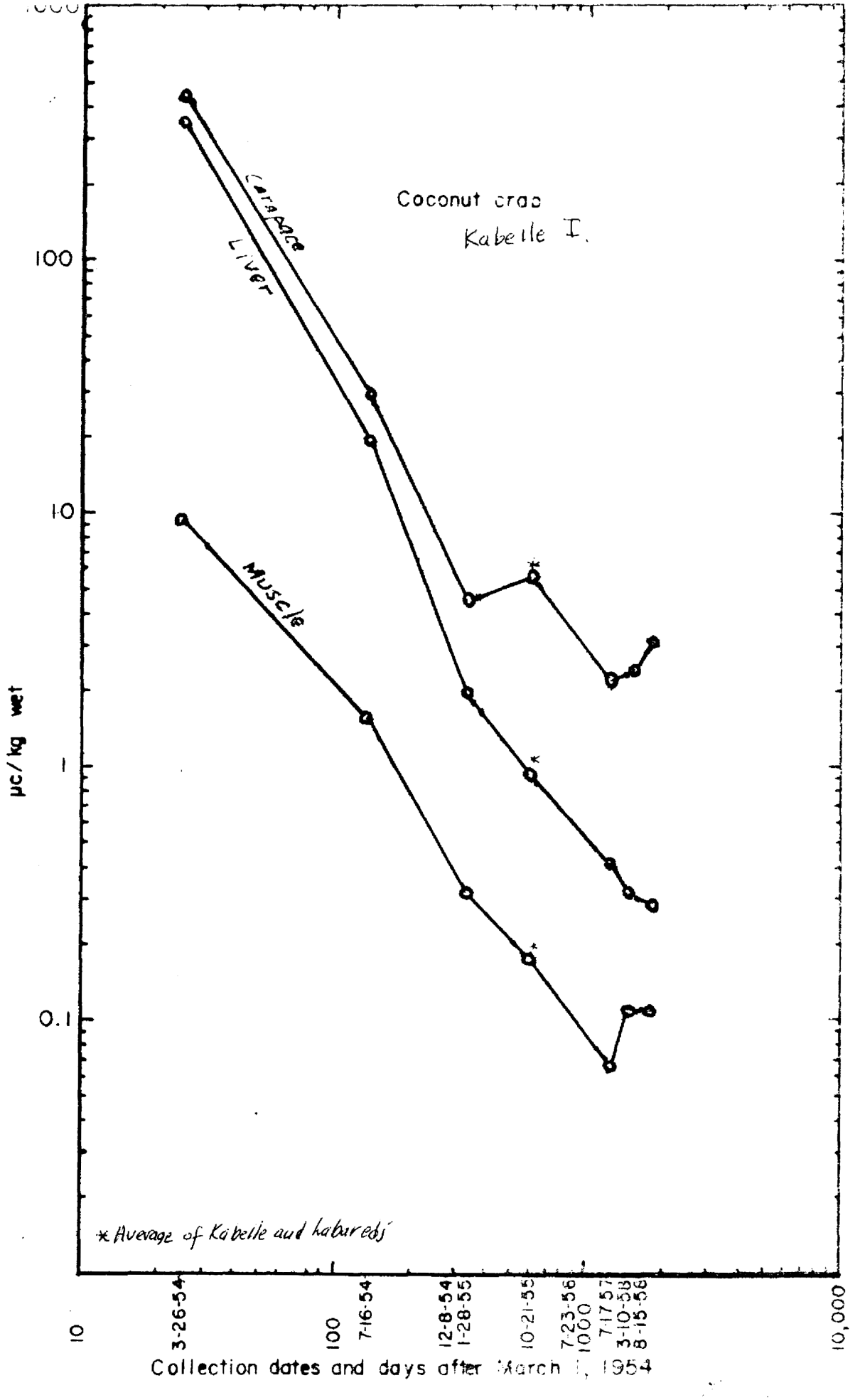
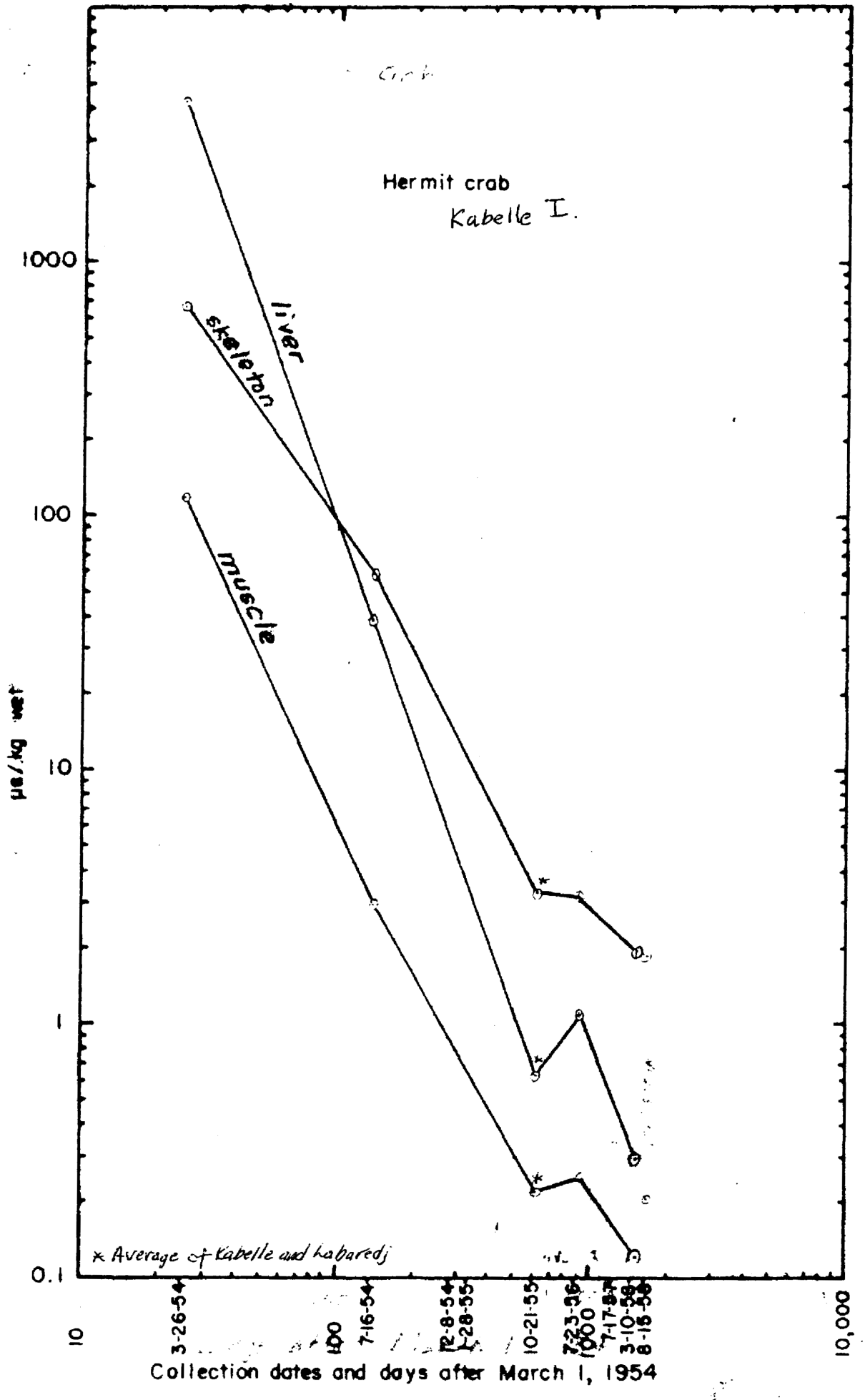
EFFECT OF HARD TACK SERIES

