Miscellany

Programs and Facilities

The Atomic Energy Commission, by authorizing the construction of a 12.5-Bev zero-gradient proton synchrotron at Argonne National Laboratory, has taken an imposing step in the direction of transforming Argonne into the Midwest's dominant center of high-energy physics research. For a number of years scientists from MURA (otherwise the Midwest Universities Research Association) have argued that an academic environment would offer the most favorable climate for such basic research and have urged the creation of a cooperative high-energy center independent of Argonne for the joint use of the Association's fifteen member universities. With the help of grants from the AEC and the National Science Foundation, the MURA group has been working in a rented garage in Madison, Wisc., on novel methods of accelerating particles to energies high in the multibillion-volt region and is currently investigating beam intensities and orbital configuration for a proposed trillion-volt, fixed-field, alternating-gradient machine that would employ intersecting beams of accelerated protons. MURA physicists are now working on a third accelerator model which is designed to operate at 50 Mev and will permit preliminary studies of intensities, radiation effects, and possible spurious interaction of the counter-circulating beams of particles. NSF recently awarded its seventh grant to the Association, amounting to $160 000, to support the continuation of theoretical and experimental work that has been in progress since 1953.

H. R. Crane, professor of physics at the University of Michigan and president of MURA, stated last October that the design for the proposed trillion-volt machine is "acknowledged by physicists the world over to be the most advanced for a high-energy accelerator", and that he would not be surprised if the Russians were already at work on such an instrument. "The colliding beam principle is the next step in high-energy physics," he said, "but a machine based on this principle has not been authorized. Our ideas and findings have been presented at international meetings attended by Russian scientists, and have been published. We are going to wake up soon and find it is already too late."

In announcing the projected synchrotron development at Argonne the AEC noted that the estimated 4–5-year construction schedule for the machine "will make possible a research tool for high-energy physics in the Midwest several years before a MURA-type accelerator could be built". It is expected by the AEC that if construction were authorized a large MURA-type machine could be built in about 5 to 7 years. The Commission added that while it may eventually consider constructing a super accelerator based on the MURA concept, it feels that any such machine should be located at a site where large supporting facilities in many scientific fields already are in existence: "namely, the Argonne National Laboratory".

The 12.5-Bev Argonne synchrotron will cost an estimated $27 million, of which $1.5 million has been made available initially for detailed design work. The accelerator and its associated facilities will cover about 60 acres of the 370-acre Argonne site near Lemont, Ill., 25 miles southwest of Chicago. Construction is expected to be underway this summer.

Argonne National Laboratory has also received authorization from the Atomic Energy Commission to construct a $10 million Fuels Technology Center designed to permit safe handling of highly radioactive experimental nuclear fuels. Although the center will be equipped with facilities for research on uranium, thorium, and other metals of interest in nuclear engineering, it is expected that much of the immediate research in the new center will be on the potentialities of plutonium as a reactor fuel. Completion of the Fuels Technology Center is expected early next year.

Construction of a new observation station has been announced by Yale University as part of its Astronomy Department expansion program. The station will be located on an 11-acre site in Bethany, Conn., about 10 miles from the university's main campus in New Haven. The new observatory will house three of Yale's telescopes which were dismantled some months ago in preparation for their move to Bethany. These include a Loomis polar telescope, a catalogue camera, and a Butler refractor. According to Dirk Brouwer, head of Yale's Astronomy Department, plans for expanding the university's programs in astrophysics and radio astronomy provide for the installation of a new reflector and the eventual construction of a large radio-astronomy station.

The cornerstone for the new Keane Physics Research Center at the Catholic University of America, Washington, D. C., was laid on February 24. The new center, named in honor of Bishop John J. Keane, first rector of the university, is now under construction at an approximate cost of $1.2 million and is expected to be ready for use at the beginning of the summer session. The building will house teaching laboratories, a lecture-demonstration room, and laboratories for nuclear research, spectroscopy and infrared work, and ultrasonic studies in gases and liquids. The university's nuclear reactor, which was brought to a critical state last November, will be used as a basic laboratory instrument and will figure in the university's plans to develop a program leading to the master's degree in nuclear engineering.

