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VOL. 5

Log.

Eniwetok Lab.

410689

Vol. IV

Aug. 11, to Sept. 20, 1955

BEST COPY AVAILABLE

APPLIED FISHERIES LABORATORY  
SEATTLE, WASHINGTON

Locality Clawson, Janet Date Aug. 11, 1954  
Personnel Louman & Wehler Weather Overcast, Wind ENE 7 knots  
Water conditions Fair

Radiation level(s)

Operations:

Trip to Janet for Rats 0815 to 1030.  
Louman, Schavel & Duprey. 3 rats shot in 35 min.  
many seen.

Wehler worked on face mask; constructing  
wire frame to hold glasses from a design by Dr. Massey  
or Enrievets.

Proceeded rats in afternoon.

Construction on lab is at full tilt. New slab  
of concrete poured for south porch. Louman  
constructed on north side of present porch. Salt  
water plumbing being changed to get a head (from  
ventilator?).

Would you send the results on fish taken off Perry Id.  
lab (card numbers 12421 to 12445 inclusive) and  
Deep Entrance (card numbers 12561-5, 12571-80, 12631-  
12655). Some people here are getting curious as  
to just what they are eating.

APPLIED FISHERIES LABORATORY  
 SEATTLE, WASHINGTON

Locality Elmer, Belle Date Aug. 12, 1954  
 Personnel Lawman & Welander Weather Slightly overcast, no rain  
wind about 5 knots ESE  
 Water conditions Fair

Radiation level(s)

Operations:

Weekly trip to Belle: 0800 to 1100 Lawman, Bradley & Welander

Bradley caught 3 shark (small), several goatfish & convict surgeon with the throw net.

Prisoned outside of Area F; kill was good but mostly very small fish, some indicating a recent spawning & hatch (chromis).

It is much easier to obtain algae, etc. at low tide than any other time. In the case of the fish in Area F there does not seem to be any ~~one~~ certain time which poisoning is most efficient. One only has to take care that the area does not have too much current, i.e. near the end of the islands in the channels.

Fish, invertebrates, algae & plants preserved in ocean. Took rubber boat to town shop for repairs.

Coelenterates were scarce - took two samples specimens of usable size.

Birds were not in evidence today. Saw only two fairy terns at a distance. D. bird approach the island.

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APPLIED FISHERIES LABORATORY

SEATTLE, WASHINGTON

Locality E. Lemo Date Aug. 13, 1954Personnel Louman & Weisner Weather Clear, Wind 16 knots ENE.Water conditions Choppy.Temp 80° to 97° F

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

## Operations:

Packet collection of Aug. 12 from Belle. Bubblebed all samples, ready for mailing, including those taken Aug. 12; contents as follows.

Organism	Card Nos.	Box # (small box)
Fish	12556-12685	1
"	12686-12820	2
Invert.	11189-11272 + 11288-11297	Box #3
Plankton	8241-8252	in box #3
Water	9791-9804, 9809 + 9810	in box #3
Plant + Algae	10024 - 10107	" " #4
Soil	9805 - 9808	" " #4
Rats + birds	13001 - 13098	" " #5

Louman worked on steady curves, wrote letter, weighed eggs. Took 1 roll 36 exp. Kodachrome (35mm) and 1 roll 16mm 100ft. to Dunwoody for processing.

Picked up rubber boat at tax shop. Hope the patches hold.

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APPLIED FISHERIES LABORATORY

SEATTLE, WASHINGTON

Locality Edna Date Aug. 14, 1954  
 Personnel Townsend + Delander Weather Partly Cloudy  
 Water conditions Wind ENE 12 knots  
 Air Temp. \_\_\_\_\_

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

## Operations:

Picked up the following plants to set out at Edna

Plants grown

2 *Taraxacum*

2 *Scorpiola*

2 *Mesochorus*

1 *Fimbristula* (sedge)

2 *Lepturus*

2 *Portulaca*

2 Coconuts

1 - small, ground hugging plant to be identified later  
(called X)

Arrowroot tubers picked up at Bikini rotted after planting near lab. many of the plants around lab. probably ~~the~~ killed by too much DDT?

The above plants will be placed at definite points near the survey stakes ~~so that~~ they can be distinguished from plants which are indigenous to Edna itself.

All bottle work and phot graphs in not in outer Reef.

Processed 3 sharks from Bell; 2 tuna, 5 mackerel + 3 Jack from Deep Entrance.

Took doubling tanks to be filled, fixed the ratio, and worked on the counter. Still having found the trouble. It still counts but successive 30 minute counts may be different by 20% w/ the sodium D+E standard. No good. Weighed bags part of the afternoon

OPTIONAL FORM NO. 1  
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 SEATTLE, WASHINGTON

Locality Elmer & Edna Date Aug. 16, 1954  
 Personnel Louman & Welander Weather Overcast, Wind E.  
 Water conditions \_\_\_\_\_

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

Operations:

Introduced land plants on Edna as follows

Genus	Locality
1- <i>Scarola</i>	Stake 100' west from survey point
1- Coconut Palm	" " " " " "
" "	" 200' W " " "
1- <i>Scarola</i>	" " " " " "
<i>Portulacca</i>	" 300' " " " "
Plant X	" " " " " "
1- <i>Triumfetta</i>	" 400' " " " "
1- <i>Fimbristula</i>	" " " " " "
1- <i>Mesembryanthemum</i>	0' (survey point)
"	0' " " " "
1- <i>Triumfetta</i>	" " " " " "
1- <i>Lepturus</i>	100' from survey pt.
1- "	" " " " " "

Plants all from Elmer, obtained Aug. 14th.  
 Class photographed by Frank from 1000' with Speed graphics.  
 Ralph Please note! Dr Frank Stewart & A. P. Welander  
 now belong to the 17 fathoms Club. as of Aug. 15th.  
 Welander started to prepare preserved fish for exhibit,  
 with labels, etc.

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SEATTLE, WASHINGTON

Locality Edna, Edna & Class Date Aug. 17, 1954  
Personnel Lawson & Welander Weather Partly Cloudy, 50-60 in afternoon  
Water conditions Fair

Radiation level(s)

Operations:

Left 0815 for Edna. Arrived at Edna 0845. Radiation  
readings at site of the introduced plants are  
follows: 4W-*Triumfetta* 80R/hr, 95BR; 4W *Gimbricola* 100R, 130  
3W-*Portulaca* 70R, 95BR; 3W-plant X- 80R, 105BR; 2W *Canna*  
60R, 85BR; 2W *Scorola* 80R, 110BR; 1W *Scorola* 100R, 130R  
1W *Canna* 120R, 180BR; Survey point *Messerschmidii*  
(S. of stake) 90R, 125BR; Survey point *Triumfetta* 120R, 160R;  
Survey point *Messerschmidii* (N. of stake) 150R, 200R;  
1E *Lepturus* 130R, 180BR, 1E *Lepturus* 160R, 220BR

Walked + swam, towing inner tube loaded with gear, directly  
toward outer reef from Edna. Between Edna & the outer  
reef noted considerable silt, mud + sand with some coral  
rubble under which small fish were taking refuge.  
As we approached outer reef the rubble increased to  
a point, near the reef, the sand was completely covered by  
coral rubble + rubble. No living invertebrates were seen  
until reaching the outer reef a number of sea urchins were  
noted + some hermit crabs. Hermit crabs were present in this  
rubble area as were increased numbers of fish such as parrot,  
wrasse, groupers, surgeon, goat, triggers, snail fish + puffers.

Main south west just inside the rubble area +  
then dragged slowly across the reef toward Clava we  
encountered a number of animals as follows:

*Tridacna crocea* seen about off tip of Edna on  
between Edna + Clava reef. Small about 2"

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Locality \_\_\_\_\_

Date Aug. 17, Continued.