Comparison of levels of gross beta activity of invertebrates at Rongelap Atoll in March 1958 with those in August showed a slight rise to have occurred in the interim, due to the Hard Tack series of tests. This conclusion is based on a comparison of 39 tissues of various invertebrates (Table 5) at the two collecting periods. On the basis of wet tissue, 14 were higher in March than in August, and 25 were higher in August than in March, and, on the ash basis, results were almost the same, 13 and 26. Using chi-square this is significant at about the 5% level.

The presence of W^{185} in some of the samples provides positive evidence of contamination from the HARDTACK series.





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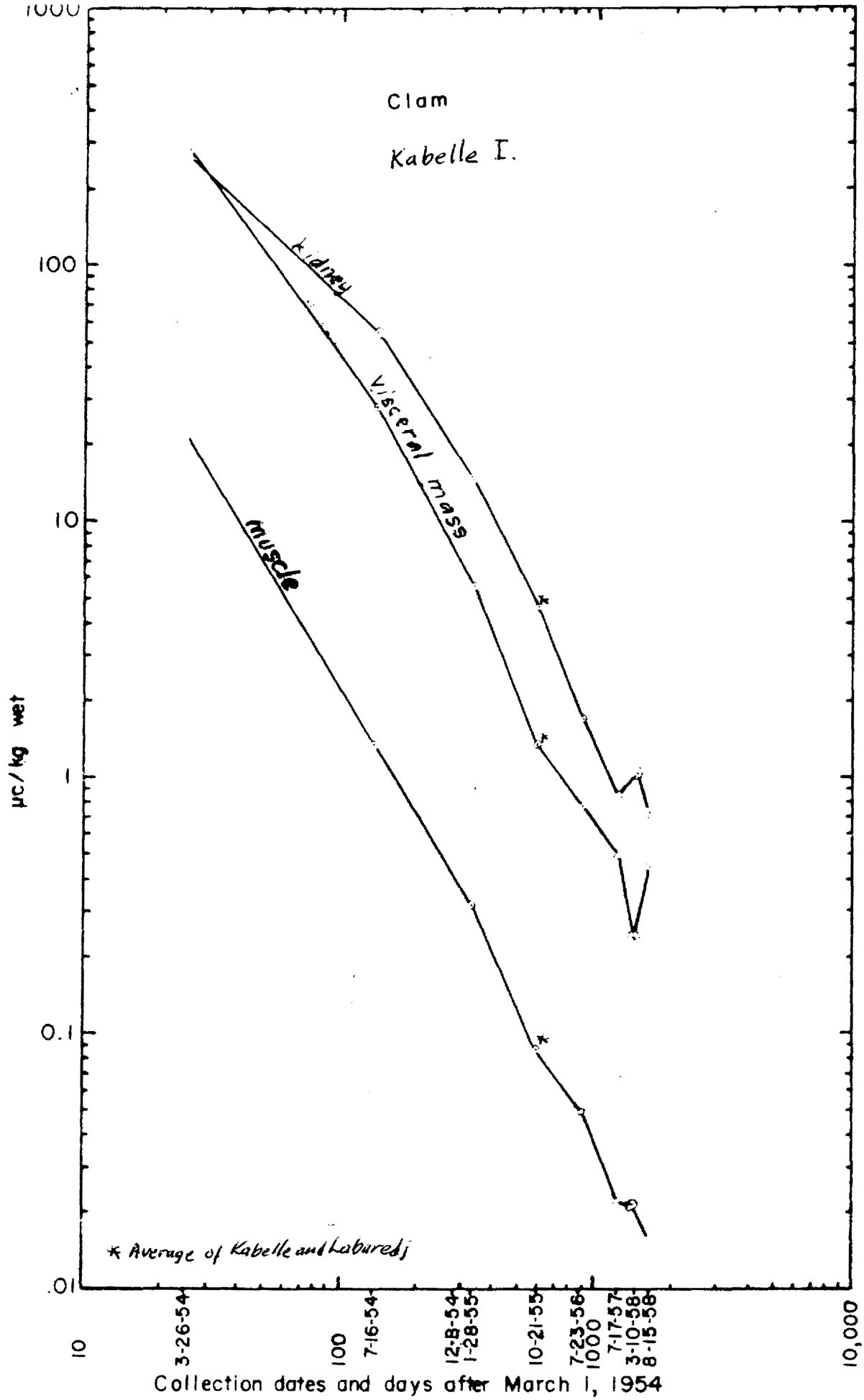

