

Swiss industry and prospects of using atomic energy

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This trade fair, which is national in character, regularly invites one foreign country to participate with a display of its own. After France, Belgium, the Netherlands, Italy, Morocco, the Belgian Congo and Tunisia, the Swiss Comptoir will have the privilege this year of welcoming as its official guest the Republic of the United States of Brazil.

From September 12th to 27th, Lausanne will be the centre of attraction for all those wishing to see the achievements of Swiss workmanship, at this trade fair which, moreover, constitutes one of the most noble and authentic traditions of the country.

SWISS INDUSTRY AND PROSPECTS OF USING ATOMIC ENERGY

Switzerland possesses no uranium ore, the only natural fissile material making possible a nuclear chain reaction, that is a reaction which, in given conditions, maintains itself. The lack of materials indispensable to the construction of a reactor or nuclear pile has not however prevented this country from devoting all its attention to the theoretical and experimental study of the fundamental problems raised by the industrial use of atomic energy.

Extensive research work has been undertaken by university institutes and Swiss industry. The Swiss Commission for Atomic Energy (C.S.A.), set up in 1946, immediately organised several teams of research workers who have done some very useful work under its expert guidance. Basic research remains the prerogative of the universities and institutions such as the Geneva Laboratory recently set up by the European Council for Nuclear Research. Industry, for its part, founded, in December, 1948, the Industrial Commission for Atomic Energy, an institution which will be called upon to take some important decisions.

Shortly after the end of the Second World War, the Swiss firm of Brown, Boveri and Co. gathered together a group of young physicists who took an active part in the work of the university institutes. Some years later, the physicists were joined by some engineers in order to work out a project for an atomic power plant. The preliminary work done so far has shown clearly that the machines of a thermal power station using nuclear fuel would not be very different from the usual steam or hot gas turbines.

This did not in any way lessen the interest shown in the problems of nuclear energy and a wish for closer collaboration led, in March, 1951, to an agreement between the Swiss firms of Brown, Boveri and Co., Sulzer Bros., and Escher Wyss.

The original team which had been joined by a theoretical physicist from the C.S.A. and a chemist from Ciba, manufacturers of chemical

products, has been increased in size. Working in close collaboration with C.S.A. it is undertaking preliminary studies for a power plant in which a nuclear reactor would take over the functions of a boiler. This may appear simple enough at first sight, but the difficulties to be overcome are such that there can be no question of reaching this final stage by rushing through a development which can only be long and costly.

A first decision on a matter of principle was taken by C.S.A. in July, 1952, when it was decided to build a reactor in Switzerland in order to make possible the experimental study of the elements of an industrial pile of high power. The problem of obtaining supplies of materials in which trade is not free will however be less difficult to solve than that of financing the project, for the minimum dimensions of the plant, determined by the laws of nuclear physics, will call for the investment of several tens of millions francs.

Experts abroad are unanimous in predicting the commercial application of nuclear energy by the end of the century, i.e., at a time when it might be more economical to produce nuclear fuel than to mechanise coal mining any further. By taking an active part in this development and the study of numerous technical and physical problems not yet solved, Switzerland is making sure that it will not be left behind in the production of all the many apparatuses that will be required by the new thermal power plants.

OUR FATHERLAND (Continuation)

Lucerne: The earliest record of Lucerne is as a tiny fishing village where, before the invasion by the Romans, a little church was built close to the spot where the Reuss flows out of the lake. From these small beginnings gradually emerged the medieval town, whose ancient walls with their towers and battlements still stand, as silent witnesses of the old times. Through storm and stress the citizens fought their way to make it an assured place in a more modern world.

Lucerne combines so many attractions in itself, its situation and its views, that volumes might be filled with its praises. The Ruess is spanned by a fine modern concrete bridge and by two old wooden covered bridges which are highly picturesque and curious. Inside these bridges, on the sides and the roofing, are well preserved paintings of local city history and biblical scenes, all executed in native style. Nearby is the old town hall with its unique collection of weapons and banners.

The Lion of Lucerne, erected in 1821 to the memory of twenty-six officers and 760 soldiers of the Swiss guard who fell to a man, defending Louis XV at the Tuileries on August 10th, 1792, is a monument 26 feet in length, chiselled in the face of the rocky cliff 60 feet in height. It repre-