A Nuclear Technology Laboratory has been established at Stanford University, Stanford, Calif., for

use in the university's expanding program in nuclear engineering. The laboratory's largest piece of equipment is a subcritical nuclear assembly of the "pickle barrel" type, which is powered by $80 000 worth of uranium on loan from the Atomic Energy Commission. Other facilities include a counter room for measuring and analyzing radioactivity, a reactor heat transfer research laboratory, and a machine shop. George Leppert, of Stanford's Mechanical Engineering Department, heads the new laboratory, which is located in the Ryan High-Voltage Laboratory building.

The December meeting in Paris of the heads of government of the North Atlantic Treaty Alliance resulted in agreement that NATO should have competent guidance in scientific matters to reduce needless duplication of effort and to ensure closer scientific collaboration among member states. In line with that decision, Norman F. Ramsey, professor of physics at Harvard University, has been named science adviser to Secretary General Paul-Henri Spaak of NATO. In addition, Dr. Ramsey will serve as chairman of the organization's new Science Advisory Committee, consisting of scientists representing NATO's member nations, which was also agreed upon in December. The United States has appointed Nobel laureate I. I. Rabi to be the US representative on the Committee. Dr. Rabi, who has been Higgins professor of physics at Columbia University since 1951, is also a member of President Eisenhower's Science Advisory Committee.

Grants and Fellowships

The US Government has again announced that it will award grants under the Fulbright Act for university lecturing and advanced research. To be eligible an applicant must be a US citizen and, in some cases, must have a knowledge of the language of the host country. For lecturing, at least one year of college or university teaching experience is a requisite, and for research, a doctoral degree or recognized professional standing is necessary. Candidates for the doctoral degree should apply to the Institute of International Education, 1 East 67th Street, New York, N. Y. Awards are issued for one country only and applicants should specify a first choice and list one alternative country. Fulbright lectureships and advanced research awards in physics for the 1959–60 academic year have been listed for Argentina, Chile, India, and New Zealand. Under an interim program for 1958–59 a physics lectureship will be available in Ireland. Closing date for application is April 25 and the necessary forms and additional information are available from the Conference Board of Associated Research Councils, Committee on International Exchange of Persons, 2101 Constitution Ave., Washington 25, D. C.

In addition, grants under the Smith-Mundt Act will be available for lecturing abroad in approximately forty countries which do not participate in the Fulbright Program. These grants are made available in response to requests submitted by interested institutions abroad to the Department of State through its Foreign Service Posts. Eligibility consists of US citizenship, and recognized standing as a mature scholar in the field of choice with at least one year of experience teaching on the university level in the US or abroad. In some cases, knowledge of the language of the host country is also necessary. Those interested should register with the Conference Committee, from whose register requests of the State Department will be filled.

The Organization of American States will soon begin an undertaking designed to help individual specialists as well as the OAS member states. A new fellowship program, recommended by the Inter-American Committee of Presidential Representatives, will begin on July 1 and will offer grants for advanced study or research to specialists throughout the Western Hemisphere. Qualified persons who are looking for an opportunity to do pure research, improve their professional skill through a postgraduate course, or enroll in an advanced technical course may apply now to the program. By offering advanced study abroad, the OAS hopes to increase the individual's contribution to his country of residence.

Applicants will be screened by the OAS General Secretariat for technical or professional competence, including consultation with specialists in the given field. Awards will be made by the Secretary General of the OAS, taking into account the preferences expressed by the member states according to the fields of their most urgent needs, as well as the merits of each candidate. Over the years, the Secretary General will maintain a balance in the distribution between the number of fellowships available and the needs of the member states. Upon completion of their study, fellowship holders must return to their country of permanent residence.

According to the decisions made by the OAS Council the program contemplates approximately 170 fellowships for 1958–59 and a minimum of 500 annually in the future. Grants will be made for periods ranging from three months to two years, covering such items as travel, registration and tuition fees, study or work materials, and room and board.

Dr. Javier Malagón has been appointed Technical Secretary of the Fellowship Program by the Secretary General of the OAS, Dr. José A. Mora. Interested persons should address their inquiries and requests for necessary forms to: Technical Secretary, OAS Fellowship Program, Pan American Union, Washington 6, D. C.

Science Education

A plan to stimulate science teaching in the high schools by sending specially trained "traveling teachers" on lecture-demonstration tours has been adopted by three states: Georgia, South Carolina, and Tennessee. The states are undertaking this activity through the Oak Ridge Traveling Science Demonstration Lecture