These programs embrace the research and development phases through to tactical fleet use. Present programs include applied research, development, and evaluation of missile launching systems, depth bombs, mines, optical equipment, and high performance aircraft weapons. The Naval Gun Factory conducts research development and evaluation programs on engineering materials and on the processing of these materials. The Naval Gun Factory is expanding its research staff in the fields of physics, chemistry, metallurgy, and electrical, electronics, mechanical, and materials engineering. Diversified programs and a progressive management offer excellent opportunities for promotion and recognition in various scientific fields.

Naval Ordnance Laboratory. The Naval Ordnance Laboratory is located about 11 miles north of Washington, in Silver Spring, Md. Here the Navy has established a fully integrated research and development facility capable of pursuing weapon development from the first feasibility study to the state of readiness for combat use. NOL scientists and engineers conduct and supervise research, development, experimental manufacture, evaluation, pilot production, and project assistance both at the laboratory and in leading industrial plants of the nation. This laboratory conducts a one-year professional development program for recent graduates wherein they are given an opportunity to work in research, engineering, and evaluation assignments before a determination is made about the type of physical science or engineering they wish to pursue. The Naval Ordnance Laboratory also has a graduate training program coordinated with the University of Maryland in which an M.S. and Ph.D. degree may be obtained. The majority of the courses are taught at NOL.

Naval Proving Ground. The Naval Proving Ground is engaged in developing new and improved types of naval ordnance through research and development programs in the fields of mathematics, physics, chemistry, metallurgy, and engineering. Efforts are devoted not only to developing ordinary weapons such as guns, projectiles, rockets, and bombs, but also to developing the newest types of weapons which represent the application of the latest advances in science to problems in ordnance. Extensive experimental and testing equipment is developed and used in the numerous laboratories of the proving ground. There is a continuing need for well-qualified persons in the field of mathematics, physics, chemistry, metallurgy, mechanical engineering, electronic science, aeronautical engineering, and electrical engineering. The Naval Proving Ground is situated on the Virginia side to the Potomac River, approximately 50 miles south of Washington and 30 miles from Fredericksburg, Va.

Naval Propellant Plant. The Naval Propellant Plant, located about 20 miles south of Washington, is engaged in research on and development of propellants for guided missiles, rockets and guns, and in the techniques for loading these into rocket motors. The plant is also engaged in the development and use of production techniques for the manufacture of the propellants and for the loading of the rocket motors for most of the Navy's rockets and guided missiles. The Propellant Plant is organized and equipped to study all phases of propellant research and development, including the synthesis of new formulations, the improvements of present propellant compositions and configurations, the production of pilot "lots" of new propellants for developmental and evaluation purposes, and the conduct of surveillance studies on the stability of propellants and propellant formulations.

Naval Research Laboratory. The Naval Research Laboratory, which is located on the banks of the Potomac River in southwest Washington, conducts applied research and development to meet immediate needs of the Navy and engages in fundamental research in anticipation of future needs. A listing of the scientific fields—applications, research, astronomy, astrophysics, chemistry, electricity, mathematics, mechanics, metallurgy, ceramics, nuclear and atomic physics, radio, solid-state physics, and sound—indicates the breadth of this program. Research equipment at NRL is modern, extensive, and is supplemented by complete shop facilities for the construction of scientific apparatus and models.

The President and Scientific Information

The President approved a plan on 7 December that is designed to help meet the critical needs of the nation's scientists and engineers for better access to the rapidly mounting volume of scientific publication.

NSF Information Service

Acting upon the recommendations of his Science Advisory Committee, the President directed that the National Science Foundation take the leadership in bringing about effective coordination of the various scientific information activities within the Federal Government. The President asked that all federal agencies whose programs involve scientific information cooperate with and assist the National Science Foundation in improving the government's own efforts in this area.

The action by the President strengthens and reinforces the provision of the National Defense Education Act of 1958 calling for the establishment of a Science Information Service in the National Science Foundation to "provide, or arrange for the provision of, indexing, abstracting, translation, and other services leading to a more effective dissemination of scientific information, and undertake programs to develop new or improved methods, including mechanized systems for making scientific information available."

The committee urged that fullest use be made of existing information services, both public and private, and that the foundation's Science Information Service supplement rather than supplant present efforts.

Dimensions of Publication

James R. Killian, Jr., special assistant to the President for science and technology and chairman of the Science Advisory Committee, commented on the growing dimensions of world scientific publication and pointed out that it has become a problem requiring action at the national level. Killian said:

"Science and engineering are largely built on the published record of earlier work done throughout the world. There are for example, 55,000 journals appearing annually, containing about 1,200,000 articles of significance for some branch of research and engineering in the physical and life sciences. More than 60,000 different books are published annually in these fields, while approximately 100,000 research reports remain outside the normal channels of publication and cataloging. Within this vast body of world-wide scientific information, published and unpublished, lie the technical data that scientists need in order to do their work. The situation is further complicated by the fact that a large and important proportion of the world's scientific literature appears in languages unknown to the majority of American scientists, such as Russian and Japanese."

In its recommendations, the President's Science Advisory Committee outlines a program calling for the review, coordination, and stimulation, on a nationwide basis, of activities in the areas of primary and secondary publications, scientific data centers, unpublished research information, storage and retrieval, and translation by mechanical means.

New Agency Unnecessary

No new agency will be required to carry out the recommended program. Under its enabling act, the National Science Foundation has devoted special attention to the information needs of scientists and has developed a series of

programs designed to help meet those needs.

