

PS back in action

The 28 GeV proton synchrotron was brought into operation again on 25 May as scheduled, after its shut-down which had been lengthened from six weeks to three months for repair of the magnet power supply. On the first day of operation the beam intensity reached 7×10^{11} protons per pulse and this intensity has been reliably maintained. On 4 June, 1½ days before the end of the first running period, a water leak on the septum of the slow ejected beam magnet in straight section 58 flooded about one tenth of the PS vacuum chamber with water and molten copper. After clearing up the chamber and fitting a new septum the physics programme started again a day late on 10 June.

The physics programme began on 26 May, and the following experiments received beam in the first week:

- S45 — to obtain a more accurate determination of the decay parameters of the Λ^0
- S46 — which is looking for the production of neutral resonances and their decay into neutral particles
- S50 — to examine the β -decay of the Ξ hyperon
- S43 — which uses a polarized proton

target investigating the scattering of a beam of π mesons to determine how the scattering depends upon the spin

- S39 — one of the experiments concerned with the decay of the K^0_L meson into two π mesons, which looks for interference between K^0_S and K^0_L (see CERN COURIER, vol. 6, no. 3 (March 1966) p. 43)
- X4 — a bubble chamber experiment, using the CERN 1.2 m heavy liquid chamber, to look for the decay of the K^0 into two neutral π mesons
- S35 — to investigate charge exchange in the scattering of a π meson beam from a polarized proton target
- S42 — to look for electromagnetic decays of resonances.

Rencontres de midi

The guest speaker at the 'Rencontres de Midi' held at CERN on 23 May was Mr. Haas, Directeur de l'Hôpital Cantonal, who spoke on 'The Geneva Hospital, now and in the future'.

Some 28 000 patients are registered at the Hospital each year. Each patient stays on average for 20 days which represents about 80 % use of the hospital's 2000 beds. A fundamental problem at the Hospital is the recruitment of sufficient, appropriate staff. 2680 people work there including 1327 nurses, but in Switzerland

there is a shortage of around 4000 medical staff.

The annual budget of the Hospital is 50 million Swiss francs, of which 39 million is allocated to the staff salaries. 57 % of the cost comes from the State; the cost to the patient is not higher than 24 francs per day on average whereas the actual cost per day at the hospital is 86 francs.

The problems which the hospital will have to face in the future are concerned with increasing life expectancy (which has now reached 78 years for a man and 82 years for a woman); road accidents (which are now five times higher than 20 years ago); the increasing technicality of medical treatment; the tendency to use hospitals more; the shortage of space.

Visit

On 10 June a group of scientists, government officials and representatives of industry from Spain visited CERN. The visit was organized at the initiative of Professor Otero Navascués, President of the 'Junta de Energia Nuclear' and follows the visit of the Director General of CERN to Spain in May. The visitors had an introductory talk about CERN from Prof. Armenteros and spent a large part of the day seeing the accelerators, experiments and analysis equipment at the Laboratory. Professor Gregory joined the group for discussions in the afternoon.

A group of visitors from Spain at CERN on 10 June. This photograph was taken in the NPA Building where they saw several electrostatic separators and the operation of a laser used in experiments on the development of pulsed separators. Mr. Jeannerot (in the white coat) is describing the operation of the separators.



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DG in transit

Following his visit to Spain, reported in the last issue of CERN COURIER, Professor Gregory, Director General of CERN, went with three CERN colleagues (Dr. Citron, Dr. Lock and Prof. Peyrou) to the Soviet Union on 24 May. The purpose of this visit was to continue the discussions with the Soviet scientists (including Professor Petrosians, Chairman of the USSR State Committee on the Use of Atomic Energy) about future collaboration between CERN and the Laboratory at Serpukhov where the largest accelerator in the world, a 70 GeV proton synchrotron, is nearing completion.

The principle of such collaboration was supported at the CERN Council Meeting in December 1965 and the continuing talks between representatives from Serpukhov and CERN are directed towards working out the extent and the detail of the collaboration. A proposal will eventually be presented to the CERN Council when the negotiations have reached an appropriate stage.

