



CERN/PI 01.6.55



CERN/PI 257.2.67

New Buildings at CERN

A glance at these two photographs will show you that great changes have taken place on the CERN site in twelve years. One of the factors which has contributed most to this alteration is the large number of new buildings which have been put up during the time.

We therefore felt that it would be interesting at the beginning of 1967 to find out what new construction work was completed in 1966, what the new buildings are being used for and what items the Technical Services and Buildings Division has on its drawing boards for the future. The 1966 construction budget covered commitments worth 10.9 million Swiss francs, 70 % of which was for civil engineering and 30 % for technical installations.

The main construction work actually finished during the year and put at the disposal of the users was the neutrino area, i.e. the tunnel and adjoining buildings for the neutrino beam (the first experiment began this month). Then there were the extension to the offices and experimental

hall for the AR Division, offices and laboratories for the Health Physics Group, and the extension to the buildings of the NPA Division. Alterations to the main restaurant in the Administration Building created some nice problems for those responsible because of the need to avoid disturbing normal running while the work was in progress.

Finally, improved shielding was erected on the roof of the Synchro-Cyclotron, and extensions were added to the Main Workshop, to Adams Hall and to the SC Cooling Hall.

A number of projects begun in 1966 have just been completed or will be completed in the course of 1967; for example, the six-storey building known as Laboratory 14 is being handed over to the Track Chambers and Nuclear Physics Divisions. Underground experimental halls for the ISOLDE project have also been finished this month. In connection with the latter it is of interest to note that the synchro-cyclotron was shut down on 28 March in order to install the beam and will be running again for tests on 15 April. Laboratories

18 and 19 and hall 169 will be handed over to the NPA Division in June, at which moment the extension work in connection with the main generator and its adjoining buildings will also be completed.

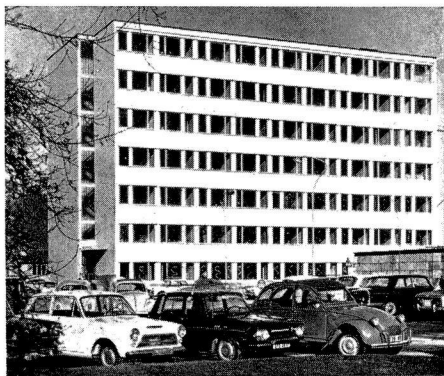
Also in progress are the extension to the main power house (one of the two new boilers came into operation in January), the new telephone exchange (where the buildings will be finished in 1967 though the technical installations will not be completed until 1968), the access road to the West site and various supply networks for electricity and fluids.

Finally, the SB Division has drawn up plans and designs for work about to begin or which has already begun. These are, in particular, for the buildings to house the Gargamelle bubble chamber (near the neutrino area) which will be completed in November, for the new «Jura» electricity substation where work has recently started, and for the extension to the surface treatment shop where work will soon begin.

To conclude, here are three significant figures: about 200 workmen were engaged on the various constructions in 1966;

Top photograph: The six-story building, called Laboratory wing 14, which has recently become available for occupation by the Track Chambers and Nuclear Physics Divisions.

Below: A general view of Adams Hall, taken following the completion of extensions to the building.



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CERN/PI 381.2.67

12 million Swiss francs have been allocated to the building budget for 1967; 2500 work requests for a total value of 5.5 million Swiss francs were fulfilled by the SB Division and charged up to the divisions concerned.

Again no asymmetry

Measurements on the decay of the eta meson into two charged pions and a gamma were reported by a team from CERN, ETH and Saclay in *Physics Letters*, 20 February. From an analysis of 1620 events, they found no evidence of the violation of charge symmetry in the decay.

