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REFER:

MEDICAL DEPARTMENT

23 April 1968

403114

John Totter, Ph. D.  
Director  
Division of Biology and Medicine  
U. S. Atomic Energy Commission  
Washington, D. C. 20545

Dear John,

Enclosed is the information on the current status of the Marshall Islanders and the development of thyroid tumors. I trust this brings you up to date. If you desire further information kindly contact me or Bob Conard directly.

Sincerely yours,

Eugene P. Cronkite, M. D.  
Chairman

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*Enclosures*  
cc: Dr. Bruner ✓  
Dr. Storer

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Thyroid Abnormalities in Exposed Rongelap People, 1968  
(arranged in order of appearance of abnormality)

Subject No. and sex	Present age, yr.	Age at exposure, yr.	Time of Development		Findings
			Year	Age, yr.	
3 M	15	1	1965	12	Hypothyroid, PBI <2μg% March 1965; re- tardation of growth preceded these findings by a number of years. 3/68 growth spurt and improved appearance on thyroxine.
5 M	15	1	1965	12	Hypothyroid, PBI <2μg% March 1965; re- tardation of growth preceded these findings by a number of years. 3/68 growth spurt and improved appearance on thyroxine.
17 F	17	3	1963	12	Adenomatous goiter; total thyroidectomy, 1964. No recurrence.
21 F	17	3	1964	13	Adenomatous goiter; total thyroidectomy, parathyroidectomy, 1964. No recurrence.
69 F	18	4	1964	14	Adenomatous goiter; partial thyroidectomy, 1964. 1968 slight roughening right lobe persists.
2 M	15	1	1965	12	Adenomatous goiter, partial thyroidectomy, 1965. No recurrence.
20 M	21	7	1965	18	Adenomatous goiter, partial thyroidectomy, 1965. No recurrence.
<u>64 F</u> R	<u>44</u>	<u>30</u>	<u>1965</u>	<u>41</u>	Mixed papillary and follicular carcinoma, total thyroidectomy-surgical and therapeutic radioiodine, 1965. No recurrence.
<u>72 F</u>	20	6	1965	17	Three-mm nodule left lobe. Nodule not palpable 9/66.
<u>42 F</u>	17	3	1965	14	Two-mm nodule right lower lobe. 3/66 nodular enlargement (~1½ X normal) entire gland; firm 5-mm nodule right lobe. 7/66 subtotal thyroidectomy: adenomatous goiter.

Table - Thyroid Abnormalities in Exposed Rongelap People, 1968 (arranged in order of appearance of abnormality) cont.

Subject No. and sex	Present age, yr.	Age at exposure, yr.	Time of Development		Findings
			Year	Age, yr.	
61 F	22	8	1965	19	Six to 8-mm smooth nodule left lower pole. 3/66 1-cm nodule left lobe. 7/66 subtotal thyroidectomy: adenomatous goiter.
40 M <i>R</i>	43	<u>29</u>	1965	<u>40</u>	Two-mm nodule right lower pole. 3/66 no nodules detected (Reduced on hormone treatment?).
59* F <i>AL</i>	48	<u>34</u>	1965	<u>45</u>	Five-mm nodule midline. 3/66 same. 7/66 subtotal thyroidectomy: adenomatous goiter.
54 M	15	1	1966	13	Nodular enlargement (~1½ X normal) left lobe and isthmus with 2-mm firm nodule. 1968 nodule left lobe 2 cm.**
19 M	19	5	1966	17	Multinodular soft enlargement entire gland (~1½ X normal). 1-cm nodule right lower pole. 1968 new 1 cm nodule left lobe.**
36 M	21	7	1966	19	Slight nodular enlargement, entire gland. 1-cm nodule, not clearly demarcated at left lower pole. Many tiny nodules over surface of gland. 1968-nodule still present.
→ 33 F	15	1	1966	13	9/65 questionable irregular gland. 3/66 definite 5-mm nodule left lobe. 7/66 subtotal thyroidectomy: adenomatous goiter, Hurthle cell adenoma.
65 F	15	1	1966	13	9/65 questionable small nodule. 3/66 5-mm nodule right lobe. 7/66 right subtotal thyroidectomy: adenomatous goiter.
23 M	18	4	1967	17	1.5-2 cm nodule right lobe. 1968 slight increase in size of nodule**
15 F	21	7	1968	21	Slight nodularity both lobes.
(70* F <i>AL</i>	29	15	1968	29	2-3 cm firm mass to left of thyroid**, **

\*Exposed to only 69 rads of whole body radiation and presumably proportionately less thyroid dose. *original*

\*\*To be brought to Brookhaven National Laboratory in June 1968 for an evaluation for surgery

\*\*\*Not included in thyroid statistics since there is uncertainty if the lesion is thyroid tissue.

THYROID NODULES (INCLUDING HYPOTHYROIDISM)

IN MARSHALLESE POPULATIONS (3/68)

(R=Rongelap; A=Ailingnae; UT=Utirik; C=Unexposed)

<u>Group</u>	<u>Age At Exposure</u>	<u>No. in Group</u>	<u>Gamma Dose (rads)</u>	<u>Estimated Thyroid Dose (I*, rads)</u>	<u>% Thyroid Nodules</u>
R	<10	19	175	700-1400	99.0 (= 18/19)
A	<10	6	69	275-550	0.0
UT	<10	40	14	55-110	0.0
C	<10	61	0	0	0.0
R	>10	36	175	160	5.5 (= 2)
A	>10	8	69	55	12.5 (= 1)
UT	>10	59	14	15	3.4 (= 2)
C	>10	133	0	0	2.3 (= 3)

\*In estimating the thyroid doses to the Ailingnae and Utirik exposed group, it was assumed that such doses were proportional to the thyroid doses of the Rongelap exposed group, based on relative whole body gamma dose received.

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