

magnetic field had to be provided over a considerable volume—hence the enormous size of the magnet required for the Russian machine. Much stronger restoring forces can be introduced by the use of high field gradients, if the gradients are reversed periodically around the ring. In such a configuration, the beam is strongly focused in one plane and simultaneously strongly defocused in the other plane. The sequence of focusing and defocusing fields yields a net strong focusing force, and has reduced the necessary magnet cross section to the point where only 4000 tons of steel are required for the AGS, even though its diameter is 843 feet and its circumference one-half mile.

Alternating gradient machines of various sizes are now under construction in a number of laboratories. Next largest in size to the AGS is the proton synchrotron at the CERN Laboratory near Geneva, Switzerland, which first produced a 24-Bev beam in November, 1959, and has since been operated at 28 Bev. From the very start, there has been close cooperation between scientists from CERN and Brookhaven, including joint meetings to discuss detailed design problems, and the interchange for short periods of key personnel.

Oceanographic Commission Proposed

Representatives of the governments of 33 nations, meeting in Copenhagen under the auspices of the United Nations Educational, Scientific, and Cultural Organization, agreed in July that international cooperation in oceanography should be placed on a firm and permanent basis by the creation of an intergovernmental oceanographic commission. The recommendation was approved unanimously and will be submitted for final adoption by UNESCO's General Conference in Paris in November.

The purpose of the commission would be to promote scientific investigation of the oceans through concerted action of the participating states in cooperation with international organizations. It would be established within the framework of UNESCO and would be open to all member states of that agency, as well as of the agencies of the United Nations participating in oceanographic programs.

The commission would recommend international programs to be carried out with the aid of resources of participating member states. It would also be responsible for organizing the exchange of oceanographic data through specialized centers and by other means, and it would serve in an advisory capacity in recommending to UNESCO and other specialized agencies certain activities relating to the training of oceanographers, assistance to the less developed countries, the exchange of information, and the unification and standardization of research methods.

The conference recognized that one of the main obstacles to oceanographic research is the lack of qualified oceanographers and recommended that the number of fellowships financed by UNESCO be appreciably increased. UNESCO was also asked to organize a

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conference of deans of science faculties and science professors from all parts of the world to discuss the means for developing training programs in the marine sciences at the university level. The conference also voted a resolution asking governments and international organizations to take immediate steps to prevent pollution of the sea and to intensify research in that subject.

Programs and Facilities

The Atomic Energy Commission and the National Aeronautics and Space Administration have announced the establishment of a joint AEC-NASA Nuclear Propulsion Office at the AEC headquarters in Germantown, Md. The office will consolidate the work which has been carried out by organizations in each agency to develop nuclear energy for space flight. Harold B. Finger, chief of nuclear propulsion for NASA, has been named manager of the joint office. Appointed as deputy manager is Milton Klein, who has been assistant manager for technical operations of the AEC's Chicago Operations Office. The NPO will integrate the Project Rover nuclear powered rocket developmental programs which had been carried out previously by the AEC through its Aircraft Reactors Branch of the Division of Reactor Development and the Nuclear Propulsion organization in NASA's Office of Launch Vehicles. The AEC will have primary responsibility for the development of all reactors and their components, including those for flight missions specified by NASA; research and development of nonnuclear components and integration of the nuclear components in engines and vehicles of rocket systems will be the responsibility of NASA. Development of the reactor system is being carried out by the Los Alamos Scientific Laboratory.

Western Reserve University, Cleveland, Ohio, held ground-breaking ceremonies in July for a new basic science building to be named the John Schoff Millis Science Center in honor of the University's president. The building, which represents the first phase of the projected \$6.27 million Science Center, will provide laboratories, a library, auditorium, and teaching and research facilities for the Departments of Biology, Chemistry, Physics, Geology, Geography, Astronomy, and Mathematics. The first part of the building is expected to be completed by the fall of 1961 with the remainder ready for occupancy by the spring of 1962.

Two new wings are to be added to Dunning Science Hall at Washington College, Chestertown, Md. The expanded facilities will include space for a physical chemistry laboratory, a physics apparatus room, and various other laboratories and classrooms.

The University of Liverpool in England has opened its Chadwick Laboratory, named for Sir James Chadwick, who was Lyon Jones professor of physics at Liverpool from 1935 to 1948. Designed for the teaching of experimental and theoretical physics to under-