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Log

410690

Eniwetok Lab.

Vol. XI (6)

Sept. 20, to Oct 28. 54

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UNIVERSITY OF WASHINGTON  
APPLIED FISHERIES LABORATORY  
SEATTLE, WASHINGTON

Locality \_\_\_\_\_

Date

20, Sept. 1954 (cont'd)

Personnel \_\_\_\_\_

Weather \_\_\_\_\_

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

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

Operations:

in the next shipment 10 All-Rite ball point pens,  
@ 29¢ at Marten's Self Service. Only 2 are left, and they  
are the best Ralph & I each lost one of the 39¢ variety.  
Lauren: Shall we return, by surface, the alidade,  
plane table and tripod, 1 Nuclear Survey meter, 1 Juno,  
all not likely to be used? We could send them when  
we ship Art's barrel of fish. Changed water in  
drum for outboard.

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Locality Elmer & Janet Date 9-21-54 Tues.  
Personnel Palumbo & Bonham Weather Partly cloudy 10-15 E. 78-91  
Water conditions Moderate

Radiation level(s) 6c/min. bg - 23c/m

Operations: When the 0830 air lift was not here at 0845, Ralph phoned Smitty and an L-20 arrived at 0915. Left Perry 0930. Arr. Janet 0933. Searched for rats first. From middle of air strip south to main road. Saw 1 rat on way and 4 under a piece of tin across the road. Went out on pier, back along road to large building. So rats under various old drums & sheet metal. Crossed to bunkers W of bldg. where more rats were under wood and metal. Back to main road near pier retracing, but under the same pieces no rats seen. Almost to W end of road, E on air strip to debarking point and ate lunch brought from breakfast - and some of the curdled canned milk so thoughtfully left! East to ditch intersection near bldg. and on to E. bank. Saw a total of 24 rats in about 3½ hours. Back along north shore to lagoon side of W. tip looking for cucumbers; None seen. Ralph collected algae at station, took soil samples. N shore is barren except for fish and many sharks. Saw 30 or so, small sharks, while walking on shore. Failed to get any rats or cucumbers. L-20 left 1513, arr Elmer 1532. Ralph cleaned gun, weighed bags, took by K.B. sewed plankton net. - Shotgun not very successful in my hands. Tried to shoot to the side to keep from splattering victim, but missed. Later discovered that at 40 ft, only got a 12" spread! So I gave up. The rats were mostly of the large brown size, but we saw 2 smaller greys. Cover preferred seemed to be in this order: grass bare patches, pieces of metal, mesquite bushes. Lots of ant holes were seen in the sand banks and many runways in the grass clumps. Next trip will concentrate on collecting some.

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SEATTLE, WASHINGTON

Locality Elmer & Fred Date 22 Sept. 1954  
 Personnel Palumbo & Bonham Weather Partly cloudy, rainy. SE wind 5-75-88  
 Water conditions Calm

Radiation level(s) Byd. 23 in counter.

Operations: Prepared equipment & materials to sample fish in Sgt. Frank reefer, Special Services, on Fred. Left Elmer on 0800 boat, and arrived 0830. Met Sgt. P. & Lt. Ray Porter. From 0900 to 1030 sampled 11 frozen sport fish: 2 yellowfin tuna, 5 tissues each, and the rest which were gutted, sampled only muscle, tagging each fish so that they may know its degree of radioactivity. We shall count these tissue dry and send the plates to be ashed and recounted at the UW lab: Plates 14136-14152. Spent  $\frac{1}{2}$  hour in Fred PX, walked to boat; lunch on Elmer. In pm gassed & had truck lubed. Worked up sample stamped cards. Bradley & Dr. Garrett brought in a barracuda, yellowtail, rainbow runner, and 8 blue bonito caught off the cable-boat today between Elmer and Alice. Please change the identification of specimen 1067, plates 14076-80, from G. bearingatus to Elegatis bipinnulatus. Made counts for Jersey packaged soil samples, processed Janet Alsea. Identified Balke 9/17/54. Received Florence's letter <sup>of 16<sup>th</sup></sup> w/enclosure from Loveridge. Many thanks! I will write him directly, enclosing the dried specimen. Hope first to learn who collected it.

