

News of Science

NSF Report on Exchange of Graduate Students

Approximately 34,000 students from other nations were studying in institutions of higher learning in the United States during 1953-54—equal to the combined enrollment of foreign students in all universities of Western Europe. Thirty years earlier, the universities of Western Europe attracted three times as many foreign students as those in the United States.

These data are part of a new report by the National Science Foundation on exchange of foreign and United States graduate students in the sciences, engineering, and other fields. The data are based on surveys of the Institute of International Education, New York City, and an NSF survey on graduate enrollment. The analysis is designed to complement a report of graduate-student enrollment and stipends in the academic year 1953-54, to be published by the foundation this summer.

Numbers of foreign students studying at United States colleges and universities have increased steadily since World War II, until, in 1955-56, 36,500 were reported, of whom 13,600 (37 percent) were at the graduate level. The increase is indicative of the demand for professional and technical personnel in all parts of the world, as well as of the fact that United States institutions of higher learning have achieved internationally recognized status. While the majority of foreign students in this country are studying at the undergraduate level, United States students abroad are predominantly at the graduate level.

Until 1946, the total number of foreign students at United States colleges and universities never exceeded 10,000, of which no more than 2000 to 3000 were graduate students. Since 1946, the number of foreign students in the United States has more than trebled. In 1953-54 about one-third of the foreign students here were studying at the graduate level (approximately 5 percent of the total U.S. graduate enrollment of 250,000). They were predominantly studying in the natural sciences and engineering. On the other hand, the approximately 9500 U.S. students abroad were primarily

studying in the humanities, chiefly at the graduate level.

In 1953-54, about 5000 (50 percent) of foreign graduate students in America were from the following seven countries: Canada, China, India, Philippines, Mexico, Japan, and the United Kingdom. Slightly less than 3000 of these were from the Asian countries and adjoining islands. Since 1920, Asian students have outnumbered Europeans in American institutions. While the majority of all our foreign students have been from Asia, few Americans have gone to Asia to study. Of the Europeans studying in this country, the British have been the most numerous. Of Americans studying abroad, at both the graduate and undergraduate level, approximately 5600 (60 percent) were in Europe and 2800 (30 percent) in Canada and Mexico. The European countries chosen by most students were Italy, Switzerland, France, and the United Kingdom.

Of the approximately 10,000 foreign graduate students in this country in 1953-54, 5150 (52 percent) were in the fields of natural sciences and engineering. Only 26 percent of all American graduate students in this country were in these fields. Of American students in foreign schools, 13 percent were studying natural sciences and engineering. The humanities accounted for 62 percent; the remaining 25 percent were studying psychology, social sciences, education, and other fields. In recent years as many as 1800 Americans have been enrolled in foreign medical schools, while only 100 foreign students were in American medical schools.

Financial support for exchange students comes from various sources. Seventy-seven percent of foreign graduate students received all, and another 7 percent part, of their support from personal or nongovernmental sources; only 16 percent received full support, and 7 percent partial support, from U.S. or foreign governments. Of American graduate and undergraduate students abroad in 1954-55, 53 percent were estimated to have some major source of governmental or private support—32 percent received G.I. benefits; 11 percent, U.S. Government scholarships and fellowships; 6 percent were supported by private founda-

tions and universities; and 3 to 4 percent were studying on special junior-year-abroad arrangements.

The complete report, *Reviews of Data on Research and Development, No. 4, Exchange of Foreign and American Graduate Students in the Sciences, Engineering, and Other Fields*, may be obtained by writing to the National Science Foundation, Washington 25, D.C.

Vaccine for Goat Brucellosis

The first effective vaccine against brucellosis in goats has been developed at the University of California by Sanford Elberg, professor of bacteriology. The vaccine may also prove effective in sheep, which are attacked by the same species of bacteria that attacks goats, *Brucella melitensis*.

The vaccine was tried on some 40 female goats. One group was vaccinated in August or September, while a second group remained unvaccinated. In October-December the animals were bred, and 1 month later all of them were infected with a virulent strain of *Brucella melitensis*. Every one of the unvaccinated goats aborted; the vaccinated animals gave birth to healthy kids, and both mothers and kids were uninfected. The results have just been confirmed by a group of scientists in England, led by A. W. Stableforth of the Ministry of Agriculture and Fisheries Laboratory at Weybridge.

The new vaccine is expected to bring important benefits, particularly to Latin American and Mediterranean countries, where goats and sheep are of major economic significance. The World Health Organization and the U.S. Public Health Service helped finance Elberg's work.

Cause of Multiple Sclerosis

The National Multiple Sclerosis Society has announced that investigators at Montefiore Hospital, New York, and the University of Pennsylvania, will attempt to verify the recent findings of Rose R. Ichelson, Philadelphia bacteriologist, who reported isolating and culturing a spirochetal organism from spinal fluid of multiple sclerosis patients. She believes that the spirochete (*Spirochaeta myelophthora*) is the cause of the disease that has puzzled scientists for 125 years.

The tests at Montefiore Hospital will be under the direction of Alfred Cohn, microbiologist at the hospital. The University of Pennsylvania tests will be directed by Edward D. DeLamater. In addition to the tests being conducted under Multiple Sclerosis Society auspices, at least five other laboratories have

tentative plans for testing the findings.

