



Twelfth session

SECOND YEARLY PROGRESS REPORT OF THE SCIENTIFIC COMMITTEE ON
THE EFFECTS OF ATOMIC RADIATION TO THE GENERAL ASSEMBLY

1. The Scientific Committee on the Effects of Atomic Radiation was established by resolution 913 (X) at the tenth regular session of the General Assembly. It has the following members: Argentina, Australia, Belgium, Brazil, Canada, Czechoslovakia, Egypt, France, India, Japan, Mexico, Sweden, Union of Soviet Socialist Republics, United Kingdom of Great Britain and Northern Ireland, United States of America.
2. The Committee held its first two sessions at Headquarters between 14 and 23 March and 22 October and 2 November 1956, respectively. The description of the scope of the work at these two sessions was submitted in the First Yearly Progress Report of the Committee to the eleventh session of the General Assembly (A/3365).
3. The Committee held its third session at the United Nations European Office in Geneva between 8 and 18 April 1957. It elected Professor Zénon Bacq of Belgium as its Chairman and Dr. E.A. Watkinson of Canada as its Vice-Chairman.
4. At this session, the Committee mainly gave preliminary consideration to the following two aspects of its work:
 1. Report of the Committee to the General Assembly due 1 July 1958;
 2. Genetic aspects of irradiation.
5. The Committee's discussions and recommendations concerning the above subjects are embodied in the documents listed in annex II to the present report.
6. Two working groups of the Committee have given detailed consideration to the genetic aspects of irradiation and to the physical data pertaining to radio-active fall-out.

7. During its third session, the Committee considered at length the form and contents of its report to the General Assembly in 1958, the first draft of which will be discussed at its fourth session early in 1958.
8. The Committee reaffirmed the need for cross-checking of measurements of strontium-90 between laboratories for comparison of data. It therefore requested the Secretariat to invite States Members of the United Nations or members of the specialized agencies to participate in a standardization programme to this effect.
9. In further response to the original request of the Committee for submission of certain classes of information, twenty-seven Governments and two specialized agencies submitted eighty-nine reports to the Committee in time for consideration at its third session. These reports are listed by country and title in annex I to the present report.
10. The Committee, in appropriate fields of its work, is co-operating closely with the Food and Agriculture Organization, the World Health Organization, the United Nations Educational, Scientific and Cultural Organization, the World Meteorological Organization, the International Commission on Radiological Protection and with the International Commission on Radiological Units and Measurements.

ANNEX I

REPORTS RECEIVED FROM GOVERNMENTS AND SPECIALIZED AGENCIES IN TIME FOR
CONSIDERATION AT THE THIRD SESSION OF THE COMMITTEE 1/

<u>Country</u>	<u>Title</u>
UNITED STATES OF AMERICA	The biological effects of atomic radiation
UNITED KINGDOM	The hazards to man of nuclear and allied radiations
BELGIUM	Preliminary report on modern methods for the evaluation of the biological effects of small doses of external radiation or absorbed radio-active materials
JAPAN	Report consisting of eight parts, as follows: <u>Part 1</u> - Researches on the effects of the H-bomb explosion at Bikini Atoll 1954 on animal industry and sericulture in Japan <u>Part 2</u> - The radio-active contamination of agricultural crops in Japan <u>Part 3</u> - A preliminary report of recommendations on the modern methods of estimating the biological activity of small radiation dose <u>Part 4</u> - The airborne radio-activity in Japan <u>Part 5</u> - Report on the systematic observations of the atmospheric radio-activity in Japan <u>Part 6</u> - On the distribution of naturally radio-active nuclides in Japanese Islands <u>Part 7</u> - Radio-chemical analysis of radio-active fall-out observed in Japan <u>Part 8</u> - Fission products in water area and aquatic organisms
MEXICO	First report on the studies of radio-active fall-out

1/ Reports are listed in the chronological order of receipt by the United Nations.

