Physical Measurements

The second part of our programme has to do with "physical measurements". Here, we are concerned with three functions:

-- assessment of radiation exposure of occupational groups;

-- assessment of radiation exposure of the whole population;

-- certain special projects.

The assessment of radiation exposure of occupational groups is carried out by several methods. For example, the Department conducts a central film monitoring service for isotope and X-ray workers. Dental-sized films are issued every two weeks and returned to us for processing and interpretation. Any over-exposure is immediately reported to the laboratory involved. This service is now offered to some 8,500 Canadians for whom individual punch-card exposure records are maintained.

As a follow-up, an extensive field inspection and survey programme provides information on the "housekeeping habits" of isotope workers. These surveys, in conjunction with the monitoring film records, will serve as the basis for further examination of particular individuals. To this end, we are actively planning the construction of a facility for measuring the amount of radiation in the human body.

To be known as a total body monitor, this facility will fit into our programme in this way: suppose a field survey indicates that a laboratory is badly contaminated and that there is a strong likelihood workers have ingested radioactivity. In that event, these workers can be brought to the monitoring unit and measurements made to determine whether or not the amount of radioactivity in their bodies is in excess of the permissible level recommended by the International Commission on Radiological Protection.

A variety of methods are also employed in assessing the radiation exposure of the whole population. For one thing, a study is being made of the radiation exposure to reproductive tissues arising from the medical use of X-rays. This is a joint undertaking between the Department and the National Research Council. Another project concerns the measurement of radioactive fallout. This, as I have said, dates back to 1954.

At that time, our appraisal of the situation led us to the conclusion that strontium-90 was one of the components of fallout most likely to be of concern from the health viewpoint.