Personnel \_\_\_\_\_

Weather \_\_\_\_\_

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

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

Operations: (1 1/2 acres)

Small live coral, appears to be Pocillopora near the shore.  
Huts seen off middle of Daisy.  
Many small Tridacna near outer reef area off  
southern tip of Daisy.  
Live Portia seen off southern tip of Daisy. (Refer  
to sketches of this Portia on plastic.

Frank + Art intend to leave on or about the 11th  
of September. Frank would like to ~~go~~ to Los Angeles  
to see Stern, at least that is the tentative plan.  
Art would like to come straight home either via  
San Francisco or ~~direct~~ direct to Seattle from  
Honolulu - whichever is preferable. Please get  
up the flights as you wish from there + let us  
know what gives.

We would like to know when Kelly will arrive  
approximately, as we would like to plan the field trips  
accordingly + invite him on the Circuit tour of  
probably the major collection at Belle with him  
along we can do much better than with two.

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Locality Lower Janet Date Aug 18, 1954  
Personnel Lawman & Wilander Weather cloudy winds variable  
Water conditions variable

Radiation level(s)

Operations:

Wilander, Bradley, Bob Stafford, + FGL left 0815 for Janet to collect rats and fish. Took 3 rats, 2 ♀, 1 ♂ in the run between the blackhouse & the bunkers to the NW.

In P.M. dissected & weighed rats. Made arrangements to run some experiments on the shielding characteristics of coral soil.

Received Lauren's letter concerning the new schedule. It looks fine to me - in fact there will be time to make more observations noted & we will supplement accordingly.

If it is all the same to you, I (AW) would prefer to stay overnight in Honolulu & then fly direct to Seattle. At present we will have to wait for Sept. plane schedules which Smithy will obtain as soon as possible. Then we can let you know. Could you provide our tickets via commercial ~~airline~~ from San Francisco or Honolulu?

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Locality Elmer, Belle Date Aug. 19, 1954  
Personnel Louise and Helander Weather Overcast - Cloudy, SW wind  
Water conditions Lagoon rough

Air Temp. 76-94°F

Radiation level(s)

Operations:

Trip to Belle 8:15 to 11:15. with Bradley  
Bradley caught grassfish & Copper surgeon with  
the throw net. Collections of algae, clams, sea  
plants & birds made as usual.

Processed plant, algae, invertebrates, and  
finished processing Janet rats.

Arrangements are being made to sample spot  
fish caught at Eniwetok. The Atkins is in  
charge and will call when they have a good  
sample of fish in the refer. One of us will then  
go to Wotok & sample the muscled tissue of  
the fish which will have a number, location  
of catch & date of catch. Samples will be taken  
back in small plastic bags in the jug-o-legs &  
weighed here at the Bio-med. lab. The fish will  
be weighed or lengths taken, whichever ever is most  
convenient, at Wotok.

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SEATTLE, WASHINGTON

Locality Edna, Edna, Diney, Clang Date Aug. 20, 1954  
 Personnel Lawson & Webster Weather Clear, no wind. Hot  
 Water conditions Calm

Air Temp. 84° - 94° F

Radiation level(s)

Operations:

Frank took aerial photos of Edna, Diney & Clang. Developed negatives & printed some. Pictures first rate.

Processed fish & birds from Weekly Bell's Collection. Entertained the usual number of visitors with our tall stories.

Brief respite in afternoon, when building was being sprayed, spent on reef. At low tide water was so hot in some <sup>shallow</sup> areas that some of the blennies were dying.

The new porch with louvers is complete, the new air conditioning system is in & working fine, our new shelves are up in various places in the lab. Frank & I will now have to rearrange the furniture & set up our areas of work. Workmen are packing the grounds outside & the shipping boxes will be stored with our tag of ownership. To obtain the boxes we need only call the Construction office.

Went for a swim at 4:30 with Earle Wykes.

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Locality Elmer Date July 21, 1954  
Personnel Lawrence & W. Claster Weather Partly cloudy, showers  
Water conditions Rough, Wind ENE 10/11  
Air Temp. 80-91°F

Radiation level(s)

Operations:

Packaged the Bell collection of the week. Arranged for all day trip to Clava & Bell Monday for the succession study.

Cleaned up area outside & on the "lawn" Frank mounting photos of the slides of the 3 islands, Edna, Daisy & Clava. Also the color shots of these islands & Bell (from the air) for classification.

Started to clean up the lab. ~~Have~~ having noted rumors that Helstad & Hether are coming so we want to be prepared.

In AM ran absorption curves on Eniwetok soil for  $\gamma$  radiation with Bob Taft. Used a 92.5 mgm Ra D+E source and the Juno to do the work. Used cardboard boxes full of soil to run the curves. The thickness of soil absorber used ran from  $3\frac{3}{4}$ " to 27". The curve followed the expected form. Check used in the rat paper and Ralph may find use for it regarding plant roots.

DEPARTMENT OF WASHINGTON  
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Locality Elmer + Bell Date Aug 23  
Personnel Laurman + Williams Weather Rained so hard there was no sailing.  
Water conditions Rough

Radiation level(s)

Operations:

Left Elmer at 0815 for Clara. Arrived at about 0845, picked up inner tube left there Aug 17 and bedded equipment onto the tube. Went straight out toward outer reef from middle of Clara to a distance of 1/2 - 3/4 mile. Arrived in the sand of the reef just inside of the edge where the currents have scoured a channel 4-6 feet deep parallel to the edge. About half way out ran into a large congregation of *H. zera*, ~~about 50 feet~~ <sup>farther</sup> into several large clumps of *Heliopora* (?). At least it was blue-green w/ a columnar, form lobed configuration. We are at a definite disadvantage on identifying these corals since the specimens with identification that were supposed to have been here are no place to be found except for 5 species. In addition to the *Heliopora* there were occasional occurrences of a yellow encrusting coral which in each instance was growing on the under side of side of the rocks. About 150 feet out we found large patches of a brilliant purple coral which also appeared to be an encrusting type. Just inland from the channel parallel to the reef edge we ran into several fire spider snails, turban shells, <sup>chicox</sup> and hermit crabs. At about 0945 a storm closed in on us, the likes of which neither of us had experienced in the field and ~~book~~. I had the rope from the inner tube attached to my life belt and when the wind hit I was for



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Locality \_\_\_\_\_ Date Aug 23 (3)

Purpose \_\_\_\_\_ Weather \_\_\_\_\_

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

Recovery level(s) \_\_\_\_\_

Operations:

area. In those areas where surge currents and <sup>wave</sup> action has cleaned out the silt, regrowth is pretty good. In some places, though, rip currents have caused eddies w/ the resulting accumulation of silt and all is dead.

In general the reef  $\frac{1}{2}$  distance between Belle & Glen is very similar in repopulation all the way to the west end of Belle.

As we walked and swam out from Glen we noticed that small fish (channels, wrasse, small surgeonfish) predominated inshore and as we moved out to the edge of the reef the fish were larger and more species were present. Toward the outer edge the surgeonfish were very abundant & large, in general fish up to 2' in length were seen. Large schools of 12' jack (50-50) were present and all of the fish we usually find were seen, especially large goatfish, large groupers, and snappers. The only thing we didn't see a sign of was moray eels. It looks as if the fish in that area are probably coming up over the edge of the reef. Except where food is scarce inshore I can't see why they don't move on in.

Two miles later (and three blisters on my toes from swim fins) Art and I tented at Belle.

We didn't know that Ernie Wyatkoop had been worried about us and had called the helicopter to find us with an all-hands w/ a duck guarding by. Consequently we were very IS

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Locality

Date

Aug 23 (4)

Personnel

Weather

Water conditions

Refraction level(s)

Operation: Surprised when ~~when~~ our 1500 pickup by helicopter was interrupted by his landing at 1300. We had been ashore only 5-10 minutes when he came and since we were pretty well pooped we got into the plane. I thought the bird was really getting ritzzy since they had hot coffee & blankets for us and informed us that they were having a hot lunch waiting for us back at Elmer. I guess Ernie had visions of our ending up in the middle of the lagoon. In the PM we cleaned up the lab (or started) in preparation for Dr. Halstead & crew who arrive tomorrow for the next chapter of Webster's saga.