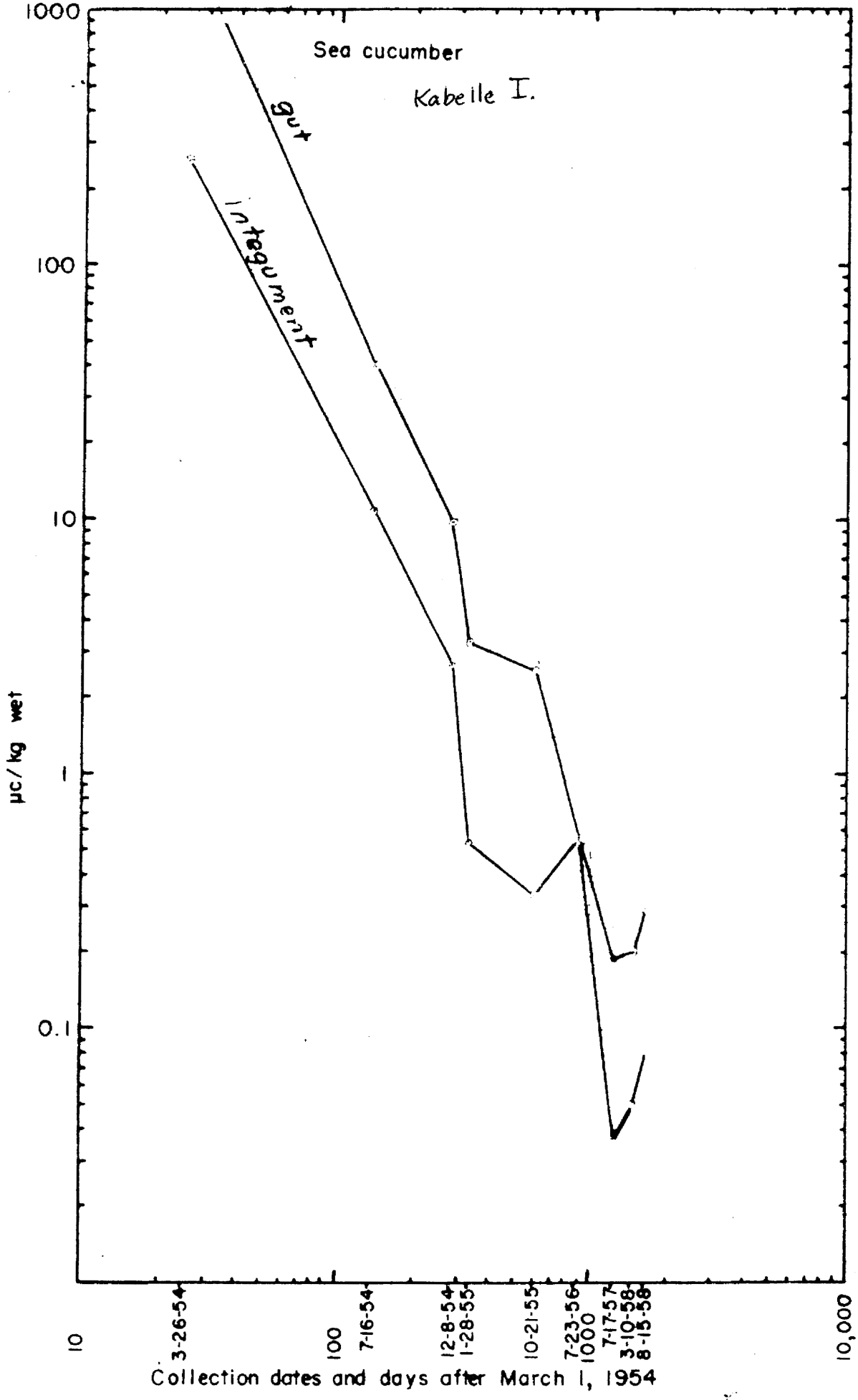

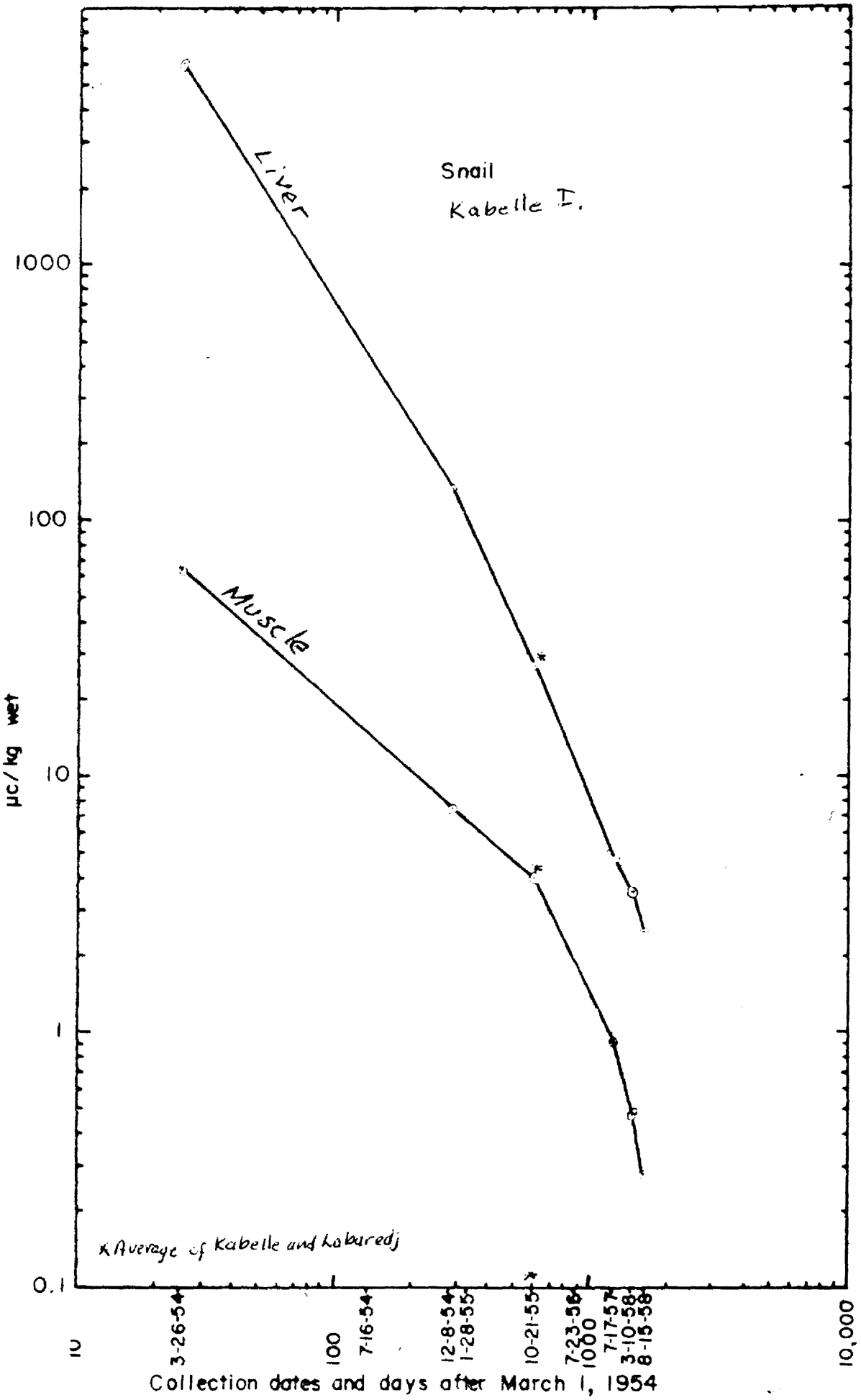

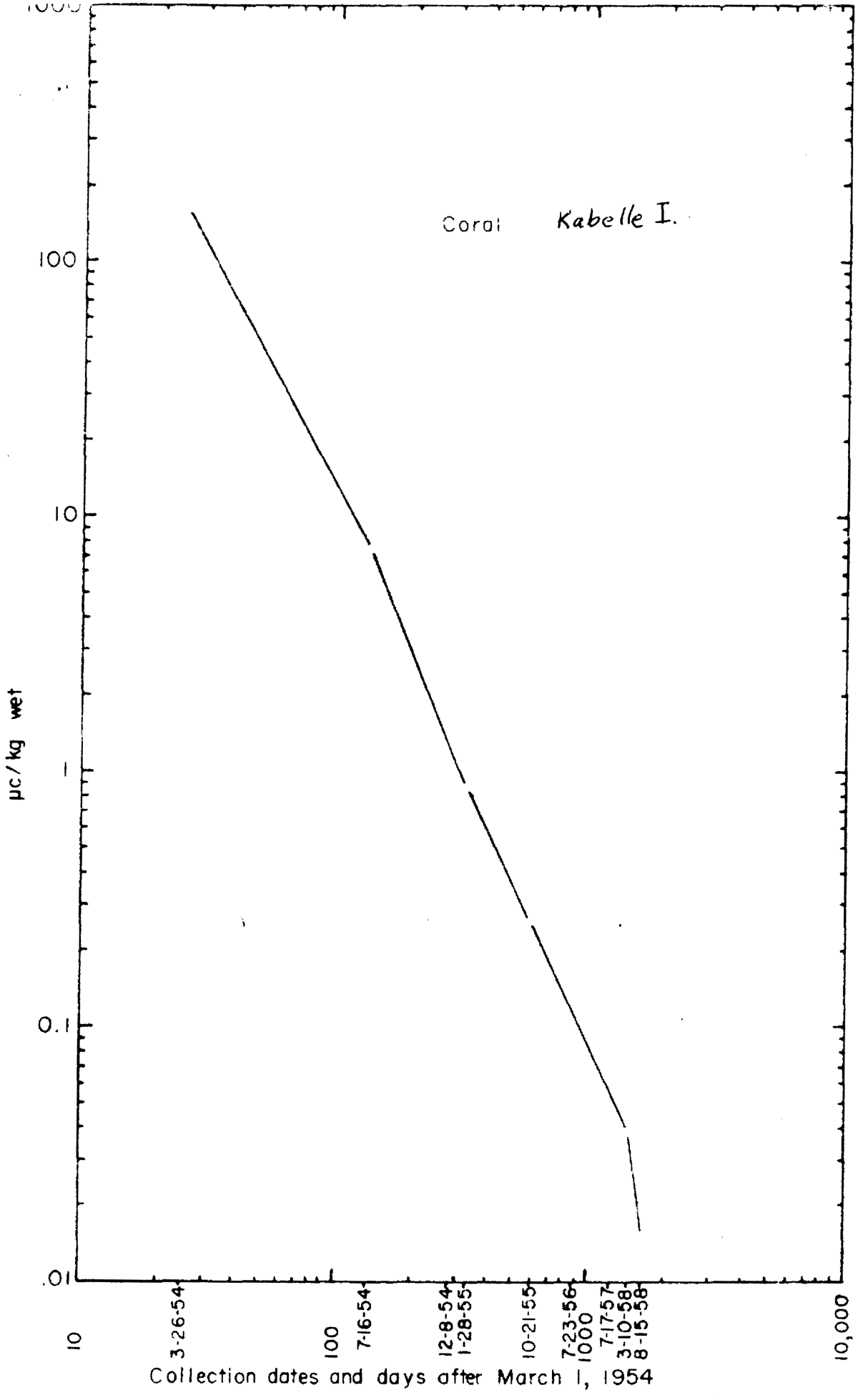

Table I. Gross beta radioactivity of invertebrates in μc/kg of wet tissue at time of counting about one month after collecting at Rongelap Atoll on July 23 and 24, 1956

Name of organism			Specimen	μc/kg of wet tissue				
Common	Scientific	Island	number					
Clam				Mantle	Muscle	Visceral Mass	Kidney	Gill
	Tridacna gigas	Kabelle	184	.12	.064	.79	1.95	
	" "	"	185	.10	.025			.073
	Tridacna sp?	"	182	.17	.045			
	" "	"	183	.13	.045			
	Hippopus	"	180	.13	.059			
	" "	"	181	.12	.059		1.4	
			Mean	.13	.050	.79	1.7	.073
Sea cucumber				Gonad	Gut	Integument		
	Holothuria atra	Kabelle	177	.26	.68	.50		
	" "	"	178	--	.45	.33		
	" "	"	179	--	.59	.86		
			Mean	.26	.57	.56		
	" "	Rongelap	171	1.2	1.0	.50		
	" "	"	172	--	.82	.32		
	" "	"	173	--	1.4	.28		
			Mean	1.2	1.1	.37		
Land hermit crab					Liver	Exoskeleton	Muscle	
	Coenobita perlatus	Kabelle	186		1.1	2.4	.19	
	" "	"	187		.91	6.4		
	" "	"	188		1.6	2.9		
	" "	"	189		1.4	2.5	.45	
	" "	"	190		1.0	2.7		
			Mean		1.2	3.4	.35	
	" "	Rongelap	174		.86	3.0		
	" "	"	175		1.4	3.1	.17	
	" "	"	176		.64	3.1		
			Mean		.97	3.1	.17	

Table 2. Gross beta radioactivity in μc/kg of wet tissue at time of counting of invertebrates collected at Rongelap Atoll on July 17 and 18, 1957

