

of 1,600 GeV protons striking a stationary target, even though the target can only be protons. During the last year the tunnel was almost completed and the magnets and cavities were delivered, and the report predicts that the machine will be operating in the middle of next year.

At the same time the 28 GeV proton synchrotron, which has been the mainstay of activity at the CERN laboratories near Geneva since the first acceleration of protons ten years ago, is being up-rated. By 1973 the intensity of the beam is to be raised to 10^{13} protons per pulse, compared with an average of 1.3×10^{12} protons per pulse last year and 0.9×10^{12} protons per pulse in 1968. This is to be achieved chiefly by injecting protons into the machine at 800 MeV instead of 50 MeV, which allows an increase in the intensity of the injected beam. At the same time the beam current of the synchrocyclotron is being boosted by a factor of ten.

Already people are talking about the first experiments when the intersecting storage rings are working next year, and a programme is being coordinated by a committee under Professor W. Jentschke. Ten counter experiments and several emulsion experiments have already been scheduled, involving twenty-eight laboratories outside CERN. The experiments have already been assigned to the four intersection regions in the rings.

One problem is to detect particles produced in the collisions which continue more or less in the same directions as the proton beams. This is to be achieved by surrounding one of the intersection regions with a magnet to deflect particles from the beam, and of course this requires compensating magnets to direct the proton beams back onto the correct course. Another intersection will be equipped to measure proton-proton cross-sections with counters inside the vacuum chamber to detect scatterings at small angles. The other two intersections have been devoted to emulsion experiments on the production of photons at large momentum transfers and to spectrometer investigations of the production of particles at various angles.

EXAMINATIONS

Obituary for 'Q' and 'F'

by our Education Correspondent

THE proposals for 'Q' and 'F' level examinations in the sixth form were, as expected, rejected by a meeting of the Schools Council this week. But they have not been buried without trace, because some of the thinking that went into them has been accepted by the Council. The working parties which put forward the proposals have been instructed to reconsider them in the light of the Schools Council's decision.

What the Council found most difficult to stomach was the possibility that some children would take three externally moderated examinations in three years—'O' level at the end of the fifth year, 'Q' level after the first year in the sixth form, and 'F' level at the end of the second year in the sixth. That aspect of the proposals has long been recognized as their least attractive point, and it has been singled out for criticism by the National Union of Teachers and the Standing Conference on University Entrance. But the Schools Council has proposed that instead of being increased, the number of examinations should be reduced. It believes

that CSE and GCE 'O' level should be merged into one examination, under the control of the Schools Council itself. Such a system would ensure that children are not selected at the age of fourteen for one particular type of examination, and it could also open up the possibility for more imaginative syllabuses to replace the present factual GCE courses.

The most encouraging statement by the Schools Council is that it would like to see sixth form courses broadened in scope, and that this "will involve increasing the number of subjects studied beyond 'O' level standard above the present normal pattern of three". Although this will not appeal to bodies such as the Joint Mathematical Council, which believes that reducing the time spent on main subjects could be detrimental to the particularly gifted child, it has been greeted with open arms by the National Union of Teachers, and it should also be welcomed by the Standing Conference on University Entrance.

It now seems that the working parties will reconsider their proposals, and that they will come up with fresh ideas in 1971. These proposals will then be scrutinized by a new committee, and the Schools Council should be in a position to make a firm recommendation on a new system of sixth form courses and examinations in 1973. It is thus very unlikely that any changes will come into effect before 1975 or 1976.

HOVERTRAINS

Hoping to Get to Boston

ON a basis of favourable costs for the British hovertrain system, the United States Department of Transportation is rethinking its plans for handling passenger traffic along the dense North East 'Corridor' (Boston-Washington), the busiest travel route in North America. The reopening of the \$12 million study completed last year by the Department's Office of High Speed Ground Transportation (OHSGT) is the most encouraging development that has yet come to the Cambridge (UK) development company, Tracked Hovercraft Ltd, a specially set up subsidiary of NRDC. The OHSGT concluded last year that a tracked hovercraft would be most favoured by the millions of passengers that travel this route yearly but that the price was too high. Confirmation that they are to re-run their simulation programme using figures derived from British work reached London early this week. If the second look at hovertrain possibilities for the Corridor on the British model is favourable, Tracked Hovercraft may expect to play a substantial part in setting up the first major hovertrain link in the world.

Tracked Hovercraft's figures have been supplied to the OHSGT under two contracts together worth about £40,000 and negotiated in the second half of last year. They are based on comprehensive simulation and scale tests. It has been found that a tracked hovercraft on the British system cuts costs by at least 30 per cent compared with those estimated for American designs.

Tracked Hovercraft is due to test its first full size hovercar later this year on a 3-mile stretch of test track in fen country near Cambridge. The full-scale trials, once due this month, are running late because of difficulty with subcontractors building the concrete track.

Though the British system is trailing in point of full-scale public runs at speed—150-300 m.p.h. is aimed