

UNIVERSITY OF WASHINGTON
LABORATORY OF RADIATION BIOLOGY
FISHERIES CENTER
SEATTLE 5, WASHINGTON

March 2, 1961

Honorable D. H. Nucker
High Commissioner
Trust Territory of the Pacific Islands
P. O. Box 542
Agana, Guam

Dear Sir:

Circumstances have arisen which will make it impossible for Dr. Donaldson to participate in the field program at Rongelap this spring. Consequently the University of Washington group will be made up by Dr. Stanley Gessel, Dr. Richard Walker and Dr. Edward Held, all of whom have participated in previous studies at Rongelap.

We expect to arrive at Eniwetok March 13. Any communications to us there can be sent c/o Mr. Thomas Hardison, Resident Manager, Eniwetok (FPO 572).

The following are some comments relative to the ecological studies at Rongelap Atoll which we hope will be of some interest and value to you. Three extra copies have been enclosed, so that if you wish, they may be forwarded to others in your organization. We particularly had in mind, Mr. Maynard Neas, Mr. William Finale and Mr. Neil Morriss, whose cooperation and suggestions, while he was agriculturist at Rongelap, were of great value.

A continuing program of ecological studies at Rongelap Atoll supported by the services of specialists in various disciplines, as the need arises, should gradually form the basis for understanding the ecology of the Northern Marshall Islands. The radioisotopes present at Rongelap provide a unique opportunity to trace the movement of minerals throughout the environment and organisms on such a large scale. Continuous observations would, of course, give the most complete and accurate picture. Several practical considerations make this impossible. However, a continuing series of observations timed to include seasonal variations can, in time, be

expected to result in significant contributions to atoll ecology and the movement of radioisotopes through the environment and biota. It should be expected that there will be a shift of emphasis and the inclusion of different areas of study as more results become available.

We have taken the liberty of enclosing a copy of a work sheet which we hope will, when completed, summarize the qualitative distribution of radioisotopes at Rongelap as of the latter part of 1959.

The primary objectives of the University of Washington biological survey team at Rongelap Atoll in the spring of 1961 will be: (1) to collect plant, soil, and litter samples from fertilizer plots established in 1959; (2) to collect food items to include Pandanus fruit, coconut and arrowroot; (3) to collect fish from the Kabelle Island area.

The results of pot culture experiments at Eniwetok and greenhouse studies at Seattle, using Rongelap soil, demonstrate a marked reduction of Cs^{137} uptake by plants when potassium is added to the soil (a work sheet showing the results of a pot test at Eniwetok is enclosed). This is consistent with the observations that: (1) Many plants at Rongelap show signs of mineral deficiency; (2) potassium levels in Rongelap soils are low compared to agricultural soils; (3) Cs^{137} content of plants at Rongelap accounts for 70-90% of the radioactivity present while in plants grown on continental soils Sr^{90} is the predominant radioisotope from fallout (Cs^{137} and potassium are metabolized in approximately the same way).

It is hoped that analyses of collections from the field plots will indicate whether: (1) soil amendments in the field have an effect of sufficient duration to be of practical value; (2) the response of local plants, both as to reduction of Cs^{137} uptake and increase in yield, is as marked as the pot cultures indicate; (3) the rate of movement of radioisotopes in the soil is altered; (4) what further collections, and possibly further addition of fertilizers at the established plots should be made in the summer or fall of 1961.

The attempt has been made to maintain as broad a point of view as possible in the design of these experiments so that

basic information relative to major mineral deficiencies will be obtained. However, the immediate practical problem of reduction of radioactive contamination in food plants by selective fertilization seems to be a definite possibility. It is anticipated that sufficient data will be available for a practical evaluation early in 1962. If this materializes we should like to call on your agriculturalists for their evaluation of the agricultural, economic, and sociological implications of chemical fertilization on a comparatively large scale.

The collection of food items this spring is primarily a continuation of the accumulation of data over a sufficient period of time to establish possible seasonal differences on the uptake of radioisotopes. Thus far, there is no evidence that such differences exist at Rongelap although they were observed at Eniwetok. It is as important to clearly establish the absence of seasonal differences as their presence in order to justify less frequent visits for future monitoring and ecological studies.

