

## Uncertainty at CERN

For the last seven years European physicists have wanted to build a particle accelerator roughly equal in energy to the United States project now under construction at Batavia, Ill. The two projects were born at about the same time and were expected to be completed more or less simultaneously. But every time the European project appears to have cleared one diplomatic barrier, another has emerged to plague it, and the United States project has by now far outpaced its European rival. The recent compromise on a site at Geneva (SN: 6/27, p. 615) seemed for awhile to clear the final hurdle. But it now appears that the optimism was premature.

The new plan proposes an accelerator that will be built first for operation at 150 GeV energy and be capable of later expansion to 300 GeV and even higher energies. The project would require an area only 1.8 kilometers in diameter and would cost only 900 million Swiss francs (\$207 million).

A ring of this size could be accommodated on land directly across the road from the present laboratory in a suburb of Geneva. The accelerator would be built in a tunnel through the rock under the site; the surface could be maintained in agricultural or some other use without disturbing the laboratory's experiments.

The new machine would be integrated with the present laboratory. The existing 30-GeV-proton synchrotron would be used part-time as an injector for the new machine. The CERN council thought this would settle the quarrel over location. A number of member states but, predictably, not all, have expressed a certain favor for the new plan. Among the nations still in doubt as the October meeting of the CERN council approaches, the most important are Great Britain, West Germany and Italy.

The British Labor Government said in 1968 that Britain definitely would not contribute to the European accelerator as it then stood. Since that time, not only has the CERN plan changed, but a new Conservative Government has been returned to power in London. According to the British delegation to CERN, previous refusal does not apply to the present plan. The British Science Research Council, which is responsible for the country's expenditure in high-energy physics, is unanimously in favor, and will advise the Government to go along with the plan. If the British do go along, the money for the new CERN project will come out of national expenditures for high-energy physics; in order to soften the adverse effects on British National Laboratories, the British would like to see the investment in the new machine

reduced slightly and the construction time extended one year.

The West German delegation is in favor of the new plan, but expressed doubts about concentrating European high-energy physics in one location.

Germany's participation would be more certain if the West German site were to be chosen. Nor do the Italians like the compromise plan. The proposals, they say, are being examined with "positive interest," but they expressed a preference for the previous proposal. They point out that a great deal of time, energy and money has been spent on studying the various site proposals. (An Italian site was among those in the final running under the old proposal.)

The Italians would like to see the two proposals compared and a decision

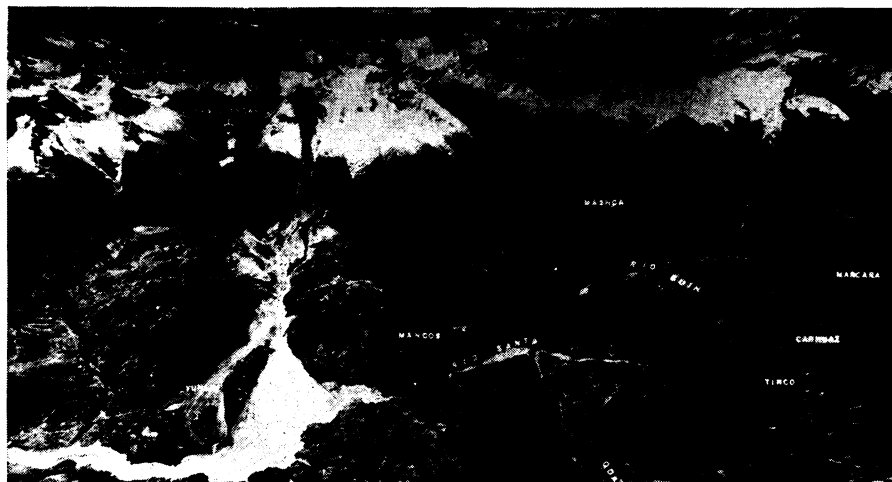
made on the basis of which is better for the future of European science. Of other national delegations, Austria, Belgium, Denmark, France, the Netherlands, Norway and Sweden, are on record in favor of the new project.

The French are in favor of the project but slightly disappointed that the new peak energy is not as high as would be possible on other sites. Switzerland is in favor of the new project and is willing to cooperate with the CERN organization and with the French Government to secure rights for the site which is on the boundary between the two countries.

The CERN council hopes that governments will have made their final favorable decisions on the project by December. If that schedule holds, physics at 150 GeV could begin in the new machine at the end of 1975. The American Batavia project has gone ahead faster than anticipated and its first beams of 500 GeV are now expected sometime in 1971. □

## PERUVIAN DISASTER

### Earthquake and avalanche



USGS

*Avalanche traced a 9-mile path of destruction down the slopes of Huascarán.*

Shortly after the May 31 Peru earthquake, the Peruvian Government requested United States assistance to help carry out a preliminary scientific study of the disaster. Two U.S. Geological Survey geologists have now returned from a study they made in response to the request. Their report is a tale of what they term almost unbelievable destruction, possibly surpassing in magnitude such catastrophic events as the Mt. Pelée eruption of 1902 and the eruption of Vesuvius that buried Pompeii in A.D. 79.

The vital statistics of the earthquake and its aftermath are enough to ensure it a prominent niche of notoriety in future histories of such events: Richter magnitude: 7.7 (initial shock); epicenter: 15.5 miles offshore from port city of Chimbote, 27 miles beneath the

surface; size of affected area: 25,000 square miles; estimated casualties: more than 50,000 dead or missing, 50,000 injured; property damage: 186,000 buildings—80 percent of houses in area—destroyed completely or rendered uninhabitable.

In lives lost, the earthquake was the most disastrous ever in Latin America, and perhaps in the entire Western Hemisphere.

The major geologic result of the earthquake was the massive debris avalanche from the glacier-covered 21,860-foot north peak of Huascarán, the highest mountain in Peru. It buried the towns of Yungay and Ranrahirca and killed more than 20,000 persons—about 40 percent of the total death toll.

The power of the avalanche was awesome. It began during the earthquake