Name of organism		Island	Specimen number	μc/kg of wet tissue		
Common	Scientific					
Sponge	-	Kabelle	77	(Entire 0.18)		
Clam				Mantle and Muscle	Visceral mass	Kidney
	Tridacna gigas	Kabelle	70	.009	.44	.17
	Tridacna noea	"	71	.040	.40	2.2
	Hippopus hippopus	"	72	.018	.68	.25
	Tridacna noea	Rongelap	59	.052	.039	1.4
	" "	"	60	.027	.086	4.0
	" "	"	61	.027	.096	2.8
	Macoma (sp. ?)	"	63	(Entire, soft 0.031)		
Snail				Foot and mantle	Viscera	
	Lambis lambis	Kabelle	74	1.2	4.5	
	" "	"	75	.59	3.0	
	Lambis truncata	"	76	12.1	6.8	
	Nerita plicata	"	73	.17	.41	
Sea cucumber				Gonad	Gut	Integument
	Holothuria atra	Kabelle	67	.14	.26	.034
	" "	"	68	.31	.18	.021
	" "	"	69	.15	.14	.053
	" "	Rongelap	56	.027	.068	.017
	" "	"	57	.034	.10	.012
	" "	"	58	.038	.050	.015

Table 2. continued

Name of organism		Island	Specimen number	μc/kg of wet tissue			
Common	Scientific						
Crab				Muscle	Liver	Gill	Skeleton
	Birgus latro	Kabelle	64	.068	.39	-	1.9
	" "	"	65	.064	.42	.18	1.8
	" "	"	66	.059	.41	.14	2.8
	" "	Rongelap	53	.029	.038	-	.73
	" "	"	54	.059	.30	.13	1.2
	Coenobita perlatus	"	55	.10	.049	-	1.2
	Ocypode ceratophthalma	"	62	.036	.015	-	.0004

Levels of beta-radioactivity in invertebrates at Rongelap Atoll March 1958 shown as both μc/kg wet (left entry) and μc/kg ash (right entry).