The collection of fish in the Kabelle Island area will be used to supplement data from previous collections. The levels of radioactivity in the fish are low. Zn^{65} is the principal radioisotope found in fish at this time. It has been difficult to determine whether a steady state has been reached with respect to Zn^{65} content or the levels are changing.

Sincerely yours,



Edward E. Held
Research Associate Professor

EEH:mb
cc: Dr. John N. Wolfe
Enclosures

High Commissioner

April 20, 1961

Director, Public Health

**Medical Report on condition of Victims of Radiation
Exposure at Rongelap and Ailingae**

Eighty-two Marshallese people were exposed at Rongelap and Ailingae Atolls in 1954 and these are the persons concerned in the following medical summary.

In the initial evaluation of the medical problem involved, it was estimated that the possibility that chronic irradiation effects would occur was quite small. At the end of one year, there was definite evidence of satisfactory recovery from the radiation injury. At the end of two years, there was still further improvement in the recovery evidence. The blood cells nearly approximating the normal levels. There was no evidence of malignant growth in any of the skin areas which showed exposure changes. Three years after the exposure, satisfactory recovery was still evident. Four years after exposure, Rongelap people had largely recovered from acute and subacute effects of their exposure.

Five years after exposure, there were not found any diseases or illnesses that could be directly associated with the acute radiation effects. Fertility does not appear to be affected. No cancer found.

Six years after exposure, no appreciable differences between the exposed and unexposed groups.

There have been two control groups studied concurrently, composed as follows: (I) Rongelapese who were not exposed but returned to live on Rongelap after it was habitable and (II) other Marshallese who never were exposed and never lived on any exposed atoll.

H. E. Macdonald, M.D.

Attachment

3
P4524 - Rm Med Summary
& filed: UN verbal report

**BONGELAP EXPOSED POPULATION
AND
ALINGNAE EXPOSED POPULATION**

<u>No.</u>	<u>Name</u>	<u>Age</u>	<u>Sex</u>
1	Abia*	59	f
2	Aejon	6½	m
3	Aik	6	m
4	Ainri	43	m
5	Alet	6½	m
6	Belkain*	6½	m
7	Bella	41	m
8	Billiam*	6½	f
9	Billiet	27	m
10	Boas	29	m
11	Antak	55	m
12	Almira	23	f
13	Bekire	63	f
14	Muje	30	f
15	Betty	12	f
16	Bel*	44	m
17	Dise	8½	f
18	Elen	26½	f
19	Elie	10	m
20	Harry	12	m
21	Ermita	8	f
22	Etri	22	f
23	George	9	m
24	Aruko	18½	f
25	Ikuiha	47	m (Died May 1956)
26	Iroji	17½	m
27	Jabwe	31	m
28	Jabkaion*	73	f
29	Jakkein*	70	m
30	Janet	64	f
31	Janwor*	36	m
32	Jeban	8½	m
33	Jemlock	6-3/4	f
34	Hera	50	f
35	Jerkan	18½	m
36	Jekreas	12½	m
37	Jia	25	m
38	Jialan	74	m (Died July 1957)
39	Jimake	19½	f
40	John	34	m

*Alingnae Population

41	Joja*	49	m
42	Jonita	8	f
43	Juombok*	71	f
44	Kabang*	9	m
45	Kajin *	37	f
46	Kanene	81	m
47	Katnar	13½	m
48	Kete*	11	f
49	Kiesang	20	f
50	Kotae*	39	m
51	Amon*	30	f
52	Anjar	61	f
53	Lejen*	13	f
54	Lekoj	6	m
55	Lemman	80	m
56	Lewetak	76	f
57	Loiar	105	f
58	Kiwojje	64	f
59	Lisa*	39	f
60	Kuma	61	f
61	Mary	13	f
62	Mata	62	f (deceased)
63	Mwenadrik	41	f
64	Mijjua	35	f
65	Mina	6½	f
66	Menna	35	-
67	Muio	18-3/4	f
68	Nabtali	50	m
69	Naika	8-3/4	f
70	Namiko*	22	f
71	Neijok	33	f
72	Nerje	11	f
73	Niktinos	23	m
74	Rinek	21	f
75	Rekko	16½	f
76	Nerie	15-3/4	m
77	Tibas	31	m
78	Tila	42	f
79	Tina	44	m
80	Titikos	51	m
81	Dorethy*	13	f
82	Totak	55	m

*Alingnae Population

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.