EXHIBIT 100-1000  
 100-1000

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Locality Elmer - Clara Date 9-23-54  
Personnel Benham Palumbo Weather Cool, cloudy morning. 74-89  
Sun & cloudy in am.  
Lt. West wind 10 mph.  
Water conditions Moderate

Radiation level(s) 1hr by 23 c/m

Operations:

At 0845 Take off for Clara for observational study. Walked around the island noting plants present their condition and abundance and distribution. Photographed a lepturus plant tagged previously, and a unhealthy Ternstroemia plant 13' tall on the northern central portion of the island. The leaves were yellow, wrinkled, and burnt. Saw two clumps of soil fungi (Xylariaceae) and one xylarian in an old coconut stump. Samples preserved and photographed. At the western end of the island Mesoschmidia plants up to 18" high were abundant and in excellent condition, many scattered clumps of lepturus were present and healthy, very few Scavola plants were seen, and in fair shape. Boerhaavia plants were very small and formed many thick patches all over this area, intermingled with many small Portulaca plants. Two 3-4" plants of Guettarda were seen. No other species were found. In the central portion of the island the flora was about the same. In the eastern third of the island only one species was present - lepturus, the grass. These plants were all healthy but King Norats were seen near evidences of some. On the western sea side beach hundreds of gopher holes and mounds were seen. A photograph of the area was taken. At the western tip in an old formed shipping yard, a very heavy bed of bryozooph

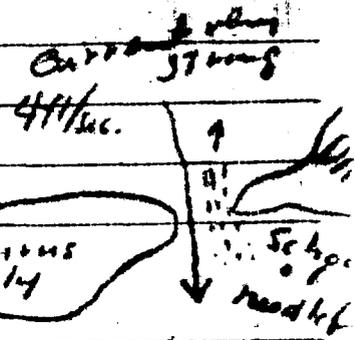
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Locality \_\_\_\_\_ Date 23 Sept 1954

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

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



Radiation level(s) E. Enterozoop  
E. guettarda  
Sc. Saccata

Operations:

was found

on the back platform the following algae } Back platform

were found attached and healthy: Polysiphonia, Enterozoop,  
 Ectocarpus, Sphaeria, Cladophora, Ceramium and Lyngbya.

at 1045 we waded out to the inside reef ridge off the  
 East central part of the island. The following algae were

found in abundance and healthy, not floating: Caulerpa  
 Fragumetii, Caulerpa uvullicornis, Halimeda stiposa and  
 H. opuntia, Udotea, Padina, Polysiphonia, Sphaeria,

Lyngbya, Ceramium clavatum and Ceramium sp. and  
 Cladophora. Asparagopsis was found in the deeper  
 holes off the ridge, as was a large bi. H. colonial sponge.

Two live(?) pieces of the heliopsis coral were seen and  
 some few others not identified. None was seen in the deep  
 water where Asparagopsis was found. This area (inside)

is a very active algal growth area and a poor area  
 for coral. Fish of all kinds were seen in the shallow  
 water: muraenids, wrasse, small surgeon, box fish (?)

damselfish, groupers, crabs spotted surgeon, the deep water, jacks,  
 etc. After lunch we went out into the tide flats of  
 the outer reef. The following living algae were seen from shore to 1/2 way

out to edge: Padina, Ceramium, Sphaeria, Lyngbya sp., Cladophora,  
 H. stiposa, H. opuntia, Padina (5' tall only), Lithothamnion, Udotea,  
 Ectocarpus, Rhizoclonium, Cerium, Caulerpa uvullicornis (?) and

Murchisonia. The algae was for the most part mixed w/ sand, but

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Locality Elmer, Clara Date 23 Sept 1954

Personnel B, P. Weather \_\_\_\_\_

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

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

Operations:

Apparred healthy, under microscope exam. No coral was seen in this area, lots of fish and one large brown sea cucumber, some Echinastera, and many small (3" diam) and lots of larger (8" spines) black porous sea urchins. There was a very strong <sup>(4-knot)</sup> current betw. Dory and Clara and I saw a large school of needle fish w/ over a hundred fish about 12" long. Also some school of jacks going the other way.

