



UNIVERSITY OF WASHINGTON  
LABORATORY OF RADIATION BIOLOGY  
SEATTLE, WASHINGTON

LRD +  
me

Locality Perry Is. Date Aug 19  
Personnel Walter Pelumbo Conril (1/2 day) Champion Weeks Lowman Weather fair-showers  
Water conditions smooth

Radiation level(s)

Operations:

Worked on weighing & recounting plankton plates, the resin column expts, and the  $\gamma$  spectrometers. Have narrowed the trouble down to diodes in the discriminator circuits. Borrowed Tektronix scope from H & N Red Safe.

The two Nansen Bottles from home arrived today thanks a lot. We were on the edge of going out of business.

Sim left for the mainland shortly after noon.

Borrowed an analyzer (same model as ours) from H & N red safe and started running curves in the ion exchange separation.

Carl Minniken & Bill Temmany came down to see how the separations were made.

Rebuilt the lead igloo around the  $\gamma$  spect. pickup head. Bkg on 2 MEV 354 c/m. Bkg on  $\beta$  counters 30 c/m.

Laid on trip to Janet and Belle Iles for tomorrow. All trips, transportation, mail etc. now handled by A.E.C. as the 7.1 people have gone out of business here.

1955

ff

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SEATTLE, WASHINGTON

L RD  
mc

Locality KABELLE I. Date 20 AUG 58  
Personnel Same as 10 AUG Weather Clear - light showers  
Water conditions Calm

Radiation level(s)

Operations: Trolling 0600 - 0800

Trail cut from lagoon beach to seaward beach. Trail starts just south of cistern & is marked by yellow paint on trees. Entrance to trail from seaward beach marked by large pile of rocks. Side trail to pits 13, 14, & 15 also cut. Survey meter readings & composite soil sample taken along trail at same locations as in Mar '58 (KB & JK). GB & RW collected plants at pits 4, 5, 12, 14 & 15 - same as in March. Soil pits 4, 5 & 12 re-sampled & water taken from well points. Copious flow of potable water from pits 4 & 5 at about 6' - ~~no~~ trace of water from pit 12 at 14'. D.C. & E.H. installed lysimeter with 2 plates at 1", 2 at 4" & 1 at 12". Due to lack of rain lysimeter was irrigated after dinner with 1/4" distilled water. Leachate collected had little color as compared to collections at same site last March. While putting in lysimeter observed Fairy & Noddy Terns nesting in area. Saw several Fairy Terns hanging around the area for an hour or more at a time with beaks full of fish. None of the Noddies were seen carrying fish. The ~~terns~~ Pisonia trees appear to be in full leaf at this season & the Boerhaavia has put on considerable growth since March (SG & RW measured several plants which had been partially cut back in March). The odor of the guano is everpresent

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Locality \_\_\_\_\_ Date 20 AUG (Cont)

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

\_\_\_\_\_ Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

and intensified after a light shower.  
RK dug out 3 coconut crabs - many holes  
seen. GB & JK collected algae on seaward reef  
& in channel at N. end of Kabelle. JK also collected  
duplicate specimens of coral from channel for  
identification. TJ & RE poisoned tide pools on  
seaward reef (good kill) & made reconnaissance  
of reefs to determine best blasting sites. FR  
observed birds on Kabelle - only breeding species  
were white capped Noddies, Common Noddies, &  
Fairy Terns. Collected about 50 gms of guano from  
nests.

Plant, Fish, Invertebrate & Bird specimens  
prepared. pH & conductivity measurements made  
on soils.

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JRD  
me

Locality Slater, Joint-Belle Date July 20, 1953  
Personnel Louman Weather Clear - some clouds  
Winters & Water conditions smooth  
Champion

Radiation level(s)

Operations:

Left for Joint & Belle Bay H-21 at 10:00.  
stopped at Joint about 10:30 for lunch.  
Plants were growing in various places  
and a list of them "Joint Bay" was  
made up to include Siphonurus, Fucus, Cladophora,  
Ceramium, all a few inches high, Portulaca - also  
some other plants, and Poa was not  
transferred. The possibility that  
rats may be present.

Arrived at Joint about 10:45. Many  
plants were growing in various places  
including Cladophora, Fucus, Cladophora,  
Scenedesmus, Hydrocoleum, and Raetia. Collected algae in  
Area F - Poison area. Chaetomorpha colonies (long, stringy green filamentous)  
covered the entire area except for a few isolated spots.

Planned to collect samples from  
various places. The samples were collected  
where possible. The samples were  
as much as possible. The samples were  
made up.

Collected a Random sample of soil - top inch and a sample  
at 8-10" depth in Areas A to H

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P.2

Locality Janet Belle (cont'd) Date 2-20-58 Cont'd

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

Janet island is a mass of torn up bunkers and sand piles with scattered clumps of budding Messerschmidia and Scarvella which are at present - originating mostly from "dead" stems. These adventitious buds are similar to those noted before, and some of the lenses are 5-6" long already. They appear to be green and vigorous. Ipomoea plants are mostly 3-4" tall, but an occasional plant 10" tall was found. Clumps of Lepturus were found as well as fruiting plants of Fimbrystilis, the common sedge plant. Portulaca plants up to 4.5" tall were seen and some collected as well as seedling Boerhaavia plants. The ground was covered with tiny green seedlings and it is felt that Janet will be a green island again in a few months.

Belle Island appeared brown from the air, similar to its appearance after Nectar. The plants were blown down and vegetative sprouts of Scarvella and Messerschmidia <sup>are</sup> scattered all over the island. Portulaca plants are well established as are an occasional Quettarda and Trinifetta plants. The algal growth is as vigorous as we have <sup>ever</sup> seen it at Belle. Fish were difficult to pick up because of the heavy algal "under growth". The predominant algae are Chaetomorpha, Polysiphonia, Synchyra sordida, Spyridia and Pectinaria and occasional clumps of Halimeda stiposa.

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L.R.B.  
me

Locality Kabelle Date 21 AUG 58

Personnel Same as 10 Aug Weather Clear - light showers

Water conditions Calm

Radiation level(s) \_\_\_\_\_

Operations: Trolling 0600-0800  
AM blasting for fish on reef flat near  
wash area with entire group collecting fish  
(except DC who has cut hand) & then in channel  
at N. end of Kabelle. TJ & RE then proceeded  
to ship with fish to work them up & others proceed  
with their work. FR collected Noddy & Fairy  
terns for skin & tissue samples - also shot  
another Crested Tern. Observed birds on that  
portion of Kabelle south of the wash area &  
went by skiff to the small islands N of Kabelle.  
DC & EH put in lysimeter near pit 6 - this is  
a sandy area with organic matter only in the thin  
crust of algae at the surface. Getting the plates  
or discs in was difficult due to carving of the sand  
but a satisfactory technique was finally worked  
out (see DC's field notes). 5 discs were placed  
2", 3", 16", 16" & 30". RW has become interest in  
high nitrogen content of stems & leaves of some plants -  
notably Messerschmidia & Pisonia so far - collected  
different species & soils under them for testing  
aboard ship & in Seattle. SG & RK collected soil  
samples & installed well points at old soil pits. RB  
spent afternoon making plankton tows from DICU -  
much larger hauls here than off Rangebay.  
After-dinner revisited lysimeters, collected coconut crabs, &  
on Antew. algae collected from lagoon.

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Locality Elmer Date Aug 21, 1953  
Personnel Louman, Weeks Weather Fog - Rain  
Welandt & Champion Water conditions Occasionally rough.  
Palumbo

Radiation level(s)

Operations:

Dried & packaged most of the plants  
from Janet & Belle.  
✓ spectrom on the resin fraction, going  
24 hours/day.  
Dissected the fish from Belle & started  
drying the samples.  
Found *Tungsten*<sup>185</sup> in the plankton.



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Locality Kabelle Date 22 AUG (cont.)

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

JK collected algae from lagoon. SA collected  
Boerhaavia plants + flowers - prepared plants + algae.

TJ + RE worked in lab preparing + identifying  
fish - RE confined to ship with injected foot.

DC irrigated lysimeters + collected leachates -  
pH + conductivity measurements made on leachates.

SG collected special soil samples, worked with  
RK on root studies + helped with lysimeters  
after dinner.

FR with R. Willis to Mejatto I (about 2 mi  
S. of Kabelle) - few birds. Returned to Namoon I.  
White-capped Noddy only species showing colonial  
nesting at this time.

Trolling after dinner.  
Plankton taken by pumping at Sta 10 at  
1830 + 2300 - if any difference there was more plankton  
taken at ~~1830~~ 1830 than at 2300.

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RD ✓  
me

Locality Elmer Date Aug. 22, 1958  
Personnel Lowman, Palumbo, Weather Fine  
Weeks, Champion, Water conditions Normal  
Welande

Radiation level(s) \_\_\_\_\_

Operations:

Finished dissecting fresh invertebrates from Belle. Packaged all plants from Belle. Analyzer in shape again for T spectrometer. Repaired scaler & obtained an extra decade unit

Don Cole of UCRH let Ralph & Art scrounge (beach comb) their lab. & we came out with arms loaded of course.

