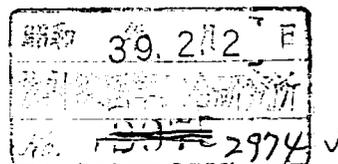


**REPORT OF THE
UNITED NATIONS
SCIENTIFIC COMMITTEE
ON THE
EFFECTS OF ATOMIC RADIATION**

GENERAL ASSEMBLY
OFFICIAL RECORDS : SEVENTEENTH SESSION
SUPPLEMENT No. 16 (A/5216)



UNITED NATIONS
New York, 1962

NOTE

Throughout the present report and the annexes thereto, references to the annexes are indicated by a letter followed by a number : the letter denotes the relevant annex and the number the paragraph therein. Within each annex, references to its scientific bibliography are indicated by numbers.

Symbols of United Nations documents are composed of capital letters combined with figures. Mention of such a symbol indicates a reference to a United Nations document.

ANNEX K

LETTER SENT AT THE REQUEST OF THE COMMITTEE BY ITS SECRETARY TO STATES MEMBERS OF THE UNITED NATIONS AND MEMBERS OF THE SPECIALIZED AGENCIES AND OF THE IAEA ON 7 APRIL 1960

Sir,

I have the honour to inform you that the Scientific Committee on the Effects of Atomic Radiation has now completed its seventh session. The Committee has received during the course of its past work, and is continuing to receive, substantial data from Governments and United Nations agencies, and assistance continues to be rendered to the Committee by them, by international non-governmental and national scientific organizations and by individual scientists. The Committee is greatly indebted to all of these and welcomes all information relevant to its work on the effects of atomic radiation on man and his environment. It wishes to ensure continuation of the flow of such material so that nothing significant in the knowledge available in the world as a whole should by any mischance escape its notice.

A primary objective of the Committee is to assess the effects of radiation on the world population. In any attempt at this assessment it is necessary to know the world-wide levels in food products and in the human body of radio-active debris from the testing of nuclear devices. Data obtained now is of particular value in assessment of the present and prediction of the future situation, because of the period that has elapsed since the latest high yield nuclear tests.

In pursuit of this aim the Committee on 3 July 1959 addressed an invitation to States Members of the United Nations and members of the specialized agencies and of the International Atomic Energy Agency to send any further data of the type already contained in its comprehensive report, so as to enable this report to be kept up to date or extended. This invitation outlined the principal categories of information sought by the Committee, including those of immediate significance to its programme. The Committee was subsequently requested by resolution 1376 (XIV), adopted by the General Assembly on 17 November 1959, to consider and study, in consultation with certain agencies of the United Nations and other interested organizations, appropriate arrangements for the purpose of stimulating the flow of such information and data, and for encouraging genetic, biological and other studies.

In the course of its studies of appropriate arrangements for stimulating the flow of relevant information and data, the Committee noted that at the present time there is a substantial part of the globe regarding which there is little information concerning levels of radio-active contamination in soils, water, food products and the human body. The Committee would like to obtain data for these areas and would suggest that countries in them initiate sampling programmes, especially on the following topics:

(a) Levels of Sr^{90} in human bones classified by age groups: for example—still-born, 0-1, 1-2, 2-3, 3-5, 6-10, 11-20 years;

(b) Levels of Sr^{90} and Cs^{137} in diet: this involves measurement of the mean levels in the principal contributing food products and in the total diet. Corresponding data on natural radio-activities would also be desirable;

(c) Data "linking" rainfall and deposition of Sr^{90} .

The Committee also noted that Member States in need of assistance in the field of sampling and analysis are able to obtain it from a number of other Member States or from interested agencies of the United Nations that have offered such assistance: these offers are listed in annex 1 to the present letter. The Committee recognized that it is desirable for close co-operation between the Committee, Member States and participating agencies of the United Nations to be maintained in consideration of these arrangements and collation of scientific information obtained. The Committee would appreciate receiving in all cases full information on the manner in which data was obtained; and it emphasized that collections should be made by methods which ensure that data is precise and representative.

The Committee invites all those who can do so to submit by 31 July 1960 data on Sr^{90} and Cs^{137} levels up to December 1959.

The Committee was also requested by General Assembly resolution 1376 (XIV) to consider and study appropriate arrangements for encouraging genetic, biological and other studies that will elucidate the effects of radiation exposure on the health of human populations. The Committee recognized that any fundamental advances in knowledge of biological mechanisms will be relevant to the understanding of the genetic and somatic effects of ionizing radiation on living tissue. Fundamental advances can be best facilitated by bringing together scientists of experience and distinction and making them aware of each others' needs for information and data; progress also requires the provision of necessary equipment to enable ideas to be tested. Whilst new and significant advances in basic science can never be guaranteed, it is possible nevertheless for scientific institutes and individual scientists to develop and expand information in fields where knowledge is lacking. Sometimes this lack comes about not through a deficiency of method to elicit information but through paucity of data provided by a single individual or unit. In its own area, the Committee is especially conscious that although means have been developed for measuring:

(i) The mutation-rate, natural and radiation-induced, at specific loci in mammals such as the mouse:

(ii) The radio-biological effects of radio-active elements such as Sr^{90} in mammals;

(iii) The induction of specific new growths such as lymphoma by gamma-rays at defined dose-rates, the accumulation of data in these and related areas adequate for statistical appraisal is extremely time-consuming.

ing and expensive. Thus close collaboration between laboratories all working within a defined and agreed framework is eminently desirable.