As a further indication of the growing exchange between Europe and the USSR in the field of sub-nuclear physics, an agreement is being negotiated between France and the Soviet Union for the use at Serpukhov, by joint teams of Soviet and French physicists, of a very large hydrogen bubble chamber being constructed at the Saclay Laboratory. The chamber is called 'Mirabelle' and is scheduled for completion in 1969.

On 5 June, Professor Gregory travelled to Holland to be present at the opening of the '1966 CERN School of Physics' where he gave a seminar on the PS experimental programme. He had discussions with the Dutch high energy physicists about their future plans (they are at present proposing a National Institute for High Energy Physics to co-ordinate some of the work of the groups active in different Universities, — Amsterdam, Nijmegen, Utrecht, Groningen and Leiden — for projects beyond the capability of a single University) and talked with the Netherlands' Minister for Education and Sciences. During his stay in Holland, the Director General also visited the Zeeman Laboratory (Amsterdam), the University of Nijmegen and the Philips Laboratory at Eindhoven.

On 8 June, Professor Gregory moved on to Belgium. He visited the high energy physics Laboratory at Brussels and gave a talk on 'High Energy Physics at CERN' at the 'Fondation Universitaire'. On 10 June he was received in audience by H.M. Baudouin I, King of the Belgians.

Schools

The 1966 CERN School of Physics was held at Noordwijk-aan-Zee, Holland, from 6–18 June. It was the fifth in a series of courses which have been previously held at St.Cergue, Switzerland (twice); Herceg Novi, Yugoslavia and Bad Kreuznach, Germany. They are directed at young experimental physicists, regardless of the particular technique in which they are working, from Laboratories closely associated with CERN. 99 students from 19 countries (including 8 non-member States of CERN) attended this year's school.

The school was opened on 6 June by His Excellency Mr. Diepenhorst, the Netherlands' Minister for Education and Sciences. The course included a series of lectures on major topics of current interest in sub-nuclear physics given by Professors Van Hove (CERN), Tolhoek (Groningen), de Swart (Nijmegen), Miller (Berkeley) and Dr. Bell (CERN). There were also seminars by the Director General, Prof. Kronig (Delft), Prof. Steinberger (Columbia/CERN), Dr. Hyams (CERN), and Dr. Sens (Netherlands/CERN).

The International School of Physics 'Ettore Majorana' began on 19 June and will continue until 4 July. This is the fourth time the School has been held at Erice in Sicily and the course this year is devoted to 'Strong and Weak Interactions — Present Problems'. Among the lecturers was Prof. Gell-Mann who spoke on 'Current algebras and broken symmetry'.

The second course in 1966 of the International School of Physics 'Enrico Fermi' began on 27 June and will continue until 9 July. The topic of the course is 'Interaction of High-Energy Particles with Nuclei'. The School is being held at Varenna in Italy.

News from Abroad

Rutherford Laboratory

The 7 GeV proton synchrotron, Nimrod, which suffered a power supply failure in 1965, is back in action at the Rutherford Laboratory, in the UK. The accelerator has just completed an intensive period of operation extending over three months with only four 12 hour maintenance periods. The performance of the machine improved steadily throughout the run to give about 80 % efficiency during scheduled experimental time. Beam intensities of 10^{12} protons per pulse or better were reliably achieved. The extracted proton beam efficiency reached 22 %.

The newly commissioned 1.4 metre heavy liquid bubble chamber has taken 200 000 photographs examining the decay of the eta meson. An 82 cm hydrogen bubble chamber, on loan from Saclay, France, has now taken 1.7 million pictures at Nimrod and is working extremely well.

The Laboratory is particularly proud of the relationship it has established with the British universities where it has pioneered collaboration between a government establishment and universities. Over 200 university physicists (20 research groups from 13 physics departments) including about 60 postgraduate students, take part in the research programme. University staff are involved in management of the Laboratory at all levels and the research is organized, as far as possible, to enable the visitors to carry out their normal university duties also.

A programme of work on superconducting magnet technology is under way. A 6 ft bending magnet with a 30 kG field is under construction for the external proton beam and consideration is being given to the use of a superconducting magnet for a very high field bubble chamber (perhaps 70 kG over 1.5 metres). Some preliminary thought has also been given to the possibility of a conversion of Nimrod to a 50 GeV strong focusing machine using superconducting magnets.