At least ten other federal agencies are engaged in abstracting and indexing, translating, preparation of technical reports, and research related to information needs. These agencies are asked to cooperate in providing or arranging for acquisition and reference programs, clearinghouse functions, and evaluation studies of existing programs. Research on new and improved methods of information handling will be emphasized, and the Department of State will take the lead in encouraging cooperation among the United States, foreign, and international scientific information organizations.

Subcommittee on Scientific Information

The President's Science Advisory Committee considered the whole problem of such importance that earlier this year it appointed a special subcommittee to consider the subject at length. Headed by W. O. Baker, vice president (research), Bell Telephone Laboratories, the subcommittee comprises the following members: Curtis Benjamin, president McGraw Hill Book Company; Caryl P. Haskins, president, Carnegie Institution of Washington; Elmer Hutchisson, director, American Institute of Physics; Warren C. Johnson, dean, Division of Physical Sciences, University of Chicago; Don K. Price, dean of the School of Public Administration and Littauer professor, Harvard University; H. Scoville; and Alan T. Waterman, director, National Science Foundation.

In submitting its findings, the subcommittee paid special tribute to the work of individual scientists and engineers in selecting, interpreting, and abstracting scientific and technical information. It noted the fact that the services rendered by many of the scientific societies and professional institutions to the scientific community in the information field are world famous for their quality. It expressed the hope that such private groups would continue to cooperate with and assist the Federal Government in the achievement of long-range solutions to scientific information problems. The subcommittee's conclusions form the basis for the recommendations submitted to the President by the Science Advisory Committee.

Pioneer III

The United States space probe rocket Pioneer III, which was fired from Cape Canaveral, Fla., on 6 December, reentered the atmosphere and burned up due to aerodynamic heating on 7 December, after a flight of 38 hours, 6 minutes. William H. Pickering, director of the Jet Propulsion Laboratory, operated by California Institute of Technology for the National Aeronautics and Space Administration, made the following statement about the results of the flight.

"Pioneer III . . . provided us with an unexpected dividend of information of great value. The Puerto Rico Tracking Station was in contact with Pioneer III . . . until it fell below the Puerto Rico horizon on its long journey back to earth. Puerto Rico lost the signal from the probe . . . when it was approximately at 2000 miles altitude above the earth over French Equatorial Africa.

"This means, of course, that the telemetry from the probe was heard by Puerto Rico as the probe passed through the radiation belt discovered by the Explorer satellites. The telemetry tapes from Puerto Rico for both the launch and the trip back to earth show solid data which will give us, for the first time, information as to some of the energy levels in the radiation belt as well as some idea of the physical limits of the belt.

"While the results of the launch of Pioneer were disappointing to the engineering specialists in that the probe did not reach the moon, the scientific benefit to be obtained from this dividend of two long instrumented passes through the Van Allen radiation belt more than compensates for this disappointment.

"I am greatly pleased with this significant result of the experiment, as well as by the evidence that the tracking network proved itself most efficiently. The large computer at the Jet Propulsion Laboratory in Pasadena was able to predict most accurately the time and place when Pioneer III would rise like a star on the horizon so that the tracking antenna at Goldstone and Puerto Rico could be positioned to receive the signal.

"Telemetry also shows that the method used by JPL to control the interior temperature of the instrumentation also worked perfectly. White paint was used on the outer surface of the probe to control the amount of heat received from the sun and the amount radiated to space. In order to preserve the instrumentation, it was necessary to control the temperature within 10 and 50 degrees Centigrade. Telemetry shows that the temperature reached 43 degrees Centigrade (100 degrees Fahrenheit) shortly after launch and remained at that level throughout the life of the probe."

AAAS Board of Directors

The Council of the American Association for the Advancement of Science has elected Chauncey D. Leake, assistant dean of the College of Medicine at Ohio State University, as president-elect of the Association. Leake has been a member of the Board of Directors since 1955, a member of the Publications Committee since 1955, and chairman of the Committee on the Social Aspects of Science since 1957. In 1942 and 1954 he served as vice president and chairman of Section L—History and Philosophy of Science.

H. Bentley Glass, professor in the department of biology at Johns Hopkins University, was elected as a member of the Board of Directors, and Margaret Mead, associate curator of ethnology at the American Museum of Natural History, was elected to a second 4-year term on the board.

The new officers will begin their terms on 15 January 1959.

Grants, Fellowships, and Awards

General. The National Academy of Sciences–National Research Council has announced a program of postdoctoral resident research associateships to be offered for 1959–60. The participating laboratories are the National Bureau of Standards (Boulder, Colo., and Washington, D.C.); the Naval Ordnance Laboratory (White Oak, Silver Spring, Md.); the Naval Research Laboratory (Washington, D.C.); the Navy Electronics Laboratory (San Diego, Calif.); and the U.S. Army Chemical Corps Biological Warfare Laboratories (Fort Detrick, Frederick, Md.).

The Air Research and Development Command is also participating in this program at four Air Force installations. These associateships are tenable at Air Force Cambridge Research Center (Bedford, Mass.); Air Force Missile Development Center (Alamogordo, N.M.); Rome Air Development Center (Rome, N.Y.); and Wright Air Development Center (Dayton, Ohio). In addition, the ARDC is sponsoring a program of postdoctoral university research associateships tenable at 21 universities in the United States.

The resident research associateships have been established to provide young scientists of unusual ability and promise an opportunity for advanced training in basic research in a variety of fields. Modern facilities are available in specified areas of the biological, physical, and mathematical sciences, and engineering. In addition to the above, research in certain areas of psychology is available.

Applicants must be citizens of the United States. They also must produce evidence of training in one of the listed fields equivalent to that represented by the Ph.D. or Sc.D. degree and must have demonstrated superior ability for creative research. Remuneration for these associateships is from $5985 to $7510 a year, subject to income tax.