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Chairman: Sir Leslie MUNRO (New Zealand).

## AGENDA ITEM 59

Effects of atomic radiation (A/2931, A/2949 and Add.1, A/INF/67, A/C.1/L.138, A/C.1/L.139, A/C.1/L.140) (*continued*):

- (a) Co-ordination of information relating to the effects of atomic radiation upon human health and safety;
- (b) Dissemination of information on the effects of atomic radiation and on the effects of experimental explosions of thermo-nuclear bombs

1. Sir Percy SPENDER (Australia) said that his Government attached great importance to proposals for assembling information on levels of radio-activity throughout the world and on the effects of radiation on man and his environment.

2. The problem had been the subject of constant study over the past ten years in the field of atomic and medical research. Nevertheless, there was still a measure of disagreement on some points, for example on the likely long-term effects of an increase in the amount of radio-active material in the atmosphere, in water, food, etc. It was therefore increasingly important that appropriate decisions should be taken at the political level. With the world on the threshold of a new era, it was essential to lay the foundations for the procedure to be adopted in the future. It was particularly important to ensure that new dangers were not created in the efforts to overcome others. The planning must be such as to allow of proper control. At the same time, the peoples of the world should have the assurance that the action to be taken would guarantee their safety.

3. Mankind had the choice between the use of the atom for his well-being and advancement, and the prospect of total destruction. The draft resolution (A/C.1/L.138), of which Australia was a co-sponsor, was a step in the right direction.

4. Radiation was not a new thing; man had been subjected to it since he had first inhabited the earth. Among the many sources of radiation there were the cosmic rays emanating from outer space. At sea level, those

rays were of less intensity than at higher altitudes. The amount of cosmic radiation that one individual might absorb at sea level over a period of thirty years amounted to about 1.5 roentgen units; at an altitude of a few thousand feet, it was 3 roentgen units. The second form of radiation to which man had always been exposed was the natural radiation from the soil and rocks. The radiation absorbed in a period of thirty years varied, depending on the particular area, from zero to about 3 roentgen units. The third type of natural radiation was that emanating from potassium. In a period of thirty years, the human body absorbed approximately 1 roentgen unit from that source. Miners working in potash mines, chiefly in the countries of eastern Europe, were exposed to a higher degree of radiation. Those various forms of natural radiation could not, at the present stage of scientific development, be measured or controlled. On the other hand, the forms of artificial radio-activity which man had introduced into his environment should be the subject of some control.

5. In the first place, there were the X-rays, discovered in 1897, and certain other radio-active substances which had been in fairly wide-spread use for medical diagnostic and therapeutic purposes since about 1920. It had been estimated that, in a country with highly developed health services, the amount of radiation absorbed in thirty years might amount to about 0.5 roentgen units. Obviously, even if there were no preventive legislation on the subject, health authorities made certain that individuals were not exposed to an excessive dosage of radiation. Moreover, the blessings those discoveries had vouchsafed to the human race had far outweighed the minor risks occasionally incurred.

6. There was, finally, the radiation derived from the operation of nuclear reactors and the use of atomic weapons. Only since 1944 had that source of radio-activity been added to the others. It would appear that the total radiation from that source had only slightly increased the total radiation to which human beings were exposed. Moreover, that type of radiation wasted away with time. Nevertheless it did reach human beings through the air they breathed, the food they ate and the dust surrounding them.

7. Thus far, there was apparently no cause for alarm. Yet it was hardly justifiable to accept that conclusion without discussion. In any event, it was the responsibility of the United Nations to institute programmes of research and measurement of radiation which would provide guidance for future decisions. The Australian Government felt that the time had come to launch a co-ordinated world movement of research to ascertain the facts, even if only to provide bases of measurement in future years. One hundred years might have to pass before the genetic effects of artificial radiation could be assessed. On that score, a world-wide programme to work out methods for measuring radiation could be of value to future generations.

8. A parallel programme could usefully be instituted under which doctors and geneticists could study radio-activity in those areas where there was a naturally high incidence of radiation, as, for example, in high altitude areas and in potassium mining centres. At the present stage, no avenue of study which might widen man's knowledge on a subject which was a key to his destiny could afford to be overlooked.

9. It was true that doctors and geneticists did not at present agree on the likely levels at which radiation might produce genetic effects; hence the need for a thorough study of the matter. The Australian Government, for its part, considered that it had a responsibility not only to its own people, but to the peoples of its island dependencies in the Pacific.

10. The Governments of the United Kingdom, the Netherlands, New Zealand, France, the United States and Australia, members of the South Pacific Commission, might well undertake a regional research programme, for example. A system of regional programmes, co-ordinated within the United Nations, might be the answer to the inability of some States to obtain the special measuring equipment required. The regional programmes would have to cover the whole world, including the islands of the Indian and Pacific Oceans and the north and south polar regions.