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Locality Elmer Date Aug. 24, 1954

Names Wahlstedt & Larsson Weather Fair, partly overcast

Water conditions Wind CNE 10 knots

Temp. 74° to 92°

Refraction level(s)

Operations

Cleaned up laboratory. Consolidated Applied Fisheries property to make space available for other. Moved much of our material & work space to ocean side of Lab.

Frank cleaned all glass ware & suggests that we are in the habit of leaving dirty glassware when they have finished a piece of work. Try hard to break the habit, or else? Damn, substituting myself to paper cups. Amen!

There is a trip coming up, to Bixby probably the 26th of Aug. to monitor Engine In. Frank & I will go & collect fish & other fauna & flora. It will be a one-day trip by plane.

Obtained a large barrel & am proceeding to fill it with preserved fish among which is a Wahook, a Trigger fish & the like.

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SEATTLE, WASHINGTON

Locality Glacier & Edna Date Aug 25, 1954  
 Personnel Louman & Welander Weather Partly Cloudy Wind ENE 10 knots  
& Bob Stafford Water conditions Fair

Bathymetry level(s)

Observations

Left Glacier for Edna 0815 arrival about 0845.  
 Made thorough search for new land plants & checked  
 condition of introduced plants. Found a new greenish  
 plant about 3" high at or near western tip of island. 150 yds  
 low like several onions are growing on southern side of  
 island about 100 yds east of l.w. The introduced plants  
 are still alive except the 2 *Mesocarpus* - these  
 appear to be dying.

Fish especially new to the area <sup>grouped</sup> are *fl. rose*, *bl. min.*  
 & *car. blue* fish. One large jack & a large shark were  
 seen off the light formed by the northern sandbar  
 of the island. Incidentally, this area seems to be  
 changing in size & changing shape & the island off it  
 appears to be getting larger. Apparently sand is being  
 dumped up out of the crater into the area.

Snails & goatfish are plentiful all around the  
 island. 2 species of gobies are as abundant in this  
 salt pond as anywhere we have observed.  
 Pacific surgeonfish are beginning to move in &  
 larger fish were seen in the deeper areas between  
 Edna & Daisy.

Frank shot his first bird (a sooty tern) &  
 several others were seen over the area.

Algal growth & invertebrates seem to be much  
 the first visit to Edna.

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Locality Edna Date Aug. 26, 1954

Personnel Lawman & Welander Weather \_\_\_\_\_

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

Refining level(s) \_\_\_\_\_

Operations  
Washed up specimens collected at Edna. Measure fish & processed all specimens to oven stage.

Prepared for the trip to Bikini on Aug 27 with Bob Taft & 3 others who were to assess damage & monitor the island for a future project. We think its a good opportunity to gather a variety of land plants & other material.

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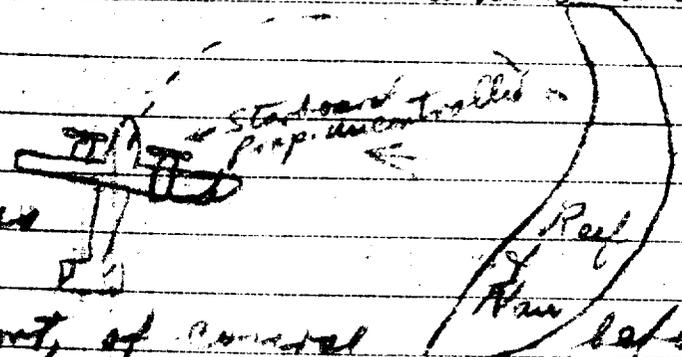
Name: Elmer, Bikini, Kwajalein      Date: Aug. 27, 1954  
 Name: Lowman + Wilcoxon      Weather: Variable  
 Water conditions: fair.

Station level(s): low, about 5 miles from Van at Bikini.

Left Elmer with Bob Taft, Mrs. Blakeman, Mrs. Keating & ...  
 at 0645 for Eniwetok. Took off in PBM ...  
 0815 & arrived at Bikini, Van area about 1000.  
 As we got ashore a rubber boat crew on plane ...  
 with very fast & some time later informed us they had  
 engine with an uncontrollable pitch. They sent word to Kwaj  
 that plane was coming out to watch our take-off.  
 Crews worked on plane several hours while we  
 collected fish, land plants, invertebrates, algae, etc.  
 in samples, collections in the water made mostly  
 on down side. Due to surf & turbidity of water fish  
 catch was not large. A good sample of land plant  
 was made, however.

Went out to plane about 1430, stowed our  
 gear & strapped ourselves in. An Grumman  
 ... circled overhead while we read & ate  
 ...

... were ...  
 ... take - ...  
 ...  
 ... about, of ... before we went a  
 ... Plane got up speed to 60 knots but  
 ... was needed so we finally had to  
 ... ourselves ... the Grumman



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Locality \_\_\_\_\_ Date Aug. 27, Continued  
Parent \_\_\_\_\_ Weather \_\_\_\_\_  
Water conditions \_\_\_\_\_

Salinity level(s) \_\_\_\_\_

Address via rubber boat (which we had to carry  
ourselves) & carry food, water & a new propeller  
to the P.C.M. We finally left Bikini at  
10:00 & arrived at Eniwetok at 2100 after being  
about a landing at Eniwetok. We put our specimens  
in paper & began to try to get back to ~~the~~ water  
under, some without T.D. cards & with ~~some~~  
knives, etc., etc. MATS ~~was~~  
so we went to bed at the B.M. about  
midnight.

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~~Name~~ Kwejelen

Date Aug 28 1954

~~Name~~ Welinder + Leaman

Weather Clear

Water conditions Smooth

~~Name~~

~~Name~~

0930 reported to duty officer at Kwaj who suggested  
 that we send a rix to Ernie Wagners for clearance and  
 authorization for MATS travel back to Eniwetok. The MATS  
 boys said they thought they might let us on the flight  
 if we got that. Ate breakfast and went to Macy's of the  
 Pacific for tooth brushes etc. The OD had called over to the  
 mess when we arrived they met us at the door and went  
 with us noting all we had bought and the prices  
 of paper. When we had finished buying everything  
 the chief asked if I would sign for the stuff I  
 and then he informed us that the things would be  
 out of recreation funds. We said to heck with that  
 we had a couple of hundred dollars <sup>among</sup> ~~between~~  
 that we were paying our own way. He was dumbfounded  
 the OD had told them we had lost everything we  
 Bikini. We retraced our steps and paid for our

At 1130 the clearance & flight authorization came  
 from Ernie. MATS now informed us that they would not  
 the plane since Ernie didn't send a travel order  
 nor did he state specifically that the AEC would  
 MATS. Then the lieutenant showed what he was  
 by stating "Even if they had sent the number  
 order we wouldn't carry you on - You can send

~~SECRET~~  
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Locality \_\_\_\_\_ Date Aug 28 (pg 2)  
Personnel \_\_\_\_\_ Weather \_\_\_\_\_  
(1) \_\_\_\_\_ Water conditions \_\_\_\_\_

Refraction level(s) \_\_\_\_\_

Operations \_\_\_\_\_

and orders by twist, you know. Commander Doortzen turned people and we went back to Flight Operations. He was of the opinion that the airforce boys in MATS were using us to throw a few low blows at the Navy. From where we stood it looked the same way - except we were the ones that were happening.