Organism	Locality	Specimen No.	Plate No.	Tissue							
Sponge	Rongelap, ocean	39	2115	.083	1.4						
"	Eniaetok, lagoon	48	2074	-	2.0						
" white	Kabelle, lagoon	30	2107	.91	4.4						
Coral											
Acropora	Eniaetok, lagoon	52	2082	.47	1.8						
" "	Kabelle	105	2149	.039	.058						
Sea cucumber				Gonad		Gut		Integument			
"Holothuria atra	Rongelap, ocean	3	2101-	.12	3.8	.058	.14	.022	.56	.002	.039 fluid
" " "	" "	41	2052-	.009	.29			.011	.26	.024	.72 gut w/o sand
"Stichopus	" "	40	2116-			.015	.052	.010	.23		
"Actinopyga mauritiana	" "	42	2118-	.014	.39	.051	.18	.005	.13	.014	.25 gut w/o sand
"Holothuria atra	Eniaetok	117	2129-	.12	4.0	.048	.11	.011	.34	.002	.085 fluid
" " "	" ocean	50	2076					.016	.39		
"Holothuria atra	Kabelle, lagoon	33	2049-			.25	3.0	.050	1.2	.14	4.8 gut w/o sand
" " "	"	68	2125-	.037	.94	.096	.18	.014	.38	.035	1.0 gut w/o sand
" " "	"	98	2146-			.037	.11	.036	.80		
Stichopus	"	32	2114					.096	2.1		
" " "	"	67	2122-	.022	.53	.066	.29	.005	.11		
"White Actinopyga mauritiana	"	96	2144					.13	2.9		
"Holothuria gyrifer	"	97	2145					.094	2.1		
"Ophiodesoma spectabilis	"	91	2143					.032	.70		

Table 3, cont'd

Organism	Locality	Specimen No	Plate No.	Tissue									
				Mantle		Muscle		Gill		Visc mass		Kidney	
Clam													
Tridacna noea	Rongelap lagoon	2	2001-	.0073	.26	.030	1.1			.066	2.4	1.6	13
				(Algal mantle)				(Non-algal mantle)					
" "	" "	43-47	2055-	.0098	.35	(.017	.61)	.013	.48	(.023	.85)		
Tridacna crocea	Eniaetok lagoon	51	2078-	.017	.60	.011	.42	.039	1.4	.072	2.5	1.6	13
Tridacna noea	" "	53	2059-	.093	3.3	.44	16	.076	2.7	.105	3.8	.87	7.1
Tridacna crocea	Kabelle "	8&9	2005-	.033	1.2	.033	1.2	10	3.5	.24	8.6	.88	7.2
" "	" "	10	2010-	.062	2.2	.021	.74	076	2.6	.22	8.8	2.2	18.
" "	" "	11&12	2015-			034	1.2					1.8	16.
" "	" "	75	2091-	.031	.89	046	1.6	.17	6.5	.14	4.2	1.0	16.
" "	" "	76	2096-	.029	1.1	.014	.49	.052	1.2	.033	1.0	.36	2.7
" "	" "	75-78	2105	(Fluid 069, 1.1)									
Tridacna noea	" "	24	2022-	.032	1.2	.013	.48	.025	86	1.0	35	.90	7.4
"	" "	71	2064-	0090	.32	.024	84	.064	2.3	.11	4.1	1.3	11.
Tridacna gigas	" "	13	2017-	.020	.72	.0098	.33	092	.33	.20	6.9	33	2.7
Hippopus	" "	89	2133-	.013	.42	.010	.30	036	1.3	42	15	.30	2.5
" "	" "	25	2027-	.019	68	.010	58	.045	1.6	.43	15	72	5.9
" "	" "	26	2032-	.021	75	.017	61	.041	1.5	1.4	51	.84	6.8
" "	" "	72	2069-	.010	.36	.010	.40	.021	.73	.062	2.2	38	2.5
Oyster													
Chama	Eniaetok "	49		Entire -------- 2.1									

Organism	Locality	Specimen No	Plate No.	Liver		Muscle		Visc. mass	
Spider snail									
Lambis lambis	Eniaetok lagoon	83	2083			0066	.022		
" "	Kabelle "	27	2037-	6.1	100	06	23	1.2	19
"	" "	28	2040-	3.1	51	.25	8.4	38	6.5
" "	" "	29	2043-	1.8	29	.27	9.0	.94	16
" "	" "	106-108	2046-	2.3	46	47	17	1.1	18

Table 3, cont'd.

Organism	Locality	Specimen No.	Plate No.	Tissue									
				Liver		Muscle		Visc. mass		Shell			
Snail Lambis lambis	Kabelle lagoon	74	2084-	4.5	81	1.6	9.0	.64	16	.085	.087		
" "	" "	81	2088-	3.1	52	.57	19	2.7	45				
Olive Oliva snail erythrostoma	"	99	2148			.25	8.5						
				Muscle		Exoskeleton		Liver					
Hermit Coenobita crab perlatus	Rongelap land	63	2195-	.026	1.1	.47	1.1	.029	.86				
" "	" "	64	2198-	.066	3.8	1.6	2.6	.15	3.4				
Coconut crab Birgus	" "	84	2157-	057	1.9	1.3	1.6						
" " "	" "	85	2158			1.4	1.7						
" " "	" "	86	2159			1.03	1.1						
" " "	" "	87	2160-	.020	.68	1.6	2.0						
" " "	" "	88	2161			.72	.88						
" " "	Eniaetok "	62	2156			2.5	3.1			Carapace			
" " "	" "	61	2155			1.6	1.7			.55	1.6		
Hermit Coenobita Crab perlatus	Kabelle "	19	2179-	.098	4.5	1.9	3.0	.19	5.6				
" "	" "	20	2182-	.17	4.5	2.0	3.2	.29	8.7				
" "	" "	21	2185-	.12	5.5	1.3	2.2	.42	11				
" "	" "	22	2188-	.20	6.7	2.9	4.5	.32	7.4	Fat from claw			
" "	" "	23	2191-	.14	4.7	1.5	2.3	.28	5.9	.22	5.9		
Coconut crab Birgus	" "	34	2150-	.11	3.7	2.4	2.5			Carapace			
" " "	" "	35	2151-			2.2	2.4			1.5	3.5		
" " "	" "	36	2152-			2.6	3.1			2.1	2.9		
" " "	" "	37	2153-	.106	3 5	2.7	2.9			2.6	3 5		
" " "	" "	38	2154-			2.3	2.8			2.0	2.5		
										Gill		Eggs	
Red-eye Eriphia crab laevimana	" "	14-17	2108-	.028	.68	.009	.028	.075	1.3	.010	2.3	.017	.76
										Gill		Gut	
Langusta Panulirus	" "	90	2139-	.023	.52	.016	.048	056	11.	.039	.84	.015	.27
	"									Entire			
Caterpiller	" Land	18	2113							.12	2.8		

Table 4.

Levels of beta-radioactivity in invertebrates at Rongelap Atoll August 1958 shown as both μc/kg wet (left entry) and μc/kg ash (right entry).

