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RESPONSIBILITIES OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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The National Aeronautics and Space Administration was established by the National Aeronautics and Space Act of 1958, which President Eisenhower signed into law on July 29th of last year. Enactment of this statute was the culmination of many months of intensive consideration, both by the Legislative and Executive Branches of the Government, of the problem of organizing the nation's space activities.

During the first three months of 1958, in the intense national excitement which followed the successful launching of the Russian Sputniks in the fall of 1957, 29 bills and resolutions concerning outer space were introduced in the Congress. Fourteen of these proposed the establishment of new agencies or the expansion of existing agencies to administer the nation's outer space programs.

On April 2, 1958, President Eisenhower submitted to Congress a special message calling for the creation of a new agency. The President's recommendations were in these words:

"I recommend that aeronautical and space science activities sponsored by the United States be conducted under the direction of a civilian agency, except for those projects primarily associated with military requirements. I have reached this conclusion because space exploration holds promise of adding importantly to our knowledge of the earth, the solar system, and the universe, and because it is of great importance to have the fullest cooperation of the scientific community at home and abroad in moving forward in the fields of space science and technology. Moreover, a civilian setting for the administration of space functions will emphasize the concern of our Nation that outer space be devoted to peaceful and scientific purposes."

"I am, therefore, recommending that the responsibility for administering the civilian space science and exploration program be lodged in a new National Aeronautics and Space Agency, into which the National Advisory Committee for Aeronautics would be absorbed. Hence, in addition to directing the Nation's civilian space program, the new agency

would continue to perform the important aeronautical research functions presently carried on by the National Advisory Committee for Aeronautics."

The new Agency, the President said, should have the power to conduct research projects in its own facilities or by contract with other qualified organizations. It would thus be free, said the President, "to enlist the skills and resources required for the space program wherever they may be found, and to do so under the arrangements most satisfactory to all concerned."

After many weeks of intensive hearings during which Congress obtained the views of leading spokesmen for the scientific community as well as the military services, Congress enacted Public Law 568, the National Aeronautics and Space Act of 1958, and wrote into law this declaration of policy and purpose:

"The Congress hereby declares that it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind."

After affirming that the general welfare and security of the United States require that adequate provision be

made for aeronautical and space activities, the Act declares that "such activities shall be the responsibility of, and shall be directed by, a civilian agency exercising control over aeronautical and space activities sponsored by the United States, except that activities peculiar to or primarily associated with the development of weapons systems, military operations, or the defense of the United States (including the research and development necessary to make effective provision for the defense of the United States) shall be the responsibility of, and shall be directed by, the Department of Defense."

The most significant features in these legislative declarations are the emphasis which Congress placed on the use of space for "peaceful purposes," and its decision that activities in space for such purposes should be under the direction and control of a civilian agency. By a civilian agency, Congress meant an agency outside of the Department of Defense, directed and staffed by civilians. Accordingly, the Act established such an agency and named it the National Aeronautics and Space Administration.

The Act defines the term "aeronautical and space activity" as meaning (a) research into and the solution of

problems of flight within and outside the earth's atmosphere; (b) development, construction, testing, and operation for research purposes of aeronautical and space vehicles; and (c) such other activities as may be required for the exploration of space. The Act further defines the term "aeronautical and space vehicles" as meaning aircraft, missiles, satellites, and other space vehicles, manned and unmanned, together with related equipment, devices, components, and parts. The Congress made no attempt to define space activities and aeronautical activities separately, thus recognizing the force of the repeated assertions by both scientific and military leaders that there is no exact line between the air space and outer space, between aeronautics and astronautics, the one regime merging imperceptibly into the other.

