

News and views

Latin America

Unesco's Science Cooperation Office

One of the manifold activities of Unesco, its Science Cooperation Office for Latin America, has recently prepared a report on the activities it engaged in during 1952 which gives a good idea of the magnitude of its contribution to the scientific development of this region. The report has been distributed in this country by the U. S. National Commission for Unesco. The chief categories into which the work of the Office falls are the coordination and development of scientific research, teaching and dissemination of science, and scientific documentation. A staff of twelve under Dr. A. Establier is located in Montevideo, Uruguay, to carry out these missions.

A highly successful symposium on New Research Techniques in Physics, to which some sixty original papers were contributed, was held in Rio de Janeiro and Sao Paulo, Brazil, during July (for a fairly detailed summary, see *Physics Today*, V, 12, 27, December 1952). The meeting was arranged by the Office in collaboration with the Brazilian Academy of Sciences and the National Research Council of Brazil. Further such symposia are contemplated.

The possibility of establishing international and regional laboratories in Latin America has long been a concern of the Office. After thorough preparation, the Office called a meeting of experts, which met in Montevideo on August 1-2, 1952, to study this question in detail. Those present were Miguel Ozorio de Almeida (Brazil); Venancio Deulofeu (Argentina); Ismael Escobar (Bolivia); Clements Estable (Uruguay); Alberto Gonzáles Domínguez (Argentina); Juan Ibanez (Chile); César Lattes (Brazil); Manuel Sandoval Vallarta (Mexico); Rodolfo Tálce (Uruguay); and Francisco De Venanzi (Venezuela). The meeting stressed the importance of the special conditions and research material existing in Latin America for research work of international interest. There was complete agreement that such work could best be carried out in international laboratories through the common efforts of the countries concerned.

After having studied the various proposals which had been submitted to it, the group recommended that the highest priority should be given to the creation of a network of international laboratories of marine biology in Latin America. Considering the special problems affecting scientific research in Latin America, the meeting also unanimously agreed that a certain number of

"service laboratories" should be organized on a regional scale. As a first step, some laboratories now operating on a limited national scale should be given added facilities so that they could extend their services to the whole region. The following "service laboratories" were selected: organic elementary analysis, conservation of microbiological type cultures, x-ray analysis, and scientific films.

The meeting recommended that action be taken to create an Inter-American Institute for Cosmic-Ray Research. The task of this organization would be to establish a network of cosmic-ray stations at appropriate altitudes (3000 to 6000 meters) and latitudes. The possibility of giving an international character to some of the stations already in existence was considered. The Institute would standardize the equipment and coordinate the research work of these stations, as well as organize seminars and courses, and facilitate the exchange of information, personnel, and material. It was suggested that the Unesco Science Cooperation Office for Latin America arrange meetings of experts in the respective branches of science for the purpose of drawing up detailed plans for the creation of the proposed laboratories and the Institute for Cosmic-Ray Research.

The meeting considered steps to be taken to facilitate research work in fields where it is not considered feasible at present to establish international laboratories. For example: the Unesco Center should continue its efforts to organize regularly symposia in the field of nuclear physics. By making use of the installations which already exist in some laboratories in Latin America, the Center should organize training courses and make it possible for research workers from other parts of the continent who might lack necessary equipment to continue their work in these laboratories.

The Science Cooperation Office was asked to take steps to make possible the use of computation centers which are being planned in some Latin-American countries by other Latin-American countries. It was also recommended that Latin-American countries become members of the International Center in Rome.

An innovation of the Center, believed to be of great importance to the development of scientific research, is the organization of regional training courses to introduce and improve the use of modern research methods and techniques in Latin America. New techniques for scientific research are little known in Latin America and when they are employed, results are inconclusive because few research workers have modern technical training.

The first such course, a regional training course in the use of radioisotopes in biology, was organized in collaboration with the University of Sao Paulo and the Ministry of Foreign Affairs of Brazil. It was held in Sao Paulo early this year. Ten scientists from Latin-American countries outside Brazil, together with some Brazilian research workers, participated in the course. Other activities have included the development of a loan library of scientific films and the Unesco travelling exhibit on physics and astronomy, presented in seven

cities during 1952. A half-million Latin Americans have seen the exhibit since 1950.