Continued with Resin column work, adding the 2nd separation on the iron on each experiment (Kraus + Moore - Dow + 1).

KP

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JRD  
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Locality Kabelle - Rongelap Date 23 AUG 58  
Personnel Same as 10 AUG Weather Overcast - intermittent rain  
(see end of report for rainfall)  
Water conditions generally calm - occasionally choppy during squalls.

Radiation level(s)

Operations:

0600 entire group ashore for final collection of lysimeters, general "picking up", & tour of soil pits by those who had not visited them before. 0800 returned to ship. 0830 left for Rongelap Is. 1000 (Arrived Rongelap 1600)  
SG, BK & R. Willis dropped off at Eniaetok in skiff to proceed to Rongelap on their own by island hopping.  
KB collected bottom material from anchor flukes & hinge - 11 fathoms.

All hands worked in lab enroute to Rongelap Is. Arr. Rongelap at lunch time.

RD measured plants at tomato-corn plot & fertilized taro at pit 22. Numbered fronds on palm at plot B. Inspected plants on South & SE beach. RE still confined to ship with infected feet - with TJ worked on fish in lab.

Permission ~~from~~ for establishment of weather station rec'd from AMTA in our absence. With J.K., Bwio, Kine & Titi - cleared area, put in concrete foundation for mast, erected rain gauge on concrete foundation, erected shelter, put rain gauge in operation.

GB worked on algae in lab.

JC collected leeches from lysimeters left at Rongelap - they had functioned well in our absence. After dinner FR set out trap line. RW, TJ, GB & EH to W. end to observe seedlings & collect rats - one shot. Rain at Kabelle 0.39 in to 0745.

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Locality \_\_\_\_\_ Date 14 AUG 58 (Cont)

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

\_\_\_\_\_ Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

Rainfall at Rongelap - temporary location  
 of gauge near ball field:  
 Start 1500 14 AUG '58

14 AUG	0.58	Resistance = 21,900 ohms <del>conductivity</del>
15	0.00	(dist. water = 500,000 ohms)
16	0.00	Kabelle cistem water = 25,000 ohms)
17	0.13 <del>0.00</del>	pH = 6.5
18	0.00	
19	0.14	
20	0.04	
21	0.40	
22	0.03	
23	2.48	(this value determined by subtraction from total for period from 14 AUG to 1130 24 AUG)
24 (to 1130 hrs)		
Total	3.80	

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LRD ✓  
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Locality Elmer Date August 23, 1958  
Personnel LOWMAN, WELANDER, Weather FAIR - Windy  
WEEKS, CHAMPION, PALUMBO Water conditions Rough

Radiation level(s)

Operations:

Kraus Moore separation for Transition elements started early this AM on the midnite shift while working with the gamma spectrometer. Most of the primary separations now completed & the fractions are being gamma counted and analyzed.

Packing boxes for Silverstein survey as well as two "extra" boxes for surplus Lab equipment that we want to save for future use.

Calculations being made for decay of the collect plantlet samples and also for gamma emitters. Still have many fractions to be analyzed.

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Locality RONGELAP IS. Date 24 AUG 58  
Personnel SAME AS 10 AUG Weather Showers  
Water conditions Calm

Radiation level(s) \_\_\_\_\_

Operations: ALTO DEPARTED RONGELAP FOR ENIWETOK 1600.

B. & T.J. completed survey meter readings  
in areas checked in Mar 58.

Mass soil samples (about 300 lbs) of soil  
taken from pit 22 area. Baccharis samples taken  
for greenhouse experiments. Squash seed obtained  
from Kalala. Fertilizer plots & fertilized  
Tacca photographed. Plant samples collected  
for nitrate testing. Leeches collected for  
final adjustments made on lysimeters which will  
be left in place. Fish & algae samples processed.

Installation of weather station completed &  
Bwio went through entire routine of changing charts,  
battery, ink, measuring rain, checking humidity with  
sling psychrometer without assistance.

Picked up urine samples for Conrad - supposed  
to be 24 hr samples from the following persons:  
Antak #11, GROSJ #26, HERRY #20, MENARIK #63,  
KAJBA #833, NAMIKU #70, KOFAE #50, KOTVAR  
#47, TITIKOS #71, JOZAIK (no # given). JARWE had  
taken care of collecting & labeling the urine samples.

Bwio brought in daily rations of local products  
from 14 people. He explained that in some  
cases little was given (especially AINE) because Cratogeomys  
& rice were the principal foods eaten.

∴ Paid natives for work done for us 66

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Locality \_\_\_\_\_ Date 21 Aug (cont)

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

according to the rate of 30¢/hr as recommended in TLIX from Neas to Hild, 17 AUG 58. Our records of time worked & that of Bario agreed within 2 hrs on the total for all men. Men paid were: KASBA, MATUJLO, ATJANG, JOBA, BERU, JIA - SIX HOURS EACH; KINE ANJIAN - 4.8 hrs; LAURAM TITIKUS - 3.9 hrs; KEJER KASAI - 11 hrs. Total cost \$41.10.

KINE is a very reliable & eager worker & speaks English well. Titikus does not speak English but works hard at any job & is reputed to be the best fisherman at Rongelap.

In spite of repeated efforts <sup>by natives</sup> at both Eniaetok & Rongelap islands only one coconut crab was taken at Rongelap & one from the first island North of Eniaetok. None were taken at Eniaetok proper.

Further checking on the source of locally grown foods ~~shows~~ leaves no doubt that a considerable proportion of the food eaten at Rongelap Is. is collected from Eniaetok Is. This is particularly true of Pandanus which is now at peak season - probably on the order of one third of the Pandanus consumed at Rongelap Is. has been harvested at Eniaetok. The *Papaya* trees are now in fruit

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Locality \_\_\_\_\_ Date 24 AUG 58 (cont)

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

& although none are ripe an occasional small green fruit (2-3" long) is cut up & added to the rice.

The bread fruit trees are looking better than we have ever seen them in approaching the peak of their season.

The following are extracts from notes taken by FH since our arrival:

INFORMATION FROM BULLIO WHO SPENT AN ENTIRE EVENING GOING TO DIFFERENT FAMILIES TO GET HIS INFORMATION

Coconut (Ni)

- A. "we drink the juice" B. ~~Eat~~ "Eat the copra"  
C. "Eat the meat inside the coconut" D. "Eat the meat inside the small plant" (this refers to the spongy material in the sprouted coconut) (1) "Eat without cook" (2) "Boil it & eat it"

Breadfruit (Ma)

- (1) "Cook it on the fire" (2) "Take the skin off and boil it." (3) "How to make cheese: take the skin off and put in salt water for 3 days, and take it out & hurry." (note: wrapped in breadfruit leaves) "After one week, take it out & cook it (bake or boil) and eat." But it can stay under the soil for 2 years or more.

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Locality \_\_\_\_\_ Date 24 AUG Coats

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

Pandanus (Bob or Bop)

(A) "Eat the fruit without cook it" (B) Cook it & eat it." (1) "Boil" (2) "BAKE" (3) "There is a kind of food we call it 'JENKEN', very much like 'CATSUP'. Bake the fruit & get the meat out & dry it. It can stay more than 5 years."

Arrowroot or Tacca (Makmak or Makmak)

"First we clean up the roots with salt water (SEA WATER), & squeeze it into a bucket full of salt (SEA) water & wait for about 3 hours. After 3 hrs the root begins to freeze (coagulation), then dump off the water & get the meat & dry it." "How to cook: (A) BAKE, (B) Boil it. Can't eat it raw."

FISH

"Bake it, Boil it, Salt it & dry it. We cook Bird, Chicken, clam, pig & lobster in the same way."

Bowie has agreed to obtain pig bones for us with the following information:  
Date: pig is killed, Island pig was raised on \_\_\_\_\_

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Locality \_\_\_\_\_ Date 24 May (cont)

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

Age of pig \_\_\_\_\_

List of foods obtained from Kine:

Rice, C-rations, Fish (muscle only), Coconut,

Pandanus, Breadfruit, Arrowroot, Taro,

Squash, Langosta, Chicken, Pig, Birds.

Fish, crabs etc usually boiled - boiling water discarded.

LOCAL MEDICINES - information obtained from Jabwe (local doctor) ~~and~~ a midwife, Samson & one other man who works in the hospital but whose name was not written into notes.

Scaevola (Kannot)

Leaves & stems used.

Juice from stems squeezed into eye - sometimes stops pain in eye.

Leaves crushed in hollow stone then wrapped in cheese cloth, dipped in water & squeezed out. Mother drinks one cup 3X daily for 2-3 weeks after delivery.