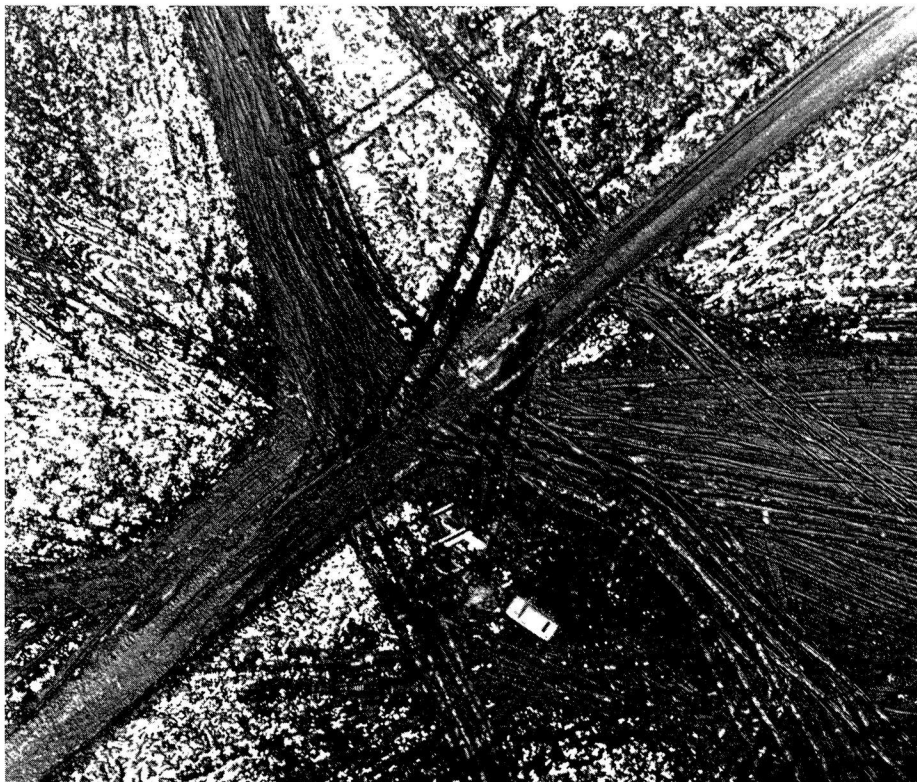
The experiment at the CERN proton synchrotron which examined the decay of the eta meson into three pions was reported in *CERN COURIER*, vol. 6, p. 171. It gave one of the most important results of 1966 — that there is no evidence of the violation of charge symmetry in the electromagnetic interaction. This symmetry had been put in doubt by the results of a previous experiment carried out in the USA. The CERN/ETH/Saclay team based their result

on the analysis of a large number of observations (10 600) of the decay of the eta meson into a positive, a negative and a neutral pion. Because the eta meson and the neutral pion are their own antiparticles, any deviation from charge symmetry in the decay would be expected to show up as a difference in the behaviour of the positive and negative pions. No difference was observed.

The eta meson can also decay into a positive pion, a negative pion and a gamma. The gamma is its own antiparticle and therefore observation of the behaviour of the positive and negative pions in this decay can also be used to test charge symmetry. The team who carried out the experiment on the decay into three pions, were able to distinguish examples of decay into two pions and a gamma, among the data they had collected. 1620 events were selected from the measurements carried out using the HPD flying spot digitizer, which analysed the spark chamber photographs taken in the experiment, and the CDC 6600 computer.

Comparing the energies of the positive

Another aerial view, this time of the site for the intersecting storage rings. The lorries, carrying away the earth being carved out of the ring tunnel, cut a weird pattern in the snow and mud.



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and negative pions in each of these 1620 events gave a value for the asymmetry (the number of times the positive pion is more energetic, minus the number of times the negative pion is more energetic, divided by the total number of events) as $+1.5\%$ with an error of $\pm 2.5\%$. In other words, these measurements of another decay in which violation of charge symmetry in the electromagnetic interaction could be expected to appear, confirm the previous result that no violation occurs.

*'Charge conjugation in $\eta \rightarrow \pi^+ \pi^- \gamma$ ', R. A. Bowen, A. M. Cnops, G. Finocchiaro, P. Mittner, J. P. Dufey, B. Gobbi, M. A. Ponchon, A. Muller. *Physics Letters*, 20 February 1967.*

Computers

The CDC 6400 computer, which is scheduled to arrive at CERN about the middle of April to become CERN's large secondary computer, began its acceptance test at the factory in Minneapolis on 13 March.

