International Laboratory for Nuclear Research

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IN JULY 1953, after three years of careful preparation, the project of a cooperative European laboratory for atomic research will reach the point when actual construction may soon start.

In June 1950, the European nuclear physicists welcomed the suggestion, fostered by Unesco, to plan and build, with joint forces, a laboratory, equipped with the heavy machinery required for experiments with high energy particles, that no single European country could easily afford nowadays.

Not until a year and a half later was it possible to hold a first conference. In December 1951, delegates from twelve European nations met in Paris. The nations were: Belgium, Denmark, France, Great Britain, Greece, Italy, the Netherlands, Norway, Sweden, Switzerland, West Germany, and Yugoslavia. Eleven nations then joined in a committee known, today, as the "European Council for Nuclear Research" (Conseil Européen pour la Recherche Nucléaire, or CERN). Great Britain, working on projects of her own, did not join the Council; she is, nevertheless, represented at each meeting, and has made advisory and financial contributions.

A second conference, held in February 1952, at Geneva, Switzerland, resulted in a signed agreement, subsequently ratified by all nations, with the exception of Greece. The five countries, ratifying first, and thereby legalizing the provisional agreement, were France, Germany, Holland, Sweden, and Yugoslavia. Soon, the other nations followed.

According to the agreement, the Council is constituted for "planning an international laboratory and organizing other forms of cooperation in nuclear research." The laboratory is planned for the study of "phenomena involving high energy particles in order to increase the knowledge of such phenomena and thereby to contribute to progress and to the improvement of the living conditions of mankind." The seat of CERN is Geneva.

The Council has set up four study

groups. Three groups are in charge of the following constructions: a synchrocyclotron (Director: C. J. Bakker, Netherlands), a large proton-accelerator (O. Dahl, Bergen, Norway), and a laboratory (L. Kowarski, Paris); the fourth group studies the pertinent theoretical questions (N. Bohr, Copenhagen).

The Council's first session met in Paris, May 1952, with P. Scherrer (Zurich, Switzerland) as chairman. P. Auger (Paris), the director of Unesco's Division of Natural Sciences, acted as the permanent representative of Unesco. E. Amaldi (Rome) was appointed secretary general.

In June 1952, prior to the second session, a scientific conference took place at Copenhagen. At this time, the plan was to adopt the Brookhaven cosmotron type for the larger machine and increase its energy up to 10 Bev. Such energies are desirable because one expects that more of the interesting new particles are produced there.

By October 1952, at the time of the third session, held at Amsterdam, the groups had started to examine the "strong focusing" principle, discovered at Brookhaven. This device seemed to allow a considerable reduction in cost for the 10 Bev machine, or, still better, promised to yield even higher energies, possibly 30 Bev, under the originally planned budget.

At the same meeting it was decided which country should house the future laboratory. The foremost competitors were France, Denmark, Holland, and Switzerland. When France and Denmark resigned in favor of Switzerland, Holland, too, withdrew her application so that Switzerland might be chosen unanimously.

At the same time, it was agreed to name the future institute "International Laboratory" rather than "European," to distinguish this enterprise from other European attempts at unification in more controversial fields. It is, indeed, a most gratifying idea that the European scientists should

succeed in taking one of the first steps toward greater unification of the old continent.

In early 1953, during the fourth and fifth sessions, held at Brussels and Rome, the drafted text of a legal convention was examined. According to schedule, the convention is to be signed in June or early July 1953.¹ As soon as the organization is constituted on a legal and permanent base, actual construction work may start. Special groups from different countries, Great Britain included, are now studying financial and administrative measures. One important question is which share of the financial burden shall be carried by each country.

The project has been estimated to cost 100 million Swiss francs, or about 25 million dollars. More recently, the estimate was raised to 120 million francs for the first seven years covering the construction period. The cost will, of course, depend on the design finally chosen. Recently, certain difficulties concerning the strong focusing device have been recognized which may curtail the advantages originally foreseen. At present, any machine of 10 or more Bev would be larger than the largest machine now running in the United States, but bigger American projects are under discussion, and, if the strong focusing idea proves useful, a machine even more powerful than the 30 Bev machine may be attempted here.

The European laboratory will be located in the French-speaking part of Switzerland, near the French border. The official languages used by CERN are French and English. Switzerland's main advantage is the country's central-European location and easy accessibility.

Switzerland's traditional neutrality is considered a valuable factor of confidence; it has long been respected abroad, and is watchfully safeguarded within the country. The Swiss newspapers repeatedly reassured the public that the laboratory would have

¹ According to latest information, the convention has been signed by nine countries, including Britain.

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