Organism	Locality	Specimen No.	Plate No.	Tissue					
				Entire					
Sponge, tan	Eniaetok, ocean	272	2291	.066	.99				
Sponge, black	Kabelle, lagoon	327	2388	1.69	27.				
Sponge, yellow	" "	328	2389	1.48	9.5				
Coral, Heliopora blue	w. end Rongelap, ocean	256	2282	.19	.31				
Coral, soft	" "	257	2283	.049	.10				
Coral, Acropora	" lagoon	259	2290	.042	.047				
" "	Eniaetok, "	278-284	2293	.065	.070				
"Acropora	Kabelle, channel	398	8026	.012	.013				
"Acropora	" "	399	8027	.019	.020				
Nemertean worm	Kabelle, lagoon	330	2387	.65	9.1				
				Gonad		Gut		Integument	
Sea cucumber Holothuria atra	Rongelap, ocean	220	2243	.080	3.5	.145	.33	.037	1.0
" " "	" N. reef	258	2284	-	-	.20	.33	.086	2.4
" " "	Roggutsu, lagoon	241	2272	.13	12	.093	.17	.050	1.9
" " "	Eniaetok, lagoon	285	2294	.15	12	.20	.37	.021	.55
" " "	" ocean	286	2297	.041	1.8	.25	.62	.038	1.1
" " "	Kabelle, lagoon	312	2357	-	-	.23	.39	.067	1.9
" " "	" ocean	314	2359	.18	4.8	.36	1.3	.114	2.5
" " "	" "	315	2362	.19	4.9	.29	1.0	.098	2.2
" " "	" "	316	2365	.067	1.8	.49	1.7	.080	1.7
" " "	" lagoon	319	2368	.17	10	.14	.28	.061	1.7
Sea cucumber Actinopyga mauritiana	Rongelap, ocean	221	2246	.065	1.7	.14	.28	.003	.075
" Holothuria fusco rubra	Roggutsu, lagoon	240	2270	-	-	.27	.43	.058	1.4
" Thelenotus ananas	Busch, Lagoon	260	2286	.20	19	.10	.15	.011	.60
		260	2286	(Gut only, not content				.038	1.5)
" Actinopyga white	Eniaetok, lagoon	277	2292	-	-	-	-	.005	.12
" Stichopus	Kabelle, "	313	2242	-	-	-	-	.021	.62

Table 4, cont'd.

Organism	Locality	Specimen No.	Plate No.	Tissue							
				Mantle		Muscle		Gill		Visc. mass		Kidney	
Clam, Tridacna crocea	Rongelap, lagoon	207	2203	0.042	1.3	.030	1.1	.049	1.7	.062	2.2	4.0	31
" "	" "	208	2208	.081	2.0	.030	1.1	.027	.95	.16	5.7	4.0	50
" "	" "	209	2213	.044	1.5	.032	1.2	.083	2.9	.066	2.4	1.8	14
" "	" "	210	2218	.033	1.1	.015	.56	.038	1.3	.11	4.0	1.4	11
		210	2218	(Organs of attachment .1 2.2)									
" "	" "	211	2224	.061	2.1	.13	4.9	.067	2.4	.76	2.8	.87	7.1
" Tridacna noea	" "	213	2229	.042	1.4	.008	.29	-	-	.040	1.4	.40	3.3
" "	" "	226	2264	.020	.84	.008	.49	.036	1.8	.13	4.8	1.0	8.7
" "	" "	248	2275	.015	.95	.008	.41	.036	1.3	.072	2.6	1.7	26
Clam, Tridacna gigas	Eniaetok, lagoon	271	2320	.021	.76	.008	.37	-	-	.12	4.0	.39	5.2
" "	Anielap, "291 etc.		2252	-	-	-	-	-	-	-	-	1.8	15
" Tridacna noea	" "	298	2310	.035	1.4	.010	.61	-	-	.030	1.2	1.3	25
" "	" "	294	2324	.041	1.6	.014	.72	-	-	.045	1.4	1.2	11
" "	" "	303	2328	.051	2.0	.020	.91	-	-	.21	9.0	.95	17
" "	" "	304	2332	.080	2.4	.020	.92	-	-	.28	13	.95	17
" "	" "	326	2371	.061	2.9	.055	1.8	.19	8.0	.34	18	.59	6.5
" "	" "	324	2377	.026	1.3	.013	.91	.031	1.46	.23	7.7	.87	6.9
" "	" "	325	2382	.044	2.9	.013	.56	.042	2.1	.24	10	.82	8.1
" "	" "	355	8005	.026	.86	.008	.30	.037	1.3	.87	29	.64	8.8
" Hippopus	" "	297	2306	.029	.94	.020	1.0	-	-	.32	11	1.3	8.5
" "	" "	306	2336	.027	1.3	.013	.51	-	-	.87	32	.48	8.0
" "	" "	307	2340	.047	2.0	.010	.52	-	-	1.2	43	.60	6.7
" "	" "	308	2344	.044	1.3	.015	.65	-	-	.95	23	.47	5.0
" "	" "	351	2390	.027	.86	.011	.42	.13	4.7	.43	13	.41	2.4
" "	" "	351A	2395	.016	.51	.008	.31	.055	2.0	.20	7.4	.37	2.5
" "	" "	352	2400	.028	1.0	.010	.41	.044	1.3	.99	32	.46	7.0
" "	" "	364	8016	.020	.82	.014	.60	.030	1.4	.035	.80	.85	7.6
" "	" "	365	8021	.026	1.0	.014	.64	.032	1.3	.057	2.4	.26	4.4

Table 4, cont'd.

Organism	Locality	Specimen No.	Plate No.	Tissue							
				Liver		Muscle		Visc. mass			
Snail Lambis lambis	Rongelap, lagoon	215	2233	.80	13	.083	2.9	.11	1.8		
" "	" "	216	2236	.68	12	.083	2.9	.24	4.0		
" "	" "	217	2239	3.2	53	.39	14	.46	7.6		
" "	Eniaetok "	309	2348	1.2	25	.13	6.2	.62	18		
" "	" "	310	2351	.80	24	.085	3.4	.35	5.8		
" "	" "	311	2354	.48	16	.063	2.3	.72	19		
" "	Kabelle "	362	8010	3.6	39	.34	12	1.3	7.4		
" "	" "	363	8013	1.4	43	.22	7.1	.90	4.8		
" Lambis chiragra	Busch "	234	2258	.63	5.8	.077	5.0	.29	3.1		
Auger Terebra snail maculata	Rongelap "	201-202	2201	.58	9.5	-	-	(Remainder	.092	1.8)	
Snail Vasum turbinarium	"	222	2249	.23	5.9	.013	.72	.17	4.1		
" " "	Busch, lagoon	236	2261	.32	19	.033	2.3	.26	8.0		
(Murex) Chicoreus asianus	" "	229-231	2254	1.9	79						
			2253	1.5	58	.013	.68	.12	5.4		
			2255	2.2	57						

Organism	Locality	Specimen No.	Plate No.	Muscle		Exoskeleton		Liver	
Crab, Ocypode ghost ceratophthalma	Eniaetok, ocean	268	2300	.017	.73	0	0	.13	2.7
Hermit Coenobita crab perlatus	" N. end	269	2303	.068	2.5	1.9	2.9	.21	4.6
Crab, Eriphia red-eye laevimana	" ocean	287	2314	010	.23	.0071	.017	.025	.28
Rock Grapsus crab grapsus	" "	288	2317	.004	.17	.021	.038	.013	.47

Organism	Locality	Specimen No.	Plate No.		
Clam, Lima sower byi	Rongelap, lagoon	225	2280	(Entire soft	.13 3.8)
" " "	" "	242-244	2281	(" "	.088 2.7)

Table 5.

Comparison of levels of β-radioactivity in invertebrates at Rongelap Atoll in March with those in August 1958 on both wet and ash weight basis expressed in μc/kg.