Gretharda (Wit)

For toothache, pack the cavity with the flower. Sometimes works better than APC, some times doesn't work.

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Locality \_\_\_\_\_ Date 24 AUG (CONT)  
Personnel \_\_\_\_\_ Weather \_\_\_\_\_  
\_\_\_\_\_ Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

Dodder (KANON)

For Headache Prepared as Scaevola  
leaves. Small cup full 3 x a day for one week.  
Sometimes better than aspirin.

Triumfetta (ATAT)

For coughing & griping pains in abdomen.  
Prepared same as Scaevola leaves.  
3 x a day for 1-2 weeks. Big cupful for  
adults, small cupful for children.

Messerschmidia (KIRON)

For diarrhea & deep wounds.  
For diarrhea prepared same as Scaevola  
leaves.

For deep wounds: 10 or 12 leaves  
crushed, juice squeezed out into one cup water,  
boiled & painted on wound with hot.

Also used for stomach ache. Generally  
used in place of combination of aspirin & sulfa-  
thiazole.

Allophylus (KITOK)

For general "body pain"  
Prepared as Scaevola leaves. Same effect  
as thiamin chloride.

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7/20

Locality Eniaetok - Kabelle Date 19 AUG 58

Personnel \_\_\_\_\_ Weather Showers

Water conditions calm

Radiation level(s) \_\_\_\_\_

Operations: Trolling 0600 - 0800

ALOTA departed for Kabelle 0900. Five plankton & bottom sample stations taken en route. Lab work done en route. Anchored 3/4 mile off Kabelle 1600. After dinner the group plus several ships crew to Aniaetok. It primarily for recreational glass ball collecting &c. Many birds on this & adjoining small islands. FP & FH collected birds - Crested Tern & brown booby taken. Birds not previously observed at Rongelapi: white capped Noddy, Curlew, Brown Booby, sandpipers. Bird breeding area: fairy terns, Noddies (both species?), Crested Terns.

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Folder 1958 August 1

September 20

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me

Locality Perry Is. Date Aug 19  
Personnel Walter Pelumbo Conril (1/2 day) Champion Weeks Lowman Weather fair-showers  
Water conditions smooth

Radiation level(s)

Operations:

Worked on weighing & recounting plankton plates, the resin column expts, and the  $\gamma$  spectrometer. Have narrowed the trouble down to diodes in the discriminator circuits. Borrowed Tektronix scope from H & N Red Safe.

The two Nansen Bottles from home arrived today thanks a lot. We were on the edge of going out of business.

Sim left for the mainland shortly after noon.

Borrowed an analyzer (same model as ours) from H & N red safe and started running curves in the ion exchange separation.

Carl Minniken & Bill Temmany came down to see how the separations were made.

Rebuilt the lead igloo around the  $\gamma$  spect pickup head. Bkg on 2 MEV 354 c/m. Bkg on  $\beta$  counters 30 c/m.

Laid on trip to Janet and Belle Iles for tomorrow. All trips, transportation, mail etc. now handled by A.E.C. as the 7.1 people have gone out of business here.

1965

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L RD  
mc

Locality KABELLE I. Date 20 AUG 58  
Personnel Same as 10 AUG Weather Clear - light showers  
Water conditions Calm

Radiation level(s)

Operations: Trolling 0600 - 0800

Trail cut from lagoon beach to seaward beach. Trail starts just south of cistern & is marked by yellow paint on trees. Entrance to trail from seaward beach marked by large pile of rocks. Side trail to pits 13, 14, & 15 also cut. Survey meter readings & composite soil sample taken along trail at same locations as in Mar '58 (KB & JK). GB & RW collected plants at pits 4, 5, 12, 14 & 15 - same as in March. Soil pits 4, 5 & 12 re-sampled & water taken from well points. Copious flow of potable water from pits 4 & 5 at about 6' - ~~no~~ trace of water from pit 12 at 14'. D.C. & E.H. installed lysimeter with 2 plates at 1", 2 at 4" & 1 at 12". Due to lack of rain lysimeter was irrigated after dinner with 1/4" distilled water. Leachate collected had little color as compared to collections at same site last March. While putting in lysimeter observed Fairy & Noddy Terns nesting in area. Saw several Fairy Terns hanging around the area for an hour or more at a time with beaks full of fish. None of the Noddies were seen carrying fish. The ~~terns~~ *Pisonia* trees appear to be in full leaf at this season & the *Boerhaavia* has put on considerable growth since March (SG & RW measured several plants which had been partially cut back in March). The odor of the guano is everpresent

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Locality \_\_\_\_\_ Date 20 AUG (Cont)

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

\_\_\_\_\_ Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

and intensified after a light shower.  
RK dug out 3 coconut crabs - many holes  
seen. GB & JK collected algae on seaward reef  
& in channel at N. end of Kabelle. JK also collected  
duplicate specimens of coral from channel for  
identification. TJ & RE poisoned tide pools on  
seaward reef (good kill) & made reconnaissance  
of reefs to determine best blasting sites. FR  
observed birds on Kabelle - only breeding species  
were white capped Noddies, Common Noddies, &  
Fairy Terns. Collected about 50 gms of guano from  
nests.

Plant, Fish, Invertebrate & Bird specimens  
prepared. pH & conductivity measurements made  
on soils.

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JRD  
me

Locality Slater, Joint-Belle Date May 20, 1953  
Personnel Louman Weather Clear - some clouds  
Winters & Champion Water conditions smooth

Radiation level(s)

Operations:

Left for Joint & Belle May 11-21 at 10:00.  
Left Joint about 10:30 for Belle.  
Plants were growing in a field of  
mud & silt of the "Belle" River  
& up to the edge of the river. Cenchrus,  
Cenchrus, all a few inches high, Portulaca also  
seen in places, and Poa seen in  
places. The possibility that  
rats may be present.

Arrived Belle about 10:45. Many  
plants were growing in a field of  
mud & silt. Portulaca,  
Scilla, Thalictrum, and Rorippa. Collected algae in  
Area F - Poison area. Chaetomorpha colonies (long, stringy green filaments)  
covered the entire area except for a few isolated spots.

Planned to collect samples from  
the area. The area was very muddy  
when, following the tide, the  
area was very muddy. The  
joint was very muddy.

Collected a Random sample of soil - top inch and a sample  
at 8-10" depth in Areas A to H

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P.2

Locality Janet Belle (cont'd) Date 2-20-58 Cont'd

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

Janet island is a mass of torn up bunkers and sand piles with scattered clumps of budding Messerschmidia and Scarvella which are at present - originating mostly from "dead" stems. These adventitious buds are similar to those noted before, and some of the lenses are 5-6" long already. They appear to be green and vigorous. Ipomoea plants are mostly 3-4" tall, but an occasional plant 10" tall was found. Clumps of Lepturus were found as well as fruiting plants of Fimbrystilis, the common sedge plant. Portulaca plants up to 4.5" tall were seen and some collected as well as seedling Boerhaavia plants. The ground was covered with tiny green seedlings and it is felt that Janet will be a green island again in a few months.

Belle Island appeared brown from the air, similar to its appearance after Nectar. The plants were blown down and vegetative sprouts of Scarvella and Messerschmidia <sup>are</sup> scattered all over the island. Portulaca plants are well established as are an occasional Quettarda and Trinifetta plants. The algal growth is as vigorous as we have <sup>ever</sup> seen it at Belle. Fish were difficult to pick up because of the heavy algal "under growth". The predominant algae are Chaetomorpha, Polysiphonia, Synchyra sordida, Spyridia and Pectinaria and occasional clumps of Halimeda stiposa.

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L.R.B.  
me

Locality Kabelle Date 21 AUG 58

Personnel Same as 10 Aug Weather Clear - light showers

Water conditions Calm

Radiation level(s) \_\_\_\_\_

Operations: Trolling 0600-0800  
AM blasting for fish on reef flat near  
wash area with entire group collecting fish  
(except DC who has cut hand) & then in channel  
at N. end of Kabelle. TJ & RE then proceeded  
to ship with fish to work them up & others proceed  
with their work. FR collected Noddy & Fairy  
terns for skin & tissue samples - also shot  
another Crested Tern. Observed birds on that  
portion of Kabelle south of the wash area &  
went by skiff to the small islands N of Kabelle.  
DC & EH put in lysimeter near pit 6 - this is  
a sandy area with organic matter only in the thin  
crust of algae at the surface. Getting the plates  
or discs in was difficult due to carving of the sand  
but a satisfactory technique was finally worked  
out (see DC's field notes). 5 discs were placed  
2", 3", 16", 16" & 30". RW has become interest in  
high nitrogen content of stems & leaves of some plants -  
notably Messerschmidia & Pisonia so far - collected  
different species & soils under them for testing  
aboard ship & in Seattle. SG & RK collected soil  
samples & installed well points at old soil pits. RB  
spent afternoon making plankton tows from DICU -  
much larger hauls here than off Rangalau.  
After-dinner revisited lysimeters, collected coconut crabs, &  
on Antew. algae collected from lagoon.

