

S. 1720

THE NEW SCIENCE BILL which was introduced into the Senate on 21 December 1945 was briefly analyzed in last week's issue (*Science*, 1946, **103**, 10-11). Using S. 1297 (the original Kilgore Bill) as little more than a point of departure, S. 1720 evolved from the October hearings sponsored by Senators Magnuson, Kilgore, and Fulbright. In the belief that the importance of the legislation requires scientists to be familiar with the details of the bill, the full text follows:

In the Senate of the United States

79th CONGRESS, 1st Session, 21 December 1945

Mr. Kilgore (for himself, Mr. Johnson of Colorado, Mr. Pepper, Mr. Fulbright, and Mr. Saltonstall) introduced the following bill, which was read twice and referred to the Committee on Military Affairs:

A bill to promote the progress of science and the useful arts, to secure the national defense, to advance the national health and welfare, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "National Science Foundation Act of 1945."

DECLARATION OF POLICY

SEC. 2. The Congress hereby finds that a full development and application of the Nation's scientific and technical resources is essential for the national defense, national prosperity, and the national health and welfare. The Congress declares it to be the purpose of this Act among other things to provide support for scientific research and scientific development, to enable young men and women of ability to receive scientific training, to promote the conservation and use of the natural resources of the Nation, to correlate the scientific research and development programs of the several Government agencies, to achieve a full dissemination of scientific information to the public, and to foster the interchange of scientific information in this country and abroad. The Congress further finds it essential for these purposes to create a central scientific agency within the Federal Government.

SEC. 3. (a) There is hereby established an independent agency of the Federal Government to be known as the National Science Foundation (hereinafter referred to as the "Foundation"), and administered by an Administrator (hereinafter referred to as the "Administrator") who shall be appointed by the President, by and with the advice and consent of the

Senate, and shall receive compensation at the rate of \$15,000 per annum. The President shall appoint a Deputy Administrator, who shall perform the functions of the Administrator during his absence or when there is a vacancy in the office of the Administrator, and shall perform such other duties as may be delegated to him by the Administrator. The Deputy Administrator shall receive compensation at the rate of \$12,000 per annum.

(b) There shall be within the Foundation a Division of Mathematical and Physical Sciences, a Division of Biological Sciences, a Division of Social Sciences, a Division of Health and Medical Sciences, a Division of National Defense, a Division of Engineering and Technology, a Division of Scientific Personnel and Education, a Division of Publications and Information, and such additional divisions, not to exceed three in number, as the Administrator may from time to time establish. The functions of each division shall be prescribed by the Administrator. Each division shall be headed by a Director, who shall be appointed by the Administrator and shall receive compensation at the rate of \$12,000 per annum.

(c) Except as provided in section 4, the Administrator shall appoint and fix the compensation of such personnel as he may deem necessary to carry out the provisions of this Act. Such appointments shall be made and such compensation shall be fixed in accordance with the provisions of the civil-service laws and regulations and the Classification Act of 1923, as amended, except that, when deemed necessary by scientific, technical, and professional personnel may be employed without regard to the civil-service laws, and their compensation fixed without regard to the Classification Act of 1923, as amended.

NATIONAL SCIENCE BOARD AND DIVISIONAL
SCIENTIFIC COMMITTEES

SEC. 4. (a) The Administrator, in exercising his authority under this Act, shall consult and advise with a National Science Board (hereinafter referred to as the "Board") and, through the Directors of the several divisions, with divisional scientific committees, on all matters of major policy or program or budget. The Board shall consist of nine members appointed by the President, by and with the advice and consent of the Senate, from among persons who are especially qualified to promote the broad objectives of this Act, plus the chairman of the several divisional scientific committees. The scientific committee for each division, except the Division of National Defense, shall consist

of not less than five and not more than fifteen members appointed by the Administrator, with the approval of the Board, except that the initial members of each divisional scientific committee shall be appointed by the Administrator with the approval of the nine Board members appointed by the President.

The scientific committee for the Division of National Defense shall consist of not more than forty persons, of whom at least half shall be civilians appointed by the Administrator, and the remaining members shall be divided equally between such chiefs of services or divisions of the War Department and such chiefs of bureaus and offices of the Navy Department as the Secretary of War and the Secretary of the Navy, respectively, may from time to time designate. There shall be within the divisional scientific committee for the Division of National Defense a nine-man executive committee consisting of the chairmen of the divisional scientific committee, as chairman; four civilian members elected annually by the civilian members of the divisional scientific committee, together with two Army officers and two naval officers, one of each of whom should be charged in their respective Departments with the coordination of research, designated by the Secretary of War and the Secretary of the Navy, respectively.