The Super Constellation came in at 1230 and Doortzen showed the plane commander (who was a navy officer) and told him what had happened. He told us to get our gear and be ready to board the plane at 2:30 PM. MATS was pretty strict and said we couldn't get on any way but they were informally informed that the plane commander was in charge of operations. They wouldn't put us on the manifest and as we boarded the plane the MATS lieutenant informed us that in case of an accident we would be considered as stowaways. The navy officer with us just sneered at him and we boarded.

The plane stewards were slightly shook up when we were not on the manifest boarded. They were really surprised when they saw my shot gun and our knives.

We landed at Eniwetok at 5:30 PM and were met by a Sergeant who whisked us past the MPS and over to the truck.

We arrived at Perry at 6:20 and were met by Ernie and Marie who had heard practically nothing from us for the boys. They didn't even know we were on the Constellation. ~~SECRET~~

LI  
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SEATTLE, WASHINGTON

Locality Elmer Date Aug. 30, 1954  
Personnel Lawman & Welander Weather Wind & fair  
Water conditions \_\_\_\_\_

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

Operations:

Yesterday (Sunday) Lawman, Welander, Tharrett & Bradley went down to 50' in area Elmer. Lawman wants to join the 17 Father club if is well on his way. Had some nose bleed upon returning to the surface.

Monday

Lawman took an L-20 to the Belle-Edna area and shot the inner reef from the crosses to just west of Belle. Also photographed the area between Belle and Clara. Came back and developed the negatives and printed contacts. All shots good.

Welander dissected and processed Bikini fish and packaged the birds.

All helicopters are grounded indefinitely due to some mechanical trouble in the tail rotor.

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SEATTLE, WASHINGTON

Locality Elmer Date Aug 31, 1954  
Personnel Lowman and Welander Weather Clear  
Water conditions \_\_\_\_\_

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

Operations:

Welander, ~~Gibson~~ ~~Mc~~ ~~and~~ and Lowman worked on plants from Borkini, algae, and fish. Plants collected at Elmer were portulaca, coconut, pandanus, triumphetta, Scaevola Guerrandii, Messerschmidii, Lepurus, Papaya, Ipomea, one unknown plant #10179 + 10180 (preserved a specimen for identification), and arrowroot.

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SEATTLE, WASHINGTON

Locality Elmer, Platteau Route Date September 1, 1954  
Personnel Welander & Lowman Weather raining  
Water conditions \_\_\_\_\_

Radiation level(s) Background course room 23c/m

Operations:

The course is now in operating condition. The trouble was that the scalers were not sensitive enough (sensitivity according to manual .25-3.0V). Didn't have any way to check sensitivity of the scaler but, since all tubes tried w/ it didn't start counting until 300 volts above their claimed plateau, decided to increase the sensitivity by changing the divider network in the amplifier stage. The sensitivity is probably between 0.1-0.5 volts now and the plateau is good. However, the tubes used before at the higher voltage were very good now.

Started making enlargements from the coral shots and putting together a mosaic. We will soon have a map from Belle to Edna w/ all the reef included that shows every coral head. Art and I went to plot the receding of corals and clams etc. directly on the map. It is a job but is the only way to do it as far as we can determine since observations in only a limited area are fouled up by floods of silt or from denuding by currents of what was sand and silt bars. From our long travels up and down the reef we've gotten a definite impression that the landscape is moving toward too much to count on using a limited area. From our biased point of view a study of the location marked on maps at successive dates will give more information.

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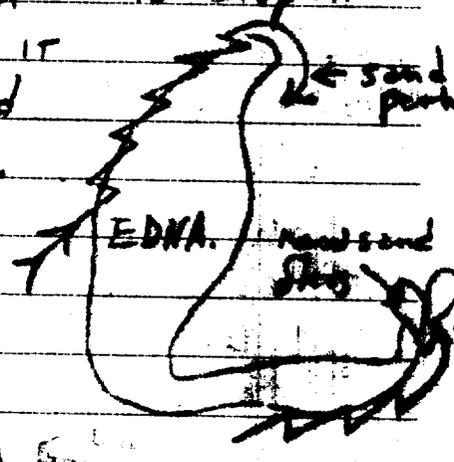
Locality Edna Date Sept 1 (continued)  
 Personnel Welander & Bowman Weather rainy  
 Water conditions \_\_\_\_\_

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

Operations:

Even the islands are moving around. In six weeks the west end of Daisy has moved seaward between 30 and 40 feet. The long sand spit on Edna is moving westward and the hole that was at the tip of the spit is entirely filled with sand and gravel now. The spit is also building up seaward and before too long should form a continuous beach out to the small sand bar that is a couple of hundred yards seaward on the outer reef. In addition the entire line of Edna is slowly moving seaward. Our iron stake that was at about the high tide line is now out in the water at low tide (except for very low water). It looks like the beach has moved about 4-5 feet inshore. As usual I watched the erosion process the other day. The breakers from the lagoon pick up the sand and carry it ~~straight~~ <sup>diagonally</sup> up the beach then drop it straight down the beach so that it runs along the edge of the island and eventually dumped around the end.

Got made plans to trap around at all with Dr. Blake & Mr. Maeda left at 0800, hauled nets for 20 minutes in wide entrance beginning at 9:00 am. Dr Blake caught a *Melospiza* <sup>luna</sup> in wide entrance.



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Locality \_\_\_\_\_ Date Sept 1 (continued)  
Personnel \_\_\_\_\_ Weather \_\_\_\_\_  
Water conditions \_\_\_\_\_

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

Operations:

Net out at LeRoy 11:00 am for 20 minutes.  
No wind, (overcast skies) so used 1 engine of  
M-boat alternately in & out of gear as nets neared  
the surface or went too deep. Obtained large samples.  
One dog tooth tung<sup>3</sup> & one machaval caught off LeRoy.  
One small brite caught between LeRoy & Belle.  
Nets out at Belle 12:30 pm 15 minutes towing as above.  
No fish caught large brite off ~~LeRoy~~ Janet.  
Nets out at Vera ~~12:01~~ pm for 15 minutes  
One small brite caught leaving Vera.  
Nets out in Deep Entrance 3:30 pm for 15 min  
No fish seen or taken in this area after trolling  
up & down the passage.  
Used M boat # 274 with George Clark as  
skipper & Ted Morrison. Former very accomodating  
& handled the nets very well with the single  
engine.

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Locality Elmer Date Sept. 2, 1954  
Personnel Towman + Weather Overcast + Rain  
Welder Water conditions Calm

Radiation level(s) 23 cpm in water

Operations:

Towman preparing masses of seine shots of the reefs & islands from Belle to the target area.

Welder dissecting, weighing fish caught during the plankton trip around the atoll. Plankton filter & gross samples removed for assay. Remains preserved for identification. Hauls at Leroy quite different from those made at other areas in type of organisms.

Filled the adze trays at the machine shop where the compressor is now housed.

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Locality Elmer Date Sept 3 '54  
Personnel Welander + Lawman Weather Cloudy no wind  
Water conditions Smooth

Radiation level(s) Cover room 25 c/m

Operations:

Dissected 3 ghost crabs and 3 seaweeds from Bikini.  
Worked on masses.

Processed more fish from Emivata I. sent  
over by Lt. Albin. Showed Bob Taft some  
of our techniques for processing muscle  
samples. He has to "decide" whether the people  
here eat fish or not if he can get the word  
from the Division of Biology & Medicine.

At 4:00 pm we were going. Frank & I went  
to 100', both our pressure gauges checking right on  
the nose. With us were Buckley, Bennett, & Stafford.

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Locality Elmer, Belle - Sea Date Sept. 4, 1954  
Personnel Lawman & Welander Weather Wind about ENE clear  
Water conditions \_\_\_\_\_

Radiation level(s) 0.43 cpm at lab.