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LRD ✓  
me

Locality Elmer Date Aug 21, 1953  
Personnel Louman, Weeks Weather Fog - Rain  
Welandt & Champion Water conditions Occasionally rough.  
Palumbo

Radiation level(s)

Operations:

Dried & packaged most of the plants  
from Janet & Belle.  
✓ spectrom on the resin fraction, going  
24 hours/day.  
Dissected the fish from Belle & started  
drying the samples.  
Found *Tungsten*<sup>185</sup> in the plankton.



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Locality Kabelle Date 22 AUG (cont.)

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

JK collected algae from lagoon. SA collected  
Boerhaavia plants + flowers - prepared plants + algae.

TJ + RE worked in lab preparing + identifying  
fish - RE confined to ship with injected foot.

DC irrigated lysimeters + collected leachates.  
pH + conductivity measurements made on leachates.

SG collected special soil samples, worked with  
RK on root studies + helped with lysimeters  
after dinner.

FR with R. Willis to Mejatto I (about 2 mi  
S. of Kabelle) - few birds. Returned to Namoon I.  
White-capped Noddy only species showing colonial  
nesting at this time.

Trolling after dinner.  
Plankton taken by pumping at Sta 10 at  
1830 + 2300 - if any difference there was more plankton  
taken at ~~1830~~ 1830 than at 2300.

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RD ✓  
me

Locality Elmer Date Aug. 22, 1958  
Personnel Lowman, Palumbo, Weather Fine  
Weeks, Champion, Water conditions Normal  
Welande

Radiation level(s) \_\_\_\_\_

Operations:

Finished dissecting fresh invertebrates from Belle. Packaged all plants from Belle. Analyzer in shape again for T spectrometer. Repaired scaler & obtained an extra decade unit

Don Cole of UCRH let Ralph & Art scrounge (beach comb) their lab. & we came out with arms loaded of course.

Continued with Resin column work, adding the 2nd separation on the iron on each experiment (Kraus + Moore - Dow + 1).

KP

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JRD  
me

37

Locality Kabelle - Rongelap Date 23 AUG 58  
Personnel Same as 10 AUG Weather Overcast - intermittent rain  
Water conditions generally calm - occasionally choppy during squalls.

Radiation level(s)

Operations:

0600 entire group ashore for final collection of lysimeters, general "picking up", & tour of soil pits by those who had not visited them before. 0800 returned to ship. 0830 left for Rongelap Is. 1000 (Arrived Rongelap 1600)  
SG, BK & R. Willis dropped off at Eniaetok in skiff to proceed to Rongelap on their own by island hopping.  
KB collected bottom material from anchor flukes & hinge - 11 fathoms.

All hands worked in lab enroute to Rongelap Is. Arr. Rongelap at lunch time.

RD measured plants at tomato-corn plot & fertilized taro at pit 22. Numbered fronds on palm at plot B. Inspected plants on South & SE beach. RE still confined to ship with infected feet - with TJ worked on fish in lab.

Permission ~~from~~ for establishment of weather station rec'd from AMTA in our absence. With J.K., Bwio, Kine & Titi - cleared area, put in concrete foundation for mast, erected rain gauge on concrete foundation, erected shelter, put rain gauge in operation.

GB worked on algae in lab.

JC collected leeches from lysimeters left at Rongelap - they had functioned well in our absence.

After dinner FR set out trap line. RW, TJ, GB & EH to W. end to observe seedlings & collect rats - one shot. Rain at Kabelle 0.39 in to 0745.

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Locality \_\_\_\_\_ Date AUG 58 (Cont)

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

\_\_\_\_\_ Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

Rainfall at Rongelap - temporary location  
 of gauge near ball field:  
 Start 1500 14 AUG '58

14 AUG	0.58	Resistance = 21,900 ohms <del>conductivity</del>
15	0.00	(dist. water = 500,000 ohms)
16	0.00	Kabelle cistem water = 25,000 ohms)
17	0.13 <del>0.00</del>	pH = 6.5
18	0.00	
19	0.14	
20	0.04	
21	0.40	
22	0.03	
23	2.48	(this value determined by subtraction from total for period from 14 AUG to 1130 24 AUG)
24 (to 1130 hrs)		
Total	3.80	

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LRD ✓  
• me

Locality Elmer Date August 23, 1958  
Personnel LOWMAN, WELANDER, Weather FAIR - Windy  
WEEKS, CHAMPION, PALUMBO Water conditions Rough

Radiation level(s)

Operations:

Kraus Moore separation for Transition elements started early this AM on the midnite shift while working with the gamma spectrometer. Most of the primary separations now completed & the fractions are being gamma counted and analyzed.

Packing boxes for Silverstein survey as well as two "extra" boxes for surplus Lab equipment that we want to save for future use.

Calculations being made for decay of the collect plantlet samples and also for gamma emitters. Still have many fractions to be analyzed.

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me

Locality RONGELAP IS. Date 24 AUG 58  
Personnel SAME AS 10 AUG Weather Showers  
Water conditions Calm

Radiation level(s) \_\_\_\_\_

Operations: ALTO DEPARTED RONGELAP FOR ENIWETOK 1600.

B. & T.J. completed survey meter readings  
in areas checked in Mar 58.

Mass soil samples (about 300 lbs) of soil  
taken from pit 22 area. Baccharis samples taken  
for greenhouse experiments. Squash seed obtained  
from Kalala. Fertilizer plots & fertilized  
Tacca photographed. Plant samples collected  
for nitrate testing. Leeches collected for  
final adjustments made on lysimeters which will  
be left in place. Fish & algae samples processed.

Installation of weather station completed &  
Bwio went through entire routine of changing charts,  
battery, ink, measuring rain, checking humidity with  
sling psychrometer without assistance.

Picked up urine samples for Conrad - supposed  
to be 24 hr samples from the following persons:  
Antak #11, GROSJ #26, HERRY #20, MENARIK #63,  
KAJBA #833, NAMIKU #70, KOFAE #50, KOTVAR  
#47, TITIKOS #71, JOZAIK (no # given). JARWE had  
taken care of collecting & labeling the urine samples.

Bwio brought in daily rations of local products  
from 14 people. He explained that in some  
cases little was given (especially AINE) because Crotalaria  
& rice were the principal foods eaten.

∴ Paid natives for work done for us

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Locality \_\_\_\_\_ Date 21 Aug (cont)

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

according to the rate of 30¢/hr as recommended in TUX from Neas to Hild, 17 AUG 58. Our records of time worked & that of Bario agreed within 2 hrs on the total for all men. Men paid were: KASBA, MATUJLO, ATJANG, JOBA, BERU, JIA - SIX HOURS EACH; KINE ANJIAN - 4.8 hrs; LAURAM TITIKUS - 3.9 hrs; KEJER KASAI - 11 hrs. Total cost \$41.10.

KINE is a very reliable & eager worker & speaks English well. Titikus does not speak English but works hard at any job & is reputed to be the best fisherman at Rongelap.

In spite of repeated efforts <sup>by natives</sup> at both Eniaetok & Rongelap islands only one coconut crab was taken at Rongelap & one from the first island North of Eniaetok. None were taken at Eniaetok proper.

Further checking on the source of locally grown foods ~~shows~~ leaves no doubt that a considerable proportion of the food eaten at Rongelap Is. is collected from Eniaetok Is. This is particularly true of Pandanus which is now at peak season - probably on the order of one third of the Pandanus consumed at Rongelap Is. has been harvested at Eniaetok. The Papaya trees are now in fruit

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Locality \_\_\_\_\_ Date 24 AUG 58 (cont)

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

& although none are ripe an occasional small green fruit (2-3" long) is cut up & added to the rice.

The bread fruit trees are looking better than we have ever seen them as approaching the peak of their season.

The following are extracts from notes taken by FH since our arrival:

INFORMATION FROM BULLIO WHO SPENT AN ENTIRE EVENING GOING TO DIFFERENT FAMILIES TO GET HIS INFORMATION

Coconut (Ni)

- A. "we drink the juice" B. ~~Eat~~ Eat the copra"  
C. "Eat the meat inside the coconut" D. "Eat the meat inside the small plant" (this refers to the spongy material in the sprouted coconut) (1) "Eat without cook." (2) "Boil it & eat it."

Breadfruit (Ma)

- (1) "Cook it on the fire." (2) "Take the skin off and boil it." (3) "How to make cheese: take the skin off and put in salt water for 3 days, and take it out & hurry." (note: wrapped in breadfruit leaves) "After one week, take it out & cook it (bake or boil) and eat." But it can stay under the soil for 2 years or more.

