

received federal funds during the fiscal year 1951-52.

It is significant, in this connection, to find a tabulated illustration of one phase of the difficulties facing liberal arts colleges. Comparison of the federal funds received by educational institutions (as differentiated from other nonprofit institutions) shows that liberal arts colleges, constituting in number 78 percent of all educational institutions having present or potential research capacity, received only 3 percent of the funds distributed in 1951-52. Universities, on the other hand, received 77 percent of the funds even though they represent less than 13 percent of the institutions listed. Professional-technical schools, constituting 9 percent of the total institutions, received 20 percent of the funds. Based on enrollment in the fall of 1951, the average university had a student population of 9000, compared with 1000 for the liberal arts college and 2000 for the professional-technical school. Total enrollments were 798,300 for universities, 621,200 for liberal arts colleges, and 124,000 for professional-technical schools. The report, however, takes note of the argument that universities received the greatest portion of the funds because they are on the whole larger and better equipped to do research and because the conduct of research is closely associated with graduate study and the universities have far more facilities for graduate study than have the other institutions.

The predominant part played by universities in the program of government-sponsored scientific research and development is further emphasized by the fact that only two universities out of 88 did not receive Federal funds during 1951-52. Of the 538 colleges having present or potential research capacity, only 95 received funds, and of the 61 professional-technical schools, 41 received funds. 91 percent of the funds went to 50 of the two-hundred-odd educational institutions receiving federal support. 39 of these 50 institutions are universities, 10 are professional-technical schools, and one is a liberal arts college. The latter appears only because of a research center which it operates for the Reconstruction Finance Corporation. When support for research centers operated for the Government by nonprofit educational institutions is excluded, the ranking 50 institutions received 83 percent of the funds distributed in 1951-52.

"In recent years," the report concludes, "there has been a growing tendency toward a formalization of research activities in educational institutions. Federally sponsored research work has probably accelerated this trend. The research centers are the most obvious examples. But aside from work done in the centers, there is apparent an increasing tendency to separate research sponsored by the Government and others from the normal instructional activities of the institutions. As this trend grows, the value of sponsored research for educational purposes is lessened. Based on the data available from this study, it appears that about half of the funds now going to educational institutions contribute little to the primary objectives of these institutions. There is also a growing movement toward

formalization in the activities paid for by the remainder of the funds which in time may reduce their value for educational purposes."

Copies of the report (published under the title, *Federal Funds for Scientific Research and Development at Nonprofit Institutions, 1950-51 and 1951-52*) may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at a cost of 30 cents each.

International Relations Centers

Program Announced by NAS-NRC

A series of centers designed to assist foreign scientific visitors in establishing contacts in this country with people in their fields and, in general, in making their stay here as effective as possible has been proposed by the Office of International Relations of the National Academy of Sciences-National Research Council. Under study for the past year by the Cooperative Research Foundation (CORE), the program was to be activated August 31, 1953 with the opening of the first regional center at the Morrison Planetarium, Golden Gate Park, San Francisco. Other such centers will be located in similar areas of concentrated scientific endeavor, and are to act as coordinating agencies for international scientific activities in their vicinities.

Foreign Scientists

Changes Urged in Visa Procedure

Participation of foreign scientists and scholars in meetings and conferences in the United States would be facilitated under the terms of two resolutions introduced by Representative Charles S. Gubser of California on July 27. These resolutions acknowledge that "the contribution of such aliens to the advancement of scientific and scholarly knowledge by their participation in such meetings, conferences, temporary employment, and other transactions in the United States is essential to the national defense and the furtherance of the industrial, technological, and cultural leadership of the United States," and provide for prompt decisions on nonimmigrant visas for foreign scholars with a review board including scientists and scholars in its membership being available in the event of unfavorable decisions by the consul. The temporary admission of aliens otherwise specifically excluded by some sections of the McCarran Act would be made possible by the resolutions, which were referred to the House Judiciary Committee.

NBS Loses Four Divisions

Ordnance Work Transferred to Defense

The National Bureau of Standards was scheduled to undergo major surgery on the first of this month when four of its ordnance research and development activities were to be removed from the Bureau and transferred to

the Department of Defense. The transfer affects approximately 1600 members of the Bureau's staff. The four divisions, whose work has accounted for more than half of the Bureau's \$50 million annual budget, are ordnance development (division 13), missile development (division 15), electrochemical development (division 16), and electronic ordnance (division 17).

Announcement of the transfer was made on July 24th in a statement released jointly by Secretary of Commerce Sinclair Weeks and Secretary of Defense Charles E. Wilson. "This transfer," they said, "is in accordance with recommendations made by Mervin J. Kelly, chairman of the special committee established by the Secretary of Commerce to evaluate the present functions of the National Bureau of Standards in relation to the present national needs." It was indicated that reasons existed for announcing the transfer prior to release of the Kelly committee's report, which is expected to appear sometime this month, but no further justification was offered for the action or for its timing. Neither was there any specific suggestion that the transfer had been recommended by the full committee or by any of its members other than Dr. Kelly.