In the realm of scientific documentation, a series of reviews of Latin-American contributions to science is in preparation in English, with volumes on physics, chemistry, astronomy, and other sciences.

Working far from the big research centers and without well-equipped libraries, the scientists in Latin America find it difficult to obtain the scientific information and material they need. During 1952, the Office received a great number of requests for scientific information, bibliographies, publications, microfilms, and other material. Because of the close relations the Office maintains with leading documentation centers and research institutions all over the world, and with other Unesco Science Cooperation Offices, it can usually find quick answers to such requests. It has been able to procure information and material for which a research worker might have searched years without success. Microfilms amounting to about 5500 pages of text were supplied, during 1952, to institutions and individual workers from every section of the continent, as well as other parts of the world.

Besides the above items a large number of other activities, such as the maintenance of a reference library, technical assistance in a variety of fields, other conferences and symposia, special lectures and radio broadcasts, and the compilation of bibliographies on specific subjects for various organizations are carried on by the Science Cooperation Office. The entire program is coordinated with other agencies of the United Nations, such as the World Health Organization and the Food and Agriculture Organization, and in the four years of its existence it has come in contact with much of the scientific work of Latin America.

National Science Foundation

Federal Funds for Science

Some months ago the National Science Foundation issued a preliminary analysis of a study of that part of the Federal research and development budget represented by grants and contracts from Federal agencies to nonprofit institutions (see *Physics Today*, VI, 1, 22, January 1953). The Foundation's full report on this study has now been made available, and while there have been no very significant changes in the picture shown by the preliminary analysis, the final report provides a considerably more detailed breakdown of the disposition of funds than was contained in the earlier release.

In brief, the Science Foundation reports that federal funds for scientific activities of all kinds amounted to 2.2 billion dollars in the year ending June 30, 1952. Of this amount, \$338 million were for scientific research and development at nonprofit institutions, which represents an increase of \$44 million since the preceding year. The report states that comparable data for years prior to 1950-51 are not available, but it is indicated that in rough figures such support amounted to no more

than seven or eight million dollars annually before 1940, and that during the war the amount increased greatly to an annual rate in 1945 of perhaps \$225 million; in the period 1945-50, there was at first a decline and then a slow build-up culminating in a level about equal to the war peak.

In 1951-52, seventeen agencies administered funds for research and development at nonprofit institutions, of which four administered 98 percent of the total. These four were the Department of Defense with \$178 million (53 percent), the Atomic Energy Commission with \$121 million (36 percent), the Federal Security Agency with \$18 million (5 percent), and the Department of Agriculture with \$13 million (4 percent). All other agencies administered approximately two percent of the funds.

Nearly half of the total funds were dispersed for the operation of research centers by nonprofit institutions. In the nature of the work they do and in their size, organization, and methods of operation, the report observes, these centers resemble Government laboratories more closely than the usual research and development activities of nonprofit institutions. The Government sets the objectives and general work plans of the center and supplies funds to operate it, while the parent institution provides chiefly managerial services. In 1951-52, there were 24 research centers, 15 of which were operated for the Department of Defense, 8 for the Atomic Energy Commission, and one for the Reconstruction Finance Corporation. Together they received \$159 million of the \$338 million total.

About one out of every five dollars of the funds going to nonprofit institutions in 1951-52 was for basic research. The other four were required for applied research development and large-scale additions to the research and development plants of nonprofit institutions. Work in the physical sciences received greatest emphasis, accounting for 72 percent of the total funds, as against 19 percent for the life sciences, 3 percent for the social sciences, and 6 percent for increase of research and development plant. When the work of the research centers is excluded, the disparity between the physical sciences and the other fields is considerably less.

A fairly sizable number of institutions received funds. In 1950-51, there were 395. In 1951-52 this number increased to 427. Of the latter number, 24 were in foreign countries. The remaining 403 included 225 educational institutions, 80 hospitals and related institutions, 48 independent research organizations, 3 special research organizations created as research centers for the Government, and 47 miscellaneous organizations. The educational institutions clearly outranked other types of institutions. As a group, they constituted slightly over half of the institutions, but, more significantly, they received 87 percent of the total funds.

There are at the present time about 1900 institutions of higher learning of all types in the United States. As an outside estimate, only about 700 of these are judged to have immediate potential capacity to do scientific research and development. Of this number, one-third