

410345

BEST COPY AVAILABLE

4 (3)

MEMO ROUTE SLIP Form AEC-93 (Rev. May 14, 1947)		See me about this. Note and return.	For concurren For signature.	For action. For information.
TO (Name and unit)	INITIALS	REMARKS		
<i>De planning</i>				
	DATE			
TO (Name and unit)	INITIALS	REMARKS		
	DATE			
TO (Name and unit)	INITIALS	REMARKS		
	DATE			
FROM (Name and unit)	REMARKS			
<i>PHS</i>	<i>This is the first of the pieces of data from the recent Longley ecological field trip. Others will be forwarded as they arrive when all the pieces are complete, a report will be prepared.</i>			
PHONE NO.	DATE			
	<i>4/9/58</i>			

10. Sr<sup>90</sup> in the Liver of Land Crabs, collected at Rongelap Atoll,  
 July 1956, July 1957 and March 1958

Sr<sup>90</sup> in the Liver of Land Crabs Collected  
 at Rongelap Atoll

Island	Date of Collection	Laboratory	No. of Samples	Sr <sup>90</sup> d/m/g/ dry	Sr <sup>90</sup> d/m/g wet	Sunshine units
Kabelle	July 1956	NYO	2		29.5 <sup>±</sup> 4.5	3610 <sup>±</sup> 990
	" "	U. W.	2		44.5 <sup>±</sup> 2.5	4680 <sup>±</sup> 1570
	July 1957	U. W.	2	245 <sup>±</sup> 65	119 <sup>±</sup> 41	4800 35000
	March 1958	U. W.	5	218 <sup>±</sup> 103	121 <sup>±</sup> 52	3830 <sup>±</sup> 1152
Rongelap	July 1957	U. W.	2	61.5 <sup>±</sup> 5.5	21.5 <sup>±</sup> 6.5	1800 <sup>±</sup> 200
	March 1958	U. W.	5	67 <sup>±</sup> 23	46 <sup>±</sup> 13	2497 <sup>±</sup> 668
Enlaetok	March 1958	U. W.	2	136 <sup>±</sup> 17	79 <sup>±</sup> 12	4727 <sup>±</sup> 1055

Average Values of Surveymeter Readings on Land at Rongelap and Kabelle Islands on Different Dates (Values in m<sup>2</sup>/hr)

Date	Rongelap Island				Kabelle Island			
	3' closed	3' open	1" closed	1" open	3' closed	3' open	1" closed	1" open
Mar. 26/54					280	490.	420.	1200.
July 16/54					32.		119.	
Jan. 25/30/55	1.5				3.0		5.0	
Oct.-Nov. 55	0.2	1.4	0.38	2.2			2.8	9.2
July 23-24/55	0.4	1.4	0.5	2.7	1.2	4.7	2.3	9.1
July 1957	0.071	0.27	0.14	0.41	0.10	0.54	0.31	0.7
March 1956	0.029	0.21	0.064	0.48	0.14	0.72	0.29	1.1
Aug. 1958	0.058	0.10	0.087	0.14	0.16	0.35	0.18	0.58

Eniaetok Island

	3' closed	3' open	1" closed	1" open
	March 1958	0.067	0.47	0.17
Aug. 1958	0.076	0.12	0.10	0.22

Gross beta activity of fat and non-fat fractions of coconut crab liver collected at Rongelap, March 1958

27

Table 3. Gross beta activity of fat and non-fat fractions of coconut crab (*Birgus latro*) liver collected at Rongelap Atoll in March 1958.

Sample Number	Location of Collection	Fat d/m/g*	Non-Fat d/m/g*		Percentage of gross Beta activity due to fat	
			Wet weight basis	Dry weight basis	Wet weight basis	Dry weight basis
34	Kabelle Island	4	1116	1967	0.29	0.77
35		8	1086	1674	0.67	1.36
36		6	618	1086	0.45	0.69
37		14	1929	3446	0.44	0.84
38		2	1219	1958	0.11	0.32
Mean		7	1194	2026	0.39	0.77
34	Rongelap Island	1	753	1117	0.18	0.42
35		0	861	897	0.00	0.00
36		-2	513	718	0.00	0.00
37		1	1169	1684	0.13	0.45
38		1	545	882	0.13	0.26
Mean		0.2	728	1060	0.09	0.22
61	Eniaetok Island	6	824	1466	0.49	0.59
62		6	984	1681	0.45	0.57
Mean		6	904	1573	0.47	0.58