Every effort shall be made to assure that each divisional scientific committee is representative of the major scientific interests and functions of its division. Members of the Board appointed by the President and members of the divisional scientific committees appointed by the Administrator shall serve for three-year terms, except that (1) at least one-third of such members originally appointed shall be appointed for one-year terms, and at least another third for two-year terms, and (2) any member appointed to fill a vacancy occurring prior to the expiration of the term of his predecessor shall be appointed for the remainder of such term.

No person who has served as a member of the Board or any divisional scientific committee shall be eligible again to serve as a member of the same group until the expiration of three years after his term has expired, except that a member appointed for a term of less than three years may be appointed for a succeeding three-year term.

(b) The Board and each divisional scientific committee shall annually elect its own chairman from among its own members, and shall devise its own rules of procedure. The Board and each such committee shall meet at the call of its own chairman or at such times as may be fixed by itself, but in no event less frequently than once each month.

The Board shall appoint and prescribe the duties

of an executive secretary of its own selection. The executive secretary, together with such clerical and professional assistance as may be determined by the Board to be necessary, shall assist the Board in carrying out its functions as described in this Act.

(c) The Board shall continuously survey the activities and management of the Foundation, and shall periodically evaluate the achievements of the Foundation in accomplishing the objectives of this Act. Each divisional scientific committee shall survey continuously the scientific field which it encompasses, shall undertake to determine the specific scientific needs of such field, and shall evaluate proposed programs and projects. The Board and each such committee shall, upon its own initiative or upon request by the Administrator, make appropriate recommendations and reports relating to its duties and findings. The Board and each such committee shall have full access to all information in the possession of the Foundation.

(d) The Board may, whenever it deems necessary, make such recommendations to the President and the Congress as in its opinion will further the objectives of this Act. The Administrator shall, whenever requested by the Board or any divisional scientific committee, publish and disseminate widely any recommendations or reports prepared by the Board or such committee. The Administrator shall render an annual report to the President and the Congress, summarizing the activities of the Foundation, together with such recommendations as he may deem appropriate. The annual report shall include such independent recommendations concerning the budget, the organization, and the management of the Foundation, and such other recommendations as the Board and the divisional scientific committees may deem necessary to better effectuate the purposes of this Act. The annual report shall include whatever dissenting opinions may be submitted for that purpose by individual members of the Board or the divisional scientific committees.

(e) Members of the Board and of the divisional scientific committees shall receive compensation at the rate of \$50 for each day engaged in the business of the Foundation, and shall be reimbursed for their necessary travel and other expenses incurred in the work of the Board or of any such committee. Persons holding other offices in the executive branch of the Federal Government may serve as members of the Board or any divisional scientific committee, but they shall not receive remuneration for their services as such members during any period for which they receive compensation for their services in such other offices, nor shall they act in an official capacity for the Government agency by which they are employed

while they are serving as members of the Board or such committee.

(f) Members of the Board and of any divisional scientific committee established under the provisions of this Act, and any other officers or employees of the Foundation, shall be chosen without regard to their political affiliations and solely on the basis of their demonstrated capacity to carry out the purposes of the Foundation and their fitness to perform the duties of their office.

(g) The Administrator may create such specialized additional advisory committees or employ the services of part-time advisory personnel as he may deem necessary to better effectuate the objectives of this Act. Persons so engaged shall be reimbursed for their necessary travel and other expenses incurred in the work of the Foundation. Such persons may be non-compensated or may receive compensation at the rate not to exceed \$50 for each day of service. Any person serving only in an advisory capacity pursuant to this section, including the members of the National Science Board and of the Divisional Scientific Committees, may serve as such without regard to the provisions of sections 109 and 113 of the Criminal Code (18 U.S.C., secs. 198 and 203) or section 19 (e) of the Contract Settlement Act of 1944, except insofar as such sections may under certain conditions prohibit any such person from receiving compensation in respect of any particular matter which directly involves the Foundation or in which the Foundation is directly interested; but nothing in this Act shall be construed to modify, impair, or restrict the application of section 41 of the Criminal Code with respect to any such person.

SUPPORT OF RESEARCH AND DEVELOPMENT

SEC. 5. (a) The Administrator is authorized to enter into contracts or other arrangements pursuant to which he will finance, in whole or in part, or otherwise support, research and development activities to be carried on by other Government agencies or by other organizations.

(b) Of the funds appropriated to the Foundation and expended by it for research and development activities, not less than 15 per centum shall be expended for research and development in each of the following fields: (1) National defense and (2) health and the medical sciences.