Mr. Wilson and Mr. Weeks indicated that the transferred functions of the Bureau would be carried out under the direction of the chief of ordnance for the Army, but that for the present no attempt would be made to move the scene of these ordnance activities from the laboratory buildings of the Bureau of Standards. It was also indicated that the Department of Defense will continue to call upon the Bureau for assistance in defense research and development programs in fields other than ordnance.

Scientific Translations

First Group Made Available

The first set of translations of Russian scientific papers has been completed and copies may be obtained for 10 cents each from the Office of Technical Services, Department of Commerce, Washington 25, D. C., it has been announced by the National Science Foundation, sponsors of the program. The first twenty of these translations, all from *Doklady Akademii Nauk SSSR*, are listed below:

Gaponov, A. V., "A Dynamical Model of the General Theory of Electric Machines", **89**, 45 (1953) (NSF-tr-1, June 1953)

Ivanenko, D. and Larin, S., "Theory of the Periodic System of the Elements", **88**, 45 (1953) (NSF-tr-1, June 1953)

Arkharov, V. I., Ignatyeva, S. I., and Kozmanov, Yu. D., "Thermal Fatigue of Single Crystals of Aluminum", **88**, 439 (1953) (NSF-tr-3, June 1953)

Ivanenko, D., Kurdgelaidze, D., and Larin, S., "Observations on Nonlinear Meson Dynamics", **88**, 245 (1953) (NEF-tr-4, June 1953)

Goldman, I. I., "On Spectroscopic Determination of the Quadrupole Moments of Nuclei", **88**, 241 (1953) (NSF-tr-5, May 1953)

Vaisman, I. A., "Effect of Nucleon Orbits on Slow Neutron Capture Cross Sections and on Spin of Odd-Odd Nuclei", **88**, 431 (1953) (NSF-tr-6, May 1953)

Borovsky, I. B. and Golovner, T. N., "Multiplicity in X-Ray Emission Spectra", **88**, 233 (1953) (NSF-tr-7, June 1953)

Kharanen, V. Ya., "Sound Propagation in a Medium with Random Fluctuations of the Refractive Index", **88**, 253 (1953) (NSF-tr-8, June 1953)

Buinov, N. N. and Savinykh, V. P., "Effect of Plastic Deformation on Subsequent Decomposition in Aluminum Alloys Al-Si and Al-Mg-Si", **88**, 257 (1953) (NSF-tr-9, June 1953)

Motylev, Yu. L., "On the Creep of Soil", **88**, 441 (1953) (NSF-tr-10, June 1953)

Katsenelenbaum, B. Z., "Wave Guides with Nonideal Walls", **88**, 37 (1953) (NSF-tr-11, June 1953)

Sverdlov, L. M., "Relations Between Moments of Inertia and Rotation Frequencies of Isotopic Molecules", **88**, 249 (1953) (NSF-tr-12, June 1953)

Vysokovsky, D. M., "Experimental Investigation and Design of 'Wave-Canal' Antennas", **89**, 41 (1953) (NSF-tr-13, June 1953)

Zeldovich, Ya. B., "Nucleon Isobars as Intermediate States in Beta-Decay", **89**, 33 (1953) (NSF-tr-14, June 1953)

Khrushchov, M. M. and Babichev, M. A., "Resistance to Abrasive Wear and the Hardness of Metals", **88**, 445 (1953) (NSF-tr-15, June 1953)

Vaisman, I. A., "Certain Regularities in Nuclear Spin and a Nuclear Shell Model", **88**, 237 (1953) (NSF-tr-16, May 1953)

Tyabin, N. V., "Motion of a Sphere in a Viscoplastic Liquid Dispersion System", **88**, 57 (1953) (NSF-tr-17, June 1953)

Zarembo, K. S., "An Estimate of Displacements and Deformations of Underground Gas Conduits Due to Temperature", **89**, 53 (1953) (NSF-tr-18, June 1953)

Osipov, K. A., Fedotov, S. G., and Lozinsky, M. G., "On a 'New' Mechanism of Plasticity of Metallic Solid Solutions", **89**, 57 (1953) (NSF-tr-19, June 1953)

Fok, M. V., "Wide-Angle Interference from a Quadrupole Source of Light", **89**, 439 (1953) (NSF-tr-20, June 1953)

In addition to contracting with Columbia University for translations from the Russian, the National Science Foundation's Office of Scientific Information has established a Scientific Translations Center in the Library of Congress to aid in the dissemination of foreign technical literature. The major emphasis of the Center will be on Russian journals initially, although it is hoped that other languages will be covered extensively in the future. Monthly lists of translations acquired by the Center will be issued, and photostat and microfilm copies will be made available. Inquiries may be addressed to the Scientific Translations Center, Science Division, Library of Congress, Washington 25, D. C.

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30-Year Cumulative Index Available

A two-volume name and subject cumulative index of all papers appearing in *The Physical Review* from 1921