Organism	Tissue	Locality	March		August	
			Wet	Ash	Wet	Ash
Sponge		Rongelap	.083	1.4		
"		Eniaetok		2.0	.066	.99
"		Kabelle	.91	4.4	1.6	18.
Coral		Rongelap			.094	.15
"		Eniaetok	.47	1.8	.065	.070
"		Kabelle	.039	.058	.016	.017
Sea cucumber		Rongelap &				
Holothuria atra	gonad	Roggutsu	.064	2.0	.10	8.2
" " "	gut	"	.058	.14	.14	.42
" " "	integument	"	.016	.41	.058	1.8
" " "	gonad	Eniaetok	.12	4.0	.10	6.9
" " "	gut	"	.048	.11	.22	.50
" " "	integument	"	.014	.36	.030	.82
" " "	gonad	Kabelle	.037	.94	.15	5.3
" " "	gut	"	.13	1.1	.30	.93
" " "	integument	"	.033	.79	.084	2.0
Actinopyga mauritiana	gonad	Rongelap	.014	.39	.065	1.7
" "	gut	"	.05	.18	.14	.28
" "	integument	"	.005	.13	.003	.075
Stichopus	integument	Kabelle	.096	2.1	.021	.62
Clam						
Tridacna noea	mantle	Rongelap	.0086	.30	.026	1.1
" " "	muscle	"	.030	1.1	.008	.40
" " "	gill	"	.013	.48	.036	1.6
" " "	visc. mass	"	.066	2.4	.084	2.9
" " "	kidney	"	1.6	13.	1.0	13.
Tridacna noea		Kabelle &				
" " "	mantle	Anielap	.020	.76	.046	2.0
" " "	muscle	"	.018	.66	.019	.96
" " "	gill	"	.044	1.6	.075	3.2
" " "	visc. mass	"	.56	20.	.32	11.
" " "	kidney	"	1.1	9.2	.92	13.
Hippopus	mantle	"	.014	.55	.029	1.08
" " "	muscle	"	.012	.48	.013	.56
" " "	gill	"	.035	1.3	.052	2.1
" " "	visc. mass	"	.58	21.	.56	18.
" " "	kidney	"	.56	4.4	.58	5.8
Tridacna gigas	mantle	Kabelle	.020	.72	.021	.76
" " "	muscle	"	.0098	.33	.008	.37
" " "	gill	"	.092	.33	-	-
" " "	visc. mass	"	.20	6.9	.12	4.0
" " "	kidney	"	.33	2.7	1.1	10.

Table 5, cont'd.

Organism	Tissue	Locality	March		August	
			Wet	Ash	Wet	Ash
Lambis lambis	liver	Kabelle	3.6	76.	2.5	41.
" "	muscle	"	.64	14.	.28	9.6
" "	visc. mass	"	1.2	20.	1.1	6.1
" "	muscle	Eniaetok	.0066	.022	.13	6.2

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±3.2	3730± 870
	"	U.W.	3		58.7±27	6307±1830
	July 1957	U.W.	3	44.3± 8.6	10.2±0.05	2470±1480
	March 1958	U.W.	5	145± 12	37.4±4.2	7700±1830
	August 1958	U.W.	6	124± 30	31.9±10	4311± 309
Rongelap	July 1957	U.W.	2	19.5±9.5	4.25±1.65	1025± 875
	March 1958	U.W.	5	33.6±11	8.22±3.7	3650±1500
	August 1958	U.W.	5	40.7±13	9.56±3.44	1696±1860
Eniaetok	March 1958	U.W.	2	51±2	12±0	5270±1860
Erapuotsu	August 1958	U.W.	1	34.7	7.29	1783

Sr^{90} in the Liver 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	Strontium units
Kabelle	July 1956	NYO	2		29.5± 4.5	3610±990
	" "	U.W.	2		44.5± 2.5	4680±1570
	July 1957	U.W.	2	245± 65	119±41	4800 35000
	March 1958	U.W.	5	218±103	121±52	3830±1152
	August 1958	U.W.	4	204±176	96±88	2400±1790
Rongelap	July 1957	U.W.	2	61.5±5.5	21.5± 6.5	1800±200
	March 1958	U.W.	5	67±23	46±13	2497±668
	August 1958	U.W.	4	44±13	31± 4	1700±427
Eniaetok	March 1958	U.W.	2	136±17	79±12	4727±1055
	August 1958	U.W.	1	41	36	1[illegible]00

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Sr^{90} in the Skeletons of Land Crabs Collected at Rongelap and Uterik Atolls

Island	Date of Collection	Laboratory	No. of Samples	Sr^{90} d/m/g dry	Sr^{90} d/m/g wet	Strontium units
Kabelle	July 1956	NYO	3		1300±280	3240± 760
	" "	U. W.	3		1950±470	4240± 970
	July 1957	U. W.	3	3570±610	2430±420	5830± 920
	March 1958	U. W.	5	3280±300	2360±210	6300± 550
	August 1958	U. W.	6	3462±780	2708±685	6300±1375
	March 1959	U. W.	4	3110±593	2360±294	5680± 914
Rongelap	July 1956	NYO	1		750	2200
		U. W.	1		1310	3360
	July 1957	U. W.	2	1500±350	955±245	2350± 650
	March 1958	U. W.	5	1660±441	1180±309	3140± 860
	August 1958	U. W	5	1211±156	939±117	2200± 294
Eniaetok	March 1958	U. W.	2	3200±800	2250±550	6000±1200
	August 1958		1	1782	1414	3200
Uterik	March 1959	U. W.	2	140±0	111±2	255±5