UPTON, L. I., N. Y.

TEL. YAPHANK 4-6262

REFER:

May 25, 1961

Dr. H. E. Macdonald
Director, Public Health
Trust Territory of the Pacific Islands
P. O. Box 542
Agana, Guam, M.I.

Dear Dr. Mac:

Enclosed is a letter to Capt. Gordon Smith, at Kwajalein, in regard to flights to Rongelap. As you know, the Navy has been awfully good in evacuating emergency cases from Rongelap and usually one of their doctors has gone along with Dr. Ezra. Dr. Shippey has suggested that he might arrange for one of the doctors to go along on monthly trips, if they can be arranged. You will recall that I discussed this with you previously and feel that if such an arrangement can be made, it will be helpful.

I understand that Mr. Goding will be here for the Trusteeship Council Meeting in June. I suppose you have heard by now that the AEC and the State Department are planning a Congressional bill to grant compensation to the Rongelap people (exposed only). I feel sure that if such a measure goes through it will help clear the atmosphere with the Rongelap people and make our job a little easier.

I have been wondering if it might not be advisable for me to consider a trip to the islands, say around October, so that we could discuss our survey plans. Might even get over to Rongelap to see how things are. Dr. Shippey has agreed to help Ezra get any fetus specimens that he might obtain --and ship them to me. A little more definitive planning here might be necessary.

I am looking forward to hearing from you in regard to the general state of affairs. Best regards.

Sincerely,

Bob

R. A. Conard, M.D.
Medical Research Center

RAC:ag
Enc.



Office Memorandum • UNITED STATES GOVERNMENT

TO : High Commissioner

DATE: 29 May 1961

FROM : Director Public Health

SUBJECT: Attached correspondence from Dr Conard

You will notice that the attached letter is in the informal personal manner and seemingly implies such an answer. Because this all concerns the "exposed" people of Rongelap and has to do with some aspects of policy I am most unwilling to carry on such manner of correspondence. I much prefer that these matters be handled on a proper basis over the signature of the top authority.

It is to be noted that Dr Conard wrote directly to the Navy Commanding officer asking for air support and used our doctor as the lever to pry an agreement if any ever results. I feel a bit putout by these methods. In the last paragraph you will note that there is a suggestion that a visit be planned or arranged to "discuss" plans. It is presumed that the year 1962 is the time to be considered but is not mentioned. The survey is probably the coming year visit. All of this sounds very easy in the letter but past experience has taught me that such talks tend to be taken as official pronouncements and I refuse to try and determine policy without direct permission from you. I would urge that any proposed visits and talks be in your presence or that of the Deputy High Commissioner unless you feel that commitments can be made by me.

I do feel that an answer is required and should be over your signature. How you feel about all of this is what I am asking by this memorandum. I will do whatever you wish.



H. E. Macdonald

May 31, 1961

Dr. E. A. Conrad
Medical Research Center
Brookhaven National Laboratory
Upton, L.I., N.Y.

Dear Dr. Conrad:

Your letter of May 25, 1961, to Dr. E. E. Macdonald has been reviewed at Guam and the following opinions are mutual.

The Trust Territory is responsible for the care of the Rongelap population and will establish the logistic support necessary to discharge this responsibility.

In regard to plans for future surveys, we feel that the Trust Territory medical department should conduct the annual survey and send the collected information to your laboratory for evaluation. It is only in the infrequent survey including "body burden" tests that the A.E.C. would furnish medical personnel to participate in the survey. Any discussions relative to these matters should be carried on directly with me.