(c) Of the funds appropriated to the Foundation for research and development activities (excluding funds expressly appropriated for national defense), not less than 25 per centum shall be apportioned among the States as follows: Two-fifths shall be apportioned among the States in equal shares, and the

remainder shall be apportioned among the States in the proportion that their respective populations bear to the population of all the States, determined according to the last preceding decennial census; and the amounts so apportioned to each State shall be expended by the Administrator only for carrying on research and development activities in the facilities of tax-supported colleges and universities, including the land-grant colleges, within such State. In making contracts or other financial agreements pursuant to this provision, the Administrator shall, consistent with such general program as he may establish in order to carry out the objectives and provisions of this Act, give each individual institution the widest latitude in its choice of individual research and development projects. For purposes of this section the term "State" includes Alaska, Hawaii, and Puerto Rico. Of the funds appropriated to the Foundation for research and development activities (excluding funds expressly appropriated for national defense), an additional per centum of not less than 25 shall be expended in the facilities of nonprofit organizations without regard to the above limitations relating to State quotas or the tax-supported character of the organization. In meeting the requirements of this subsection, the Administrator may take into account whatever funds may be expended by the Foundation for facilities to be operated by the land-grant, tax-supported, or other nonprofit organizations, even though the title or ownership rights of such facilities remain with the United States.

(d) The activities of the Foundation shall be construed as supplementing and not superseding, curtailing, or limiting any of the functions or activities of other Government agencies authorized to engage in scientific research and development. Funds allocated by the Administrator to other Government agencies shall be utilized for projects approved by the Administrator and undertaken on behalf of the Foundation, and shall be in addition to, and not in lieu of, funds regularly appropriated to such other Government agencies.

(e) In all research and development activities financed or otherwise supported by the Foundation, the Administrator shall make every effort to eliminate restraints upon the free expression of scientific views and to insure full freedom in the exercise of creative talents, in the development of new ideas and in the methods of research. Any person engaged in such research and development activities shall not be precluded from discussing, writing, or publishing his own findings and conclusions irrespective of such other arrangements for publication and dissemination as may be made by the Administrator.

SCHOLARSHIPS AND FELLOWSHIPS

SEC. 6. The Administrator is authorized to award scholarships and fellowships to persons for scientific study or scientific work at nonprofit institutions of higher education, or other institutions, selected by the recipient of such aid, for such periods as the Administrator may determine, in the United States or in foreign countries. Persons shall be selected for such scholarships and fellowships solely on the basis of aptitude, within the limits of such State quotas as may be established to insure an equitable selection of such persons from among the States. Persons selected for such scholarships and fellowships may include employees of the Federal Government and such employees selected and detailed for scientific study or training shall not lose their individual status or seniority ratings for reason of absence from regularly assigned duties during the course of such study or training.

REGISTER OF SCIENTIFIC PERSONNEL

SEC. 7. The Administrator shall maintain a register of scientific and technical personnel and in other ways provide a central clearinghouse for information concerning all scientific and technical personnel in the United States and its possessions. No individual shall be listed in such register without his consent.

USE AND DISSEMINATION OF RESEARCH FINDINGS

SEC. 8. (a) The Administrator shall make and maintain an inventory of all current federally financed research and development projects. In cooperation with the Commissioner of Patents, the Administrator shall establish a central register of all inventions, discoveries, patents, patent rights, and findings, including references to related data, in which the United States or any agency thereof has any right, title, or interest, or which pursuant to this section have been freely dedicated to the public. The Administrator shall record, collect, edit, index, publish, and disseminate significant data on all inventions and discoveries and other findings produced in the course of federally financed research and development activities, or arrange with other Government agencies for such recording, collecting, editing, indexing, publishing, and dissemination. In consultation and collaboration with the Library of Congress and other Government agencies, the Administrator shall take such steps as he may deem necessary to make such information and other available significant scientific and technical information accessible to the public, including the preparation and distribution of periodic catalogs, inventories, abstracts, translations, bibliographies, and microfilm reproductions, of research and development projects,

contracts, reports, and publications. In the publication of such information, the Administrator may utilize private publishing facilities to the extent that he deems necessary or desirable, without regard to the provisions of section 87 of the Act of January 12, 1895 (28 Stat. 622), and section 11 of the Act of March 1, 1919 (40 Stat. 1270) (U. S. C., title 44, sec. 111).

(b) Each contract for federally financed research or development entered into between any Government agency and any organization shall provide that such organization will make available to such agency full data on all inventions, discoveries, patents, patent rights, processes, and findings produced in the course of such research or development, including such reports with respect thereto as may be required by such agency. Each Government agency, upon the request of the Administrator, shall make available to him such data and such reports with respect to research and development activities financed by such agency, as may be necessary for the purposes of subsection (a).