<u>Country</u>	<u>Title</u>
UNION OF SOUTH AFRICA	Preliminary report on radio-active fall-out
UNITED STATES OF AMERICA	Radio-active fall-out through September 1955
CHINA	Reports by the Atomic Energy Council of the Executive Yuan of the Republic of China
CANADA	Report on waste disposal system at the Chalk River Plant of Atomic Energy of Canada Limited
CANADA	The Canadian programme for the investigation of the genetic effects of ionizing radiation
UNITED STATES OF AMERICA	Pathologic effects of atomic radiation
CANADA	Levels of strontium-90 in Canada
NEW ZEALAND	Information submitted by New Zealand
NORWAY	Report consisting of three parts, as follows: <u>Part 1</u> - Radio-active fall-out measurements in Norway <u>Part 2</u> - Methods of estimating the biological activity of small doses of radiation <u>Part 3</u> - Disposal of radio-active wastes at the Norwegian Radium Hospital and Norsk Hydro's Institute of Cancer Research
SWEDEN	Report consisting of fifteen parts, as follows: A. Radiation doses to human gonads: <u>Part 1</u> - Levels of ionizing radiations originating from natural and artificial sources, with special reference to irradiation of the human gonads B. Natural radiations: <u>Part 2</u> - Variations in natural gamma radiation in Sweden <u>Part 3</u> - Calculation of the ionization due to radio-active substances in the ground <u>Part 4</u> - Studies on naturally occurring ionizing radiations

<u>Country</u>	<u>Title</u>
SWEDEN (cont'd)	<u>Part 5</u> - Weekly doses from some natural radio-active sources
	C. Whole body radiation:
	<u>Part 6</u> - Measurements of gamma radiation from the human body
	<u>Part 7</u> - Measurements of low-level radio-activity particularly the gamma radiation from living subjects
	<u>Part 8</u> - Measurements of gamma-rays of the human body
	D. Environmental contamination:
	<u>Part 9</u> - Radio-active fall-out from atomic weapon tests
	<u>Part 10</u> - Products of simultaneous fission
	<u>Part 11</u> - Energy distribution of the gamma-dose from mixed-fission-products from Pu ²³⁹
	<u>Part 12</u> - Records of gamma radiation from the ground and beta radiation from radio-active debris in Sweden
	<u>Part 13</u> - Increase in gamma radiation from powdered milk and beef 1953-1956
	E. Occupational exposure and dose-metres:
	<u>Part 14</u> - Measurements on radiation protection required in the walls of Roentgen diagnostic rooms
	<u>Part 15</u> - A versatile instrument for the measurement in r units of radiation doses received by individuals and populations
RANCE	Report consisting of twelve parts, as follows:
	<u>Part I.1</u> - Methods of measuring the radio-activity produced by nuclear explosions and nuclear industry

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<u>Country</u>	<u>Title</u>
FRANCE (cont'd)	<p><u>Part I.2</u> - Method of monitoring for natural or artificial radio-activity in human beings</p> <p><u>Part I.3</u> - Measurement of radon</p> <p><u>Part II.1A</u> - Report on the distribution of the natural radio-activity of rocks</p> <p><u>Part II.1B</u> - Work of the Nancy Radiogeological Laboratory in the study of soil and water radio-activity</p> <p><u>Part II.2</u> - Radio-activity of the waters of French mineral springs</p> <p><u>Part III.1</u> - Genetic effects of radiation</p> <p><u>Part III.3A</u> - Summary of the principal measurements of the radio-activity of air, water and soil</p> <p><u>Part III.3B</u> - Study of the radio-activity of the air</p> <p><u>Part III.4</u> - Study of occupational radiation exposure in France in 1955</p> <p><u>Part III.1B</u> - Addendum: Study of the offsprings of patients treated by pelvic radio-therapy</p> <p>Biological methods used for detection of effects of small doses of ionizing radiation</p>
CZECHOSLOVAKIA	Natural radio-activity of water, air and soil in the Czechoslovak Republic (Review of studies)
KOREA	Report concerning the request for information on natural radiation background
AUSTRIA	Information prepared by the Austrian Government relating to the effects of atomic radiation
UNITED KINGDOM	The radiological dose to persons in the United Kingdom due to debris from nuclear test explosions prior to January 1956