The Committee feels that Governments might well wish at this time to re-examine the ways and means whereby its requests for relevant information can best be channelled, in their respective countries, to the appropriate national scientific organizations and committees, as well as to individual scientists. It would welcome information from Governments concerning the names of individual scientists or members of panels to whom its requests are referred: such information would enable it to communicate requests with the specificity and detail appropriate to the scientists concerned, through the usual Governmental channels.

Conscious of the need to establish and maintain such contact with scientists and scientific bodies, the Committee decided to request Governments to bring to their notice a statement which it prepared at its seventh session. This could be done either by direct distribution, by diffusion in scientific journals or by any other appropriate means. This statement is attached to the present letter as annex 2.

May I, in connexion with the Committee's requests for information, draw your attention to the fact that 150 copies of each report are required for distribution and circulation to the Committee, as distinct from deposition in the Committee's library. The reports should be addressed to the Secretary of the Scientific Committee on the Effects of Atomic Radiation, United Nations, New York.

ANNEX 1

[The list originally given in the present annex has been superseded by the one contained in annex 1 to the report.]

ANNEX 2

Statement addressed to scientists in the radiation field by the United Nations Scientific Committee on the Effects of Atomic Radiation

The United Nations Scientific Committee on the Effects of Atomic Radiation* is indebted to the many scientists throughout the world whose work contributed directly or indirectly to the Committee's first report published in 1958. It recognizes that much research pertinent to its area of concern is being carried on now, and that almost any aspect of biology contributes to knowledge of radiation effects in man. The Committee wishes

* The General Assembly, at its tenth session, established by resolution 913 (X) the United Nations Scientific Committee on the Effects of Atomic Radiation consisting of the following members: Argentina, Australia, Belgium, Brazil, Canada, Czechoslovakia, Egypt (now part of the United Arab Republic), France, India, Japan, Mexico, Sweden, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, United States of America.

to obtain reports of all work in relevant fields, and is anxious that no results of relevant research carried out in laboratories of Member States escape its attention, whether or not those States are at present represented on the Committee.

The Committee is neither carrying on its own research, nor directly sponsoring research, but rather depends on the work of other scientists which it studies and collates for the guidance of the United Nations and the information of all scientists.

In July 1959 the Committee invited Member States to send it data on a wide variety of physical and biological topics. Among these were the following:

1. Physical data relevant to radiation levels and accumulated doses from both natural and man-made sources:
Medical, industrial and research uses of ionizing radiations and radio-active materials;
Radio-active fall-out:
Measured contamination of air, ground, foodstuffs and man by strontium-90 and caesium-137;
Computation of external doses from fall-out deposit, including short-lived isotopes;
Significant disposals of radio-active wastes;
Other significant sources of ionizing radiations;
2. Methods of measurements and radiological standards;
3. Fundamental radiation biology;
4. Somatic effects of ionizing radiation;
5. Genetic effects of ionizing radiation.

At its last meeting the Committee reviewed the present state of knowledge in its area of concern and discussed certain specific areas where additional information would be particularly welcome at the present stage of its work. In view of the need for this information the Committee brings to the notice of scientists those areas where an intensification of scientific effort would seem to be most helpful.

In the biological field the Committee noted the need for more extensive statistical data concerning:

- (i) The mutation-rate, natural and radiation-induced, at specific loci in mammals such as the mouse;
- (ii) The radio-biological effects of radio-active elements such as Sr⁹⁰ in mammals;
- (iii) The induction of specific new growths such as lymphoma by gamma-rays at defined dose-rates.

In the physical field the Committee would like to obtain data on the following topics, especially for those parts of the globe for which there is little information available at present:

- (a) Levels of Sr⁹⁰ in human bones classified by age groups: for example—still-born, 0-1, 1-2, 2-3, 3-5, 6-10, 11-20 years;
- (b) Levels of Sr⁹⁰ and Cs¹³⁷ in diet: this involves measurement of the mean levels in the principal contributing food products and in the total diet. Corresponding data on natural radio-activities would also be desirable;
- (c) Data "linking" rainfall and deposition of Sr⁹⁰.

However, all data pertinent to evaluation of effects of radiation, particularly in the low dose and dose-rate range, remain of interest to this Committee and would be appreciated because of the assistance that would thereby be rendered to it in its work.

The Committee receives reports through Governments which have been invited to forward them to the Secretary of the Committee.