(c) Except as provided in subsection (d) below, all rights in inventions, discoveries, or patents now or hereafter owned by or vested in the United States or any Government agency shall be freely dedicated to the public, and any invention, discovery, patent, patent right, or finding hereafter produced in the course of federally financed research or development shall be freely dedicated to the public.

(d) The head of any Government agency financing by contract, or otherwise administering, federally financed research and development activities (including the Administrator in the case of the Foundation) may, by stipulation in the contract or by other advance agreement with any organization (other than a nonprofit organization), provide for the retention by the contractor or by the inventor, or by their assignees, of such patent rights as the head of such agency deems fair and equitable and consistent with the national interest: *Provided, That—*

(1) such retention is in a field specified in the contract and as to which field the head of such Government agency has made a formal finding, prior to entering into such contract or other advance agreement that such field has been developed substantially as the result of earlier research or development activities of the contractor which were not federally financed; or

(2) a later finding is made, pursuant to such procedures as may be specified in the contract or other advance agreement, that the particular invention, discovery, patent, patent right, process, or finding has been developed substantially as the result of earlier research or development activities of the contractor which were not federally financed; or

(3) the contractor or other recipient of financial assistance from the Government for research and development is currently contributing substantially to the cost of the particular research and development project.

In making any stipulation in a contract or other advance agreement pursuant to this subsection, the head of the Government agency shall, in determining what is deemed fair and equitable and in the national interest, be guided by the following principles: (1) That the Government's interest is served best by making fully available to all users at the lowest possible charge any invention, discovery, or finding which may result from such federally financed research or development; (2) that whenever there are two or more facilities of comparable suitability available to meet the Government's needs, the facility which requires no retention or least retention of commercial rights pursuant to this subsection shall be selected. Any contract or advance agreement made pursuant to this subsection shall in every case provide for at least an irrevocable, nonexclusive, royalty-free license for governmental purposes to the United States under all inventions, discoveries, patents, or findings produced in the course of the research and development contracted for.

(e) The head of each Government agency shall make a quarterly report to the President and to the Congress concerning contracts containing the provisions authorized by subsection (d), and shall include a list of all contracts containing such a provision entered into by such agency during the preceding quarter, the reasons supporting the approval of such provision in each case, the amount of Federal funds expended or to be expended under each contract containing such a provision, the name of the organization receiving the contract, and the general nature of the patent rights reserved for private use in each such contract.

(f) Notwithstanding any other provision of this Act, the President, or any person designated for that purpose by him, may exempt from the provisions of this Act relating to dedication to the public, publication, or dissemination, any scientific or technical information, data, patents, invention, or discoveries produced in the course of federally financed research or development, if and so long as the President or such designated person determines that such exemption is essential in the interest of national security.

INTERNATIONAL DEVELOPMENT OF SCIENCE AND INTERNATIONAL EXCHANGE OF SCIENTIFIC AND TECHNICAL INFORMATION

SEC. 9. (a) The Administrator is hereby authorized with the approval of and through the Department

of State to conclude agreements with foreign governments or agencies thereof relating to the exchange of scientific and technical information to facilitate the maximum acquisition, dissemination, and use thereof. The Administrator may, whenever he deems it necessary to promote the objectives of this Act, defray the expenses of representatives of Government agencies and other organizations to accredit international scientific congresses and meetings.

(b) The Administrator is hereby authorized, with the approval of and through the Department of State, to cooperate in any international research or development activities consistent with the purposes or provisions of this Act and to allocate and expend for such international research activities, such sums, within the limit of appropriated funds, as the Administrator may deem desirable.

INTERDEPARTMENTAL COORDINATION

SEC. 10. (a) There is hereby established an Interdepartmental Committee on Science, to consist of the Administrator, as Chairman, and the heads (or their designees) of such Government agencies engaged in or concerned with the support of scientific activity to a substantial degree as the President may from time to time determine. The Interdepartmental Committee shall meet whenever the Chairman so determines, but not less than once a month.

(b) The Interdepartmental Committee shall advise and assist the Administrator in gathering and correlating data relating to the scientific research and development activities of the Federal Government; shall study and evaluate such data in relation to the program of the Foundation and the scientific research and development programs of the other Government agencies; and shall make such recommendations to the Foundation and other Government agencies and to the President as in the opinion of the Committee will serve to aid in effectuating the objectives of this Act and other legislation providing for Federal support of scientific research and development. The Administrator, in consultation with the Interdepartmental Committee, shall, from time to time, make recommendations to the President for the achievement of maximum effectiveness in the conduct of all federally financed research and development.

