

CERN COURIER ARCHIVE: 1963

To celebrate the 50th anniversary of CERN, we look back at some of the items in the early issues of *CERN Courier*

CERN

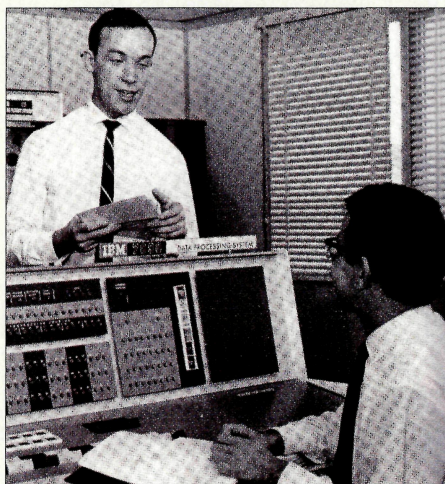
New computer is installed

An IBM 7090 computer is now installed at CERN and has been working on a regular basis since 30 September [1963]. The presence of this machine should enable CERN to process work at about three times the rate possible with the previous IBM 709 computer, and it will undoubtedly be a valuable asset to the organization.

The computer left the factory at Poughkeepsie, USA, on 19 August and was flown to Cointrin Airport, Geneva, in a specially chartered DC-7, arriving on Saturday 24 August at 2 p.m. The CERN transport section unloaded the 26 cases, of total weight 14 800 kg, and moved them to a temporary storage location inside CERN. Until the final shut-down of the 709, the new computer remained in store, except for some of the tape units, which were moved into the computer barrack for checking.

At 6 p.m. on Friday 13 September the 709 was finally switched off and its removal started immediately. With the wonderful co-operation of CERN's transport section, the old computer was completely removed from the barrack by midnight on the same day, and on 14 September the new machine was moved in. The satellite computer (IBM 1401) used with the 709 was moved into an adjacent office and the manufacturer's engineers began to modify it. During the whole of the weekend the barrack was constantly vacuum cleaned to reduce dust, while the flooring panels were modified to provide access for the new units and cables. New doors into the computer room were made and the electrical power supply modified.

On Sunday 15 September power was turned on and testing could begin on both the 7090 and the 1401. The latter machine was functioning during the afternoon and work was



This photograph shows one of the computer operators, E Swoboda, seated at the operating console of the IBM 7090. The computer is controlled from here and monitor lamps indicate that it is functioning correctly. Looking over the console is H Klein, the senior operator.

processed on it the following day. The team of nine IBM engineers, coming from Switzerland, England and Germany, worked 24 hours a day to get the 7090 into operation, and testing went on continually throughout the week. Finally, on Friday 20 September, it was completed, and on the same day the 1401 was removed from its temporary position and re-installed in the computer room...

The new computer, in contrast to the one it replaces, uses transistors instead of vacuum tubes. The consequent saving in space and a general improvement in design has resulted in a more compact machine and a consequent better general appearance.

● Taken from *CERN Courier* October 1963 p128.

NEWS FROM ABROAD

Zero-gradient synchrotron in operation

During the accelerator conference at Dubna in August it became known that the first beam had been accelerated in the "Zero-gradient synchrotron" (ZGS) at the Argonne National Laboratory, near Chicago, USA. Less than a month later came the news that on 18 September protons were accelerated to 12.7 GeV, a little above the design energy of 12.5 GeV.

The zero-gradient synchrotron is a ring-shaped proton accelerator approximately 61 metres in diameter, with the unusual feature of having a uniform magnetic field rather than one whose strength varies with radius, as in the CERN proton synchrotron (PS). The circular magnet of the Argonne machine, which is divided into eight sections, has a "picture-frame" cross-section and weighs a total of some 4000 tonnes.

Focusing of the proton beam circulating in the vacuum tank inside this magnet is achieved by the special shape of the ends of each of the magnet octants, the chief advantage of this kind of design being that "multiturn injection" can be used. Thus, if the pulse of protons injected from the auxiliary linac is thought of as a continuous ribbon, in the case of the PS it cannot be longer than the circumference of the ring, whereas in the Argonne machine it can be perhaps as long as 100 turns round the ring. In this way, the ZGS is expected to produce very intense beams of particles, up to 10^{13} protons per pulse. The repetition rate is 15 pulses per minute.

The accelerator and its auxiliary buildings occupy an area of 47 acres (19 ha) and the total cost was some \$50 million (215 million Swiss francs). Apart from its use by scientists at the Argonne laboratory, which is operated for the US Atomic Energy Commission by the University of Chicago, the accelerator will be available to the "Argonne Accelerator Users Group", which unites physicists from more than 50 universities and research laboratories in the "middle west" of the United States.

● Taken from *CERN Courier* October 1963 p135.

EDITOR'S NOTE

Computers have had an important role since the earliest days of CERN. The first mainframe, delivered in 1958, was a Ferranti Mercury based on vacuum tubes (p32). Four years later, the new generation of transistorized

computing arrived with an IBM 7090, as described above. Now the mainframes have been replaced by "farms" of PCs (p15). The second item here describes the ZGS at Argonne, designed to produce very intense beams of protons. Attaining high intensities remains an important goal today (p29).

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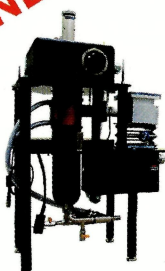
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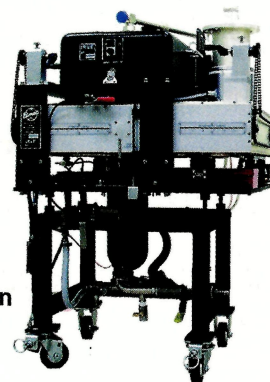
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