysis are therefore not at all surprising: "Congress is almost totally impervious to systematic analysis, particularly in the short run."¹⁸

If the policy-maker is impervious to policy analysis, its impact on policy may nevertheless be great. Indeed, the proliferation of policy science is making policy problems more numerous and complex. David K. Cohen and Janet A. Weiss show this in their review of the "torrent" of research done on schools and race since the Brown v. Board of Education decision. One study, they found, led to another that was more sophisticated and then to still another, and so on. The quality of research improved as the process went on, but

the outcome was not greater clarity about what to think or to do, but, instead, usually, a greater sense of complexity, a shifting in the terms of the problem, and more "mystification" in the interpretation of findings. "One thing is clear from this story," Cohen and Weiss conclude, "the more research on a social problem prospers, the harder it is for policy-makers and courts to get the sort of guidance they often want: clear recommendations about what to do, or at least clear alternatives." At its best, they say, social research "provides a reasonable sense of the various ways a problem can be understood and a reasonable account of how solutions might be approached." Perhaps one is justified in concluding (what they do not) that it is easily possible to have too much of a good thing: that an analytical society may increase its problems while decreasing its ability to cope with them.¹⁹

VI

What has been said so far should have relieved any reader who might have feared that the policy scientists are exercising undue influence. In fact, they have very little influence--certainly very little of a direct kind. What someone said of the decisions resulting in Medicare and Medicaid--that they were the result of negotiations between "Wilbur and Wilbur" (Congressman Wilbur Mills and Health, Education and Welfare

Secretary Wilbur Cohen) and were not directly related to any research--may doubtless be said of almost all of the important decisions made with regard to foreign affairs, energy, welfare, and the rest. Writing when still a RAND analyst, James R. Schlesinger gave "two cheers and a half" for policy analysis--it would, he said, "shake up many a stale mill pond"--but he went on to assert--and he himself has recently demonstrated--that democratic policies would remain unchanged: ". . . a combination of pie-in-the-sky and a-bird-in-the-hand."²⁰

The political institutions handed down by the Founding Fathers have proved remarkably resistant to all efforts to make political life more rational. Perfectly aware that the great task of government is to give political leadership--to create and maintain conditions that foster the growth of a public opinion capable of intelligent discussion and of agreement--the Founders were also perfectly aware that that task could never be fully accomplished. The nature of man, as they understood it, precluded the replacement of politics by reason. "Men," Hamilton warned in Federalist No. 6, "are ambitious, vindictive, and rapacious." They were susceptible of some improvement but not of a great deal: certainly they could not, as the philosophes supposed, be brought to perfection. Struggle and conflict, however mutually disadvantageous,

were ineradicable, and therefore the problem of the statesman was to find ways of containing them, not of eliminating them. In the system of checks and balances that they devised the Founders responded to the political realities of their day (to the conflict between large states and small and the North and South particularly) and to what they knew would be the continuing fact of political struggle.

That the inherited structure of the federal system has remained thus far sufficiently fragmented to insure the supremacy of a more or less democratic politics may lead us to overlook or underestimate the importance of tendencies that have long been at work, that are now accelerating, and that have changed and will change further the essential character of our political system. Modern America, according to Robert E. Lane, has for some time been moving in the direction of becoming a "knowledgeable society" (one in which, more than in other societies, men inquire into the basis of their beliefs, are guided by objective standards of truth, devote considerable resources to getting and interpreting knowledge, and employ this knowledge to illuminate and perhaps modify their values and goals as well as to advance them). In support of this view, he notes, for example, that from 1940 to 1963 Federal government expenditures for research and development increased from \$74 million to \$10 billion (he was writing in 1966; by 1976 the figure

had risen to \$22 billion), that from 1953 to 1963 expenditures for research and development by colleges and universities increased from \$420 million to \$1700 million (in the following 10 years they increased to \$3395 million), and that in the seven years from 1957 to 1964 the number of Ph.D.'s conferred annually increased from 1,634 to 2,320 in the life sciences (in 1975 this number was 3,611), and from 1,824 to 2,860 in the social sciences (in 1975 this number was 11,040).²¹ That between 1965 and 1975 the production of social science Ph.D.'s increased four-fold while that of physical sciences Ph.D.'s decreased is, one may suppose, a measure of the effect of the Great Society's social reform on a crucial component of "the knowledge industry."

If one assumes (as Lane does not) that the experience of going to college tends both to make one disaffected with social and political institutions and to give one a naive confidence in the possibility of improving them by some sort of social engineering, data on the increase in the number of college graduates are especially relevant: in 1900 there were 19 college graduates per 1,000 persons 23 years of age or older; in 1940, 81; in 1960, 182; and in 1976 (estimated), 259.²² By 1985, about 20 percent of the employed population of the United States will have graduated

from college--enough, surely, to affect very profoundly the character of the electorate.