Since the division between nonmilitary, or peaceful, aeronautical and space activities, on the one hand, and military activities, on the other hand, is by no means precise, the Act specifies that the President should determine which agency - that is, the National Aeronautics and Space Administration or the Department of Defense - should have responsibility for and direction of each such

activity. It is the duty of the President under the Act to --

"(1) survey all significant aeronautical and space activities, including the policies, plans, programs, and accomplishments of all agencies of the United States engaged in such activities;

"(2) develop a comprehensive program of aeronautical and space activities to be conducted by agencies of the United States;

"(3) designate and fix responsibility for the direction of major aeronautical and space activities;

"(4) provide for effective cooperation between the National Aeronautics and Space Administration and the Department of Defense in all such activities, and specify which of such activities may be carried on concurrently by both such agencies notwithstanding the assignment of primary responsibility therefor to one or the other of such agencies; and

"(5) resolve differences arising among departments and agencies of the United States with respect to aeronautical and space activities under this Act, including differences as to whether a

particular project is an aeronautical and space activity."

In discharging the duties imposed upon him by the Act, the President is assisted by a body called the National Aeronautics and Space Council. The Council is composed of the President, the Secretary of State, the Secretary of Defense, the Administrator of the National Aeronautics and Space Administration, the Chairman of the Atomic Energy Commission, not more than one additional member appointed by the President from the Executive Branch of the Government (presently the Director of the National Science Foundation), and not more than three other members appointed by the President from private life. The Council has no executive authority. Its sole responsibility is to advise the President with respect to the performance of his duties under the National Aeronautics and Space Act.

On a different level, the Act also establishes a Civilian-Military Liaison Committee, which is to facilitate communication between the Department of Defense and the National Aeronautics and Space Administration and provide a means of consultation for those two agencies. The Chairman of the Civilian-Military Liaison Committee

is appointed by the President. The Committee also includes one representative from the Department of Defense, one representative from each of the Departments of the Army, Navy, and Air Force, and four representatives from the National Aeronautics and Space Administration.

This, then, is the organizational structure established by the National Aeronautics and Space Act: At the top we have the President providing policy guidance for the entire effort and determining where responsibility for individual projects and activities belongs. The President receives advice from the National Aeronautics and Space Council in carrying out these overall duties under the Act. Directly answerable to the President, and in parallel relationship to him, are the National Aeronautics and Space Administration and the Department of Defense, each having research, development, and operating responsibilities. All aeronautical and space activities not military in character - and this means, in the language of the Act, not "peculiar to or primarily associated with the development of weapons systems, military operations, or the defense of the United States" - are the responsibility of the National Aeronautics and Space Administration.

Bridging the gap that might otherwise appear to exist, and providing a constant channel of communication and consultation, is the Civilian-Military Liaison Committee, with equal representation from both the National Aeronautics and Space Administration and the Department of Defense.

Section 202 of the Act provides for the appointment by the President of an Administrator and a Deputy Administrator for NASA. On August 8, 1958, the President appointed Dr. T. Keith Glennan, President of the Case Institute of Technology in Cleveland, to be the first Administrator of the National Aeronautics and Space Administration. He also appointed Dr. Hugh L. Dryden to be the Deputy Administrator. Dr. Dryden was formerly Director of the National Advisory Committee for Aeronautics.

On September 30, 1958, Dr. Glennan, acting in accordance with the requirements of the National Aeronautics and Space Act, proclaimed that the Administration had been organized and was prepared to exercise the powers conferred upon it by the Act. By operation of law, the National Advisory Committee for Aeronautics thereupon ceased to exist, and all of its functions, powers, duties, property,

and personnel were transferred to the new agency. Thus NASA inherited from its predecessor over 8,000 highly trained personnel, skilled in the sciences and technology required to carry out its responsibilities. It also acquired the Langley Aeronautical Laboratory at Langley Air Force Base in Virginia, the Ames Aeronautical Laboratory at Moffett Field near San Francisco, the Lewis Flight Propulsion Laboratory at Cleveland, the High Speed Flight Test Station at Edwards Air Force Base in California, and the Pilotless Aircraft Research Station at Wallops Island on the eastern shore of Virginia. These facilities had a total original cost of about $350 million.