Very truly yours,

M. W. Goding
High Commissioner

HEMacdonald:boc
File: Anthro ofc
cc: MWGoding
Interior r.f.

ORIGINATOR		
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P450-4
Rongelap medical survey

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.

UPTON, L. I., N. Y.

REFER:

TEL. YAPHANK 4-6262

May 25, 1961

Capt. Gordon Smith
USN Commanding Officer
Naval Support Activity
Pacific Missile Range Facility
Navy 824, c/o FPO
San Francisco, California

Dear Capt. Smith:

The purpose of my letter is twofold. First, I would like to thank you for your help in carrying out our recent medical survey at Rongelap. Your assistance in these surveys is greatly appreciated by those of us carrying out the survey, as well as the Atomic Energy Commission. I was sorry I did not have an opportunity to thank you personally while at Kwajalein but you were indisposed while I was there. Hope that you have recovered from your attack of bronchitis.

My second reason for writing is in regard to our desire of maintaining as close contact as possible with the Rongelap people during the intervals between the annual surveys and the Trust Territory field trips, in order that medical matters of importance may be closely followed. You will remember that I had discussed this with you previously. It would be greatly appreciated if you could arrange for a monthly plane trip to Rongelap, so that Dr. Ezra Riklon (Trust Territory medical practitioner at Ebeye) would have the opportunity of checking up on the situation at Rongelap at such times. Dr. S. H. Shippey at the Kwajalein Hospital has suggested that he would be willing, when possible, to send one of their doctors along, if they could be spared from their duties at such time. A routine field trip by the Trust Territory ship goes to Rongelap about every 3 months with Dr. Riklon thus no flight would be necessary for the month of the field trip. You have been most obliging in arranging Navy flights to Rongelap to evacuate medical emergency cases, and I hope this request will not impose too great an additional burden. I feel sure that Mr. William White would be willing to talk this over with you and keep in contact with you about arrangements for the flight.

**BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.**

UPTON, L. I., N. Y.

TEL. YAPHANK 4-6262

REFER:

Capt. Gordon Smith

- 2 -

May 25, 1961

Your help in this matter will be greatly appreciated.

Sincerely,

RAC:ag

**R. A. Conard, M. D.
Medical Research Center**

**cc: Dr. C. L. Dunham, Dir., Div. of Biol. & Med. (AEC), Washington
Mr. Wm. White, Asst. to High Commissioner, Trust Territory
of the Pacific Islands
Dr. H. E. Macdonald, Div. of Public Health, Trust Territory
Dr. L. E. Farr, Director, Medical Research Center
Dr. S. H. Shippey, Texas Transport Co. Hospital, Kwajalein**

Office Memorandum • UNITED STATES GOVERNMENT

TO : High Commissioner

DATE: July 12, 1961

FROM : Director, Public Health

SUBJECT: Dr. Conard's letter to Dr. Dunham, 22nd June, re Rongelap people

To me as a medical person this letter is characteristic of one scientist writing to another in the same field. It is an expression of the desire for and justification of knowledge for knowledge's sake alone. That is a commendable scientific attitude. In this instance the attitude neglects to consider people as individuals. Such neglect results in the development of individual ideas, opinions, and misunderstandings. The people of Rongelap both collectively and individually are unable to understand the objective of collecting information on the effects of radiation damage. They have grown up with the concept of sickness, treatment and health or death as a result.

They see and believe in the practical aspect of effect (sickness), action (treatment) and result and that is the end of the episode or cause for further action. The return annually of the "experts" is repeat action which is not needed if no cause exists; and they have been repeatedly assured that they are not sick. This train of events produces individual ideas and opinions and group misunderstanding which seem to imply that we are not truthful in our statements of their well being.

If the Micronesian medical group goes to Rongelap and collects information by way of physical examinations and laboratory samples the people concerned better accept the so called scientific curiosity of their compatriots as compared with the stateside group. We can collect this material with our own staff with less emotional upset and all can be sent to the AEC laboratory as they direct.