\*Counting error is less than 2%

$Sr^{90}$  in the Muscle of Land Crabs Collected  
at Rongelap Atoll

Island	Date of Collection	Laboratory	No. of Samples	$Sr^{90}$ d/m/g dry	$Sr^{90}$ d/m/g wet	Sunshine units
Kabelle	July 1956	NYO	2		$12.8 \pm 3.2$	$3730 \pm 870$
	"	U. W.	3		$58.7 \pm 27$	$6307 \pm 1830$
	July 1957	U. W.	3	$44.3 \pm 8.6$	$10.2 \pm 0.05$	$2470 \pm 1480$
Rongelap	March 1958	U. W.	5	$145 \pm 12$	$37.4 \pm 4.2$	$7700 \pm 1830$
	July 1957	U. W.	2	$10.5 \pm 9.5$	$4.25 \pm 1.65$	$1025 \pm 875$
Eniwetok	March 1958	U. W.	5	$33.6 \pm 11$	$8.22 \pm 3.7$	$3650 \pm 1500$
	March 1958	U. W.	2	$51 \pm 2$	$12 \pm 0$	$5270 \pm 1860$

Sr<sup>90</sup> in Scaevola Leaves Collected  
at Rongelap Atoll

Island	Date of Collection	No. of Samples	Sr <sup>90</sup> d/m <sup>2</sup> /day	Sr <sup>90</sup> d/m <sup>2</sup> /g wet	Sunshine units
Kabellie	July 1957	leaves collected from several plants on North half of Island	12	26.4 ± 10.8	4130 ± 2060
Rongelap	July 1957	leaves collected from several plants on North half of Island	4.7	59.7 ± 38.4	2170 ± 1770
Eniwetok	March 1958	leaves collected from several plants in each of two plots	46.5 ± 25.5	7.62 ± 4.8	1120 ± 714

Survey Meter Readings at Rongelap Atoll

Feb. - Mar 1953

Rongelap Island

Values expressed in millireps per hour\*

Area	Shield	3' above ground		1" above ground	
		closed	open	closed	open
<u>Southwest edge of village near road</u>					
Under <u>Morinda</u> , over dead leaves		.02	.2	.1	.6
Open area over sedge		.03	.18	.04	.2
Under coconut trees 6' from road		.02	.2	.09	.6
Open area over grass		.03	.15	.04	.2
Under <u>Pandanus</u> over dead leaves		.03	.16	.08	.6
<u>Southwest edge of village, seaward side</u>					
Above high tide line		.03	.15	.04	.4
At high tide line		.01	.15	.015	.08
Intertidal zone		.01	.18	.01	.10
<u>3/4 mile west of Magistrate's house</u>					
In coconut grove 25' south of road		.05	.35	.07	.7
In coconut grove 100' south of road		.04	.35	.08	.6
<u>West end of island about 0.1 miles east of road end</u>					
15' south of road over open area		.03	.3	.08	.7
10' north of road over <u>Scaevola</u>		.03	.2	.05	.2
60' north of road over sand and <u>Wedalia</u> vines		.03	.25	.08	.5

\* With a Beckman MX-5

Rangelap Island (continued)

Area	Shield:	3' above ground		1" above ground	
		closed	open	closed	open
<u>North edge of village</u>					
Under coconut trees		.03	.15	.08	.6
Open area, grass		.03	.2	.08	.7
Area of soil profile #1		.03	.2	.07	.7
Under <u>Pandanus</u>		.04	.2	.08	.6
Under <u>Messerschmidia</u>		.03	.15	.07	.6
	Average	.029	.21	.064	.48

M. Belle Island

Area				
Center of Island under <u>Pisonia</u>	.1	.6	.4	1.0-1.5
Under <u>Pisonia</u>	.1	.6	.15	.7
Under <u>Pisonia</u> , over guano on <u>Boerhavia</u>				1.1

Proceeding from lagoon shore toward seaward shore across center of island

Just above high tide line	1	5	.2	1
About 40 yds. from shore, open area	3	1.4	.7	3
About 100 yds. from shore, <u>Pisonia</u> and coconut trees	2	.8	.4	1.5
About 100 yds. from shore, mound under coconut trees	.3	1.1	.5	2
About 200 yds. from shore, under <u>Pisonia</u>	.13	.3	.8	1.0

Kabelle Island (continued)

Area	Shield	3' above ground		1" above ground	
		closed	open	closed	open
About 200 yds. from shore, sandy area		.1	.8	.35	1.3
About 175 yds. from shore, under <u>Pisonia &amp; Scaevola</u> over sand		.25	.6	.3	1.2
About 400 yds. from shore, <u>Scaevola</u> thicket, over dead leaves		.13	.6	.2	1.0
About 400 yds. from shore, <u>Scaevola</u> thicket, over sand cover with black lichen or algal growth		.13	.8	.4	1.4
<u>Proceeding from seaward shore toward lagoon shore across center of island</u>					
High tide line, over sand		.03	.4	.04	.4
10 yds. from shore in <u>Scaevola</u> thicket, over leaves		.07	.5	.08	.6
same area with leaves brushed away				.2	1.0
adjacent leaves, within arm's reach				.08	.7
same area as above with leaves brushed away				.2	.9
30 yds. from shore under <u>Messerschmidia</u>		.09	.6	.11	.7
same area with leaves brushed away, over humus				.3	1.3
same area with leaves and humus brushed away				.4	1.4
same area over sand 1.3" below soil surface				.05	.35
Average		.14	.72	.29	1.1

Kabelle Island (continued)

Note: Attempts were made to measure radiation from various portions of plants, bird nests, etc., but it was found that differences in readings with relation to distance above ground masked any other differences that might exist.