On outer reef near shore, saw 7 *Actinopyga mauritiana*, 9' x 3', white with tan dorsal spots, sea cucumbers usually occurring in pairs. No *H. atra* seen. White "sand" crab at W end, water edge. Ghost crabs on all shores of island.

Kodachromes w/ Robot #15 Ghost crab holes @ N end; Palumbo; #16 *Lepturus*, #17 Fungus, #18 *Termitaria*, #19 *Xylaria*, #20, 2 *Actinopyga mauritiana* @ N. end. Occasional, close in, egg collar of *Polinices* in 8-cell w/ 2 polar bodies.

As passed <sup>500'</sup> over Janet in a.m. looked at N. shore where many small sharks noted 9-21-54, but saw none, probably because sharks same color as bottom. Saw total of 9 sharks, 10 eagle rays, 3 sting rays, on way up. Many *H. atra*? seen on ocean reef of Yvonne from air.

Copter left Clara 1500. sitting at side of plane, saw only 3 sharks on return trip. Arr. Elmer 1520.

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Locality Elmer Date 9-24-54 Fri.  
Personnel Palumbo & Bonham Weather 77-92°F Hot, ~~flat~~  
Water conditions Moderate, W wind

Radiation level(s) 22-23 c/m

Operations: With so many sport fish to process, we stayed ashore. The M-boat trip planned before Bradley and Garrett brought in their fish on 9-22-54, was allowed to go through. Bradley, Blake, and 3 men from Fred left 0830 with dated tags to identify localities of fish caught. They had good luck, about a dozen bonita's, yellowtail, runner, large jacks & grouper, a couple of sharks discarded because of noxious odor. Also Queen fish.

We processed the fish of 9-22-54, taking duplicate muscle samples for us to run one here, one at UW-a regular sample. ~~Palumbo~~ counted, processed his algae in pm. K.B. made out cards, identified cucumber & sponge deposits.

"Refrigeration" started walk-in box; put today's catch in flat on the plates.

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Locality Elmer Date 9-25-54 Sat.  
Personnel Perumbo & Bonham Weather Sunny morning, rain 2 pm. Sun. rest of day. 79-96 Hot  
Water conditions Almost calm.

Radiation level(s) 24 c/m, 1 hour.

Operations: Discussed food tolerances with Bob Taft. Using  $10^{-7}$   $\mu\text{C/g}$  of food and water as set forth by Nat'l. Bur. of Standards (1950) published 1954, as tolerable for life, we concluded that our average fish samples counting 300 d/m/g (including a factor of 15 for geom. ~~by~~ self-absorption) could be safely eaten at the rate of only about 2 pounds per year. A 10-minute count of our lunch wieners dried was 0. Bradley decided not to eat the fish in view of these findings, and expressed concern about the Hawaiian boys <sup>here</sup> who he believes eat about 3 pounds of reef fish a week. (We assumed normal daily intake of 3000 grams food & liquid)

Electricians installed power supply for the still, and drop cord over desks for microscope light. K.B. photographs on 425, LRD-D-00-467, #s 10, 11, & 12, & Robot DK-35-36-4FL, #s 21, 22, & 23, representatives of yesterday's fish catch by Bradley, et al. Ralph & K processed 6 of yesterday's fish.

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Locality Elmer - Perry Fish Barge Date 26 Sept 1954 Sunday  
Personnel Banham & Palumbo Weather Sunny 78-90? Hot  
Water conditions calm

Radiation level(s)

## Operations:

Kelly to Concrete fishing barge at 0900.  
Ralph ran decay curves. Sealed samples.  
Wrote weekly letter to Doc.  
On fishing barge, photographed in color on Robot, ~~was~~ 24-33  
gummaman, red snapper, <sup>(Jacky)</sup> papaya, shark sucker, and unicorn fish.  
Returned borrowed rocking tripod to Geo. Bernier. After lunch we pu  
gas & oil in outboard tank, and w/ Dr. Garrett, went off so end of  
Elmer in 60' using rubber raft. Ralph & Garrett went down tow  
KB hung around boat. Many jellyfish, siphonophores, and  
stenophores extending down only to 15-20 ft. After cleaning up  
gear, Ralph & KB did their first sketching behind the barracks with  
an excellent sea-scape to inspire.