All we ask is that they (AEC) tell us specifically what they want and how they want it furnished to them. We will perform that service and they can do the research they desire in the laboratory. The big body burden test can be at infrequent intervals and we will assist as needed. I cannot see any good reason why there cannot be a long term, 10 years, agreement made in writing to establish a reasonable follow up for scientific purposes. Remember there are only 82 people involved in all of this furor and much of the loud complaint is by people who were not exposed. They do live on the exposed land but they are only indirect candidates for damage. I would like to see firm long term agreement approved by you.

H. E. Macdonald
H. E. Macdonald, M.D.

cc: Staff Anthropologist

PH-50-4 (Rongelap Medical)

1679

PH

BROOKHAVEN NATIONAL LABORATORY
ASSOCIATED UNIVERSITIES, INC.

UPTON, L.I., N.Y.

REFER:

TEL. YAPHANK 4-6262

November 8, 1961

Dr. H. E. Macdonald
Director of Public Health
Trust Territory of the Pacific Islands
P.O. Box 542
Agana, Guam

Dear Dr. Mac:

I had a nice trip on the Trust Territory plane from Guam to Majuro, but was disappointed that I was not able to spend the night at Ponape. Due to bad weather at Truck, we were forced to spend the night there instead. However, I did get to see Maynards Neas and the Umhoefers at the dock. My visit at Majuro with Mr. Coleman and Boyd McKenzie went very smoothly and agreements were reached according to the plans we had formulated in Guam. Mr. Coleman and I took the plane to Rongelap and conferred with the new magistrate Abija. He agreed to rent us the house that Morris had occupied. They have plenty of water at Rongelap now at this time and the magistrate seemed to feel that the two 600 gallon tanks, located beside the house we will rent, would be full of water at the time of the March survey. He also agreed to our hiring several Rongelapese to assist in handling cargo at Rongelap.

On Guam I conferred with Captain Holmberg, the new C.O., and members of his staff in regard to the other services we had discussed. They agreed to give us the necessary assistance upon authorization to do so from the Navy. I am checking into this matter at present. I am also trying to firm up the arrangements in regard to personnel, equipment, etc.

You will remember that last year we carried out a few studies on blood volume at Majuro and you were one of the subjects. This study has proved rather interesting indicating that some reduction of blood volume occurs in people living in such areas. We would like to further this study when we come out next time. In this regard, would you have any objections to several of us spending a couple of days at Ponape prior to the survey in order to check these findings on another island? This provided the Navy will be willing to furnish us transportation.

I want to thank you for the fine cooperation you, Mr. Benitez and Mr. deYoung gave me in Guam in planning for the survey. Your hospitality shown me while there was also appreciated.

I have smoothed out the agreement in regard to future surveys that we worked on in Guam, and I am enclosing several copies for you to go over. I am also sending Dr. Dunham a copy. When I receive these back from you and Dr. Dunham; I will make the necessary changes and forward to you the smooth signed copies.

*also
Mr. DeYoung*

I will keep you informed of any future developments as they occur.

With best regards

Sincerely yours,

Bob

R. A. Conard, M.D.
Medical Research Center

RAC:car
Encl.

*P.S. Am enclosing also a copy of letter with statement
about survey requirements of Navy and Army -*



TRUST TERRITORY OF THE PACIFIC ISLANDS

Office of the District Administrator

Marshalls District

In reply refer to:

October 26, 1962

Mr. John Anjain
Magistrate
Rongelap, Marshall Islands

Dear Mr. Magistrate:

On Saturday October 20, 1962, we received a radio message from Rongelap informing us of the birth of an abnormal premature baby. We immediately requested a Navy flight and a medical doctor to examine the baby. Attached is a copy of the doctor's report. Please note the doctor's findings that this kind of abnormality has been reported in all parts of the world for many years, and is not related to radiation.

I will appreciate it very much if you would inform the people of Rongelap of this report.

Thank you.