11. The Australian Government was in a position to publish, under proper arrangements, the results of measurements and observations made on the Antarctic continent. A comparison of those results with those of other nations in the north polar regions would provide interesting information to the scientists concerned with the distribution of the atomic clouds released by nuclear explosions.

12. Such international co-operation might also be profitably developed in the field of meteorology; it might perhaps be useful to consult the World Meteorological Organization on that subject.

13. The Australian Government considered that the radiation problem was a world problem, intimately bound up with the future of mankind. Immediate studies should be undertaken, in concert, on the present and future level of radiation in as many parts of the world as possible. Research should also be initiated forthwith on the effects of natural radiation in regions where it was of higher than normal incidence.

14. If those proposals were adopted, their results would doubtless prove that they had been born in wisdom and nurtured in international goodwill. They would demonstrate to the scientists that the General Assembly had understood their problems and had been willing to relieve them of the political burdens born of the great discoveries of the age.

15. Mr. NASZKOWSKI (Poland) observed that the problem of the effects of atomic radiation was closely linked with that of the peaceful uses of atomic energy, which could be facilitated by a knowledge of those effects.

16. The discovery of radio-activity and the study of its effects dated from the end of the nineteenth century. It was coupled with the names of eminent scientists such as Becquerel, Roentgen, de Broglie, and Pierre and Marie Curie. Owing to the liberation of atomic energy, the problem of radio-activity had acquired fresh importance for mankind, both as a factor of progress and as an instrument of destruction.

17. The biological and medical section of the International Conference on the Peaceful Uses of Atomic Energy had studied not only the problem of health protection against the harmful effects of radiation, but also that of the use of radio-active isotopes for diagnostic, therapeutic and other purposes. From communications submitted, *inter alia*, by representatives of the International Commission on Radiological Protection, the International Labour Organisation, and by representatives of the USSR, the United States and Japan, it was clear that a large number of problems were still unexplained and that international co-operation in that field was particularly important. Similar views had been expressed by Mr. Bhabha, the President of the Geneva Conference, in his statement before the First Committee (760th meeting).

18. Scientific research into the effects of atomic radiation, although worth-while, was not enough to ensure adequate protection for mankind, unless specific measures were taken in the field of international relations. Radiation produced in laboratories or industrial establishments could be easily controlled. On the other hand, explosions of nuclear and thermo-nuclear weapons produced heavy concentrations of radio-activity; it was impossible to foresee all the effects of radiation in such cases and some of those effects might be particularly harmful.

19. Explosions of nuclear and thermo-nuclear bombs had given rise to great anxiety in the world. The reaction of the Asian peoples had been particularly marked, because they had first-hand knowledge of the effects. The Asian-African Conference held at Bandung had expressed itself in favour of discontinuing the testing of weapons of mass destruction. Bertrand Russell and a group of scientists had launched a significant appeal in that connexion. Other scientists, including eighteen Nobel Prize winners, had on 15 July 1955 addressed an appeal to all Governments, asking them to take steps towards the total prohibition of war, in view of the terrible dangers which a war would involve for humanity at the present stage of scientific development. The debates in the United Kingdom, Italian and Indian Parliaments, the discussions in the Trusteeship Council and the resolutions of the World Peace Movement had shown that the anxiety to which the effects of radiation had given rise was general and affected all continents. The memoranda by India (A/2949/Add.1) and the United States (A/2931) which had supported their requests for the inclusion of the question in the agenda also bore witness to that anxiety.

20. It nevertheless appeared that some delegations, in particular the United States delegation, were seeking to reassure public opinion with regard to the dangers inherent in uncontrolled atomic radiation. The United States representative had asserted (773rd meeting) that controlled nuclear radiation did not constitute a serious threat to health. That assertion was correct to the extent that the protection of those taking part in test explosions had been ensured. It was doubtful, however, whether it was possible to speak of adequate protection with regard to individuals within a radius of several hundred miles of the site of the explosion, who were exposed to the rays for a long period. The fate of the Japanese fishing vessel *Fukuryu Maru* had provided a tragic lesson. In addition, the Bikini experiment had shown the existence of danger from radio-activity at a distance of 250 kilometres from the point of thermo-nuclear explosion, a danger which was liable to continue

for several months. Radio-active dust and radio-active rains caused by the explosions were harmful to plants, animals and men.

21. The Hiroshima and Nagasaki explosions had also proved that it was impossible to foresee the effects of uncontrolled radiation. It was known that fatal radio-active effects due to neutrons reached a radius of one kilometre and those due to gamma rays, two kilometres; but the full effects of the two explosions were still not known. For instance, it was impossible to predict all the potential consequences of radiation on the descendants of those survivors who had been submitted to unknown doses of radiation.