Inquiries about the research should be directed to the National Multiple Sclerosis Society, 257 Fourth Ave., New York 10, N.Y., not Montefiore Hospital or the University of Pennsylvania.

Classification System for Carbohydrates

Conventional chemical names of carbohydrates are cumbersome and are not always sufficiently distinctive for convenient structural classification. To overcome these disadvantages, H. S. Isbell of the National Bureau of Standards has developed a simple classification system in which each carbohydrate is assigned a code number that defines its structure and configuration. By inspection of the code numbers, or by a punched-card technique, related carbohydrate derivatives can be selected readily from a heterogeneous collection.

The numerical classification system was worked out in connection with a program, sponsored at the bureau by the Office of Naval Research, for investigation of the structure, configuration, and ring conformation of the sugars and their derivatives by infrared absorption measurements. Although devised primarily for comparing infrared spectra, the system can be used for classifying structurally related carbohydrates for a variety of purposes. It should be useful to research workers who need to assemble lists of structurally related compounds for any reason.

Planned Parenthood

More than 156,000 American families went to Planned Parenthood centers in 1956 for birth control services, marriage education, and infertility therapy, according to the annual report of the Planned Parenthood Federation of America. The report, which covers the work of the national federation and its 106 local affiliates throughout the country, noted general increases in service and educational activities. Particularly striking was a gain of 19 percent in the number of people, chiefly engaged couples and newlyweds, who went to Planned Parenthood for marriage education and counseling.

However, the report comments that "Recent estimates indicate that well over 10 million U.S. married adults in their childbearing years are uninformed or misinformed about medically approved contraception." The development of ways to bring accurate information to these groups was defined as the central problem facing the family planning movement in America.

In a quick roundup of experiments with newer methods of communications which Planned Parenthood groups have been conducting, the report cited a variety of different projects:

In Washington, D.C., a social worker is making a person-to-person approach to mothers in low-income housing developments.

In Kansas City volunteers are distributing informational publications at factory gates.

In New York City a program oriented toward Spanish-speaking groups has increased the patient load 39 percent.

In Kentucky a nurse-midwife team takes along information and supplies on regular tours by jeep through remote mountain areas.

The federation's educational cartoon book achieved during its first 6 months the largest distribution of any recent information booklet about birth control.

"These programs showed that much more widespread use of existing contraceptive methods can be achieved in the U.S.," the report observes. "Even more apparent, however, was the urgent need to develop simpler, less expensive methods if the goal of 'universal acceptance' of family planning is to be reached."

The report noted the formation of a strong PPFA Biologic Research Committee, led by Carl G. Hartman, director emeritus of the Ortho Research Foundation, to head the federation's program of research in methods of contraception and infertility treatment. During 1956, the federation supported eight research projects in this field.

To make possible these expanded programs, the federation and its affiliates raised close to \$1.5 million in contributions from 52,736 supporters throughout the country, a 20-percent increase over 1955.

Soviet Medicine and Surgery

The Excerpta Medica Foundation will soon begin to publish English translations of significant Soviet publications on medicine and surgery. The work is being undertaken under contract with the National Institutes of Health, Bethesda, Md. The foundation's translators will work in cooperation with Soviet medical authorities in culling notable developments from Soviet medical and surgical publications.

Excerpta Medica is a nonprofit organization that abstracts and disseminates for medical science the latest writings in every field of medicine. Its work is aided by the National Foundation for Infantile Paralysis, the American Cancer Society, the National Heart Institute, the National Multiple Sclerosis Society, and

the Muscular Dystrophy Associations of America. The foundation recently established a branch office at the New York Academy of Medicine, 2 E. 103 St., New York, N.Y. Its main headquarters is in Amsterdam, Netherlands.

News Briefs

The Washington office of the Social Science Research Council will be permanently closed at the end of July and the staff—Elbridge Sibley, Bryce Wood, and Joseph B. Casagrande—transferred to the main office at 230 Park Ave., New York 17, N.Y. After 1 Aug. inquiries concerning fellowships and grants should be directed to New York.

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A course in fine particle techniques will be conducted at the Public Health Service's Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio, 5-9 Aug. Enrollment is by application. There is no tuition requirement.

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Mrs. Oakes Ames of North Easton, Mass., has deposited the Ames Botanical Library at the Texas Research Foundation, Renner, Tex., and provision is being made by the foundation to acquire it. The library contains more than 4000 volumes and many unbound items that the late Prof. Oakes Ames of Harvard University collected during his lifetime of botanical research.

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The discovery of a Byzantine castle thought to have been captured by King Richard the Lion-Hearted in 1191 has been announced by the Cyprus Antiquities Department, Nicosia, Cyprus. The fortress was discovered by archeologists excavating some ruins overlooking Paphos Harbor. Also among the ruins was a building with mosaics of a style used in 6th century churches.

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The College of Medical Evangelists School of Dentistry has become the nation's 43rd approved dental school, according to an announcement of the American Dental Association. Approval was granted just a few days before the graduation of the school's first class, which totaled 39 students.

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The U.S. Atomic Energy Commission has issued a 200-page proceedings of a conference on engineering education and nuclear energy that was held last September in Gatlinburg, Tenn., under the auspices of the AEC, the Oak Ridge Institute of Nuclear Studies, Oak Ridge National Laboratory, and the American Society for Engineering Education. W. W. Grigorieff, chairman of the University Relations Division of the Oak Ridge Institute of Nuclear Studies, is editor of