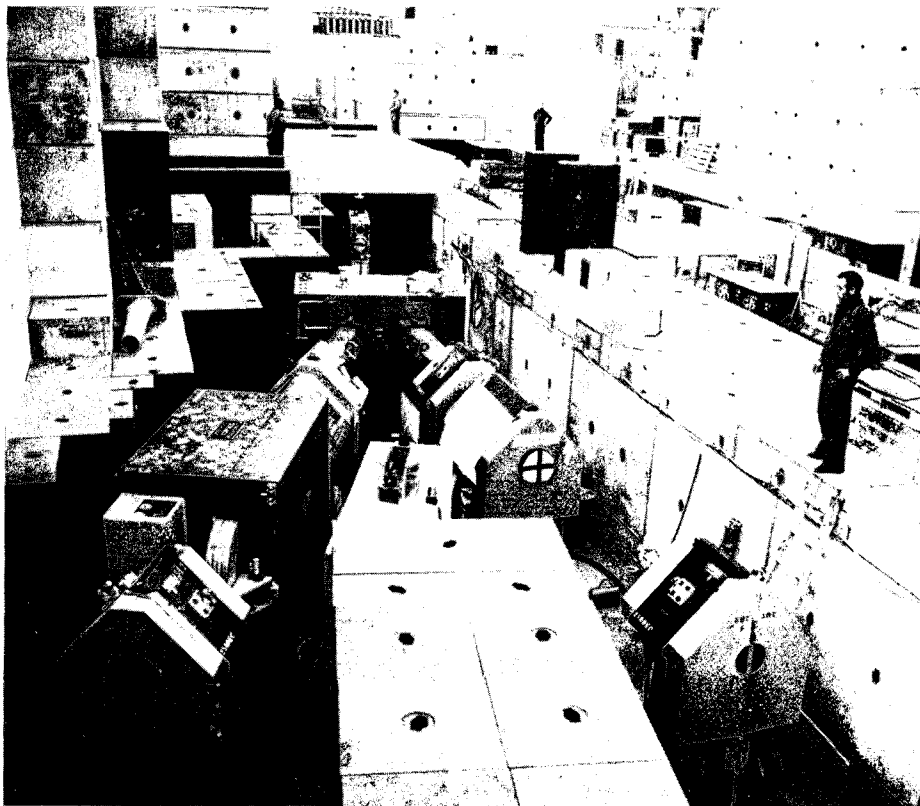


The two spectrometer arms of the Brussels/Orsay experiment during installation of the magnets. When the magnets were in place the target region was completely boxed in by concrete shielding to cut down background. Two small windows through the shielding along the arms, allow particles to emerge to detectors (mainly Cherenkov counters). The sensitivity of the system is very high and should allow a thorough search of the mass region from 1.5 to 5 GeV. Tests are now under way and data taking is scheduled for the beginning of May.



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has not taken place so we shall come back to their experience in the next issue.

Experiments

During the machine shutdown, several new experiments were set up at the PS and ISR and the 1975 experimental programme could be a very exciting one, with much more information emerging, for example, on the possible existence of quarks and of charmed particles. This information is closely related to understanding the nature of the new particle discoveries at Brookhaven and Stanford.

The discoveries caused a flurry of excitement at the end of 1974 and the experimenters had a ten-day extension of the scheduled operation of the ISR before the shutdown in order to collect data in connection with these stable

particles of high mass (3.1 and 3.7 GeV).

The CERN/Hamburg/Orsay/Vienna group investigated, with the Split Field Magnet, the production of muon pairs some of which could come from the decay of a 3.1 GeV particle — analysis is under way. The CERN/Harvard/Munich/Northwestern/Riverside group have started looking at the production of pairs from a charmed particle and its charmed antiparticle (they trigger on electrons and look for narrow mass peaks spotting kaons, lambdas, etc.). The CERN/Holland/Lancaster/Manchester and Daresbury/Liverpool/Rutherford/Scandinavia groups have put their wide and narrow-angle spectrometers together to study the production of electrons and associated pairs (pions, kaons, etc.) also looking for the narrow mass peaks which are expected if charmed particles exist. The CERN/Rome group studied the production of forward-

emitted electrons and have put close limits on the increase in production when moving from PS to ISR energies.

The CERN/Columbia/Rockefeller/Saclay group, which stopped collecting data at the ISR last September, has results showing five events of a particle with a mass of 3.1 GeV decaying into an electron-positron pair. The cross-section for the production of the 3.1 GeV particle at ISR energies is about fifty times greater than that seen at the energy of the Brookhaven Alternating Gradient Synchrotron. This implies that the new particles are present in observable quantity around the ISR.

We shall be following up these experiments, and the others which are now starting, in the course of the year.

BEBC restarted

On 22 February the 3.7 m European bubble chamber, BEBC, started recommissioning after its rebuild. The large superconducting magnet had begun working again in December (see January issue, page 9) and the latest phase has seen the cool down of both chamber and magnet followed by picture taking with beam from the PS.

The magnet had been left isolated in its vacuum tank and its temperature had reached 140 K when cool down began in February. On 2 March, the 'technical run' with beam was used for a whole series of tests to determine the best working conditions for the chamber and to optimize the quality of the photographs. The quality is now looking very good.

The 'technical run' will merge into a 'production run' beginning with an experiment being carried out by a collaboration of scientists from Germany, Italy and the U.K. They have 50 000 to 100 000 photos lined up