<u>Country</u>	<u>Title</u>
UNITED STATES OF AMERICA	Project Sunshine Bulletin No. 12 (University of Chicago, The Enrico Fermi Institute for Nuclear Studies)
UNITED STATES OF AMERICA	Summary of analytical results from the Hesi1 strontium programme to June 1956
ARGENTINA	Preliminary report on possible methods of estimating the biological effects of small doses of radiation
UNITED STATES OF AMERICA	The effect of exposure to the atomic bombs of pregnancy termination in Hiroshima and Nagasaki
HUNGARY	Unusual radio-activity observed in the atmospherical precipitation in Debrecen between 22 April - 31 December 1952
BELGIUM	Report consisting of five parts, as follows: <u>Part 1</u> - Clinical effects of radiations <u>Part 2</u> - Report on studies of atomic radiation effects, made at the "Laboratoire de physique nucleaire de l'Université de Liège" <u>Part 3</u> - Resistance and protection of living organisms against radiations <u>Part 4</u> - Measurement of radio-activity in rain and surface waters <u>Part 5</u> - Measurement of radio-activity in atmospheric dust
SWITZERLAND	Letter from the "Service fédéral de l'hygiène publique", Bern
ARGENTINA	Information summary on the preliminary work carried out in Argentina for the measurement and study of radio-active fall-out
AUSTRALIA	Report consisting of six parts, as follows: <u>Part I</u> - Human genetics <u>Part II</u> - Plant genetics

<u>Country</u>	<u>Title</u>
AUSTRALIA (cont'd)	<u>Part III</u> - Radio-biological unit in the University of Adelaide
	<u>Part IV</u> - Natural radiation background and environmental contamination
	<u>Part V</u> - Occupational exposure in Australia
	<u>Part VI</u> - Health and safety precautions in uranium mining and milling in Australia
UNITED KINGDOM	Radio-strontium fall-out in biological materials in Britain
GERMANY, FEDERAL REPUBLIC OF	Report consisting of two parts, as follows: <u>Part 1</u> - Findings and conditions of organizations in the field of atomic radiation <u>Part 2</u> - Long-term research tasks in the fields of biology and medicine
INDIA	Procedure used in India for collection of fall-out samples and some data on fall-out recorded in 1956.
INDIA	External radiation dose received by the inhabitants of monozite areas of Travancore-Cochin, India
BRAZIL	On the intensity levels of natural radio-activity in certain selected areas of Brazil
WORLD METEOROLOGICAL ORGANIZATION	Summary of comments of WMO on procedures for collection and analysis of atmospheric radio-activity data
BRAZIL	Measurements of long-range fall-out in Rio de Janeiro
UNION OF SOVIET SOCIALIST REPUBLICS	On the methods of finding changes arising in the organism under the influence of small doses of ionizing radiation
BRAZIL	Absorption curve of fall-out products

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<u>Country</u>	<u>Title</u>
UNION OF SOVIET SOCIALIST REPUBLICS	Content of natural radio-active substances in the atmosphere and in water in the territory of USSR
UNION OF SOVIET SOCIALIST REPUBLICS	Study of the atmospheric content of Strontium-90 and other long-lived fission products
UNION OF SOVIET SOCIALIST REPUBLICS	On the behaviour of radio-active fission products in soils, their absorption by plants and their accumulation in crops
MEXICO	First studies on radio-active fall-out
JAPAN	The effect of momentary X-ray exposure in a small dose upon the peripheral blood picture
JAPAN	Hematological effects of single exposure to small doses of X-rays
JAPAN	Morphological changes of platelets in chronic radiation injuries
EGYPT	Preliminary report on environmental iodine-131 measurement in sheep and cattle thyroids, in Cairo
UNION OF SOVIET SOCIALIST REPUBLICS	Preliminary data on the effects of atomic bomb explosions on the concentration of artificial radio-activity in the lower levels of the atmosphere and in the soil
UNION OF SOVIET SOCIALIST REPUBLICS	A programme of scientific research into the effects of ionizing radiations on the health of the population and future generations
UNION OF SOVIET SOCIALIST REPUBLICS	Summaries of reports presented at the Conference on the long-term effects of ionizing radiation
UNION OF SOVIET SOCIALIST REPUBLICS	Paper dealing with the question of the exchange of cesium, strontium and a mixture of beta emitters in cows
UNITED KINGDOM	The genetically significant radiation dose from the diagnostic use of X-rays in England and Wales

