

High energy physics

Money may determine West Germany's view

IN the battle — imagined or otherwise — between the Hamburg laboratory DESY and the European subnuclear physics centre CERN near Geneva, Germany will give CERN priority, unless outside factors intervene. So Dr Günther Lehr, director for international cooperation of the German federal ministry for research and technology, told *Nature* last week.

The pace of diplomacy over the issue between Italy and Germany is increasing. Italy was the first to raise doubts about German intentions. In the past few days the Italian minister of science, Vito Scalia, met Lehr with the chairman of the European Committee for Future Accelerators, Professor Marcel Vivargent, in Zurich — construed as neutral territory. And Professor Herwig Schopper, director of DESY and holder of all but Italy's vote to be CERN's next director-general, visited Scalia in Rome to clarify his position.

However, according to a Rome diplomat "it is still too early to say" if all the problems are solved. "Time has been useful" he said. "It has removed the cloud to a certain extent, there has been a clarification of problems."

Italy, which since the closure for high energy physics of its ADONE electron ring at Frascati near Rome has relied heavily on the CERN facilities at Geneva, fears competition between DESY's plans for an electron-proton ring, HERA, and CERN's plans for a large electron-positron ring LEP. The first stage of HERA, which would probably operate some years before LEP, would also be an electron-positron ring though at a nominal energy of 35 GeV on 35 GeV (see *Nature* 31 January page 420), below reach of the intermediate vector boson. Italy has perceived Schopper's potential appointment to the CERN director-generalship as a "Trojan horse" which would lead to the running down of CERN and the aggrandisement of the DESY laboratory in Hamburg.

But Lehr dismisses these fears. "DESY has risen in the last few years from a purely national laboratory to one of international importance" he said last week. "At first this caused surprise, and now there is over-reaction."

Lehr is now convening a small group of scientific advisors to make recommendations, sometime this year, on spending in Germany on ten 'big projects', including LEP and HERA. Others include a new neutron source, equivalent to the UK Rutherford Laboratory's spallation neutron source now under construction, a European synchrotron radiation source as proposed by the European Science Foundation, improvement of the heavy ion accelerator at Darmstadt, and a deep drilling project to reach the Mohorovicic

discontinuity, the 'Mohole' project dropped by the US some years ago.

Since Germany contributes 25% of CERN costs (the maximum allowed), the costs to it of LEP and HERA are roughly equal. But, said Lehr, "I would assure Scalia in Zurich that the LEP and HERA decisions would be independent. I cannot see us doing HERA instead of LEP. I rule out doing neither, but I see no basis for choosing HERA in favour of LEP, unless it is for reasons outside our control."

Such reasons might be objections to LEP from other member states of CERN. The Scandinavians particularly are thought to be cool to LEP (after all Hamburg is closer than Geneva) and the UK is likely to be in favour only if LEP is built slowly, to reduce annual costs.

However, cost is also a prime consideration in Germany, and Lehr does not know how much money will be available to him. Discussions are presently taking place on the science ministry budget for 1981, and it appears that there will be only "a relatively small increase" constrained by the international economic and political situation. There will not be enough money for all the big projects, but may be enough for more than one — perhaps 50 million DM per year.

"In these circumstances", says Lehr, "I cannot forecast my minister's reaction" to a proposal to go ahead with LEP and HERA together. This uncertainty leads directly to Italy's doubts. If Germany decided to go ahead with HERA before there is a decision on LEP (which will not come before the CERN council meeting of June 1981 at the earliest) would Germany be inclined to temper its enthusiasm for LEP?

Lehr regretted the Italian position on Germany and LEP "but in some respects I understand them, because DESY has been successful. CERN — I choose my words carefully — has been better at building superb accelerators than at discovering

spectacular physics."

Why should this be so? Because, suggested Lehr, the director general of such international bodies tries always to be on the safe side, to build an accelerator which runs on the touch of a button. "We should consider this matter" said Lehr, who is also vice-president of CERN Council, "and perhaps change this policy. We could build this smaller, cheaper, and take risks . . . It will not be possible to build larger and larger particle accelerators: governments and other scientists won't accept it." Schopper, Lehr believes, would be a director general who would take imaginative risk, as he has done with DESY.

The Italian science ministry, however, told *Nature* last week that there could be no decision on the director generalship, Rome's main political weapon, before the June meeting of CERN Council, and that the time before then should be used to clarify the issues further. Lehr, on the other hand, insists that Schopper's early appointment as director-designate — the post is effective from January 1981 — would help to clear the ground for LEP. Strictly, a two-thirds majority is all that is required for a decision, but it is felt that unanimity is necessary on this appointment.

Scalia and Lehr appear to agree on one thing: the need for speed with LEP, if it is built. Lehr would like it built in five years rather than the seven which is current CERN thinking. This can be done within a 'constant' CERN budget of 620 million SwFr a year, says Lehr, if a minimum one-sixth version of LEP (with a maximum luminosity at 49 GeV) is adopted. Italy is in agreement with this. It would entail the same tunnel, but having fewer accelerating cavities so that the machine just reaches the mass of the intermediate vector boson, the Z_0 .

Lehr sees US competition for the Z_0 as less of a threat than some: "John Deutsch has told me that his department of energy will spend some \$300 million on Brookhaven National Laboratory, Fermilab, and the energy doubler, and Richter's Z_0 factory, so you can expect delays for lack of funds."

Rome does not regret the stand it has taken. A diplomat in the science ministry told *Nature* last week "our pressure has produced an increased awareness of the need for speed. The matter has been brought into the limelight." The diplomat "found room for agreement" in the language now used by the German delegates to the CERN Council. "We believe Germany is a very strong member of CERN, and wish it to remain so."

Robert Walgate



Schopper: CERN's next director-general?