Ever since its establishment in 1915, the National Advisory Committee had worked closely with the armed services in the research work necessary to provide the military with the most advanced and effective types of aircraft and missiles. This continues to be a responsibility of the National Aeronautics and Space Administration. It is important to keep this fact in mind when considering the functions which the new agency is supposed to perform under the law. While it is a civilian agency, it plays a very important, and in many cases an indispen-

sable, role in the development of military weapons systems through continuation of the kind of research and experimentation which the National Advisory Committee for Aeronautics has carried on for the past four decades.

This was the arrangement desired and foreseen by the President when, in his special message of April 2nd, he had requested that the new legislation provide "for continuing and further enhancing the close and effective cooperation with the military departments which has characterized the work of the National Advisory Committee for Aeronautics." Under such cooperative arrangements, the President said:

> "It is expected that the National Aeronautics and Space Agency will perform research required in the furtherance of strictly military aeronautics and space objectives, just as the National Advisory Committee for Aeronautics now carries on important research work for the military services in aerodynamics, propulsion, materials, and other fields important to the development of military aircraft and missiles."

Although the National Aeronautics and Space Act

became law on July 29, 1958, NASA did not assume responsibility for nonmilitary space programs until October 1, 1958, NASA's first day of business. Before October 1, all U.S. space programs were administered by the Advanced Research Projects Agency (ARPA) in the Department of Defense. Under the President's message to Congress of April 2, 1958, NACA and the Department of Defense were to review DOD programs to recommend which should be facilitated by cooperative arrangements between the new agency and DOD.

On October 1, 1958, by Executive Order No. 10783, the President transferred the following programs to NASA from the Department of Defense:

1. The scientific satellite program known as Project Vanguard, with more than 160 scientists and technologists of the Naval Research Laboratory. This program had been under Navy Department direction.

2. Four lunar probes and three satellite projects which had been under the direction of ARPA.

3. A number of ARPA and Air Force engine development

research programs, including their work on nuclear and fluorine rocket engines, and study and development of a 1.5-million-pound-thrust single-chamber rocket engine.

The President took this action under the authority of section 302(a) of the National Aeronautics and Space Act of 1958, which empowers the President, for a period of four years after the date of enactment of the Act, to transfer to NASA functions, powers, and facilities of any other department or agency of the United States which relate primarily to the functions conferred on NASA by the Act - namely, the responsibility for planning, directing, and conducting aeronautical and space activities for peaceful purposes.

The President has exercised this authority twice. The first time was on October 1st, when he issued Executive Order No. 10783 transferring to NASA the space-related programs mentioned above. The second exercise of the President's authority to transfer functions, powers, and facilities to NASA was by Executive Order No. 10793, issued on December 3, 1958. By that Order, President Eisenhower transferred the functions and facilities of the Jet Propulsion Laboratory at Pasadena, California, from

the Department of the Army to the National Aeronautics and Space Administration. Although the laboratory is operated by the California Institute of Technology under contract, the property occupied and utilized in Pasadena is Government owned. In signing the Order, the President said:

> "This decision is necessary in the national interest. It prevents unnecessary duplication and effects economies in space research and development. This development will enhance close cooperation between the National Aeronautics and Space Administration and the Department of Defense to the end that the peaceful use of space will redound to the benefit of all mankind."

At the same time as the President issued this Executive Order, NASA and the Army concluded an agreement providing for utilization of the Army Ballistic Missile Agency at Huntsville, Alabama, in carrying out certain NASA projects.

In addition to the statutory arrangements mentioned above for allocating responsibilities and effecting coordination between NASA and the Department of Defense, it

has been found desirable to devise non-statutory machinery for purposes of special coordination. For example, basic research at various outside institutions is supported independently by NASA, the National Science Foundation, the Office of Naval Research, the Office of Scientific Research in the Air Force, and the Office of Ordnance Research in the Army. The agencies concerned exchange lists of projects received, projects approved, and amounts of money granted. From time to time their representatives meet to coordinate their grants.