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Locality \_\_\_\_\_ Date 24 AUG Coats

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

Pandanus (Bob a Bop)

(A) "Eat the fruit without cook it" (B) Cook it & eat it." (1) "Boil" (2) "BAKE" (3) "There is a kind of food we call it 'JENKEN', very much like 'CATSUP'. Bake the fruit & get the meat out & dry it. It can stay more than 5 years."

Arrowroot or Tacca (Makmak a Makmak)

"First we clean up the roots with salt water (SEA WATER), & squeeze it into a bucket full of salt (SEA) water & wait for about 3 hours. After 3 hrs the root begins to freeze (COAGULATION), then dump off the water & get the meat & dry it." "How to cook: (A) BAKE, (B) Boil it. Can't eat it raw."

FISH

"Bake it, Boil it, Salt it & dry it. We cook Bird, Chicken, clam, pig & lobster in the same way."

Bowie has agreed to obtain pig bones for us with the following information:  
Date: pig is killed, Island pig was raised on,

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Locality \_\_\_\_\_ Date 24 May (cont)

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

Age of pig \_\_\_\_\_

List of foods obtained from Kine:

Rice, C-rations, Fish (muscle only), Coconut,

Pandanus, Breadfruit, Arrowroot, Taro,

Squash, Langosta, Chicken, Pig, Birds.

Fish, crabs etc usually boiled - boiling water discarded.

LOCAL MEDICINES - information obtained from Jabwe (local doctor) ~~and~~ a midwife, Samson & one other man who works in the hospital but whose name was not written into notes.

Scaevola (Kannot)

Leaves & stems used.

Juice from stems squeezed into eye - sometimes stops pain in eye.

Leaves crushed in hollow stone then wrapped in cheese cloth, dipped in water & squeezed out. Mother drinks one cup 3X daily for 2-3 weeks after delivery.

Gretharda (Wit)

For toothache, pack the cavity with the flower. Sometimes works better than APC, some times doesn't work.

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Locality \_\_\_\_\_ Date 24 AUG (CONT)  
Personnel \_\_\_\_\_ Weather \_\_\_\_\_  
\_\_\_\_\_ Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

Dodder (KANON)

For Headache Prepared as Scaevola  
leaves. Small cup full 3 x a day for one week.  
Sometimes better than aspirin.

Triumfetta (ATAT)

For coughing & griping pains in abdomen.  
Prepared same as Scaevola leaves.  
3 x a day for 1-2 weeks. Big cupful for  
adults, small cupful for children.

Messerschmidia (KIRON)

For diarrhea & deep wounds.  
For diarrhea prepared same as Scaevola  
leaves.

For deep wounds: 10 or 12 leaves  
crushed, juice squeezed out into one cup water,  
boiled & painted on wound with hot.

Also used for stomach ache. Generally  
used in place of combination of aspirin & sulfa-  
thiazole.

Allophylus (KITOK)

For general "body pain"  
Prepared as Scaevola leaves. Same effect  
as thiamin chloride.

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Locality \_\_\_\_\_ Date 24 AUG (cont)

Personnel \_\_\_\_\_ Weather \_\_\_\_\_

Water conditions \_\_\_\_\_

Radiation level(s) \_\_\_\_\_

Operations:

Papaya (KENIPA)

For stomach aches some effects

"Ande jhl"

Fruit (meat only) boiled, entire concoction  
dried + powdered.

Dose 1-2 grams.

This by no means exhausts the list of  
plants or preparations used but there was no  
time to obtain more of this sort of information.

Jahwe & the others also insisted that  
when sterile water is not available the milk  
from drinking coconuts (green ones) can be used for  
I.V. infusions in cases of severe loss of blood  
with excellent results. They say they learned this  
during Japanese times & used it on several  
occasions during the ~~war~~ war.

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LRD ✓  
mc

Locality ELMER Date Aug. 24, 1958  
Personnel Welander, Lowman, Weather Fair  
Weeks, Champion, Water conditions Smooth  
Palumbo

Radiation level(s) \_\_\_\_\_

Operations:

Sunday breakfast served cafeteria style for the first time in months. Morning spent in laboratory work, mostly running gamma curves and calculating the data. After lunch we took Frank Beebe of Supply Division for his first Aqualung lesson, at the south end of the island - we stayed in shallow water - Frank G. Lowman's ear did not bother him at 10-15' depths attained. Art + Ralph "supervised" the first end of the raft while Frank and Frank handled the other end. Cleaned up the gear and continued laboratory work.

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#RD  
me

Locality ALTO ENROUTE RONGELAP - Date 25 AUG 58  
ENIWETOK  
Personnel Starts 10 AUG Weather Clear  
Water conditions Smooth

Radiation level(s) \_\_\_\_\_

Operations:

ARRIVED ENIWETOK 1800. Weather was  
so good enroute that we were able to  
process & pack samples & were ready for  
unloading on arrival. Had chew ashore,  
drinks & conversation with Lowman, Melander,  
Palumbo, Weeks, Champion. Then all hands  
off loaded equipment from ALTO to lab  
finished by 2330.

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L. RDV  
MC

Locality Elmer Date Aug. 25 1958  
Personnel Lowman, Wlelander Weather Variable  
Champion, Weeks Water conditions Normal  
Palumbo

Radiation level(s)

Operations:

Tried to clean up the Lab and consolidate "ocean survey" gear so as to give the Rongelap program personnel room to place their gear and a place to work.

Finished last resin column and cleaned up the Lab. Still analyzing the fractions on a 24 hour basis.

Rongelap group arrived at 1800 and had ball sessions with all concerned. Their trip was apparently a successful one and an enjoyable one. Only casualty was Ron Eister who suffered a swollen leg from coral abrasions.

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LRD  
me

Locality PARRY Date 26 AUG '58  
Personnel Same as 16 Aug plus Weather Showers  
McLander, Linnay, Polvora, Water conditions good  
Weeks, Chumpian

Radiation level(s) \_\_\_\_\_

Operations:

Day of rest, recuperation & sick call  
for Rangelap party although most worked at  
lab drying samples, making pH & conductivity  
measurements, packing samples for shipment to  
Seattle.

PM we gave a party for the ship's  
crew at the Beach Combers Club. All but  
those on watch attended.

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JRD  
MC

Locality Elmer - Vera Date Aug 26 1958  
Personnel Lowman, Melander, Weather Sunny + scattered showers  
Weeks, Champion, Water conditions Normal  
Palumbo

Radiation level(s)

Operations:

Take off at 0830 for collection at Vera. Melander, Weeks, Champion, and Palumbo, as well as Edward Ryan of U of Hawaii who is interested in crabs and fish thyroids.

Poisoned in the lagoon, off the center of the island. Collected Lynghya and Halimeda in this area. Fish collection fair - lots of small fish and a few large goatfish - also collected two spider snails, a hermit crab, and a large Tridacna about 16" across - while bringing the shell to the beach. Don slipped and dropped the clam, cutting himself on two fingers - bled profusely and was bandaged with strips of his own shirt. Later at Parry it took 9 stitches to close the three cuts. The land plants were growing well. All species doing fine. Collected Scaevola, Messerschmidia, Sida, Boerhaavia, and Morinda as well as soil at 0.2" and 6.8"

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7 KU  
me

Locality PARRY Date 27 AUG 58

Personnel same as 26 AUG Weather light showers

Water conditions calm

Radiation level(s) \_\_\_\_\_

Operations:

A.M. A full sweep in H-21 with 1/2 hr  
stop at Base to look for possible sites for lysimeters  
& test plots - Richardson, Walker, Kenaday, Baker,  
Jeynes, Perlumbo.

P.M. same trip with Gessel, Cole, Eisler,  
Kimmel, Held.

Remaining time in lab & swimming.

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Locality Elmer Date Aug 27 1958  
Personnel Walter Palumbo Weeks Weather sunny w/ showers  
Champion Lowman Water conditions smooth

Radiation level(s) \_\_\_\_\_

Operations:

Processed Vera collections, worked on  $\gamma$  analyzer and worked on  $\gamma$  spectra.

Sent first results of resin column analyses to Al Klement as requested. Sent data on plankton stations #2 & #3 and fish liver.

Art getting ready to go home.

RP

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time

Locality Parry Date 28 AUG 58  
Personnel Same as 26 Aug. Weather clear - little wind  
one shower in afternoon.  
Water conditions calm

Radiation level(s) \_\_\_\_\_

Operations:

Benham, Welander, Richardson, Gessel, Walker  
departed Parry for Hickam on 1430 water taxi  
Dry ice had been delivered at Fred for frozen  
specimens

Cole & Kenaday to Septon by M-boat in  
the morning. Decided Bruce would be  
used for lysimeter studies & that attempt  
be made to get permission to use the two  
large trenches that were bulldozed out during  
some previous operation - will get answer on  
this 0730 tomorrow. Flights to Bruce  
set up for 29, 30 Aug + 3, 4, 5, 6, 7 Sept.  
Flight to Henry 30 Aug.

