News of Science

CERN Progress in 1955

The report on the work of the European Organization for Nuclear Research (CERN) that was presented at the fourth session of the CERN Council 19–20 Dec. covered the period February to November 1955. It is a record of considerable achievement and progress in all the various activities. In particular, schedules for both the machines and the buildings have been well maintained.

For the proton synchrotron, the chief effort has been devoted to developing the component parts of the machine and investigating the European sources of equipment supply. The main orders for the magnet will be placed early in 1956 and the facility is expected to go into operation in 1960. In the light of further experience, a reassessment of the cost of the machine (including the buildings) has given a figure of F. 86 million (Swiss).

The smaller machine, the synchrocyclotron, is at a more advanced stage. The erection of the magnet in its building at Meyrin was started at the beginning of November. Nearly all the component parts of the synchrocyclotron are in the course of manufacture. Since this machine will be put into operation in 1957, the research program for its use is now being planned.

Instruments, mainly electronic in nature and in some cases of new design, and experimental methods to be used when the machines start working, have been developed during the year. The construction of the two Wilson cloud chambers is well advanced, and the first one has been assembled and is undergoing preliminary tests.

The CERN section in Copenhagen, in addition to carrying out fundamental research in nuclear physics, has continued its program for training young theoretical physicists from member states.

Two important budgetary measures were approved at the council meeting: the estimates for the financial year 1956, and the capital investment program for the period 1952–1960. The budgetary contributions for 1956 have been fixed at about F. 34 million (Swiss) as compared with a figure of F. 25 million for 1955. The coming year will be the period of great activity—a general move to the site at Meyrin, the installation of the laboratories and workshops, and the development of the scientific program in relation to experiments with the machines.

The staff, which is drawn from each of the 12 participating countries, will be increased by about 40 percent. It has grown rapidly in pace with the expansion of the organization and now consists of 285 persons. In 1956 it is expected that the total staff will reach a figure of about 400.

Albert Schweitzer

An extensive collection of Albert Schweitzer memorabilia was placed on exhibition in the Princeton University Library on 14 Jan. in honor of Schweitzer's 81st birthday. The collection includes samples of writings and commentaries by others. The display also has photographs lent by Erica Anderson, coauthor of *The World of Albert Schweitzer,* showing the scientist at work in Alsace and Africa.

Schweitzer's publications, from 1898 to his most recent work in 1955, are divided into sections representing New Testament scholarship, philosophy of civilization, music, medicine, philanthropy, and autobiography. Also included in the exhibition is a selection of letters to Walter Lowrie of Princeton, a member of the class of 1880 who translated one of Schweitzer's books in 1913. The story of Schweitzer's hospital at Lambaréné, French Equatorial Africa, is told in a series of reports printed and translated by his friends.

Rockefeller Institute Graduate Program

The Rockefeller Institute has recently announced the details of its plans for establishing a graduate academic program in the biological sciences [*Science* **122,** 279 (12 Aug. 1955)]. In November 1954 the institute's original charter was amended to permit granting the degrees of doctor of philosophy and doctor of medical science. The institute thus became a graduate university.

All of the resources of the institute will be available to the limited number of selected students who will be admitted. These resources include a faculty numbering approximately 150, to which group more members will be added as fields of research expand; large well-equipped laboratories; a hospital for the study of disease in man; and a comprehensive scientific library. These physical resources are located in six modern buildings on a campus of more than a dozen acres close to the Cornell Medical College, New York Hospital, Memorial Hospital, and the Sloan-Kettering Institute. To the present facilities there will be added new laboratories and a residence hall for students. The present value of the institute's endowment approximates $150 million.

Two types of students will be admitted: those who have just completed their undergraduate training for the baccalaureate, and those who are doctors of medicine and wish to prepare for careers of research and teaching. Both groups will be candidates for the Ph.D. degree after a period of no less than 3 years, although those who already hold the M.D. degree may elect the degree of doctor of medical science.

Probably no more than 15 to 20 students will be admitted each year. Accordingly, the student body will ultimately number approximately 60 to 75. This small group will be able to have close association with a large faculty. The educational program will be adjusted to fulfill the needs of each student.

Throughout the first academic year 2 hours of each morning will be devoted to lectures, seminars, and discussions of related subjects in many fields of science; together these sessions will comprise an orientation course in the pattern and structure of biology and the related sciences. Each week a topic will be discussed by one or a group of the faculty who are actively engaged in research in that area of science.

In order to broaden further the students' intellectual horizons, many distinguished scientists from this country and abroad have been appointed visiting lecturers. They include: Lord Adrian, master of Trinity College, Cambridge, England; Jan A. Böök, Statens Rasbiologiska Institut, Uppsala, Sweden; John C. Bugher, director for medical education and public health, the Rockefeller Foundation; M. Demerec, director, department of genetics, Carnegie Institution of Washington; Ludwig Edelstein, professor of humanistic studies, Johns Hopkins University; David R. Goddard, chairman, department of botany, University of Pennsylvania; Samuel A. Goudsmit, chairman, department of physics, Brookhaven National Laboratory; Ragner Granit, professor of neuro-

physiology, Karolinska Institute and director of the Nobel Institute for Neurophysiology, Stockholm, Sweden; Leland J. Haworth, director, Brookhaven National Laboratory; John G. Kirkwood, Sterling professor of chemistry, Yale University; A. Monnier, professor of psychophysiology, University of Paris at the Sorbonne, Paris, France; John S. Nicholas, Sterling professor of biology, Yale University; I. I. Rabi, Higgins professor of physics, Columbia University; William J. Robbins, director, New York Botanical Garden; Alexander von Muralt, professor of physiology, University of Bern, Switzerland. Each of these lecturers will spend a week with the students.