A principal consequence of growth in the direction of the "knowledgeable society," Lane thinks, has been a shrinkage of the "political domain" (where decisions are determined by calculations of influence, power, and electoral advantage) relative to the "knowledge domain" (where they are determined by calculations of how to implement agreed-upon values rationally and efficiently). Politics, Lane acknowledges, will not cease to exist even in the most knowledgeable of societies, but as our society becomes more knowledgeable political criteria decline in relative importance, and professional, problem-oriented scientists come to have a larger say. This, of course, entails differences in the nature of policy itself. One such difference is in the very consciousness (Lane's emphasis) of a problem.

The man in the middle of a problem (sickness, poverty, waste and especially ignorance) often does not know that there is anything problematic about his state. He may accept his condition as embodying the costs of living.... Often it takes years of dedicated agitation to make people aware that they live in the midst of a problem.²³

The curious thing about modern times, Lane remarks, is the degree to which the government undertakes to do what used to be done by the agitator; consciousness of a problem may in

the knowledge society come first (his emphasis) to the scientific and governmental authorities. Knowledge thus "creates a pressure for policy change with a force all its own"; it "sets up a disequilibrium or pressure which requires compensating thought or action."²⁴

Although he tries hard to avoid making value judgments (he is, after all, a social scientist writing for a professional journal), one gets the impression that Lane thinks our society improves by becoming more knowledgeable: now that scientific and governmental authorities take the lead in discovering and defining social problems, surely they will be brought to solution faster. That, it would seem, is the implication.

Lane's confidence in the scientific and governmental authorities is misplaced, however. This is evident from the examples he gives of "important findings" in the social sciences produced by the scientific apparatus of the knowledgeable society. His examples are these: that the United States ranked 16th among nations in the rate of infant mortality in 1961 (this ignores the fact that the U.S. defines infant mortality more inclusively than do certain other countries, for example, Sweden); that it would cost about \$10 billion a year to raise all of the individuals and families now below a subsistence income to that level (the

phrase "subsistence income" is of course meaningless; apart from that, the statement is misleading because measures to raise incomes of the "poor" to some acceptable level would inevitably attract many newcomers--how many depending upon the level set--into the category "poor"); that the reinforcing experience for convicted criminals while in jail results in high rates of recidivism (many other causes of recidivism are more important); that pollution of soil with arsenic pesticides causes cancer in school children (this from Rachel Carson's Silent Spring); that the more an individual interacts with persons of another race, ethnic group, etc., the less likely he is to be prejudiced against them (could it be that persons who are not prejudiced are more likely to interact?).

Why are these "findings" "important"? Surely not because they constitute, or point to, "solutions" of policy problems. They are important as propaganda: by creating dissatisfaction they will lead to change. "Knowledge and what is regarded as knowledge (emphasis added)," Lane says, "is pressure without pressure groups...." The influence of professionals and their associations, he acknowledges, is "not all good," but it is, he thinks, "generally responsive to the needs of society."

One may well reach a contrary judgment: namely, that professionals, because of their commitment to the ideal of rationality, are chronically given to finding fault with institutions ("bringing to public consciousness" new social problems) and by virtue of their mastery of techniques of analysis, to displaying the almost infinite complexity and ambiguity of any problem. Like the social researchers of a generation or two ago, the policy scientist contributes problems, not solutions. - But whereas in the past the problems were ones that appeared manageable to men of common sense and were understood to lie in the domain of the politician or statesman, now they are ones that have been shown to be too complicated for men of common sense to deal with and they are, more and more, believed to be in the domain of the policy scientist.

VII

It is a dangerous delusion to think that the policy scientist can supplant successfully the politician or statesman. Social problems are at bottom political; they arise from differences of opinion and interest and, except in trivial instances, are difficulties to be coped with (ignored, got around, put up with, exorcised by the arts of rhetoric, etc.) rather than puzzles to be solved.²⁵ In coping with difficulties, formal analysis may sometimes

be helpful, but it is not always so. (Would anyone maintain that in the Convention of 1787 the Founders would have reached a better result with the assistance of a staff of model builders?) Except in those rare instances where the problem is mainly a puzzle rather than a difficulty, the policy scientist is likely to exhibit a "trained incapability" for performing what are the essential tasks of political leadership. These are, first, to find the terms on which ambitious, vindictive, and rapacious men will restrain one another, and, beyond that, to foster a public opinion that is reasonable about what can and cannot be done to make the society better. One cannot perform these tasks merely on the basis of general ideas or methods. One must have the faculty, not taught in schools of policy science, for taking circumstances--infinite, variable and transient--into consideration. What the political leader requires is not policy science but good judgment or, better, the union of virtue and wisdom which the ancients called prudence.

FOOTNOTES

1. The figures are from Dr. Clark C. Abt, "Toward the Benefit/Cost Evaluation of U.S. Government Social Research," Abt Associates, Inc., Cambridge, Mass., 1976. Abt's paper includes a table giving expenditures by department and by year.