A significant example of special-purpose coordination is provided by ground-support facilities. In the fall of 1958, a coordinating committee from NASA and DOD drew up an interagency agreement, since signed by the Secretary of Defense and the Administrator of NASA, establishing a Space Flight Ground Facilities Board. Under the agreement, that Board is to review proposals for new ground instrumentation facilities where new tracking sites would be required or where a total Government investment of more than $250,000 is involved; to recommend the allocation of responsibility for funding, constructing, and operating those facilities; and to review annually the national budget for

global tracking, data acquisition, and communications facilities. Each agency is to fund, construct, and manage facilities needed for the tracking, data acquisition, and communications support of its primary space missions, but certain common facilities are to be used "whenever feasible." Under specified conditions, site management may be divorced from the ownership and operation of instrumentation and communications equipment. Disagreements are to be reported to the Administrator of NASA and the Secretary of Defense.

In this connection, it should be noted that NASA is specifically authorized by the National Aeronautics and Space Act of 1958 "to use, with their consent, the services, equipment, personnel, and facilities of Federal and other agencies with or without reimbursement, and on a similar basis to cooperate with other public and private agencies and instrumentalities in the use of services, equipment, and facilities." The Act also provides:

> "Each department and agency of the Federal Government shall cooperate fully with the Administration in making its services, equipment, personnel, and facilities available to the Administration, and any

such department or agency is authorized, notwithstanding any other provision of law, to transfer to or to receive from the Administration, without reimbursement, aeronautical and space vehicles, and supplies and equipment other than administrative supplies or equipment."

As the result of Presidential action and inter-agency agreements, different space programs exhibit several different types of organizational arrangements at the present time:

1. Exclusive NASA management, e.g., cloud-cover surveillance, lunar probes.

2. Exclusive DOD management, e.g., ballistic missile defense.

3. NASA management with DOD support, e.g., Project Mercury (the manned satellite program).

4. Divided management on a project-by-project basis, e.g., national booster program.

5. Combined operation, e.g., certain functions in management and operation of tracking facilities.

6. Separate decision with inter-agency clearance, e.g., financial support of certain basic research done outside government.

In summary, it may be said that it is the responsibility of the National Aeronautics and Space Administration to plan, direct, and conduct the nonmilitary aeronautical and space activities of the United States in a manner best calculated to achieve the national objectives spelled out in the National Aeronautics and Space Act of 1958, and to do this in close cooperation with the Department of Defense and all other interested Government agencies. These national objectives are stated in the Act in the following words:

"(1) The expansion of human knowledge of phenomena in the atmosphere and space;

"(2) The improvement of the usefulness, performance, speed, safety, and efficiency of aeronautical and space vehicles;

"(3) The development and operation of vehicles capable of carrying instruments, equipment, supplies, and living organisms through space;

"(4) The establishment of long-range studies of

the potential benefits to be gained from, the opportunities for, and the problems involved in the utilization of aeronautical and space activities for peaceful and scientific purposes;

"(5) The preservation of the role of the United States as a leader in aeronautical and space science and technology and in the application thereof to the conduct of peaceful activities within and outside the atmosphere;

"(6) The making available to agencies directly concerned with national defense of discoveries that have military value or significance, and the furnishing by such agencies, to the civilian agency established to direct and control nonmilitary aeronautical and space activities, of information as to discoveries which have value or significance to that agency;

"(7) Cooperation by the United States with other nations and groups of nations in work done pursuant to this Act and in the peaceful application of the results thereof; and

"(8) The most effective utilization of the scientific and engineering resources of the United

States, with close cooperation among all interested agencies of the United States in order to avoid unnecessary duplication of effort, facilities, and equipment."

The last item quoted above is especially pertinent to the current study of this Committee. It is NASA's earnest desire to seek with the Department of Defense every feasible means of avoiding unnecessary duplication of effort in providing adequate ground facilities for the total national program of space activities.