APPENDIX I

LIST OF SCIENTIFIC EXPERTS, MEMBERS OF
NATIONAL DELEGATIONS

The scientific experts who took part in the preparation of the present report while attending Committee sessions as members of national delegations are listed below :

<p>ARGENTINA</p> <p>Dr. D. Beninson (<i>Representative</i>) Dr. J. Flegenheimer Dr. A. Placer</p> <p>AUSTRALIA</p> <p>Mr. D. J. Stevens (<i>Representative</i>) Professor A. M. Clark</p> <p>BELGIUM</p> <p>Professor J. A. Cohen (<i>Representative</i>) Professor M. Errera Professor F. H. Sobels Dr. J. Blok Mr. J. F. Bleichrodt Miss Z. M. Beekman</p> <p>BRAZIL</p> <p>Professor C. Pavan (<i>Representative</i>) Professor C. Chagas (<i>Representative</i>) Dr. L. R. Caldas Dr. O. Frota-Pessôa Dr. N. Libanio Dr. A. Paes Carvalho Dr. E. Penna Franca Father F. X. Roser, S.J.</p> <p>CANADA</p> <p>Dr. E. A. Watkinson (<i>Representative</i>) Dr. F. D. Sowby Dr. W. E. Grummitt Dr. H. B. Newcombe Dr. P. M. Bird Dr. G. H. Josie Dr. B. B. Migicovsky Mr. H. Cameron</p> <p>CZECHOSLOVAKIA</p> <p>Professor Dr. F. Herčík (<i>Representative</i>) Professor Dr. F. Běhounek Dr. M. Hašek Dr. L. Novák Dr. M. Vojtišková</p> <p>FRANCE</p> <p>Professor L. Bugnard (<i>Representative</i>) Dr. H. Jammet Mr. J. Labeyrie</p>	<p>Mr. G. Lambert Dr. G. Lejeune Mr. L. Facy</p> <p>INDIA</p> <p>Dr. A. R. Gopal-Ayengar (<i>Representative</i>) Dr. V. R. Khanolkar (<i>Representative</i>) Mr. A. S. Rao (<i>Representative</i>) Mr. P. N. Krishnamoorthy Dr. K. G. Vohra</p> <p>JAPAN</p> <p>Dr. K. Tsukamoto (<i>Representative</i>) Dr. M. Tsuzuki (<i>Representative</i>) Dr. E. Tajima Dr. Y. Hiyama Dr. Y. Miyake Dr. M. Kimura Dr. R. Ichikawa Dr. Y. Tajima</p> <p>MEXICO</p> <p>Dr. M. Martínez-Báez (<i>Representative</i>) Dr. F. Alba Andrade Dr. A. Moreno y Moreno Dr. H. Zalce</p> <p>SWEDEN</p> <p>Professor T. O. Caspersson (<i>Representative</i>) Dr. A. Nelson (<i>Representative</i>) Professor R. M. Sievert (<i>Representative</i>) Dr. B. Lindell Dr. B. Aler Dr. L. Frederiksson Professor K. G. Lünig Dr. K. Edvarson</p> <p>UNION OF SOVIET SOCIALIST REPUBLICS</p> <p>Professor V. A. Engelhardt (<i>Representative</i>) Professor N. A. Kraevsky (<i>Representative</i>) Professor A. M. Kuzin (<i>Representative</i>)</p>	<p>Professor V. Klechkovsky Professor O. Leipunskii Dr. K. K. Aglintsev Dr. A. A. Prokofyeva-Belgovskaya Dr. Y. M. Shtukkenberg Dr. M. A. Arsenieva Dr. V. I. Terentiev Dr. V. T. Kozlov Mr. G. I. Apollonov</p> <p>UNITED ARAB REPUBLIC</p> <p>Dr. M. E. A. El Kharadly (<i>Representative</i>) Dr. K. A. Mahmoud Dr. M. M. Mahfouz</p> <p>UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND</p> <p>Dr. E. E. Pochin (<i>Representative</i>) Dr. W. G. Marley Dr. A. C. Stevenson Professor L. F. Lamerton Dr. R. S. Russell Dr. J. F. Loutit Mr. P. J. Meade</p> <p>UNITED STATES OF AMERICA</p> <p>Dr. S. Warren (<i>Representative</i>) Dr. G. W. Beadle Dr. V. Bowen Dr. A. M. Brues Dr. C. L. Comar Dr. C. L. Dunham Mr. M. Eisenbud Dr. G. Failla Dr. J. H. Harley Mr. S. Hendricks Dr. A. H. Holland, Jr. Mr. H. Hollister Dr. L. B. Lockhart Dr. L. Machta Dr. E. A. Martell Dr. W. L. Russell Dr. A. C. Upton Dr. M. R. Zelle Dr. P. Tompkins Dr. J. Totter</p>
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APPENDIX II

**LIST OF SCIENTIFIC EXPERTS WHO HAVE CO-OPERATED WITH
THE COMMITTEE IN THE PREPARATION OF THE REPORT**

Dr. R. K. Appleyard
Dr. R. G. Björnerstedt
Dr. R. E. Ellis
Dr. G. J. Fergusson
Dr. V. Glisin
Dr. L. D. Hamilton

Dr. A. P. James
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