Pelumbay, Champion, Weeks to Bikini  
for the day

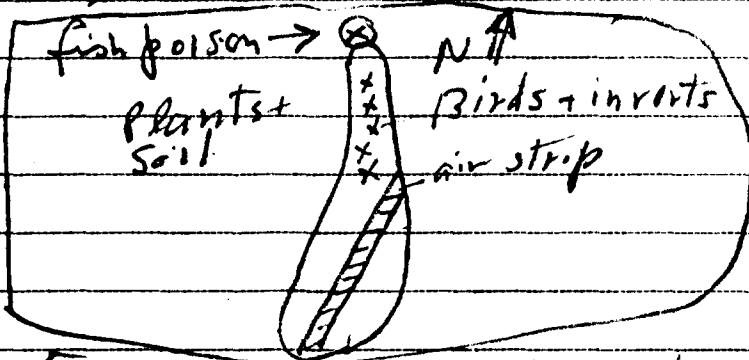
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Locality Elmer - Fred - Nam Date Aug 28 1958  
Personnel Palumbo Welander Champion Weather fair - w/ showers  
Weeks Lowman Water conditions smooth

Radiation level(s) \_\_\_\_\_

Operations:

Welander left for Seattle today right after lunch.  
Weeks, Champion and Palumbo went to Nam Island  
Bikini by C-54. Left Perry Island at 0730 by boat.  
Takeoff at 0830 - Landed at Nam 0945. By DUKW to  
northern tip of island where Bill and Ralph poisoned and  
collected algae. Got good kill including surgeon  
fish, parrot fish, wrasse, groupers and  
jacks. Algae collected were Halimeda and  
Udotea. Don Weeks collected plants - walked  
down island and collected more plants,  
soil and two fairy terns and one sooty tern.  
After lunch went to south end of island to



look for coconut crabs + hermit crabs. No luck with  
either. Took off at 1445 from Nam arrived Fred at  
1600 + Elmer by H-21 - 1830. Put all samples  
away etc.

Regular date

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J.P.D.  
me

Locality Parry Date 29 AUG 58  
Personnel same as 26 Aug Weather very little wind  
Water conditions smooth

Radiation level(s)

Operations:

DC + RK to Bruce 0800-1500. Permission obtained to use bulldozed pits at Bruce. Remainder of group in routine processing at lab & going over notes.

Following are components of individual daily rations exclusive of imported foods such as rice & "C-ration" (see note 24 AUG). (wts in grams)

# & NAME	Meat from water coconut	Meat from drinking water	Coconut milk green nuts	Edible portion fresh Pandanus	Bread Fruit	Dried Pandanus Paste	Other
1. JOUBIA	62	31	48	-	222	40	-
2. JEMIN	202	-	68 (nuts)	-	-	44	-
3. TOTAK	45	-	-	127	-	-	-
4. IJO	95	-	-	30	-	33	-
5. AINE	-	-	-	-	-	84	-
6. HAINRIG	88	-	-	101	395	-	-
7. MATZULE	166	117	108	79	-	50	Tuca Powder 19, Fish cooked 7
8. ETMON	-	78	102	85	-	-	Sprouted Coconut 54, Rice Pandanus Paste 108
9. KOTAE	68	56	158	60	-	-	-
10. JEIRO	-	-	-	159	44	-	-
11. NABTAL	34	51	26	-	58	-	Sprouted Coconut 39
12. MO. KALAL	54	105	129	61	74	53	Tuca Powder 31, Squash 22, Green papaya 55
13. BEDBEDIN	16	-	-	41	71	14	Tuca Cooked 17
14. TITIKOS	150	88	238	43	-	-	-

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Locality EIMER Date August 29, 1958  
Personnel Lowman, Weeks, Weather Hot - No breeze  
Champion, Palumbo Water conditions Smooth  
Eisler, Joyner, and Kimmel

Radiation level(s)

Operations:

Processed Nan plants, algae, and soils + Vera fish. Worked on spectrometer and calculations and sent second TWX to AL Klement re Collett samples chemical determinations. Made mass attempt to sort out gear, empty boxes, "dead weight", and samples and swept out storage room, main Lab, front porch and adjoining tent. One now can walk around without barking shins on piled up junk.

Packaged plants and soils from Vera + most of the Collett samples. Will keep Collett plates here for decay count after Silverstein trip -

Eisler, Lowman, Joyner, Kimmel, and Palumbo went aqua-lunging in "deep" hole. Currents strong so Lowman transferred lessons for Eisler to south channel beach.

The weather indicates start of the doldrums - There was absolutely no breeze all day long and the lagoon was flat as a mirror.

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Locality Parry Date 30 AUG 58  
Personnel Same as 26 AUG Weather very little wind  
Water conditions smooth

Radiation level(s) \_\_\_\_\_

Operations:

DC & RK to Bice 0800-1500.

JJ, JK, EH to Henry, FGL, RE &  
Ed Ryan to Keith - 0820-1430.

At Henry - collected Coconut crab,  
Coenobita, Scaevola, Messembryanthus, Pandanus,  
Lepturus, Coconut, Morinda, soil, beach sand,  
algae washed up on beach.

G.B. worked on algae at lab.

200

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Locality ELMER - Keith - Henry Date Aug 30, 1958  
Personnel LOWMAN, Weeks - Kind Weather FAIR  
Eider Champion, Toyner Water conditions NORMAL  
Palumbo

Radiation level(s) \_\_\_\_\_

Operations:  
Takeoff 0830 by H-21 to Henry then to  
Keith - Collected shorebird, soil, fish, algae  
and land plants. Returned 1530  
At lab continued preparing for silverstein  
which is due at 1700 - no show at 1800 yet.

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Locality Perry Date 31 AUG 58

Personnel Same as 26 Aug Weather light showers

Water conditions calm

Radiation level(s) \_\_\_\_\_

Operations:

Sunday routine; trip to Fred  
"Silverstein" in.

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Locality ELMER Date Aug 31, 1958  
Personnel LOWMAN, PALUMBE, Weather Fair  
LOSEK, Champion, Jeyher, Water conditions Normal  
Eisler, Kimmel.

Radiation level(s)

Operations:

Prepared for Silverstein Trip - packed  
some of counting gear. spectrometer now  
working.

Prepared 16th plants - Nan fish +  
packaged dried specimens.

The ship arrived 1230 Today No  
way of getting aboard.

Frank + Ralph conferred w/ Mr. Smith of AEC,  
Cmdr. Swift of the Silverstein, and the H&W  
people involved re our requirements. We  
laid down our needs for fuel, flat bed,  
awning etc. Plans are to load Sept 2nd  
and get underway Sept. 3rd.

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Locality EMER Date Sept. 1, 1958  
Personnel Lowman et al. Weather Fair  
Water conditions Normal

Radiation level(s)

Operations:

Visited the USS Silverstein to plan Laboratory space and counting room space. Will use the Aft Officer's Quarters passageway for the Chem Lab, the sick bay for the beta counters and a passageway for the spectrometer. We will be quartered in the AOQ (3) and in the Chief's quarters (4). Winches and platforms will be installed as on the Collett - on the port side of the fantail. Returned to beach before lunch. Frank returned to ship to take measurements of tables etc to be prefabricated ashore. Others to Lab to finish packing counting equipment and remainder of processing.

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arrived Sept. 12, 1958

J.P.S.

Locality ELMER Date Sept. 2, 1958  
Personnel Lowman and 6 men. Weather WARM  
Water conditions Smooth

Radiation level(s)

Operations:

Boarded USS Silverstein after lunch with  
all our gear for the important task of setting  
up our laboratory spaces and equipment  
topside. Fisher & Champion stayed ashore  
to finish the fish sampling. Kimmel to  
Ronglap w/ Dr. Held's group.

By 1730 most of the equipment was  
placed in passers and tied down. Still some  
work to be done on the visches & on the  
spectrometer. The crew and officers  
turned to with spirit and aided us in every  
way possible.

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Locality USS Silverstein Date Sept 3, 1958  
 Personnel Lowman, PALUMBO Weeks- Weather Rain  
CHAMPION, Joyner, EISLER, Water conditions Rough  
Kimmel

Radiation level(s) \_\_\_\_\_

Operations:

Made final preparations to clear Parry and boarded Silverstein at 1000. Empty counter boxes returned to EMBC via m. boat + fork lift with help of shipping + receiving.

Continued + finished work on winches, nets, spectrometer, and chem lab. Lost heavy weight for Nansen bottles when testing rig for same. The watch schedule has been set up on a 4-8 hour basis: Team A - PALUMBO Champion; Team B WEEKS - EISLER; TEAM C - JOYNER KIMMEL. LOWMAN will coordinate all phases + trouble shoot + fill in if necessary. EISLER, CHAMPION, and JOYNER are berthed in AOR; others are in Chief's quarters.

Got underway at 1100 in rain storm.

