

might wish to have assistance in re-evaluating the whole question of heavy water production in the U.A.R. It is suggested that the matter of such assistance be left to the judgment of the U.A.R. people.

Quite aside from the problem of producing heavy water, it is suggested that the Egyptian Atomic Energy Authority could use assistance from the Agency in training people in the analysis, handling, and general research technology of heavy water. Specifically, it is suggested that assistance could be given in placing one or more technical people at research institutions where this technology is available.

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Useful knowledge about various aspects of fission product behaviour in the biosphere has already been obtained, but many important questions remain unanswered.

Considering the large increase in the construction of reactors planned for the near future, which will lead to a corresponding increase in the amount of fission products to be handled, it is necessary to intensify the efforts in this direction. In May 1958 a research project on "the factors controlling the distribution of fission products in the biosphere" was started at the First Chemical Institute of the University of Vienna under a contract with the International Atomic Energy Agency. The First Chemical Institute is headed by Professor Hans Nowotny. The project is carried out within the Department of Radiochemistry headed by Professor Engelbert Broda.

The project will contribute to one of the objectives of the IAEA - the establishment of standards of safety for protection of health and minimization of danger to life and property. Various methods of investigation are already being applied or are in preparation as part of this research project. The distribution of some fission products, present throughout the biosphere from nuclear test explosions, is being determined to elucidate the factors governing this transport and enrichment. Further data on the uptake of fission products by certain organisms or mineral substances may later be ob-

### WASTE DISPOSAL EXPERTS MEET

Problems connected with the disposal into the sea of radioactive wastes from peaceful uses of atomic energy are being examined by a panel of experts, convened by the International Atomic Energy Agency. These experts from eight different countries held a first meeting at IAEA headquarters in Vienna from 4 - 9 December 1958, under the chairmanship of Dr. Harry Brynielsson, Director General of the Swedish Atomic Energy Company (seated at head of table). The countries represented are: Canada, Czechoslovakia, France, Japan, Netherlands, United Kingdom, and United States. The group will meet again in 1959.

tained by experiments on a laboratory scale or by release of small amounts of fission products into a certain ecological environment under controlled conditions.

Detection methods of high sensitivity are required for determining the fission products in the biosphere. At the First Chemical Institute in Vienna gamma-spectrometry has been employed since the beginning of the investigation and a low-level beta-counter will soon be completed. With a gamma-spectrometer (supplied by IAEA) samples from the biosphere, such as plant ashes or residues from the evaporation of river water are measured directly. Since gamma-rays of different energies are registered separately with this instrument, gamma-emitting radioisotopes are detected individually through the characteristic energies of their radiations.

The essential feature of a low-level beta-counter is that the background count due to cosmic rays and to the radioactivity of the surroundings is a low one. This is achieved by heavy shielding against radiation coming from the outside and by cosmic ray counters arranged around the beta-counting tube itself. With the help of these counters and a so-called "anti-coincidence" circuit, some counts in the beta-counter are automatically recognized as due to cosmic rays and are not registered. The low background value obtained in this manner permits the detection of very small activities in the material under investigation. The sensitivity of such a counter surpasses that of a gamma-spectrometer considerably. However, measurements are more difficult, since each radioelement to be determined must first be isolated by chemical techniques. Radiochemical separation methods suitable for the samples to be investigated by the research project are now being selected and checked.

In the project under way at the First Chemical Institute in Vienna particular attention is being paid to fission products with half-lives of several months. These have so far been investigated much less thoroughly than the long-lived isotopes caesium 137 and strontium 90. First results about the distribution of some of these fission products - zirconium, ruthenium and rare earths - in rivers and lakes and in vegetation have been obtained.

