

Germany, Italy, the Netherlands, Luxembourg, and Belgium.

Manitoba Research Center Planned

In another announcement, Atomic Energy of Canada reports that it will build a new nuclear energy research and development center in Manitoba. At present Canada's only major nuclear research center is the Chalk River establishment on the Ottawa River, about 150 miles west-northwest of Ottawa. However, the government-owned company has a Nuclear Power Plant Division in Toronto and a Commercial Products Division in Ottawa.

The management of Atomic Energy of Canada Limited feels that the Chalk River center cannot operate at maximum efficiency if it continues to expand. Among the major facilities at Chalk River are four research reactors, including the NRX and NRU reactors, particle accelerators, and chemical and metallurgical plants. The number of workers is approaching 2500, of whom some 400 are university graduates.

Chalk River Reactor School

A further development in Canadian atomic energy is the announcement that the first class in the newly established Chalk River Reactor School will begin 1 February 1960. Canadian and foreign engineers and scientists may apply for admission to the school, which will have a class of 20 students in each 12-week course.

The school was set up in response to the wide interest shown in the atomic power systems being developed in Canada. The course of studies places special emphasis on power reactors moderated with heavy water and fueled with natural uranium, such as the 20,000 kilowatt NPD (Nuclear Power Demonstration) station now under construction near Rolphton, Ontario, and the 200,000 kilowatt CANDU (Canadian Deuterium Uranium) station to be built north of Kincardine, Ontario.

The Chalk River Reactor School will not duplicate instruction being given by universities. Candidates for the school must have a university degree in physics, engineering physics, chemistry, metallurgy, or engineering. The school will give these graduates first-hand knowledge not only of power reactors but also of the advanced research and engineering test reactors.

Director of the Reactor School is D. A. Keys, scientific adviser to the

president of Atomic Energy of Canada Limited, and secretary is W. R. Livingston, head of the Office of Industrial Assistance. Lecturers are senior company executives and members of the staffs of the various AECL divisions in Toronto, Ottawa, and Chalk River.

Application forms may be obtained from Canadian embassies or consulates or from the Secretary, Chalk River Reactor School, Atomic Energy of Canada Limited, Chalk River, Ontario. Completed application forms for the first course must be received at the secretary's office not later than *15 November*.

U.S. and U.S.S.R. Exchange

Scientific Fishery Knowledge

Five American fishery scientists have returned home after an extensive inspection in August of Russian salmon fisheries, and five Russian fish experts have arrived in the United States to observe American salmon activities, the Department of the Interior reports. The trips were arranged for an exchange of scientific and practical fishery information.

The Russians are touring the Pacific Northwest and Alaska and will return to Washington about 21 October. Their itinerary includes inspection of salmon hatchery operations and the work of fish nutrition and fish disease laboratories. They will see the operations of privately owned can companies, canneries, and fish freezing and cold storage facilities.

The American mission to the Russian salmon areas had a double purpose—to give U.S. specialists an opportunity to learn of Russian fishery operations first hand, and to secure fish and fish blood samples of known Russian origin for a long-range international salmon study which has been in progress for about 3 years. Members of the American group report success in both aims, stressing that their hosts were especially cooperative.

The North Pacific salmon study is a three-nation project—Japan, Canada, and the United States are participating. One purpose of this study is to secure data upon which nations of Asia and North America may base salmon management plans. A specific problem is to determine the place and the extent of intermingling of the American and Asian races of salmon during the time the salmon are at sea. This in turn ne-

cessitates the development of a system of differentiating American from Asian fish. Research has indicated that probably the most reliable way to differentiate between the two races is by blood type.

At the Bureau of Commercial Fisheries Biological Laboratory at Seattle, Washington, considerable work has been done on this project on salmon and blood samples from Japan, Canada, and the United States salmon areas. No salmon unquestionably of Russian origin were available for study until this exchange visit, when the Russians, although their salmon fishing season in most areas was closed, let the American visitors take fish out of streams on the Kamchatka peninsula.

Research Grants

To Be Used by Defense Department

The use of grants for the support of basic research is now permitted in the Department of Defense. The department, acting after a long delay, last month issued a directive implementing a law passed last September which gave the department and a number of other federal agencies authority to use grants as well as contracts. Prior to passage of the law the research contract had been the only means of support for basic research that could be used by the department. Grants, unlike contracts, demand neither detailed plans nor detailed accounting.

The effect of the law, P.L. 85-934, was to liberalize the terms by which some federal agencies, previously limited to contracts, could provide grants for research. Several agencies—the National Science Foundation and the Department of Health, Education and Welfare, for example—already had such authorization and hence were not affected by the act. The principal agencies affected were the Department of Defense, the Atomic Energy Commission, the National Bureau of Standards, and the newly created National Aeronautics and Space Administration.

The Bureau of Standards and NASA have been making use of grants for some time as have some divisions of AEC. The new Department of Defense directive, which became effective 25 August, represents the initiation of the practice by the governmental agency which spends the greatest amount of money on scientific research.