

Court Scientists

THE AMERICAN SCHOLAR

SCIENCE AND TECHNOLOGY ADVICE TO THE PRESIDENT, CONGRESS, AND JUDICIARY. Edited by William T. Golden. Pergamon. \$49.95. Paper, \$24.95.

Reviewed by JOEL E. COHEN

When the American Constitution was framed, scientific talents at the top levels of government were high. Thomas Jefferson was one of the first Americans to learn the calculus. Benjamin Franklin invented soda pop by dissolving carbon dioxide in water. The demands for governmental understanding of scientific and technical issues were low. The Constitution simply granted the Congress the power to "promote the Progress of Science and useful Arts" by protecting the rights of authors and inventors. Times have changed. Now national defense, AIDS, product liability, aging, energy supplies, smoking, agriculture, computers, surrogate mothers, the ozone hole, garbage, airport dynamite detectors, DNA fingerprinting, flu vaccine, space sta-

◆ JOEL E. COHEN is a professor of populations and head of the Laboratory of Populations at the Rockefeller University.

tions, and global warming—all require informed judgments from the government of the United States, and all involve science and technology beyond that commonly taught in high school, or even in law school. How are these judgments formed, and how should they be formed?

Eighty-five timely, original essays in *Science and Technology Advice to the President, Congress, and Judiciary*, edited by William T. Golden, address the question: "What organizational structures should be utilized by the President, the Congress, and the Judiciary . . . to utilize available knowledge most effectively and to evaluate and respond to the diversity of opinions, and self-interests, in our world of change?"

Sixty-seven essays deal primarily with the president and the executive branch of government, eleven with the Congress, and seven with the judiciary. The authors include former President Gerald R. Ford, both of President Reagan's science advisers, science advisers of former presidents, members of Congress, federal judges, Nobel laureates, and many industrial and academic experts. These essays extend the scope of Golden's earlier collection, *Science Advice to the President* (1980). A promised companion volume will report in greater detail on how other countries arrange their science advising. The book largely skirts science advising at state and local levels.

The essays, written independently and highly diverse in outlook, suggest that federal officials can get scientific and technical advice, when they want it, through more channels than ever before. But scientific advice is just one of the deluges of information that officials have to contend with. What is lacking, many authors feel, is an adequate organization for getting balanced, informed, current, and consensual scientific advice to high levels, especially on those issues, questions, and problems where officials may not recognize the need for advice in advance.

After technical triumphs helped the Allies end World War II, most of the scientists who worked in the war effort were glad to go home. The Korean War reminded President Truman that the military still needed high-quality scientific assistance. In mid-1950, Truman called on William T. Golden, the progenitor of this volume. Golden was then a young former Wall Street securities analyst, the inventor of

a gunnery training device while a World War II naval officer, and a public servant. Golden interviewed 150 people in government, industry, and academic life. In December 1950 he recommended to Truman "the appointment of an outstanding scientific leader as Scientific Advisor to the President." Truman quickly approved. In 1957, following Sputnik, President Eisenhower appointed the first full-time presidential science adviser, James R. Killian, Jr., and created the President's Science Advisory Committee (PSAC), as Golden had recommended.

From 1951 to 1973, independent scientific and technological advice flowed to the president of the United States primarily through channels Golden designed. In 1973, PSAC's independence became a political liability for President Nixon. PSAC opposed his policies on the anti-ballistic missile and the supersonic transport, and certain of its members publicized their opposition. Nixon abolished PSAC and the post of presidential science adviser.

In 1976, Congress created the Office of Science and Technology Policy (OSTP) in the Executive Office of the President to replace the apparatus Nixon dismantled. President Ford eventually appointed a science adviser to head OSTP, but did not appoint a PSAC. None of his successors has re-created PSAC or its equivalent. The need for high-quality scientific and technical advice is growing. This year, about \$125 billion will be spent in the United States for scientific research and development (90 percent of it outside of universities) and, according to William O. Baker, nobody seems to know just what results that money buys. What to do? This book gives President George Bush more options than the menu of a Chinese restaurant.

Some veterans of the good old days have a simple solution: Give the president's science adviser direct access to the president again and re-create PSAC. Alternative suggestions abound. Make the president's science adviser a member of the cabinet without portfolio. Create a Department of Science. Give more resources to OSTP. Get the National Science Board to provide more leadership. Decentralize scientific advising. Create a private advisory group for the president. Reinforce public advisory institutions, such as the National Research Council. Get scientists to work in

political campaigns so that they know the candidates personally. Get scientists to run for office. And so on.

Congress and the judiciary receive only minor attention in the book. Congress has several sources of scientific and technical advice, including the Office of Technology Assessment, the Congressional Research Service, and Congressional Science Fellows. But the orphan of science advising is the judiciary. Here, too, the recommendations vary. Simplify laws to reduce judges' dependence on scientific expertise. Recruit as law students more people who have been working scientists. Give judges short courses in the evaluation of scientific information and scientists. Create a public agency to evaluate the methodological soundness of the scientific and technical studies that courts use.

To my taste, one of the most appealing dishes of this vast menu comes from Eli Ginzberg, a retired professor of Columbia University: "The more urgent and continuing challenges appear to me to lie less in . . . reforming . . . the federal government and more in raising the literacy of the American people and the press about matters scientific." James Madison said it best: "A people who mean to be their own governors must arm themselves with the power which knowledge gives." Candidates for elected office, government executives, lawmakers, judges, and ordinary citizens, including scientists, should read this book as if their lives, or their children's, depend on solving the problems it raises.