As the students' interests develop, they will be encouraged to spend not less than a year in study under leading scholars in two or three other universities anywhere in the world. The institute will defray the expense of this travel and study, both as an investment in the students' future and as an aid to cooperation between universities.

Further, the institute will invite students in other graduate schools to study at the institute for brief periods during which seminars will be held in subjects relevant to their interests. Travel grants will be provided for this purpose, and the visiting students will be guests of the institute.

In October 1955 the institute enrolled an experimental class of ten students. To select this initial class, each of the presidents of a specially chosen group of liberal arts colleges, and the chairmen of some departments in large universities, were entrusted with the appointment of a 1955 graduate of his college or university to an institute fellowship. These fellowships carry an annual stipend of $2500, with an additional $1000 for travel and attendance at other universities. From Dartmouth, Amherst, Smith, Wesleyan, Yale, Union, Haverford, Pennsylvania, and Oslo came the first ten men and women to be enrolled. Next year the number of selecting universities will be increased and five graduates of medical schools will be added.

U. S. Rubber Research

Government contracts supporting synthetic rubber research, which costs about $1 million annually, should end in June 1956, according to recommendations contained in the report of the Special Commission for Rubber Research of the National Science Foundation. The commission found that the national interest no longer requires Government support of research especially directed toward synthetic rubber.

However, the commission expressed the view that basic research in general should receive a larger measure of support from the Federal Government and recommended that the National Science Foundation should, in fiscal year 1957, "support a new and more basic program made up of research projects in the general area of molecular structure and arrangement, composition and properties of high polymers, particularly elastomers, and methods of preparing such materials."

Decimals for India

In India this year, the currency system of rupees, annas, and pies—12 pies to the anna, 16 annas to the rupee—will be replaced by a decimal currency based on 100 pies to the rupee. On 2 Oct., Gandhi's birthday, the decimal currency will be introduced. Meanwhile, there will be an extensive program of village education.

Further, the system of weights and measures is to be replaced by the metric system. A recent survey of some 1000 villages by the Planning Commission of India showed that there are almost 150 different systems of weight measurement in effect and that there are even more complex systems for measurement of volume and land area.

The first place for change will be in the army, where soldiers will begin to draw rations on the metric system. Then railway markers will be changed from furlongs to kilometers. The Government estimates that at least 15 years will be required to complete the transition process.

Research Support by Private Foundations

The role played by privately endowed foundations in supporting scientific research in the United States is shown in *Scientific Research Expenditures by the Larger Private Foundations*, the report of a survey sponsored by the National Science Foundation that was released on 27 Jan. The study, prepared by F. Emerson Andrews of the Russell Sage Foundation, is one of a series which, when completed, will survey total scientific research expenditure for the nation.

Information was obtained on expenditures by 77 large endowed foundations during 1939, 1946, and 1953 for research in the life sciences, the physical, mathematical, and engineering sciences, and in the social sciences. For 1953 total expenditures of the 77 amounted to approximately $164 million, less than 4 percent of the total amount spent for philanthropy in the United States.

Of the $164 million, $26 million was spent for scientific research, less than 1 percent of the estimated national total for all research and development. Only 43 of the 77 major foundations supported scientific research.

Division of the 26 million dollars expended for scientific research was as follows: $11 million for social sciences, $12.5 million for life sciences—biological, agricultural, and medical—and $2.5 million for physical sciences. Although basic research accounted for $17 million and applied research for $9 million, the proportion of private foundation funds spent for basic research compared with applied has decreased from 96 percent in 1939, to 75 percent in 1946, to 65 percent in 1953.

Bulletin of the Atomic Scientists

The January issue of the *Bulletin of the Atomic Scientists* marks the tenth anniversary of the journal, which was established in December 1945 by Hyman H. Goldsmith, a physicist, and Eugene Rabinowitch, a physical chemist, who is the present editor. Rabinowitch's commemorative article in the anniversary issue opens with the following paragraph about the *Bulletin*.

". . . It was founded by a group of scientists whose participation in the development of the atomic bomb convinced them that, with this discovery, a radical change had come in the role of science in public affairs. They believed that mankind was entering, unawares, into a new age, fraught with unprecedented dangers of destruction. In spring 1945, this conviction led some scientists to an attempt —perhaps the first one in history—to interfere, *as scientists,* with the political and military decision of the nation. Leo Szilard's memorandum to President Roosevelt (March 1945) and the report to the Secretary of War by the so-called 'Franck Committee' on June 11, 1952, counseling, for reasons of long-range policy, against the use of atomic bombs in Japan, were the first manifestations of this new concern of scientists with public policy."

Toward the end of his article Rabinowitch says:

"As scientists, we probably all—or almost all—agree that no solution can be based on the negation of facts, or a refusal to evaluate them as objectively as possible; and that much of the world's hopes are based today on such negation and refusal. Explaining and analyzing facts, and educating public opinion to their acceptance, whether they are pleasant or not, has been one of the tasks of the *Bulletin* from its inception; and to this task it will remain dedicated.

"However, facts alone do not suggest action, unless a final aim has been set.