2. Lest this be thought an exaggeration, consider the following from a task-force report submitted to the President and the Provost of the University of Pennsylvania by an associate dean of the Wharton School and published in the University's ALMANAC, January 15, 1974:

Concern with issues of public policy pervades the University of Pennsylvania. Indeed, it is so pervasive that it is impossible to provide anything approaching a full account of the various educational and research programs relating to public policy. Virtually the entire curriculum of the Law School involves public policy. So does much of the research at that school. The Annenberg School of Communications, the School of Social Work, the Graduate School of Education and the Schools of Medicine and Veterinary Medicine deal with public policy issues also. Research at the Schools of Engineering and Applied Science has a substantial policy content. The City and Urban Engineering program, the National Center for Energy Management and Power and the Transportation Studies Center illustrate interests of this sort. Course offerings at both the undergraduate and the graduate levels and extracurricular science and society programs in engineering are similarly focused. The new graduate program in telecommunications engineering and spectrum management exemplifies engineering interest in public policy

City and Regional Planning is a policy-oriented program in the School of Fine Arts. The undergraduate Urban Studies Program is operated from the Provost's Office and involves faculty from several schools. The Wharton School, in addition to the many policy-related educational and research activities of the Social Science departments currently therein, has within it

FOOTNOTES

the Fels Center, the Rodney L. White Center for Financial Research, the Leonard Davis Institute of Health Economics, the Master of Public Administration program, the Industrial Research Unit, the Labor Relations Council, the Multinational Enterprise Unit, the Busch Center, and the Management and Behavioral Science Center. Wharton EFA is allied with that school. All are concerned with public policy. In addition, a great deal of other less formally organized research at Wharton is of a public policy character.

3. Arnold J. Meltsner, Policy Analysis in the Bureaucracy, University of California Press, 1976, p. 15.
4. Alton Frye, "Congressional Politics and Policy Analysis: Bridging the Gap," Policy Analysis, Spring 1976, p. 276.
5. Barry D. Karl, "Presidential Planning and Social Science Research: Mr. Hoover's Experts," Perspectives in American History, Charles Warren Center for Studies in American History, Harvard University, Vol. III (1969), p. 350.
6. Ibid., p. 348.
7. National Academy of Sciences, Government's Need for Knowledge and Information, Washington, D.C., 1968.
8. Karl, op. cit., p. 408.
9. Robert H. Haveman, "Policy Analysis and the Congress: An Economist's View," Policy Analysis, Spring 1976, pp. 242, 249. See also the Lament of Howard F. Freeman (in his foreword to the work edited by Caro cited below in footnote 13): "Political pressures continue to result in expeditious [expediential?] decisions, which are then modified by counter-pressures." This, he thinks, "makes it difficult to be optimistic about the future for the world of social action."
10. Y. Dror, in Horowitz, Use and Abuse of Social Science, p. 127. The inventory was Bernard Berelson and Gary A. Steiner, eds., Human Behavior, An Inventory of Scientific Findings, 1964. For a more recent compilation, this one financed by the National Institute of Mental Health Research "to demonstrate practical use of generalizations from social science to enhance social practice and policy formation," see Jack Rothman, Action Principles from Social Science

FOOTNOTES

- Research, Columbia University Press, 1974. One can get an idea of the usefulness of the "propositions" in this book from the following: "Success in community intervention varies directly with the sheer amount of practitioner activity or energy applied to role performance," p. 71.
11. See Robert Dorfman, "Operations Research," American Economic Review, L:4 (September 1960), p. 613.
 12. Gary D. Brewer, Basic Books, 1973, p. 165. See also W. Leontief's expressions of concern about the irrelevance, inadequacy, and "consistently indifferent performance in practical applications" of econometric models. "Theoretical Assumptions and Non-observed Facts," American Economic Review, v. 61 (March 1971), pp.1-7.
 13. Francis G. Caro, ed., Readings in Evaluation Research, 1971, p. 278.
 14. Gilbert, Light, and Mosteller in Bennett and Lumsdaine, eds., Some Critical Issues in Assessing Social Problems, Academic Press, 1975, p. 46.
 15. Roos, Public Policy, Spring 1975, p. 254.
 16. The Art of Conjecture, p. 103.
 17. Alain Enthoven in R. Zeckhauser et. al., Benefit-Cost and Policy Analysis, 1974, pp. 464-465.
 18. David Seidman, "The Politics of Policy Analysis," Regulation, July/August, 1977, p. 35.
 19. David K. Cohen and Janet A. Weiss, "Social Science and Social Policy: Schools and Race," Educational Forum, May 1977.
 20. "Systems Analysis and the Political Process," Journal of Law and Economics, October 1968, p. 297.
 21. "The Decline of Politics and Ideology in a Knowledgeable Society," Robert E. Lane, American Sociological Review, 31:5 (October 1966), pp. 650, 653.
 22. Statistical Abstract, 1976, Table no. 231.
 23. Op. cit., p. 659.

FOOTNOTES

24. Ibid., p. 662.

25. The distinction between difficulties and puzzles is elaborated by T.W. Weldon, The Vocabulary of Politics, Pelican, 1953.