Took following stations

#40 12°30' N 161°50' E 1605 hrs.

#41 13°20' N 161°51' E 1945

#42 14°10' N 161°50' E 2330

	D/M/CC/B Plankton	D/M/L/B									
		0M		25M		50M		100M		300M	
		Filtr	CO <sup>3</sup>	Filtr	CO <sup>3</sup>	Filtr	CO <sup>3</sup>	Filtr	CO <sup>3</sup>	Filtr	CO <sup>3</sup>
#40	250	0	0	0	0	0	0	0	0	0	950
#41	705	0	0	0	0	0	0	0	0	0	0
#42	560	0	1000	0	0	0	0	0	0	0	0

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Locality USS Silversstein Date Sept 4 1958  
 Personnel Palumbo Joyner Eisler Weeks Weather Rainy - some fair weather  
Kimmel Champion Lueman Water conditions smooth

Radiation level(s) \_\_\_\_\_

Operations:

Took following stations:

#43 15°00' 161°45' 0250 hrs  
 #44 15°51' 161°39' 0712 "  
 #45 16°46' 161°39' 1050 "  
 #46 17°00' 160°44' 1517 "  
 #47 16°05' 160°21' 1832 "  
 #48 15°00' 160°00' 2250 "

	D/M/C/B		D/M/L/A								
	Plankton	0M		25M		50M		100M		300M	
		Filter	CO <sup>3</sup>	Filter	CO <sup>3</sup>	Filter	CO <sup>3</sup>	Filter	CO <sup>3</sup>	Filter	CO <sup>3</sup>
#43	4730	191	2750	70	2130	160	3280	84	0	490	0
#44	6590	350	6700	330	5850	330	10,600	130	750	0	0
#45	610	0	920	90	0	70	1050	0	0	0	0
#46	5000	490	1200	460	8700	450	7350	0	0	0	0
#47	630	160	3400	60	1590	0	2100	0	0	0	0
#48	6300	250	11,000	330	11,300	0	2000	0	425	0	0

Transmitted data for stations 40 thru 45 to Al Klement thru Eniwetok (Variety - 3)

Run X spectra - mostly Co<sup>55</sup> Co<sup>57</sup> Co<sup>60</sup> Ba<sup>140</sup> La<sup>140</sup> Zr<sup>95</sup> Nb<sup>94</sup>  
 and varying amounts of Zr<sup>95</sup>

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Locality: VSS Silverstein Date: Sept 5 1958  
 Personnel: Same as Sept 4 Weather: Showers  
 Water conditions: Smooth

Radiation level(s)

Operations:

Took following stations:

# 49	14° 26'	159° 22'	0150 hrs
50	13° 47'	158° 41'	0500
51	13° 16'	158° 09'	0805
52	13° 44'	157° 35'	1050
53	14° 25'	157° 01'	1410
54	14° 55'	156° 24'	1707
55	14° 20'	155° 45'	2105

	D/M/cc $\beta$ Plankton	D/M/L $\beta$									
		0M		25M		50M		100M		300M	
		F	CO <sub>2</sub>	F	CO <sub>2</sub>	F	CO <sub>2</sub>	F	CO <sub>2</sub>	F	CO <sub>2</sub>
49	7400	680	13,200	300	11,700	350	8400	60	660	100	0
50	3300	400	13,100	300	10500	800	21,700	0	850	Blank	Blank
51	5200	590	7610	250	6050	360	8790	<del>450</del>	950	0	0
52	3100	320	5350	226	4780	224	3800	122	850	0	0
53	4900	462	19,840	679	15,880	0	1100	70	0	0	570
54	4400	1800	15,900	520	15,000	490	11,290	0	0	0	0
55	5000	728	14,300	600	10,800	0	1500	0	0	0	0

Ran 8 spectra - some picture

Transmitted data on stations 46 thru 52

Trolled run hour at dusk at 7 knots with 4 lines - no luck

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Locality USS Silverstein Date Sept 6 1958  
 Personnel Palumbo Dejneer Eister Weeks Weather Rained all day  
Kimmel Champion Lowman Water conditions Smooth

Radiation level(s) \_\_\_\_\_

Operations:

Took following stations:

#	Lat	Long	Time
56	13° 35'	154° 58'	0100 hrs
57	12° 52'	154° 14'	0440
58	12° 03'	153° 18'	0950
59	12° 46'	152° 35'	1340
60	13° 28'	151° 51'	1722
61	14° 14'	151° 05'	2135

	d/m/cc <sup>B</sup>	d/m/l <sup>B</sup>											
		Plankton		0 M		25 M		50 M		100 M		300 M	
		F	CC <sup>3</sup>	F	CC <sup>3</sup>	F	CC <sup>3</sup>	F	CC <sup>3</sup>	F	CC <sup>3</sup>	F	CC <sup>3</sup>
56	2700	250	0	200	5400	180	7900	120	420	0	0		
57	2000	330	5660	70	3290	104	2550	0	0	383	850		
58	270	0	0	0	740	210	5250	87	1590	112	0		
59	8500	400	16,300	400	12,750	435	13,400	0	1100	0	0		
60	2400	156	4100	126	2650	84	3000	0	425	0	0		
61	3500	98	3500	98	3800	84	3800	0	2100	0	500		

Caught a small Remora (3") in plankton on station 59  
 total counts of 8300 d/m/g Mostly Zn<sup>65</sup> - some Co<sup>57, 58, 60</sup>

Transmitted data on stations 53 thru 58

Trolled for about an hour at dawn - had 4/ lives out - no  
 luck. Plan to get some better lives at Guam for return trip.

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Locality USS Silverstein Date Sept 7 1958  
 Personnel same as Sept 6 Weather showers  
 Water conditions smooth

Radiation level(s)

Operations:

Took following stations:

#62	15° 00'	150° 16'	0130 hrs.
63	14° 00'	149° 15'	0630 hrs.
64	13° 00'	147° 55'	1105 hrs.
65	13° 56'	146° 57'	1540 "
66	14° 45'	146° 08'	1827 "

	Plankton d/m/cc/β	d/m/l β									
		0M		25M		50M		100M		300M	
		F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>
62	750	56	1176	0	950	70	913	0	0	0	0
63	1600	98	2230	98	2125	70	1300	0	0	0	0
64	2200	0	800	<del>0</del>	640	98	7600	0	0	0	0
65	480	0	0	0	740	0	0	0	0	0	0
66	900	98	1960	0	1900	104	2100	0	0	0	0

Took flying fish near station 63 liver 1100 d/m/gβ muscle 87 d/m/l.  
 Trilled on station. No luck. Prepared data for transmission tomorrow  
 AM on stations 59 thru 66. Couldn't raise Enicospira today.  
 Arrive at Guam tomorrow at 0800. Will take a station at about  
 0330.

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L.P.H.  
11  
30

Locality USS Silverstein - Guam Date Sept 8 1958  
Personnel Champion Weeks Kimmel Eisler Weather Fair w/ Showers  
Jayner Palmbe Lowman Water conditions smooth

Radiation level(s) \_\_\_\_\_

Operations:

Took station #67 13°-53' 145°-06' Plankton had 128 d/m<sup>3</sup> and all water samples were zero. Arrived at 0800 and were supplied with a carryall and a driver from the ship - Ernie Rogers. Made a courtesy call to the Trust Territory and had a short visit with the deputy director Mr. Gilmartin. Was referred by him to Dr. Liming, a plant physiologist and acting biologist with the Government of Guam. Went to the Agricultural Expt. Station at 1130 to see Dr. Liming and inquire about making a fish poison station on the east side of the island. The Govt of Guam has a law against the use of poison or explosives for collecting fish. However, Dr. Liming wanted to see how it was done so after consultation with some of the officials he went along with us to be sure that we weren't incarcerated by the police. Got a good collection of fish and as soon as we had changed into dry clothes were caught in a blinding rain storm so were wet all over again.

In the evening went to a meeting - down party at the Pump Room sponsored by the Exec. Mr. Evans.

10/11

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(4)

Locality Guam & Silverstein Date Sept 9 '58  
 Personnel same as Sept 8 Weather fair  
 Water conditions smooth

Radiation level(s) \_\_\_\_\_

Operations:

At 0830 Palumbo & IGL paid a courtesy call to the Secretary of the Guam of Guam, Mr. Bass, to thank him for the consideration shown in helping us get our samples. Had an interesting but short conversation. Took the tourists to the Top of the Mar for a panoramic view of Guam. Traveled on the Navy PX and parted with our money. Boarded the Silverstein at 1100 to start the second leg of the trip. No seasickness so far on the trip.