Operations:

Frank worked on photographs then at 12:00  
left in 230 for more aerial photos. ~~They~~ ~~then~~  
stayed clear just long enough to finish the  
self area from Belle to Target. Frank now sitting  
out to finish & complete printing of the pictures of the  
area.

Repacked all material from the drying oven  
& dissected muscle tissues from 3 yellowfin tuna,  
1 bluefin tuna, 1 large mullet & 4 blue mussels  
caught by Military on Ford in Wide passage.

Dr. Hirth, Dr. Matheson & another are arriving on  
today's plane & will be here about 10 days.  
Taken inventory & arranging their equipment in  
the Lab. & building 511.

Lawman, Garrett, Bradley, Staffal & Welander went  
"aqua-bunging" at 4: pm & went to depths of  
1135 feet quite easily. Picked up some *Habir*  
at that depth with "leaves" or segments more than  
1" across. Also found *Caulerpa* & one other  
type of *Junken* ~~near~~ ~~the~~ ~~vintage~~ being an *amator* ~~algae~~

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Locality Elmer Date Sept 3 '54  
Personnel Welander + Lowman Weather cloudy no wind  
Water conditions Smooth

Radiation level(s) Count over 25 c/m

Operations:

Dissected 3 ghost crabs and 3 sea cucumbers from Bikini.  
Worked on masses.

Processed one crab from Eniwetok. Sent  
over by Lt. Alvin. Showed Bob Taft some  
of his techniques for processing muscle  
samples. He has to "decide" whether the people  
here eat fish or not if he can get the word  
from the Division of Biology & Medicine.

At 4:00 pm we came back to the boat & I went  
to 100'. Both our pressure gauges checked right on  
the nose. With us were Bradley, Garrett & Stafford.

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Locality Elmer, Belle - Is. Date Sept. 4, 1954  
Personnel Lawman & Welander Weather Wind 14 knots ENE Clear  
Water conditions \_\_\_\_\_

Radiation level(s) 2.3 c/m at lab.

Operations:

Frank worked on photographs then at 10:00 AM left in L-20 for more aerial photos. ~~They~~ ~~stayed~~ stayed clear port long enough to finish the self area from Belle to Tangle. Frank was sitting out to finish & complete printing of the pictures of the area.

Repacked all material from the drying oven & dissected muscle tissues from 2 yellowfin tuna, 1 bluefin tuna, 1 large mullet & 4 blue runners caught by Military on Ford in Wide passage.

D. Hiatt, W. Matthews & another are arriving on today's plane & will be here about 10 days. Taken inventory & arranging their equipment in the Lab. building 511.

Lawman, Barrett, Doadley, Stafford & Welander went aqua-buoying at 4:00 PM. I went to depths of 135 feet quite easily. Picked up some Halimeda at that depth with "leaves" or segments more than 1" across. Also found *Paralelpa* & one other algal funkenour ~~type~~ vintage being an *amastrea* alga.

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Locality S. Linn Date Sept 5th. Sunday  
Personnel Lawman & Welander Weather Fair  
Water conditions Wind ENE

Radiation level(s) Blog 25 up on at Lab.

Operations:

Frank worked all day & Evening on photo-  
graphy except for about 2 hrs in the  
afternoon we went aqua-lunging with  
Wynkoop, Edwards, Carr, & Welander & Lawman  
Welander worked around lake getting  
labels for the fish exhibit, packing up material  
from the ~~of~~ oven & getting cards & samples  
ready for shipment.

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Labor day

Locality Elmer - Date Sept 6th Monday  
Personnel Louman & Welander Weather Fair, Some light drizzle  
Water conditions Fair ENE Wind

Radiation level(s) High approx 13 at lab.

Operations:

Louman worked on photographs all day & evening except time out for aqua-bungie trips. Welander filled aqua-bungie.

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Locality E. Cove + Belle Date Sept. 7, 1954  
Personnel Lochner + Wilander Weather Fair  
Water conditions SE wind.

Radiation level(s) 25.5 c/m by at Biomed. Lab.

Operations:  
Major collection at Belle. Left 0830 for Belle. Collected algae in area E, F, + G. Invertebrates; Fish in area F; birds + land plants. Left Belle at 1500. Noted great deal of silt + turbid water stirred up by SE wind onagoon side of reef. The possibility that a great deal of damage is produced by silt should be examined, especially in reference to coral. On the trip out Frank got shots from 2000' over Edna + Nancy to fill in the reef picture.

2 millivoltmeters + 2 ground 10 m. beta at Belle



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Edna + Edna  
Locality Lawman Palumbo I.B. Stern (Procurement) Date Sept. 9, 1954  
Personnel W. Baird + Welander Weather Hot, very little wind ESE  
Water conditions Fairly calm  
Temp. at low 79° - 100° F.  
Radiation level(s) Counting Room Rkd 23.1 m

Operations:

Trip to Edna 0830 (Helicopter 1/2 hour late)  
Surveyed all the plants new + old + intro-  
duced. Counted about 40+ new plants most  
of which were on western half of island. Photography  
taken of approx. 40 plants + all the intro-  
duced plants with notes on their conditions.  
Waded out into the shallow area around  
Edna on the North side noted the change in  
the sand around, the pool just north of Edna  
is now entirely covered by sand + silt. Quite  
a bit of algae is growing in this area, ~~which~~  
it looks pale + bleached + probably dying.  
However, there <sup>were</sup> healthy looking patches in several  
places. *Sargassum*, *Macrocystis*, *Ceramium*,  
*Enteromorpha*,  
*Ectocarpus* (?), blue green nostocum which formed a  
squoshy matting over the area from where  
~~the~~ <sup>the</sup> ~~logs~~ that we looked; some *Hydroclathrus*,  
*Sargassum*, and *Sargassum* *solidum*. It appears  
to me that the algae has been killed, but is  
reappearing again at a rapid rate. The next  
observation in this area will give a better indication  
of reinvasion or recession of these plants. This area  
reminds me of the tide flats at the north west tip of Point as observed  
about 2 months ago. No <sup>live</sup> coral insects were seen, except for  
1 yg crab about 2" across the brick. Newly germinated plants found  
in tide line in drift area - seeds washed up etc.

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Locality \_\_\_\_\_ Date Sept. 9, 1954 Cold  
Personnel \_\_\_\_\_ Weather \_\_\_\_\_  
\_\_\_\_\_ Water conditions \_\_\_\_\_

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

Operations:

Nothing unusual noted in invertebrate  
fish & other items.  
Left Edna 1115 & returned making Eagle, string  
rays & sharks on the way as well as  
a large Manta ray near inside Puget.  
Worked in the Lab in the afternoon, Frank  
in the photo. Lab. ~~the~~ Processing  
Oyler - Gung Trip 4:30 pm to 5:45 to  
140' feet with Bowman, Palumbo & Welandar  
going down. Brought up specimens of  
eelpout & Invertebrates, Halibut, <sup>lynx</sup> Herring, <sup>herring</sup> Herring, <sup>herring</sup> Herring.  
Evening: Welandar wrapped fish for shipment  
some. Palumbo, Benham helped Frank  
at Photo Lab. then came down & worked  
in Bio med Lab. on Eel specimens.

tl: Pelagic fish may be obtained from Eyswalder  
(Fred) by either calling Sgt. P. P. P. or Lt.  
Athens (Fred 4192) at Special services. They have  
a special cooler in which tuna & mackerel  
& other fish will be stored. They will either send the  
tissues (muscle) over if requested or you can make  
the trip to Watch with a jugalug & plastic bags  
& obtain as much tissue as required.

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Locality Elmer & Daisy Date Sept. 10, 1954

Personnel Lowman, Palumbo, Weather Calm Hot

Welander, & Booham Water conditions Calm

Lab: 78° F min, 97° F max.

Radiation level(s) Counting room bg. 24/min in 1 hr.

