

Larger accelerators recommended for the U.S.A.

In the U.S.A. a panel of scientists, convened by the President's Science Advisory Committee and the General Advisory Committee of the Atomic Energy Commission, has made a number of recommendations for the development of high-energy physics there. Foremost among the panel's specific proposals is the building of a 200-GeV proton synchrotron by the Lawrence Radiation Laboratory, Berkeley. Also included are the construction of storage rings for the alternating-gradient synchrotron at the Brookhaven National Laboratory, the initiation of a design study for a proton synchrotron of 600 - 1000 GeV, also at Brookhaven, and the construction by the Midwestern Universities Research Association (MURA) of a very high-intensity accelerator.

On the question of a joint U.S.A. - U.S.S.R. accelerator project the panel is of the opinion that 'a jointly constructed and managed high-energy accelerator... would be a major "breakthrough" in regard to the amount of information exchanged between the two sides'. At the present time, however, accelerators of the sizes now contemplated (200 - 300 GeV) are considered to be within the capabilities of more than one group, and such accelerators are needed on both sides of the Atlantic.

The panel members see 'considerable merit' in joint co-ordination and planning, and in fact some preliminary discussions on those lines are now going on. As mentioned before in *CERN COURIER* (May 1963, p. 62), representatives of the U.S.A. and U.S.S.R. were invited to take part in the discussions of the European committee for future accelerators. (*The Magnet*, Berkeley, June)

The Princeton-Pennsylvania Accelerator

An announcement on 15 April by the U.S. Atomic Energy Commission and the Universities of Pennsylvania and Princeton gave the news that the Princeton-Pennsylvania Accelerator had produced its first beam at full energy. This machine, a synchrotron which accelerates protons to an energy of 3 GeV, is unique in having a much higher pulse repetition rate than similar accelerators at that energy. Instead of one burst of protons every few seconds, it will supply 19 per second, thus increasing the rate of output of secondary particles by a large amount. It is intended that the accelerator should be used primarily for the production of pions and kaons, for experiments designed to search more deeply into the properties of these 'particles' which seem to play a key role as the 'glue' holding the atomic nucleus together.

A later announcement said that work was beginning on an extension to the experimental area around the accelerator, in order to accommodate an external beam. At the moment, the protons are not extracted from the accelerator and the secondary particles are produced from internal targets. The initial project, which is located at Princeton University's Forrestal Research Centre, cost 12 million dollars (nearly 52 million Swiss francs); the extensions will cost a little over 8 million dollars more.

80-inch bubble-chamber in operation at Brookhaven

At 12.30 p.m. on Sunday 2 June, the first photograph was obtained of a nuclear interaction in the newly completed 80-inch liquid-hydrogen bubble chamber at Brookhaven National Laboratory, U.S.A. Essentially the same size as the one under construction at CERN (a length of 202 cm against the CERN chamber's 200 cm), this is now the world's largest bubble chamber in operation. It is housed in a building adjacent to the 33-GeV AGS (alternating-gradient synchrotron), and beams of secondary particles from targets inside the synchrotron are guided to it by a system of magnets, in much the same way as they will be guided to the CERN chamber, (and before then to the British national chamber) in the East area of the proton synchrotron.

The Brookhaven chamber, together with the building to house it, a power station to provide electricity for its magnet, the hydrogen storage area, refrigerator and safety sphere, and other associated equipment, cost about 6 million dollars (26 million Swiss francs) and took about four years to design and construct.

(*Bulletin Board*, Brookhaven, 11 June)

International centre for theoretical physics

At a meeting of the Board of Governors of the International Atomic Energy Agency held on 14 June a decision was taken to establish an international centre for theoretical physics in the first half of 1964. The centre will be located at Trieste, in Italy.

It was agreed that the centre should be established on a provisional basis and its work should be evaluated so that the Board, after two years, could decide upon the future direction of its activities. A further evaluation should be made to enable the Board to determine if it would be desirable to move the centre to a 'developing' country after four years.

The question of an international centre for theoretical physics under I.A.E.A.'s auspices has been discussed by the General Conference and the Board since September 1960 and a series of studies have been made with the assistance of eminent theoretical physicists from many countries; these studies have concerned both the principle of the value of such a centre, its scope and direction, and the best location, in view of the many generous offers received for concrete assistance. Such offers have been made by Italy, Pakistan, Denmark, Austria and Turkey. The main support has come from the developing countries.

The Italian Government has offered to construct a new building for the centre and housing facilities for the staff and the fellows; it has further offered a cash contribution of 250 000 dollars per year for five years, staff services and fellowships. I.A.E.A. will contribute fellowships and professorships to an annual value not exceeding 55 000 dollars for four years and additional annual contributions not to exceed a total of 110 000 dollars in the same period.

(I.A.E.A.)