Took following stations

68 12° 14' 145° 32'  
 69 11° 14' 146° 35'

Stn	D/M/β <sup>cc</sup>	0M		25M		50M		100M		300M	
		F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>
#68	490	84	0	122	1700	84	0	0	0	0	0
#69	339	56	0	0	531	56	0	0	0	70	0

Ran γ spectra

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Locality Silverstein Date Sept 10 58  
 Personnel Jayner Kimmel Weeks Eister Weather Fair  
Changpin Palumbo Lawman Water conditions Smooth

Radiation level(s) \_\_\_\_\_

Operations:

Took following stations  
 #70 10° 15' 147° 35'  
 71 10° 50' 148° 34'  
 72 11° 20' 149° 20'  
 73 11° 57' 150° 18'  
 74 11° 00' 151° 20'  
 75 10° 00' 152° 20'

	D/M/cc/β	D/M/L/β									
		0 M		25 M		50 M		100 M		300 M	
		F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>
70	810	0	0	0	0	0	0	0	0	0	0
71	1200	226	4350	0	2100	0	0	0	660	0	0
72	970	0	910	70	1060	98	3940	0	850	98	0
73	4400	560	0	400	10300	506	4100	0	1200	0	0
74	1800	0	2300	0	2100	0	0	0	0	0	0
75	1400	174	5110	70	4350	0	1960	0	0	0	0

In afternoon saw many schools of fish. Tried hand grenades on some schools and trawling on others. No success.  
 On afternoon station lost one plankton bottle. Checked all bottles and tightened hinge bolts.  
 The lack of any wind has posed some problems with simultaneous collection of plankton and water. The cables get fouled with each other.  
 Sept Date to Washington

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Locality Silverstein Date Sept 11 58  
 Personnel Same as Sept 10 Weather Fair  
 Water conditions Very smooth - no wind

Radiation level(s)

Operations:

Took following stations

# 76 9° 09' 153° 30'  
 # 77 10° 02' 154° 22'  
 78 11 01' 155° 04'  
 79 11° 57' 155° 45'  
 80 13° 00' 156° 25'

	D/M/eqs	D/M/L.B											
		Plankton		0 M		25 M		50 M		100 M		300 M	
		F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>
76	1900	70	0	0	0	0	0	0	0	0	0	0	0
77	2200	0	1050	87	1050	0	740	0	0	0	0	0	0
78	1200	98	2100	0	1600	220	3400	0	0	0	0	0	0
79	6000	590	14000	550	11,000	380	14000	98	0	0	0	0	0
80	2900	500	3900	190	4500	420	8700	0	0	1400	4200		

Run & curves. Sent data to Washington

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Locality Silverstein Date Sept 12 58  
 Personnel Weeks Champion Palumbo Weather Fair  
Jayner Kimmel Elster Lowman Water conditions very smooth

Radiation level(s) \_\_\_\_\_

Operations:

Took following stations:

81	12° 00'	156° 56'
82	11° 01'	157° 28'
83	10° 03'	158° -00'
84	11° 00'	159° 06'
85	10° 22'	159° 56'
86	9° 46'	160° 46'

	D/M/ccβ		D/M/Lβ								
	Plankton	CM	25M		50M		100M		300M		
		Fiber	Co <sup>3</sup>	F	Co <sup>3</sup>	F	Co <sup>3</sup>	F	Co <sup>3</sup>	F	Co <sup>3</sup>
81	2400	87	3800	140	4200	200	6500	100	2200	0	0
82	180	0	0	0	0	0	0	0	0	87	0
83	230	0	0	0	0	0	0	56	0	0	0
84	640	56	1700	0	2100	140	2100	960	3400	84	1300
85	270	0	0	0	0	0	0	84	0	174	0
86	120	0	640	0	420	0	0	0	0	0	0

Run of curves

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Locality Silverstein Eniwetok Date Sept 13 1958  
 Personnel Gene & Sept 12 Weather Fair  
 Water conditions smooth

Radiation level(s) \_\_\_\_\_

Operations:  
 Took one station # 87 10° 30' 161° 43'

Plankton	0M		35M		50M		100M		300M	
	F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>	F	CO <sup>3</sup>
17 150	0	0	0	0	0	0	0	0	70	0

Arrived at Eniwetok about 0730. Were met at the dock by Jack Livingston, Hank Burgess and the H&N gang assigned to remove gear from the ship. Unloaded by 10:30 and transported gear to the lab. Weeks and Bowman returned to ship at 11:00 and retrieved a few odds & ends.

Took last message to AEC office for transmission to Al Klement.

Started cleaning up gear.

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Locality Perry Is. Date Sept 14 1958  
Personnel Weeks Palumbo Joyner Champion Weather Fair  
Kimmel Eisler Lowman Water conditions Smooth

Radiation level(s) \_\_\_\_\_

Operations:

Packaged plankton samples from Silvestein + Collett for shipment to Seattle. Started rearranging boxes with plankton gear for storage. Started inventories. Some went swimming. The rest of us rested. Very hot - delirium weather here - Natives say it is the hottest day so far at Perry this year.

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100

Locality Perry Island Date Sept 15 58  
Personnel Same as Sept 14 Weather Fair. Cloudy in morning w/showers  
Water conditions Smooth

Radiation level(s)

Operations:

Took winches to HAM machinery repair for overhaul and greasing. Took Nansen bottles apart, oiled and packed them. Packed water samples for NYO + Libby and sent them to shipping & receiving. Inventoried all boxes of gear, packed and locked and stored in the store room. Packed the spectrometer and shipped to Seattle. Packed our water samples for shipment to Seattle. Weeks went to Rad Safe and repaired their spectrometers. In afternoon calibrated their spectrometer. Cleaned out the tent and prepared it for empty box and boat storage. Started washing dishes & glassware and placed on shelves. The lab was a mess so started cleaning it. Checked out counters, packed and stored them.

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Locality Perry Is Date Sept 16 58  
Personnel Eisler Jayner Weeks Pefumbo Weather fair + hot  
Kimmel Champion Lowman Water conditions smooth

Radiation level(s) \_\_\_\_\_

Operations:

Finished stacking gear boxes in store room. Placed all empty boxes in tent. Cleaned out the storeroom and rearranged EMBL gear. Cleaned EMBL stationery, tools, and scales lockers and arranged items in some kind of order. ~~EMBL~~ Emptied UofW Locker, inventoried gear and replaced in order. Cleaned entire lab, washed all work tables, threw out junk and swept. Cleaned up the porch and moved the gear in the tent. Place new spick & span. Cleaned remaining gear and stored.

Ch

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Locality Perry Is, Vera & Wilma

Date Sept 17 '58

Personnel Same as Sept 16

Weather Fair

Water conditions Smooth

Radiation level(s)

Operations:

Ernie Wynkoop, Ha Sui, and our gang, took an M boat to Vera-Wilma to collect clams for heavy metal analysis. Fished on way. Kimmel caught one Tuna and most of rest of us caught at least one Mackrel. Couldn't land at Wilma so beached M boat at Vera. All except Ernie and Ron took rubber boat and went to surge channel between Vera & Wilma. Collected several large Tridacs & Hippopus. Jim speared a grouper and had a couple of sharks chasing him around the channel. Was throwing everything available at them. We got the boat to him and the sharks lost interest. Ha Sui, Pelumbo & Lowman took the boat out to deep water in the lagoon and the rest swam back to Vera. Collected 10 helmet shells. Arrived back at Perry at 2:30. Lowman gave a talk at the Hospital at 3:30 and the rest took the samples to the lab. Samples were dissected w/ exception of Hippopus which were dissected in the evening.

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Locality Perry Is Date Sept 18 58  
Personnel Belumbo Weeks Eister Champion Weather Fair  
Jayner Kimmel Louman Water conditions Smooth

Radiation level(s) \_\_\_\_\_

Operations: <sup>along with</sup>  
Belumbo left for stores at 0230, Weeks, Champion, and Jayner  
~~stayed at camp.~~ The rest of us finished drying the biological  
samples and packaged them. Started packing what shells  
will be shipped to Seattle. Got 2 skull for Henderson. Started  
cleaning the helmet shells. Took biological samples to Red  
Safe and ran 4 spectra. Same as usual. Contents in the  
kidney, Anions in the visceral mass.

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Locality Perry Is. Date Sept 19 '58  
Personnel Kimmel Eisler Lawman Weather Fair  
Water conditions smooth.

Radiation level(s) \_\_\_\_\_

Operations:

Finished packing all boxes and sent to shipping & receiving. Packed frozen fish for Hank Benner for shipment to U. of Hawaii. They are working on poison problem in red snapper. Finished washing dishes at lab, swept & dusted and locked the place up. Ran more & curves at Red Sife. Went swimming.

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Locality Perry Is - Mack Tower Date Sept 20 '58  
Personnel Eisler Kimmel Lowman Weather Fair  
Water conditions Smooth

Radiation level(s) \_\_\_\_\_

Operations:

Packed personal gear and got records together. Eisler & Kimmel went to Mack tower with Henry Schleichs to collect some alpha samples. Cleaned out barracks and took books to Library. Due to leave for Fred at 0800 tonight for flight to Honolulu.