Operations:

To Daisy by helicopter 0800 Land plants common at high tide line along NE shore: rare or lacking elsewhere. Fungus on driftwood or root near S end. Ghost crabs abundant; fresh holes spaced < 10' along lagoon shore and commonly elsewhere on shores. Along lagoon shore from point opposite big pipe NE for 300' in intertidal area counted 12 sea slugs (Tectibranchiata) alive and 3 dead. Wading in this vicinity, saw many hermit crabs, one poison spine urchin. On NE shore Art found a white, warty crab, 2 1/2" with large manus that burrowed quickly in the bottom sand. Art, Frank, & Ralph aqualunged at <sup>lagoon</sup> reef edge around coral head opposite SW tip of island. In spite of calm weather they contended with the surf. In 20 minutes no coral (living) was seen; only algae and fish (surgeon). Ralph found a cluster of cat's eyes and brought back a pocket-full. N.E. & S. much algae and many small fish. Living algae present were: *Halimeda*, *Stigea*, *Polysiphonia* in great numbers, *Rhizoclonium*-like mats, *Microdictya* or *Cladophora*, and some brownish *Enteromorpha*-like clumps. The land plants were confined to the high tide drift line on the NE seaside of the island w/ the exception of 1 seedling on the lagoon side near the high tide line. Fungus on dead *Mesochorisma* wood. The plants included: *Sarcocolla*, *Ononis*, *Mesochorisma*, *Lepturus*, *Pandanus*, *Justicia*, *Commersonia*, and an unknown w/ odd city ferns. Also *Trientalis* and *Fimbristylis*. 20

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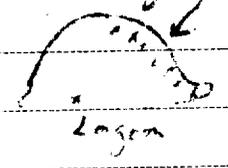
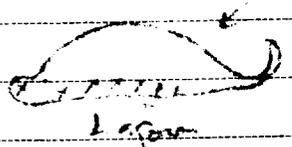
(5.2)

Locality ELDER - Daisy Date 10 Sept 1954 (cont)  
 Personnel \_\_\_\_\_ Weather \_\_\_\_\_  
 \_\_\_\_\_ Water conditions \_\_\_\_\_

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

Operations: \_\_\_\_\_

There were many plants, approximately 50 in number, ranging in size from barely visible to a patch of deplumae (bunch grass) 10" in diam. These plants were all healthy except for some reddish bunch grass, brown tips on the Pandanus leaves, and brownish leaves on Tiuntitta. A sea bean 5" high w/ 2 sets of pinnate leaves was photographed, as was the fungus and a pandanus plant. The pattern of distribution was similar to that on Edna, at the high tide level, but the location or concentration of plants differed. On Edna: \_\_\_\_\_ on Daisy:



These diagrams show the seeds are drifting in and germinating before being covered up or being blown away. Lack of plants in the central areas would indicate death of all seeds present before the shoots either by physical removal, leaf radiation etc.

We cannot do the study like seaward ~~side~~ side flats so time ran out.

Frank & Kelly worked till late on photos  
 Medical young gave party for A. Frank - Jewell & Kelly (Palpa) welcome - good st. cards!

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Locality ELMER, ~~Fishery Bay~~ Date 11 Sept 1954  
 Personnel Bonham, Polunbo Weather 7611 - 96°F  
Wielander, Lowman Water conditions Calm

Radiation level(s) Counting Room Bldg 24

Operations:

Lowman finished work in photo lab + cleaning up pods and ends, as did Wielander. Lowman and Polunbo tried to find a hole to "crawl" to but couldn't do better than 150 feet; came up just as 12 o'clock whistle blew and it was a mad scramble to get to lunch before the door slammed on us - as usual. Parking was completed by L + W just as trucks came to pick them up at 8am. <sup>4</sup>Partial for shells (four work bound ones at least) and sad return to lab by B: P to continue working up Belle collection. Swimming at the maximum with a few minutes equalizing practice.

Clarifying requests of Sept 8th.

Ask Frank what is needed as to Extracorporeal

6 - 4x5 Film packs Super XX

Metal clip boards - Ask Art

Also - Equalizing space parts - see list

Include rubber diaphragm regulator

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Locality Elmer Fishing Barge Date 12 Sept 1954  
Personnel Benham, Palumbo Weather 72-76 (2 days) Wet all day  
Water conditions Rough

Radiation level(s) Plsd in Counting Room - 24c/m

Operations:

Kelly spent from 9-11:30 am on fishing barge trip - Jersey Channel. Collected various samples of fish from fisherman. Tissues were cut out and placed in proforma bags + kept in jugalug. Processed all tissues during pm. 2 jacks; Straggler, yellowtail, remora, and a half beak.

Palumbo worked up during am and pm all the land plants collected Belle Sept 7th by 2th.

Summarized the collections "other than daily" in order to plan future collections + observations. Looks like a circuit tour is demanding attention as well as a Belle observation trip. (50) week of the 12th will take care of these two items.

Talked w/ Mr Wynkoop and Johnny K re change in vehicle. At present our transportation is limited to very tough starting, and forward progress only - in low and second.

Kay: Kelly would like you to find + send out his rubber lettering or printing set. Or - such a set can be obtained at Sears for about \$100 - This set contains about 10 of each letter and would be useful in making up our own stamps so you all can read our (mostly my) cards.

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Locality Elmer Date 13 Sept. 1954  
Personnel Palumbo & Barnham Weather Cool 74-86°F. ENE  
Water conditions Rough

Radiation level(s) 1 hr bg; 25.6 c/m

Operations:

After a very wet, rainy night, the jeep failed to start; Ralph called garage. They towed us there and replaced plugs and worn transmission parts in 1½ hrs. Later, the motor pool brought a ½ ton Dodge Power Wagon, <sup>(gone 1800 miles)</sup> with 4 wheel drive, 4 speeds ahead, and power winch on bumper as being the most reliable transportation they had available. Their smaller pick-ups are shot. This is a nice, new, with closed cab, spotlight, and open bed. They said loan cars are available in case of breakdown. Just call Motor Pool, not garage. We need new drivers' licenses for this big o truck, but Ralph does not have one and K.B.'s expired in March. Received large wall clock, electric, from Supply, for lab. Ralph arranged for a morning observation trip to Belle by 'copter. KB checked out from photolab 25 sheets 4x5 SXX, one roll 20 exp. Plus X 35 mm, 1, 36-exp. roll Kodachrome; 1, 100-ft. roll Kodachrome 16 mm.

In lab, sealed and mailed samples:

Birds 13176-13183 (8)

Invertebrates 11346-11424 less 3 shells (76)

Fish 14020-14095 (76)

Plants & Algae 10189-10247 (59)

Water cards 9827 & 9828 (Samples not found)

Coral from Rongelap (identity not clear)

Paddy algae sampler of 9/9/54. 140ft processed pm

Ralph wrote Lauren KB a little stupid about sunshine on fishing barge; legs, not bad.

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Locality Elmer & Belle Date 14 Sept. 1954  
Personnel Palumbo, Biggar, & Bonham Weather Sunny, ptly. cloudy 77-92  
Water conditions Moderate. Wind 10-15 NE.

Radiation level(s) 24 c/m for 1 hr.

Operations:

Frank: Lyle Dunwoody asked if you left a copy of the statement of transfer of photo equipment here at lab. It should include films and cameras. If you want to keep it send a typed copy for the records here. If it is here, where?