22. The Polish delegation considered that efforts should be made not only to assess the levels of radiation throughout the world, as some delegations had proposed, but also to examine the other aspects of the problem. In particular, it should be borne in mind that the principal danger at present arose from explosions caused by the testing of nuclear and thermo-nuclear weapons. The Committee's task would not be completed until agreement was reached on the absolute and controlled prohibition of the production, possession and use of nuclear and thermo-nuclear weapons. As the representative of the USSR had said (775th meeting) the first stage might be an agreement to discontinue the testing of such weapons, without prejudice, however, to an immediate and simultaneous endeavour to reach agreement on exchanges of information concerning the effects of radiation. That was an indispensable form of co-operation, in which Poland was ready to play an active part.

23. Research carried out in Poland on the maximum level of X-rays and gamma rays the human body could tolerate had shown that it should not exceed 0.01 roentgen units per day. That was a lower level than was generally admitted. X-rays were used in Poland in industry, for example to reveal internal defects in metal casts and welds. In medicine, research had been conducted on the effects of ionizing radiation on the human body and on the use of radio-active isotopes in diagnosis and medical therapeutics.

24. International co-operation in the study of the effects of radiation should also include exchanges of information on prophylactic methods and therapeutic treatment in the case of lesions due to atomic radiation. Another matter to be dealt with was the establishment of uniform standards with respect to the means of protection. Exchanges of information on the effects of radiation could not be regarded as an isolated problem outside the problem of atomic energy as a whole. Work on the peaceful uses of atomic energy could not be held up because there was a danger of radiation. On the contrary, research into methods of protection against such radiation should be speeded up, so that the possibilities of using atomic energy for peaceful purposes could be still further extended. The exchanges of information which had started at the Geneva Conference should be organized under definite rules.

25. The Polish delegation supported the United States proposal for the establishment of a committee to study the effects of radiation. The committee's field of activity should be extended to include in the exchange of information research into methods of protection and therapeutic treatment of the harmful effects of radiation. The committee should be established within the United Nations and its membership should be more in accord-

ance with the principles of proportional geographical representation than that proposed in the joint draft resolution (A/C.1/L.138). All States without exception should be able to co-operate with the committee. That was the aim of the USSR amendments (A/C.1/L.140), which the Polish delegation supported. The Indian amendments (A/C.1/L.139), too, were designed to remove discriminatory restrictions concerning the co-operation of certain States with the committee.

26. The Polish delegation considered that the committee's terms of reference and field of activity should be well defined at the outset, in the light of the general aims which should serve as a guide in the matter. Thus a new chapter could be opened in the history of international co-operation for the greater good of States and peoples.

27. Mr. MENON (India) observed that his delegation's amendments (A/C.1/L.139) to the joint draft resolution (A/C.1/L.138) concerned the committee which was to be established. In the first place, as far as the nature of the special technical committee was concerned, the original suggestion of the United States had been more acceptable. The words "scientific committee" had been used for the first time at the 775th meeting by the representative of the United Kingdom. There should not, of course, be any argument about the appointment of scientists to the committee, but it was quite clear from the Australian representative's speech for example, that the committee to be established was not to be a scientific committee, with all the connotations which those words implied.

28. With regard to another of his amendments, suggesting that the words "one scientist" should be replaced by the words "scientists", he pointed out that the representative of Canada had envisaged the appointment of alternates and consultants. The composition of the committee was a matter of concern not only to the countries which had the equipment, but to the entire world; the committee's membership should therefore be wider than had been suggested.

29. In the matter of the functioning of the committee, the part to be played by the Secretary-General of the United Nations should be the same as in the case of the Advisory Committee established by General Assembly resolution 810 B (IX). In other words, instead of the Secretary-General's part being confined to the provision of material equipment for the new committee, the committee should work in concert with the principal organ of the United Nations, its Secretary-General.

30. The Indian delegation would also like the basis of the work on atomic radiation to be somewhat widened; it therefore proposed that the words "States Members of the United Nations" and "members of the specialized agencies" should be deleted wherever they occurred. It was immaterial whether the documentary material was supplied by States properly so-called: it could be supplied by "territories" or "countries", whatever they were, without discrimination.

31. The addition of the words "in co-operation with the Secretary-General" in paragraph 2 of the operative part would enable the Secretary-General to issue the information the committee collected, rather than leaving it to the committee to do so.

32. Moreover, there seemed to be no reason why special treatment should be accorded to the Japanese Government.

33. Furthermore, in order that the committee should not have to wait indefinitely to be convened, the Secretary-General should be empowered to convene it.

34. Lastly, the proceedings of the General Assembly would have to be transmitted to the special technical committee.

35. With reference to the Soviet Union representative's observations (775th meeting), there was no denying that the question of protection against atomic radiation could not be disregarded.

36. Since as the United Kingdom and the United States representatives had pointed out, different coun-

tries employed different methods, the committee's procedure should have all the necessary flexibility.

37. He concluded by expressing the hope that his amendments would be adopted, so that a unanimous decision could be reached on a question upon which the Indian delegation had no wish to present a separate proposal. It was solely for the convenience of members of the Committee that it was circulating a text showing how the joint draft resolution (A/C.1/L.138) would read if the Indian amendments were accepted.

The meeting rose at 4.10 p.m.