Another computer scheduled to arrive at CERN in April, is the IBM 1800. It will be used in connection with the proton synchrotron for data collection and control during operation of the accelerator.

The area around Florence during the floods in November last year. The CERN Staff Association has organized help for reconstruction work in the village of Castel del Bosco, 50 km from the city.

At its meeting on 16 February, the Finance Committee approved the purchase of an IBM 360-30 to be used for Administrative Data Processing (the ADP project; see CERN COURIER, vol. 6, p. 157). It is hoped to bring the computer to CERN in June of this year. It will be used initially for stores accounting and then for general accounting, personnel statistics, etc. and for providing forward planning management information.

The Data Handling Policy Group has been reformed, under the chairmanship of M. G. N. Hine, to serve as a coordinating body on computing matters within CERN and to make recommendations to the Board of Directors on computing policy. Other members of the Group are R. Armenteros, W. Baker, R. Böck, A. Burmeister, R. Hagedorn, C. Lovelace, G. R. Macleod and H. Øveras.

Accelerator shut-downs

A month's shut-down of the proton synchrotron, initially scheduled to begin in March, has been postponed for three weeks to coincide with major work on the electricity mains to be carried out by the Services Industriels de Genève. It will now start on 17 April and continue until 17 May.

The first experimental run with the new neutrino beam-line (see CERN COURIER, vol. 6, p. 211) is scheduled for the week preceding the shut-down. The fast extracted proton beam for the beam-line was operated for the first time on 19 January and the last of a series of tests prior to the experiments, to optimize the neutrino flux to the heavy liquid bubble chamber, began on 16 March. The April issue of CERN COURIER will include an account of some of the experiments currently in the programme of the PS.

The synchro-cyclotron also has a shut-down in April, principally for installation of the new underground beam-line which will take proton beams from the SC to the ISOLDE laboratory. This beam-line comprises two 15 ton bending magnets and twelve quadrupole lenses. The shut-down will take place from 2 to 15 April and other work to be carried out includes installation of new rectifiers for beam-transport equipment and modification of the electrical supplies to the SC to cater for the increased requirements.



Aid to Castel del Bosco

On November 4, 1966 the world press agencies flashed the first news of the terrible floods which, in a few hours, were to devastate a large part of Tuscany in the north of Italy and to make Florence look like a bombed city.

Everyone certainly remembers what the fourth of November and the following days were like: more than a hundred dead, besides the missing and the injured; the many buildings damaged; the general suffering and tragedy as well as the individual grief. Help flowed in at once from all over Italy, from Europe and as far afield as America, as a result of collections made to meet the most pressing needs. At that time CERN staff made its contribution through the Red Cross, the Italian Consulate in Geneva and other emergency-relief organizations to bring aid to the victims. The time for emergency aid is now over, but there remains much to be reconstructed which was swept away or damaged by the flood waters.

CERN is anxious to be associated more directly in this second phase of relief. International aid has been concentrated

generally on Florence and on the restoration of its damaged master-pieces, so it seemed more useful to choose a small village whose name has never been in the headlines. The choice fell on Castel del Bosco, a small hamlet in the province of Pisa, about 50 km to the west of Florence, on the banks of the Arno, which for a week was buried under more than three metres of water and debris. Its five or six hundred inhabitants, mostly small farmers and craftsmen, lost almost everything they possessed, and above all they no longer have a school or a dispensary. It is precisely this school and dispensary that CERN has decided to help reconstruct.

The mayor of Castel del Bosco has sent to the CERN Staff Association a detailed estimate amounting to ten thousand Swiss francs of the equipment needed for both the school and the dispensary. The Staff Association has therefore organized a collection among its members starting at the beginning of March.

A little ceremony is planned during which a cheque for 10 000 Swiss francs will be handed over to the mayor of Castel del Bosco who will come to CERN specially for the occasion.