APPENDIX

A Summary of Science Advisory Organizations

The President

The position of **President's Science Advisor**[1] established in 1957 by President Eisenhower in response to the challenge of the Soviet Union's triumphantly successful launching of their *Sputnik* space satellites, has been occupied in succession by James R. Killian, Jr. (1957-1959), George B. Kistiakowsky (1959-1961), Jerome B. Wiesner (1961-1963), Donald F. Hornig (1964-1969), Lee A. DuBridge (1969-1970), and Edward E. David (1970-1973). The Science Advisor, a full-time Presidential aide, chaired the **President's Science Advisory Committee (PSAC)**, consisting of eighteen scientists and engineers serving staggered four-year terms who met regularly in Washington for two days each month. PSAC members also supervised a number of scientific panels on specialized topics, consisting in all of several hundred scientists. The full-time staff of the Science Advisor, which included a dozen or so scientists, was christened in 1962 the **Office of Science and Technology (OST)**. The principal function of the President's Science Advisor, PSAC, and OST was to provide independent advice on technological issues to the President and the Budget Bureau, advice which could serve to check and counterbalance the sometimes self-serving recommendations sent to the White House by the executive-branch agencies.

President Nixon abolished PSAC and OST in early 1973 and transferred some of the responsibilities of the President's Science Advisor to Guyford Stever, director of the **National Science Foundation (NSF)**, the principal federal agency charged with the support of pure science. The President also continues to receive science advice from the three-member **Council on Environmental Quality (CEQ)**, created by authority of the 1969 National Environmental Policy Act and charged with receiving environmental impact statements and preparing an annual

public report, and from the Atomic Energy Commission (AEC) and other executive branch agencies.

The Executive Branch

The executive branch departments and agencies most directly concerned with science and technology have large science advisory organizations. In the Department of Defense (DOD), the Director of Defense Research and Engineering (DDR&E), who ranks just below the Deputy Secretary of Defense, is responsible for administering DOD-sponsored research and development and for coordinating advanced weapons systems. Science advice is given to the Secretary of Defense, through the office of the DDR&E, by the Defense Science Board (DSB), whose 24 members are drawn mainly from defense-related industries. Each of the military services also has its own science advisory committee, and there are many additional committees of scientists advising various DOD officials on specialized technical matters. In addition to all of these part-time committees of scientists and engineers, the Defense Department also supports a number of non-profit private "think tanks": the Institute for Defense Analyses (IDA) advises the Secretary of Defense, Rand Corporation advises the Air Force, etc. IDA's "Jason" division, a group of about 40 prominent academic scientists (mostly theoretical physicists), has been consulting for the Defense Department since 1958. (In 1973, Jason shifted its affiliation to the Stanford Research Institute, another think-tank largely supported by the Defense Department.)

The principal science advisory committees of the Atomic Energy Commission are the General Advisory Committee (GAC), which was for several years after the Second World War the government's most influential science advisory committee, and the Advisory Committee on Reactor Safeguards (ACRS). The AEC, NSF, and Department of Health, Education, and Welfare (HEW) all devote several hundred million dollars annually toward sponsorship of research in universities and federal laboratories, including AEC's National Laboratories and HEW's National Institutes of Health. Each of these agencies has numerous scientific advisory committees and each agency also regularly consults with recognized scientists on the best allocation of funding among competing research proposals (this is called the "peer-review system"). A number of federal departments and agencies that have only in recent years begun to conduct large-scale research and development programs possess somewhat less extensive scientific advisory arrangements, and depend mainly upon the National Academy of Sciences for science advice.

Congress

The Office of Technology Assessment (OTA), which began operation late in 1973, was established in order to increase Congress' access to competent advice on technological issues. The first director of the OTA is former Representative Emilio Q. Daddario (D.-Conn.), who had seven years earlier first initiated the OTA legislation. A committee of six members each from the Senate and the House of Representatives, known as the Technology Assessment Board, acts as a board of directors for the OTA; and there is also an OTA Technology Assessment Advisory Council, composed mainly of scientists. The OTA is expected to undertake the study of major unresolved technological issues confronting Congress, with research being performed by universities or private research organizations under supervision of the OTA staff. Congress will also continue to receive assistance in library research on technical issues from the Congressional Research Service (CRS) of the Library of Congress.

The National Academies

The 1,000-member National Academy of Sciences (NAS) and its smaller offspring the National Academy of Engineering (NAE) and the Institute of Medicine are largely honorary organizations. However, the Congressional charter of the NAS, adopted in 1863, specifically requires that "the Academy shall, whenever called upon by any department of the Government, investigate, examine, experiment, and report upon any subject of science or art."[2] This advisory obligation is fulfilled mainly through the activities of the NAS's National Research Council (NRC), which supervises the work of more than 6,000 scientists and engineers serving part-time on nearly a thousand advisory committees.

The nature of NAS-NRC committees varies considerably. At one end of the spectrum are industry-dominated panels advising the Defense Department on "textile dyeing and finishing," or the Agriculture Department on "dog nutrition." At the other end are groups like the NAS Committee on Science and Public Policy (COSPUP), which has prepared thoughtful reports on subjects like the need for technology assessment. In order to prevent further fiascos like the misleading report on sonic boom damage described in Chapter 4, the NAS established in 1971 a special review committee for potentially controversial NAS-NRC reports, chaired by the NAS vice-president. This committee has several times been successful in effecting substantial improvements in Academy reports.

REFERENCES

1. Names of advisory positions and organizations are printed boldface here to make them easier to locate. For more information on advisory organizations, consult the index for relevant page references and footnotes. For a general reference on this material, see Frank von Hippel and Joel Primack, *The Politics of Technology: Activities and Responsibilities of Scientists in the Direction of Technology* (Stanford, Calif.: Stanford Workshops on Political and Social Issues, 1970), which is comprehensive but somewhat out of date; *The Science Committee* (Washington, D.C.: National Academy of Sciences, 1972), 2 vols.; and *Federal Advisory Committees: First Annual Report of the President to the Congress, Including Data on Individual Committees* (Washington, D.C.: Government Printing Office, 1973 and 1974), 4 vols. plus an index.

2. Quoted in *National Academy of Sciences, National Academy of Engineering, Institute of Medicine, National Research Council: Organization and Members* (Washington, D.C.: National Academy of Sciences, annual), p. 10. This publication also includes a list of all NAS-NAE-NRC committees, with their memberships.

INDEX