

CERN Courier Archive: 1969

A LOOK BACK TO CERN COURIER VOL. 8, NOVEMBER 1969, COMPILED BY PEGGIE RIMMER

CERN

Ten years ago: the PS starts up ...

On the night of 24 November 1959, a Polaroid picture similar to the one on the cover [see thumbnail in Compiler's Note, below] was pushed into an empty vodka bottle and parcelled off to Moscow. The vodka had been given to John Adams a few months earlier by Vladimir Nikitin labelled "Not to be opened until 10.1 GeV" – surpassing the 10 GeV peak of the synchro-phasotron at the Dubna Laboratory, then the highest-energy machine in the world. The picture showed an oscilloscope trace of the CERN proton synchrotron PS beam stretching out to 24 GeV for the first time.

Discussion of a European Laboratory built around a large particle accelerator began about 1950. By 1952, the Provisional Council of CERN came into being and a PS Group was set up to study a 10 GeV scaled-up version of the 3 GeV Cosmotron in the USA. Late that year, the new idea of alternating gradient focusing was carried back from Brookhaven and the study switched abruptly to a higher-energy machine. In October 1953, a design for a machine of about 30 GeV (later pruned to 25 GeV) based on the alternating gradient principle was successfully presented at a meeting in Geneva.

Thus began a great adventure in technical accomplishment and a great adventure in European collaboration, adventures because no-one really knew whether either the machine or the collaboration could work.

Adams replied to a question at a CERN Council Meeting in 1959: "Machines such as the PS consist of an enormous number of parts, and there are therefore several



On 24 November 1969, there was a celebration for the tenth anniversary of first operation of the CERN PS. Assisting in the traditional blowing out of candles are, left to right, P Germain, Hildred Blewett and P H Standley. [Image from the cover of CERN Courier December 1969.]

million reasons why they might not work." All problems were in the hands of a brilliant but inexperienced team and they were solved on schedule (within six years of the signing of the CERN Convention) and at a cost (120 million Swiss francs) reasonably close to the 1955 estimate.

The success of the collaboration was perhaps even more impressive. To propose that Belgians, British, Dutch, French, Germans, Greeks, Italians, Scandinavians, Swiss and Yugoslavs could work successfully together on a huge

project – demanding the highest technical skills, production of a million components by manufacturers scattered throughout Europe, very careful planning and the closest co-operation – was idealistic. But it worked.

● Compiled from texts on pp330–331.

... some personal reminiscences by Hildred Blewett

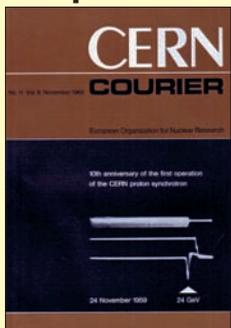
Remember the night of 24 November 1959? Of course I do. I was sitting in the canteen eating supper with John Adams. There was not a wide choice of food in those days – spaghetti or ravioli or, occasionally, fried eggs – but our thoughts were not on the meal. We had hardly spoken, our spirits were low, then John lit his pipe and said, "Well, now that we've finished eating, we might as well walk over and see if anything is happening." As we went in the direction of the PS buildings, I asked him, "Shall we go to the Main Control Room or the Central Building?" Chris Schmelzer said that Wolfgang Schnell has that radial phase-control thing working." John pulled on his pipe, "Probably doesn't matter, it may not do much good." Then he added, "Let's go to the Central Building and see what they're up to." It was about quarter to seven.

[...]

Many things were in my thoughts as Adams and I approached the Central Building. I was depressed at having to leave the next day. I had wanted so much to see this machine operate successfully. John interrupted my thoughts with, "Well, Hildred, we haven't done much during your stay. It's hardly been worthwhile ..." I broke in, "Wolfgang thinks this radial phase-control will really work, he's very optimistic, and maybe ..." But I knew that no one else had great hopes for any improvement. The idea was to use the radial-position signal from the beam to control the r.f. phase. With this system, the sign of the phase had to be reversed at transition and, in his haste, Schnell had built this part into a Nescafé tin, the only thing of the right size. But could Nescafé tins help?

● Compiled from texts on p331 and p334.

Compiler's Note



Well, Nescafé tins could help and the rest is history. Those inexperienced PS pioneers built a machine that is still going strong today in the chain of accelerators that feed the LHC and, thanks to the *esprit de corps* that they established, CERN is now global. Only countries with a name beginning with O, W, X, Y or Z are missing from the programme, and there isn't actually a country beginning with X.

Space does not permit a longer extract from the late Hildred Blewett's memoir, packed with technical facts and engaging anecdotes. A fuller text was reprinted in the *Courier* for the 50th birthday of the PS and is highly recommended reading (*CERN Courier* November 2009 p19).