With Mr. Leonard A. Biggar, visiting H & N man, left Elmer 0830<sup>for Belle</sup> by 'copter, spotting sharks & rays. Circled & photographed 4x5 dock on Runit. Located and photographed from about 30 feet<sup>(suspended still)</sup> manta ray off Janet, lagoon side. Poor, because the clear view from higher was blurred by waves from the wind of the 'copter when it was lower than 50'. Photo of 100S area from 30' as we landed on Belle (4x5). Belle lush. Insects: caterpillars, ants?, earwigs, grasshopper, moth, large butterfly. Helped Ralph take 11 Robot shots. Invertebrates: chitons<sup>?</sup> (with concealed plates), sponges, many ghost crabs, Tridacna, Hippopus, Ptycodera, Coenobita and Calcinus, Porites of finger- and encrusting types, Heliopora and Acropora invading slowly; hairy spider crab, tiny nudibranch, Holothuria atra, 1/2 sp. and a gaudy giant cucumber 4x14 inches bedecked with colored round spots (Robot color shot). Only insects sampled. On flight home at 1130, again circled manta at Janet, photo from 75-100' with shadow of plane showing. Pilot said plane 34' long. He estimated manta at 6' to 10'; conservative fellow! Tally both ways, only: Shark 15, sting rays 6, Eagle 6, Manta 2 (divide by 2). In P.M. developed and printed Bradley w/75' shark, and 5 aerial shots. After dinner Ralph Lyle tied Ernie and Kelly in horseshoes. At lab, wrote log and prepared for tomorrow's circuit tour. Hard rain with lights

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Locality \_\_\_\_\_ Date 14 Sept, 1954 (contd.)

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

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

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

Operations: Westerly wind. - Very low tide today

Most of time at Belle was spent photographing tagged plants, observing others, and skirting shore line of Areas E, F, and G. The island appears from air to be very lush, much greenery and very few spots for copter to land. Inspected plants in Areas C and D and found them all in excellent shape. Flowers were seen on *Mesembryanthemum*, *Scaservola*, *Portulaca*, *Gnettarda*, *Fimbristylis*, *Triumfetta*, and *Boerhaavia*. Flowers were present on the sprouts of plant "1319 in area D. Plant 1261, a *Mesembryanthemum* is typical of the plants recovery, on 6-18-54 it was 6" high and this date plant is about 12" with many healthy leaves. Some *Triumfetta* and *Boerhaavia* plants looked yellowish and a 6" *Gnettarda* plant that was yellow and mottled was taken for leaf autoradiograph and sampling. Soils were taken in area D and area E and 1". Largest plants were about 3ft high, but very healthy looking. Algae were collected in area F for identification. There was examined on and from included: *Habundia*, *Gymnetia*, *Diclyota*, *Sphaerocapsa*, *Chlorococcoides*, *Phaeocystis*, *Polysiphonia*, *Diclyosphaeria*, *Bryopsis*, *Microdictyon* (?) and three still unidentified. These algae all 50 feet from shore low tide and healthy or at least living. A bracket fungus was found, photo'd, and sampled. No abnormalities noted. Presenting one long member of the Sunshine Club 1 + a hostis carina. uc

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Locality Elmer + Coconut Tour Date 15 Sept. 1954  
Personnel Bonham, Palumbo Weather Good 75-92° F  
Blake, Bradley Water conditions Moderate  
Wind ENE

Radiation level(s) 1 hr Bgd = 24 c/14

Operations:

Received from UW: 15" telephoto lens, "aqualung" tools, and Scripps Inst. instructions for overhauling aqualung. Thank Marion Frank: George Bernier would like the pink receipt for pictures kept here at the lab. If you took it with the big stack of prints as he thinks you did, could you send it to us (KB) Also received 2 plankton buckets and 2 collars; 1 plankton bucket ~~with~~ with

Takeoff ~~from~~ at 0922 (on Blake holding up by ~~completing~~ dental job) Capt. Gore piloting. Stops made at Bruce, Vera, Olive, Alice, Jerry and Henry. Palumbo and Bonham took survey June #89 readings - only 2 readings were found at Alice @ 1"  $\alpha$ : 9-7,  $\beta$ : 12;  $\gamma$ : 2; @ 3'  $\alpha$ : 9-14;  $\beta$ : 10;  $\gamma$ : 2. all other islands read 0. Soil at beach and land also taken. Samples and cards will be ~~to~~ <sup>made</sup> and you all can decide desirability of making plates. Forget what decision was made re soils.

\* Please inform in time for next tour in October. Algae and Sea cucumbers sampled. Counted Rays etc as per ADW's instructions: Sharks 40; Sting Rays 5; Eagle Rays 25; Manta Ray 1; Turtle 4. Return Elmer 1402. NB. It requires 7 seconds for green coconut to hit the fun 500ft (KB found 549). Started working up sea cucumbers, packaged yesterday's samples, put soil samples to bake etc.

Ed: Could you please check the photo file and let us know what invertebrates out here have not been photod, Kelly does not want to duplicate unnecessarily.

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Locality Elmer Date 16 Sept. 1954  
Personnel Bonham, Palumbo Weather Fair - 74-95°F  
Water conditions rough, moderate

Radiation level(s) 1m - 135d 25clm

Operations:

Processed algae and sea cucumbers of yesterday's circuit tour. Started decay curves, will run all plates in box once every two weeks unless notified otherwise. 6 negatives, prints & receipts for same mailed registered mail, confidential. Kelly rigged up 15" lens on graphic for Tomorrow's trip to Belle. Set up 6 small aquaria on water table after carpenter had drilled drain holes in side and bottom.

Carpenter also brought a piece of bakelite for desk top - Tested its resistance to various chemicals including KI, Ethylendichloride, Alcohol, NaOH, Conc HCl and Sulfuric. Only NaOH marred the surface. Piece 35x45" will be used to cover three desks.

Spent one hour in aquating instruction w/ Jerry and John (Recreation - H&N). Looks nothing. H&N may OK use of aqua thing & the Rec boys want to know the score.

Got gallon of Sani Chlor<sup>(from warehouse)</sup>, pencils, & paper clips, from Smitty. @ Radphs + Kelly's drivers' licenses

ENTRANCE  
EXIT OF WASH. STATE

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SEATTLE, WASHINGTON

Locality Elmer & Belle Date 9-17-54  
Personnel Palumbo & Bonham Weather Good, almost no rain. <sup>78-88</sup> E, 15 mph  
Water conditions Moderate

Radiation level(s) Parry Is. 24

Operations: Left 0840 by helicopter w/ Bob Taft, M.D. Burgess, and Don Laydon who got off <sup>0857</sup> at Edna. (Not much chance to count ray with them aboard). Raised floor board for aerial photography and took Belle from 1000 ft (primed shutter?) and 2000' (3 shots) on 4x5 w/5" lens. Landed on Belle 0920. Ralph observed & photographed plants while KB walked around the island. Exposures #1-#12 of plants; #13-#14 of 2 pumpkin starfish. At 1110 Ralph w/ shorts, knife, & net bag, & KB with hat & coveralls, both w/masks, started out from H across to outer reef toward largest rock (with dead barnacles). Distance scaled from Frank's aerial map, using Lauren's map and Ed's slide rule, 3600 ft. to reef. Reef progressively more productive farther out. New coral growth well in, but richer, out. Many fish, large & small. Scattered *Habituaria* (10-20 seen) and 2 large black cuc's with rows of large tubercles. Two <sup>(2-ft)</sup> large starfish, 16-rayed, w/ 2" spines,  $\frac{1}{2}$  way across reef. <sup>Octopus 10" lon</sup> Many pools neck-deep for KB; Ralph swam. Took slate urchin from reef. If all the dead coral was alive before the tests it must have been a beautiful sight! Very fine as it is. Patches of coral living everywhere. *Acropora*, *Porites*, *Pocillopora*, *Heliopora*; large, cushion types, encrusting, and soft corals. Abundant poison-spined urchins, up to 10" spines; no banded spines seen. 2 pumpkin stars carried from <sup>near</sup> outer reef to shore to photograph (930' to). Arrived Belle H, 1345 hrs. Left Belle by 'copter 1452, Arr. Elmer about 1530. Truck would not start; called Motor Pool. Took Kodachrome roll of 9-11 to 17-54 <sup>DS-35-36-F1</sup> to Dunwoody for processing. Rollovered w/ 3 shots of lab including Ralph at back. New 36 exp. roll used today at Belle. Motor Pool lent us jeep, took truck. Log of Aug 23 <sup>UNIV OF WA</sup> describes previous observation trip on reef. Today saw many *Tridacna* and

