

## EFFECTS OF ATOMIC RADIATION

*Excerpts from a statement by the Minister of National Health and Welfare, and Chairman of the Canadian Delegation to the tenth session of the United Nations, Mr. Paul Martin, made in the First Committee, November 1, 1955.*

The Canadian Delegation agrees with the proposal of the United States for the establishment of a special Technical Committee to co-ordinate information relating to the effects of ionizing radiation because it is conscious of the primacy that must be accorded to human values in the development and application of nuclear energy.

There is no need to re-state in this body all that has been said about the cataclysmic effect for our civilization of the release of nuclear energy. Like all such forces, it has incalculable possibilities of good and evil. It would be cowardly in the extreme to renounce the prospects of good because of the fear of evil. Nor could we now, even if we wanted to do so, exercise the new force we have liberated. We have no alternative but to behave like civilized human beings in the face of this magnificent and terrible challenge. To save ourselves we shall need discipline and intelligence of a high order. We must also be fearless in our pursuit of truth. This is too dangerous a matter to allow us the luxury of personal or national pride and prejudice. It is necessary that we work together on this subject.

The health problems associated with radiation have increasingly engaged the attention of officers of my own Department of National Health and Welfare and of a number of other government agencies since the development of our atomic energy programme. In addition to the protective measures taken by the authorities at our Atomic Energy project to ensure the health and safety of their own workers, extensive precautions are required to safeguard the health of persons working with radioactive isotopes in research laboratories and industry. Medical uses of radioactive isotopes are subject to review by physicians specially experienced in this field.

A broader problem is presented by the undoubted fact that in recent years there has been a slight, though appreciable, increase in radiation all over the world. The health implications, for our own and succeeding generations, of this increase the most sober and thorough consideration. Already significant studies are being pursued in a number of countries, with the result that a body of scientific literature in this field is rapidly developing. It must be acknowledged that some conflicting views have been expressed, but the consensus of the best scientific evidence available seems to be that no significant im-

mediate or long-range harmful effects of serious proportions will result from the increased radioactivity that has occurred.

Nevertheless, it would appear to me as a layman that there remain a number of unanswered questions, particularly in relation to possible genetic effects, which underline the need for the compilation and co-ordination of existing information by a body such as the proposed technical committee and which call for continuing research by competent scientists.

### A Study of Genetic Effects of Radiation

Experiments on certain rapidly-breeding lower forms of life, such as bacteria, plants, insects and small mammals, have established the fact that genetic changes can be produced by exposure to radiation. By analogy it is assumed that the same phenomenon will occur in humans, but it will take many generations to assess the magnitude of the problem.

I am told by my medical and technical advisers that, in determining genetic effects on man, there are two principal difficulties. First, most mutations will remain hidden until one individual receives the same mutated gene for both parents. Secondly, naturally occurring genes for recessive defects and abnormalities are already numerous in the population. Neither these naturally occurring mutant genes nor those that might be induced by radiation are likely to produce a significant effect in the children of the individuals carrying them unless the parents have received the same defect from a common ancestor.

The genetic problem is exceedingly complex; the important factors are not known and our scientists are attempting to carry on useful investigations in this field. A great deal of study has gone into this question, and a long range programme is now being developed for the collection and study of human data that will aid in the assessment of this problem.

I should like to call the Committee's attention to the terms of reference of the special body to be established. It is suggested, quite appropriately in our view, that the special committee will undertake what will in effect be a survey. This is the logical first step to enable governments to assess the situation in the light of the facts as they will have been established. The Governments will then have