

Book Reviews

Science in the Federal Government. A history of policies and activities to 1940. A. Hunter Dupree. Belknap Press of Harvard University, Cambridge, Mass., 1957. x + 460 pp. Illus. \$7.50.

The years that are fresh in memory have seen the development, the solution, and sometimes the failure of solution of many a problem concerning the relations between science and the Federal Government, including the wartime concentration of scientific effort in the Office of Scientific Research and Development, the struggle to secure legislation establishing the National Science Foundation, problems of security and loyalty screening, the birth of the Atomic Energy Commission, and the debates over the proper roles of government and industry in the development of atomic power. Without discussing a single one of these contemporary or recent matters, Dupree contributes profoundly—and frequently entertainingly—to an understanding of the administrative, organizational, and policy problems that underlie them. He provides a background, from the Constitutional Convention in 1787 to the outbreak of World War II, of information on the continuously evolving relations between science and government and the unending effort to develop appropriate policy bases for those relationships. The author, a historian now at the University of California at Berkeley, has produced an original, comprehensive, and excellent history that not only tells a fascinating story but also adds greatly to our depth of understanding of the complex relations between science and government.

One of the debates of the Constitutional Convention centered on the proper role of the Federal Government in encouraging learning in the arts and sciences. Powerful voices—Franklin, Madison, Pinckney, and others—wanted the new constitution to give explicit recognition to these obligations. The opposition was not primarily to science and learning per se but to a strong central government. In the end, the dreams of some of the founding fathers of a national university, and of explicit responsibility for fostering science and the arts, were casualties of a majority belief that responsibility for internal improvements

belonged to the states and not to the Federal Government.

The theme that runs all through Dupree's book is that the issue debated in the Constitutional Convention has never been settled. Franklin and Madison and Pinckney had as their spiritual heirs every President through John Quincy Adams and, in a later time, Presidents Theodore Roosevelt, Herbert Hoover, and Franklin D. Roosevelt, as well as numerous scientists, bureau chiefs, and scientific organizations. The defenders of the doctrine of states' rights have also had their spiritual heirs, sometimes in the White House, more frequently in Congress, and occasionally among the ranks of leading scientists. Since George Washington's first term as President there has been a continuous effort to resolve the basic problem of federal responsibility and to develop organizational relationships that will allow government to serve science and science to serve the general welfare.

As a consequence of this continuing debate, many of the existing federal scientific activities had to come in through the back door. When Congress was unwilling to adopt legislation that clearly established a scientific agency and defined its function, which was usually the case, it was frequently possible to foster a scientific activity by tacking a rider onto an appropriation bill. When President Jefferson arranged for the Lewis and Clark expedition (which made substantial contributions to several branches of science), a double stratagem was necessary: from the Spanish Government he secured permission for an exploratory party that would "have no other view than the advancement of geography," but, in approaching Congress, which would not have appropriated a penny for the study of geography, he justified the expedition on the grounds of its commercial possibilities. When Congress showed almost complete apathy toward creating the National Academy of Sciences, it was possible for one Senator to slide through an unread bill on the hurried final afternoon of a Lame Duck Congress, thus circumventing the opposition both of Congress and of the nation's leading scientist, Joseph Henry. Dupree defends these stratagems, pointing out that they were not examples of political immorality but necessary consequences of ignorance of science on the part of

most Congressmen and of the technical difficulties of legislating scientific bureaus into existence through the ordinary Congressional machinery.

Along with the continuing thread of effort to find solutions to organizational and legislative problems, there is much of specific interest concerning the origins and changing fortunes of federal agencies that now seem to occupy assured and stable positions, the National Bureau of Standards, the Department of Agriculture, the Forestry Service, the Geological Survey, the National Institutes of Health, the Smithsonian Institution, and others; of some that lived for a while and then went out of existence, the Allison Commission, the Bureau of Science in the Philippines, the Science Advisory Board; and of one that never came into existence but that was frequently and sometimes strongly advocated, the Federal Department of Science.

Here, too, are odd bits and interesting sidelights of scientific history. Until 1853 every director of the Bureau of the Mint had some kind of scientific background; in 1805 Jefferson refused to appoint Benjamin Rush to that position because of his lack of training in mathematics. One of the earliest federal research grants to a private institution was in 1830, when the Franklin Institute was asked to study the causes of explosions of steam engines. The balloon observation program of the Army of the Republic was abandoned, not because of technical difficulties, but because of "failure of the Army to incorporate a new procedure into its operations."

The whole history is enlivened and frequently made dramatic by the skillful portrayal of the personalities of major participants and the re-creation of the attitudes, the clash of opinions, and the current problems that shaped their thinking and determined their successes and failures.

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The 1955 University of Utah Research Conference on the Identification of Creative Scientific Talent. Held at Alpine Rose Lodge, Brighton, Utah, 27–30 Aug. 1955. Calvin W. Taylor, Principal Investigator. University of Utah Press, Salt Lake City, 1956. 268 pp.

Most of us have had the experience of attending stimulating conferences and of reading, later, the reports of those conferences only to find that the brilliance of the original discourse had become dull and tarnished somewhere between the speech-making and the printing of the report. However, readers