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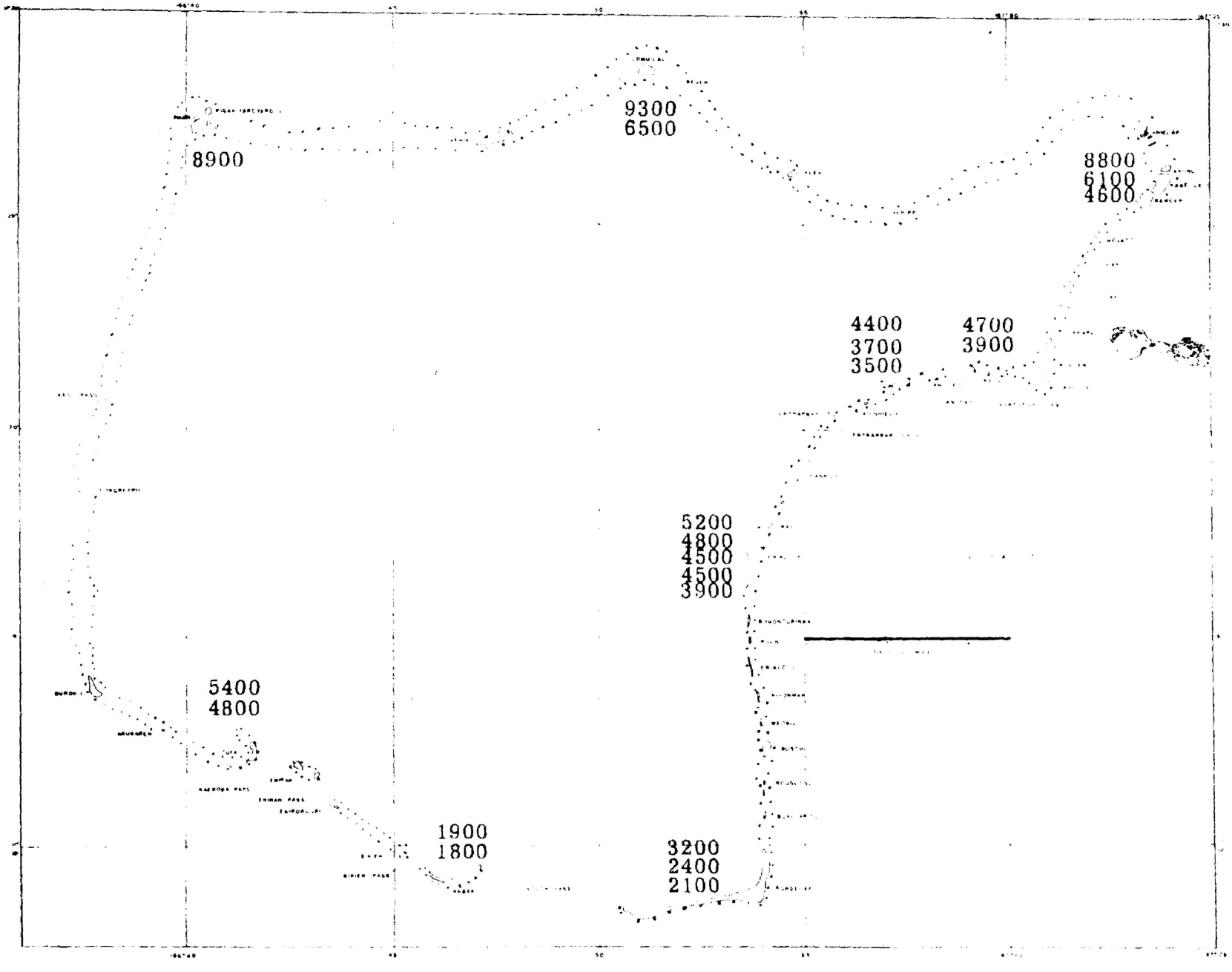

Strontium units in Birgus latro (coconut crab) skeleton at Rongelap Atoll, September, 1959

Strontium-90 in Birgus latro (coconut crab) skeleton
Collected at Rongelap, [illegible] September 1959
Mean Values

Island	Sample numbers	Sr^{90} Mean d/m/g dry	Standard deviation	Mean strontium units	Standard deviation
Rongelap	554, 553, 552	1400	216	2570	386
Eniaetok	556, 559, 557 558, 555	2510	334	4580	151
Gegen	650 651, 563	2130	262	3870	468
Mella	659, 652	2400	267	4360	566
Kabelle	649, 648, 653	3500	1044	6500	2128
Gejen	655, 656	4300	1011	7800	1980
Naen	661	5210	--	8990	--
Tufa	660 662	3050	117	5100	424
Arbar	657, 654	1070	14	1850	71

Note: The counting error (95%) ranges from 3 % to 4%.

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Sr^{90} in Birgus latro (Coconut Crab) Skeleton

Collected at Rongelap Atoll September 1959

Individual Values

Island	Sample Number	Sr^{90} d/m/g dry	Ca mg/g dry	Strontium Units
Rongelap	552	1250	275.1	2100
	553	1380	267.3	2400
	554	1670	238.6	3200
Eniaetok	555	2140	251.0	3900
	556	3030	262.8	5200
	557	2390	239.9	4500
	558	2600	264.1	4500
	559	2710	256.2	4800
Gogon	650	2430	253.0	4400
	651	1870	228.2	3700
	663	2080	268.9	3500
Mellu	652	2300	265.5	3900
	659	2680	258.8	4700
Kabelle	648	3100	230.2	6100
	649	4690	243.2	8800
	653	2720	267.5	4600
Gejen	655	5240	257.5	9300
	656	3830	267.5	6500
Naen	661	5250	267.5	8900
Tufa	660	3180	268.9	5400
	662	3010	284.3	4800
Arbar	654	1060	264.2	1800
	657	1080	264.2	1900

Note: Counting error (95%) ranges from 3.6 to 4%.

Table 2. Distribution of Strontium-90 in coconut crab (Birgus latro) liver collected at Rongelap Atoll in March 1958

Sample Number	Location of Collection	Non-fat solids d/m/g Wet	Non-fat solids d/m/g Dry	Total Solids d/m/g Wet	Total Solids d/m/g Dry
34		260±10*	458±17*	55±2*	97± 4*
35		353±13	544±20	90±3	140± 5
36	Kabelle	276±12	484±20	130±5	288±10
37	Island	605±35	1080±44	194±8	347±14
38		420±20	674±33	134±6	216±11
Mean		383	648	121	218
Standard deviation		140	255	52	103
84		236±10	350±15	40±2	59± 3
85		245±11	332±13	30±1	41± 2
86	Rongelap	159± 8	222±10	46±2	64± 3
87	Island	409±23	589±33	47±3	67± 4
88		224±13	362±21	65±4	105± 6
Mean		255	371	48	67
Standard deviation		93	134	13	23
81	Eniaetok	248± 9	442±17	70±3	124± 5
82	Island	321±20	548±34	87±5	148± 9
Mean		285	495	79	136
Standard deviation		52	75	12	17

*Counting error is less than 5%

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* Wet weight basis	Non-Fat d/m/g* Dry weight basis	Percentage of gross Beta activity due to fat Wet weight basis	Percentage of gross Beta activity due to fat 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	0.68
37		14	1929	3446	0.44	0.84
38		2	1219	1958	0.11	0.22
Mean		7	1194	2026	0.39	0.77
84	Rongelap Island	1	753	1117	0.18	0.42
85		0	661	897	0.00	0.00
86		-2	513	718	0.00	0.00
87		1	1169	1684	0.13	0.45
38		1	545	882	0.13	0.26
Mean		0.2	728	1060	0.09	0.23
61	Eniaetok Island	6	824	1466	0.49	0.99
62		6	984	1681	0.45	0.97
Mean		6	904	1573	0.47	0.98

*Counting error is less than 8%

Table 5. Strontium units and calcium in coconut crab (Birgus latro) liver collected at Rongelap Atoll in March 1958

Sample Number	Location of Collection	Sr^{90} d/m/g wet weight basis	mg. Ca/gm wet weight basis	Strontium units
34	Kabelle Island	55	7.25	3448
35		90	10.03	4079
36		130	23.93	2469
37		194	15.72	5609
38		134	17.18	3545
Mean		121	14.82	3830
Standard deviation		52	6.51	1152
Standard deviation of Mean		23	2.91	515
84	Rongelap	40	8.39	2167
85		30	5.40	2525
86		46	12.67	1650
87		47	6.18	3457
88		65	10.99	2688
Mean		46	8.73	2497
Standard deviation		13	3.09	668
Standard deviation of Mean		6	1.38	299
61	Eniaetok	70	8.00	3977
62		87	7.22	5477
Mean		79	7.61	4727
Standard deviation		12	0.55	1055
Standard deviation of Mean		8	0.39	746