MISCELLANEOUS

SEC. 11. (a) To enable the Administrator to carry out his powers and duties, there is hereby authorized to be appropriated annually to the Foundation, out of any money in the Treasury not otherwise appropriated, such sums as may be necessary to carry out the provisions of this Act. The funds appropriated to the

Foundation, as herein authorized, and funds hereafter appropriated to any Government agency for scientific research or development, as herein defined, shall, if obligated during the fiscal year for which appropriated, or if reserved for a project expected to continue beyond the end of such year, remain available for expenditure for four years following the expiration of the fiscal year for which appropriated. After such a four-year period, the unexpended balances of appropriations shall be carried to the surplus fund and covered into the Treasury.

(b) The materials or equipment purchased by Federal funds or furnished by the Federal Government in connection with research and development activities shall be the property of the United States. The Administrator shall not, however, through the Foundation or its own employees, operate any laboratories, pilot plants, or other such scientific or technical facilities which he may acquire.

(c) In carrying out his functions under this Act, the Administrator is authorized—

(1) to prescribe such rules and regulations as he deems necessary governing the manner of the operations of the Foundation and its organization and personnel;

(2) to enter into contracts, or amendments or modifications of contracts, without performance or other bonds, and without regard to section 3709 of the Revised Statutes (U. S. C., title 41, sec. 5) in the case of all contracts which relate to scientific research or development;

(3) to make advance, progress, and other payments which relate to scientific research or development without regard to the provisions of section 3648 of the Revised Statutes (U. S. C., title 31, sec. 529);

(4) to acquire by purchase, or otherwise, hold and dispose of by sale, lease, loan, or otherwise, real and personal property of all kinds necessary for, or resulting from, scientific research or development;

(5) to prescribe, with the approval of the Comptroller General of the United States, the extent to which vouchers for funds expended under contracts for scientific research and development shall be subject to itemization or substantiation prior to payment, without regard to the limitations of other laws relating to the expenditure of public funds and accounting thereof.

(d) The following statutes, limiting the character and distribution of Government publications, attendance at scientific and professional conferences by Government employees, the purchase of literature by Government agencies, and related matters, shall not apply to the Foundation or, insofar as funds allotted by the Foundation may be used by any Government agency, to the use of such funds by any such agency: That cause of section 61 of the Act of January 12,

1895 (28 Stat. 601, 610; 44 U. S. C., sec. 71) reading: "but only one copy of any document shall be sold to the same person, excepting libraries or schools by which additional copies are desired for separate departments thereof, and Members of Congress"; section 92 of the Act of January 12, 1895 (28 Stat. 601, 623), as amended by section 8 of the Act of August 23, 1912 (37 Stat. 360, 414; 44 U. S. C., sec. 95); section 87 of the Act of January 12, 1895 (28 Stat. 601, 622), as amended by the second proviso of section 11 of the Act of March 1, 1919 (40 Stat. 1213, 1270; 44 U. S. C., sec. 111); that part of section 1 of the Act of March 3, 1905 (33 Stat. 1156, 1213), which is codified as Forty-fourth United States Code, section 118; section 94 of the Act of January 12, 1895 (28 Stat. 601, 623; 44 U. S. C., sec. 219); that part of section 1 of the Act of March 3, 1905 (33 Stat. 1214, 1249), which is codified as Forty-fourth United States Code, section 219a; the first proviso of section 11 of the Act of March 1, 1919 (40 Stat. 1213, 1270); section 8 of the Act of June 26, 1912 (37 Stat. 139, 184; 5 U. S. C., sec. 83); section 192 of the Revised Statutes, as amended (5 U. S. C. 102); and section 1779 of the Revised Statutes (5 U. S. C. 102).

DEFINITIONS

SEC. 12. As used in this Act—

(a) "Research and development" means theoretical analysis, exploration, and experimentation in any field of science (including but not limited to the mathematical, physical, biological, medical, and social sciences), and the extension of investigative findings and theories of a scientific or technical nature into practical application, including the experimental production and testing of models and processes.

(b) "Federally financed research and development" means research and development financed in whole or in part from funds designated for research and development by the Federal Government under a contract, grant, or other form of financial assistance.

(c) "Government agency" includes departments, independent agencies and commissions, corporations, and other instrumentalities of the Federal Government.

(d) "Organizations" includes State and local government agencies, corporations, partnerships, non-profit institutions, and individuals.

(e) "Scholarships and fellowships" means stipends covering tuition and other fees, and such living, travel, and other expenses as the Administrator may determine.