Sincerely,


Peter T. Coleman

Ilo Saturday October 20, 1962, ear itok juon nan jen Rongelap eo ej kojelaik kim kin lotak an ajiri eo ejibikbik im eoktak lok nememein jen armij. Kim ar mokaj im kajitok bwe en ilok juon wan Navy im juon takto bwe en kakilen ajiri in. Iben letter in kimij kobaik report eo an takto eo. Kwon joiij im etale report eo an takto eo bwe wawin jab in ej walok ilo aolep mottan ko in lol in, im ej jab walok jen jorran ko jen Atomic Bomb.

Inaj kanuij bunburuo elane kwonaj karon armij in Rongelap kin report in.

Kom mol.



23 October 1962

From: George F. Grisinger, Jr., M.D., Acting Island Medical Officer
To: William C. White, Trust Territory Representative

Subj: Deformed Foetus, Rongelap Atoll, Examination of

Encl: (1) Three photographs of subject (SC)

1. On 21 October 1962 the undersigned was transported by SAR flight to Rongelap Atoll to make a medical examination of deformed foetus following abortion in the last trimester of pregnancy. This spontaneous abortion occurred at 1630, 19 October 1962, and foetus had expired apparently a few days before birth.
2. Examination disclosed an ectromelus, a monster characterized by defective limbs. Such an abnormality has been reported in all parts of the world for many years, and is not related to exposure and subsequent mutation from Alpha, Beta or Gamma radiation.
3. Promptly following examination the infant was buried in the island cemetery.

GEORGE F. GRISINGER, JR., M.D.

1. Ilo 21 ran in October 1962, rar likitlok na ilo balun in SAR non Rongelap Atoll bwe in kakilene juon jibun jirbwe-bwe eo im ear likjab 3 allin jen lukkun ien lotak eo an. Jibun in ear moke walok ilo 4:30, 19 October 1962, im ear alikkar ke jirbwe-bwe in jibun in ear mij jet ran ko mokta jen an kar lotak.
2. Iar kakilene im lo ke jibun in jirbwe-bwe eo ej etan (ectromelus), ej jibun in jirbwe-bwe rot en ej lotak im likjab neen in pein. Wawin lotak rot in im ekabwilonlon im ejeja uwan, emwij report kake ke ej bar walok ilo belak in lol in ilo year ko remotlok, im ejjab bwe en kar walok jen baijin ak kin oktak ko jen baijin jen radiation ko Alpha, Beta ak Gamma.
3. Mwij in wot ao kar kakilene ajiri in, rar kalibwini ilo lub eo luben ilo jikin kallib armij e an ailin e.

GEORGE F. FRISINGER, JR., M.D.

RONGELAP BIOENVIRONMENTAL RESURVEY
August 1963

General Description and Background

The August 1963 bioenvironmental resurvey of Rongelap Atoll is a continuation of surveys initiated in 1958 to monitor current amounts of radionuclides in foods and to evaluate the cycling or redistribution of radionuclides at Rongelap.

Rongelap is uniquely suitable for the latter studies since it was contaminated only once with radioactive fallout to a significant degree. The initial contamination occurred in March 1954 following the detonation of a thermonuclear device at Bikini Atoll, 80 miles to the west. The levels of radiation were sufficiently high to necessitate evacuation of the residents. They were not returned until June 1957.

Present levels of radiation at the southern islets of Rongelap Atoll are comparable to those present at uncontaminated atolls. External radiation levels at the northern islets are slightly above background levels.

Radionuclide content of food items is within permissible levels with the exception of the coconut crab, Birgus latro, which concentrates strontium-90. Other significant radionuclides in the foods at this time are cesium-137 and zinc-65.

The soils still contain all of the relatively long-lived radionuclides originally deposited. These remain concentrated in the top inch of soil, but small amounts are moving to depths of 30 inches or more. The marine organisms contain fewer radionuclides of which zinc-65 and cobalt-60 appear to be moving in the food web while strontium-90, cerium-144 and Europium 155 are bound in the calcareous portions of organisms and the bottom sediments.

Since these studies involve specialists in several disciplines, the work schedule is necessarily a compromise between the demands of any one facet of the program and the overall studies. The ship is essential in providing, first, a vehicle from which to collect marine organisms and secondly in