<u>Country</u>	<u>Title</u>
ROMANIA	Organization and results in radio-biological research work in the Romanian People's Republic
UKRAINIAN SOVIET SOCIALIST REPUBLICS	The effects of ionizing radiations on the electrical activity of the brain. - On the beta-radiation activity of human blood
UNITED STATES OF AMERICA	Some effects of ionizing radiation on human beings
UNITED STATES OF AMERICA	Background radiation - A literature search
UNITED STATES OF AMERICA	Operation Troll
UNITED STATES OF AMERICA	Gonadal dose in Roentgen examinations - A literature search
WORLD HEALTH ORGANIZATION	Effect of radiation on human heredity - Report of a study group
NETHERLANDS	Radio-active fall-out measurements in the Netherlands
UNITED KINGDOM	Genetic research in the United Kingdom. Suggestions for research in radiation genetics.
JAPAN	Current and proposed programmes of research and investigation related to radiation genetics in Japan
JAPAN	Radio-chemical analysis of Sr ⁹⁰ and Cs ¹³⁷
JAPAN	Review of the recent researches on the biological effects of ionizing radiation in Japan
UNITED STATES OF AMERICA	Shortening of life in the offspring of male mice exposed to neutron radiation from an atomic bomb
UNITED STATES OF AMERICA	Gamma-ray sensitivity of spermatogonia of the mouse
UNITED STATES OF AMERICA	Some delayed effects of low doses of ionizing radiations in small laboratory animals

<u>Country</u>	<u>Title</u>
UNITED STATES OF AMERICA	Effects of low-level radiation (1 to 3 r) on mitotic rate of grasshopper neuroblasts
UNITED STATES OF AMERICA	Effects of low doses of X-rays on embryonic development in the mouse
SWEDEN	Does there exist mutational adaptation to chronic irradiation?
JAPAN	Radiological data in Japan
UNITED STATES OF AMERICA	Occupational radiation exposures in U.S. Atomic Energy projects
UNITED STATES OF AMERICA	World-wide effects of atomic weapons - Project Sunshine
UNITED STATES OF AMERICA	Maximum permissible radiation exposures to man - A preliminary statement of the National Committee on radiation protection and measurements
UNITED STATES OF AMERICA	Gonadal dose produced by the medical use of X-rays
UNITED STATES OF AMERICA	Summary of current and proposed programme of research in the USA related to radiation genetics
FOOD AND AGRICULTURE ORGANIZATION	Principal calcium contributors in national diets in relation to effects of atomic radiation from strontium-90
SWEDEN AND NORWAY	Radio-active fall-out over the Scandinavian Peninsula between July and December 1956
BELGIUM	Information submitted in eight different reports
SWEDEN	A suggested procedure for the collection of radio-active fall-out
ARGENTINA	A geological radiometric and botanic survey of the region "Los Chañores" in the province of Mendoza of the Argentine Republic
ARGENTINA	Measurements of the cosmic ray extensity in three latitudes of the Argentine Republic
ARGENTINA	On the absorption of the nucleonic component of the cosmic radiation at -15° geomagnetic latitude

<u>Country</u>	<u>Title</u>
ARGENTINA	Mutations in barley induced by acute treatments by gamma rays of cobalt-60
ARGENTINA	Mutations in barley induced by formaldehyde
ARGENTINA	Spontaneous mutations in barley
ARGENTINA	A study of radio-active fall-out in the Argentine Republic
ARGENTINA	A research programme in the Argentine on the genetic influence in the plants of the ionizing and ultra violet radiation
ARGENTINA	Programme of physical oceanography for the International Geophysical Year
ARGENTINA	Information on the general programme to be developed in the Argentine on items of interest to the Scientific Committee on the Effects of Atomic Radiation

ANNEX II

REPORTS PREPARED BY THE COMMITTEE DURING ITS THIRD SESSION

Preparation of the report to be transmitted
by the Scientific Committee on the Effects
of Atomic Radiation to the General Assembly
in 1958

1. Introduction and general
2. Radiological data
3. Methods of measurements
4. Fundamental cellular radiobiology
5. Somatic effects on multicellular organisms
6. Genetic effects on multicellular organisms
7. Collected evaluations, conclusions and recommendations for the future

Genetic aspects of irradiation

1. Genetic effects at the cellular level
2. Mutation
3. Selection
4. Assessment of the social and biological consequences of mutation
5. Genetic effects of multicellular organisms

Informal discussion of measurements and data collection