Readings with shield open:

1" above ground	2.0
2' " "	.8
3' " "	.6
4' " "	.4
7' " "	.25

Enia etok Island

Area	3' above ground		1" above ground	
	<u>closed</u>	<u>open</u>	<u>closed</u>	<u>open</u>
Readings taken across center of island at widest portion from lagoon shore to seaward shore.				
Near first house under coconut trees	.1	.6	.3	1.0
Pile of humus and ashes	.03	.5	.2	.9
Under <u>Pandanus</u> over dead leaves	.06	.5	.3	1.4
Under coconut trees	.07	.6	.2	1.1
Coconut grove about 1/3 way across island	.07	.6	.2	1.1
Pile of coconut husks	.08	.17*	.08*	.25*
Open area with interspersed patches of grass and dried black lichen or algal growth	.15	.3	.3	1.2

---

\* These values were double checked and found to be correct.

Eniwetok Island (continued)

<u>Area</u>	<u>3' above ground</u>		<u>1" above ground</u>	
	<u>closed</u>	<u>open</u>	<u>closed</u>	<u>open</u>
Open area just above high tide line, over sand	.05	.5	.1	.8
Open area just above high tide line, over algae	.05	.5	.15	1.1
At high tide line	.015	.15	.02	.25
Intertidal zone, beach pavement	.01	.11	.02	.04
Average	.067	.47	.17	.83

- RONGELAP ISLAND -  
Soils - February and March 1958 Collected

Gr. 2

Plot No.	1	2	3
Depth in inches	d/m/g dry	d/m/g dry	d/m/g dry
	Per cent	Per cent	Per Cent
0-1	1760 ± 72	1700 ± 70	0-1/2 7290 ± 280
1-2	32 ± 6	103 ± 24	454 ± 22
2-3	32 ± 17	175 ± 32	135 ± 27
3-4	Bg	95 ± 24	48 ± 18
4-5	"	32 ± 17	Bg
5-6	"	Bg	"
6-7	"	"	"
7-8	"	"	"
8-9	"	"	"
	<u>8</u>	<u>17</u>	<u>18</u>
0-1	1160 ± 104	1410 ± 60	2410 ± 96
1-2	64 ± 15	56 ± 10	207 ± 25
2-3	32 ± 13	24 ± 8	64 ± 14
3-4	Bg	24 ± 8	40 ± 13
4-5	"	16 ± 7	32 ± 17
5-6	"	16 ± 7	Bg
6-7	"	Bg	"
7-8	"	"	"
	<u>19</u>	<u>20</u>	
0-1	1720 ± 72	1720 ± 72	1720 ± 72
1-2	223 ± 26	199 ± 17	199 ± 17
2-3	64 ± 14	80 ± 10	80 ± 10
3-4	80 ± 15	48 ± 8	48 ± 8
4-5	24 ± 11	32 ± 8	32 ± 8
5-6	Bg	16 ± 7	16 ± 7
6-7	32 ± 15	24 ± 7	24 ± 7
7-8	Bg	16 ± 7	16 ± 7

Soils of Rongelap Island and F due Kabelle and E due Kabelle (6 increments of 9")

Soils of Rongelap Island and F due Kabelle and E due Kabelle (6 increments of 9")



LABELLIS LUGENS

PLOT NO.	5		5		5	
	Depth in inches	d/m/gr	Per cent	d/m/gr	Per cent	d/m/gr

0-1	8660	± 344	77.7	5570	± 224	61.2
	768	± 34	7.1	1310	± 56	15.3
	517	± 35	4.6	633	± 32	8.1
	517	± 26	4.6	637	± 35	7.5
	247	± 40	2.2	103	± 10	1.2
	245	± 40	2.3	159	± 11	1.9
	167	± 31	1.5	72	± 8	.8

PLOT NO.	12		13		13	
	Depth in inches	d/m/gr	Per cent	d/m/gr	Per cent	d/m/gr

0-1	2660	± 240	69.0	38,300	± 1120	91.0
	634	± 56	14.1	2,740	± 160	6.5
	373	± 33	6.5	581	± 40	1.4
	199	± 26	4.7	191	± 17	.5
	135	± 20	3.2	135	± 14	.3
	103	± 18	2.4	64	± 10	.2
	103	± 18	2.4	48	± 9	.1
				48	± 10	.1

PLOT NO.	14		15		16	
	Depth in inches	d/m/gr	Per cent	d/m/gr	Per cent	d/m/gr

0-1	12,500	± 344	85.4	5,420	± 136	56.5
	1,120	± 48	7.0	1,520	± 88	15.9
	287	± 22	2.0	1,140	± 72	11.9
	302	± 24	2.1	581	± 38	6.1
	167	± 16	1.2	223	± 18	2.3
	95	± 11	.7	486	± 34	5.1
	87	± 11	.6	215	± 18	2.2
	48	± 10	.3			