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Locality \_\_\_\_\_ Date 17 Sept. 1954 (cont'd)

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

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

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

Operations: a few Hippopus land plants all healthy except for some *Bombus* & *Pantilia* and one *Melissoides* #1408 -

The algae close in on the outer tide flats is very meagre. This part being and limited in diversity. One can find small patches of *Dicranodactylon* 1-2" wide and tall, and *Halimeda* 3" tall x 2-3" diam; and bottom cover of a most oceanic blue-green <sup>and yellow</sup> *Alga*. As one proceeds outward toward the reef, the sizes of the patches increase as does the variety of species. *Ceramium* is very frequent however, in the 300 ft tunnel. I saw only 9-10 patches of *Ceramium uvilliana*; the *Halimeda* patches included some *H. opuntia* 10" tall and 1 foot across, *H. steposa* up to 5-6" tall in patches 6" diam, a *Halimeda* (probably variety of *opuntia*) w/ very small segments almost a foot tall + in large patches about 1/2 way out saw 1 clump of *Lantern* (land alga) 5" tall x 7" across + healthy looking - saw more of it near the ridge, a couple clumps only. Saw lots of *Dictyosphaera* and *Murchisonia*. The most seen out here this year, especially *Murchisonia* which covered in the coral heads 3 ft around. The *Dictyosphaera* was mostly very small, still in the juvenile stage. *Pocockiella* was seen in among the dead coral. some blades were 6" long. *Udotea* was found in abundance also some blades up to 2" across. One small clump of *Rh. julia* was found in clumps of

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SEATTLE, WASHINGTON

Locality Elmer Date 18 Sept. 1954  
 Personnel Palumbo & Bonham Weather Deluge & wind last night. Early rain; then sun. 79-90°F  
 Water conditions Moderate. Wind E 10 mph.

Radiation level(s) Counter bg. 24/m (for 1 hr)

Operations: Developed 4 negatives taken of Belle yesterday. Shutter not primed on 1<sup>st</sup>. Others fair, but on the two vertical shots, slightly blurry due to vibration. Oblique shot, crisp. Will not print them, but hope to retake in a month to show vegetal changes. If ever printed, a photo sheet will have to be made for each. If not printed, they need not go through classification red tape, but must be kept until officially destroyed under supervision of security personnel.

\* Frank: Letter to KB from Wynkoop says to change classification from "Confidential" to "Official Use Only" for LRD-FP-2, 2568, 10711. George says to criss-cross out all but "Without Title", and "Reserve OUC, on envelopes, prints, and pink data sheets.

Motor pool returned truck with new condenser coil. Finel

Received from U. of Hawaii, Marine Laboratory 1 x 5 gal 95% ethanol, and 2 x 1 gal absolute ethanol. Supply said box had been here a couple of days, but he could not find us in.

Sgt. Prunier of Special Services, Fred, Phoned (3169 or 3120) to learn counts of tuna they had supplied; presumably these were the samples and cards mailed 8 Sept. He wants to use the fish which are choking his reefer. Counts of plates 12562, 12572, 12577, & 12631-40 suggest that muscle of these tuna, groupers and jacks yields uncorrected counts of from 120 to 7900 per gram, average 830. Omitting the highest which is 10 times the next highest, average 240. Total correction will probably be from 5 to 10, so these would be averaging from <sup>1000 or</sup> 2000 to 8000, with occasional fish yielding from 20,000 to 100,000. We shall suggest abstaining from eating these fish for a while. Sgt. Prunier

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APPLIED FISHERIES LABORATORY

SEATTLE, WASHINGTON

Locality \_\_\_\_\_ Date 18 Sept. 1954 (Cont'd)

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

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

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

Operations: says he will freeze fish entire from now on for a while and we may get entire series of tissues from those we want. He tagged his fish with a number. Was his number recorded? He wants to eat those fish with low enough counts.

Ovenized cucumber samples, <sup>11476-11499</sup> on bottom level; sacks melted. Counter gave about 500/min for Ra D+E @ 1200V, top shelf. Finished cucumber cards and sealed samples.

Patunbo spent entire day in sick fighting bad case of flu or something. Must have been awful sick - missed breakfast and lunch! Headache, aching bones, brick in stomach and weak all over.

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Locality Elmer, Fish barge Date 19 Sept 1954  
 Personnel Benham, Palumbo Weather 77-89  
 Water conditions Moderate

Radiation level(s) None - 1 hr. 20 c/hr

Operations:

Kelly off to concrete barge for fish Ralph to  
 Lab to check counter trouble and write cards, package  
 samples + catch up on observations etc. The counter  
 started acting up yesterday when Kelly noted the R. Doe  
 standard counted 589 c/m - on two counts. So then  
 on ran counts at different voltages, periods.

1250v (2min)	218	1300v	1041
1280v (2min)	522	1350	2000

Susan another series.

1280 (2)	433	1310v (5min)	1322
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1300 (7) 1138

Susan counts for 25 min

at 1250 volts and tried again

1250v (10min) 2037

1280v (10min) 2063

1300v (10min) 2105

1320v (10min) 2117

} SO will operate at  
 1280v as suggested

On Parry Fishing Barge (PEB), sampled 1 Jack, 1 Uku, Capone melanopygus,  
Aprion viriosus.  
 Saw also, Gnathodentex, Lethrinus, Siganus, other C. melanopygus,  
 "pink lady", and a 12-lb puffer Tetrodon hispidus caught. In the  
 puffer's mouth was a living, white isopod 2" x 3/4" (preserved). Bradley  
 saved the puffer's teeth. In its dig. tract were 30± small (1 1/2")  
 starfish, and vertebrae, jaws, & teeth of a small shark. Ralph & RB  
 dissected & filled out cards for plates 14096 - 14125 which include  
 besides above samples, 3 yellowtail and Tuesday's gar fish contributed  
 by Bradley.

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Locality Elmer Date 20 Sept. 1954 Mon.  
Personnel Bonham, Palumbo Weather Muggy. Wind very slow. 77-91  
Water conditions build.

Radiation level(s) 13Kgd. 1hr 22 c/m

Operations:

Frank: Apologies for inquiry of 14 Sept. re statement of transfer of photo equipment. It was in front of loose-leaf 8 1/2 x 11 notebook. Aligned prism in right side of Spencer dissecting scope which was loose and had been chipped at the edges. Tightened base. Switched counter decade circuits: Units over to 100's position; 100's to 10 position; 10's to unit position; because units had been sticking on 9, giving erratic low counts. Seems to be OK now. Packaged yesterday's samples

Doc: Ernie Wynkoop has no knowledge of the letter supposedly sent to all AEC biologists coming out here and advising them of boundary lines set upon our work. Hiatt knew about it when I talked to him one time. I suggest Wynkoop be informed or reminded as soon as possible as Halstad et al will be in early October.

Made collection of algae, sea cucumbers (2) and sand at Elmer for cement. Sea cucumbers scarce. Will have to plant some for future collections. Aggregates collected for counting here and for routine counting. Processed all samples this AM. We then have completed putting in more shelves in my request. now we AFL people have shelves in our areas.

St. Francis - Webb Special Service called to notify us of the (3) to 25 gallon tank he has for us. Will pick up this week later. Kelly sewed plankton net collar on for manubucket. (Counts) remainder of sport fish. Counts were low <sup>UNIV. OF WASHINGTON</sup> <sub>radiology</sub> <sup>UNIV. OF WASHINGTON</sup> <sub>radiology</sub>  
write to 86 c/mplote Kay, would you please send