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Locality Elmer - Date 9-27-54  
Personnel Palumbo & Bonham Weather <sup>N.E.</sup> Blustery & calm 75-90°  
Water conditions Moderate.

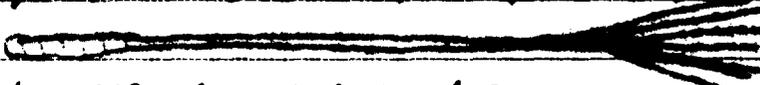
Radiation level(s) 22  $\mu$ m Dy. 1 hr.

Operations: Mr. D.C. Gunderson showed KB where blind skink was found by Hawaiian boy in grass of heavy equipment storage yard. Ralph & KB poisoned on 0.7 ft low tide 1000-1100 on outer reef about 200 yds south of lab. Photographed representative spp. with Robot 34-40, 1130 hrs. Received package of books & cards mailed before we left. Finished processing sport fish of 9-24 and today's Elmer collection. Phoned Sgt. Premier concerning results of counting sport fish collected by his group at Fred.

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Locality Janet & Elmer Date 9-28-54 Tues.  
Personnel Palumbo & Bonham Weather Hot, partly cloudy. 75-98  
Water conditions Moderate

Radiation level(s) 22/m for 1 hr.

Operations: After breakfast we asked the Colonel at Sheet Metal to have made for us a couple of rat-swatters; 7,  $\frac{1}{8}$ " x 36" welding rods in a bundle welded at one end and middle looked something like this: 

With one of these, each, Ralph & KB departed by L-20 0833; arr. Janet 0850. Ralph saw manta @ W end of air strip.

Retracing our search of 9-21-54 we saw no rats under the cover we had successfully investigated previously, except in central bunker area, sand-bagged pit. There we tried to dig out some squeaking rats and saw a tail, but they went on in. Leaving toward tower, encountered 4 under a cover and got 2 with the swatter, the rats being confused by 2 such hunters!

Then long fruitless search: could not even find any on top of tower. On way home to air strip, semi-defeated for a 3<sup>rd</sup> rat, Ralph displayed his skill and agility by knocking out the winning stroke, with 3 stunned rats on ice in the jugalug the morning was a success. Left Janet by L-20 1136, <sup>told</sup> saw 13 rats all together. Left Janet by L-20

1136, arr. Elmer 1153. Saw 6 sharks coming back, but observing poor because plane cut across lagoon part of the way. In pm. air tanks & pallets were removed; lights replaced, in lab; Hook-up of still, discussed, and completed. Finished processing the rats. John Zachem & Gerry Spittler went aqualunging with us at 1130 off float; appreciative of Ralph's instruction.

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Locality Elmer & Edna Date 9-29-54 wed.  
Personnel Ben Hart + Palumbo Weather 82-99  
Water conditions Moderate

Radiation level(s) 23/m, 1 hr.

Operations:

0830 to Edna. Poisoned in bight in 3 places. Low tide + shallow water, obtained small goatfish, gobies, mullet, very small wrasse, 1 siganid, 1 barfish, 9 pomps and sheepshead + 1 small eel. Will select some for sampling. Walked out to outer reef edge. Saw lots of fish of all kinds including one large gopher like fish about 2 feet long and dark brown w/ dark spots. The algae close to the beach was limited to *Enteromorpha*, *Rhizoclonium*, *Chlorella*, *Spirulina*, *Ectocarpus*, and a *Skeleton* blue green. The green filamentous types were long streamers + Kelly photographed a mess of stuff on the low tide line. The bottom of the tide flat was sandy w/ no corals seen, and algae limited to small tufts of *Ectocarpus*, yellowish blue green, and some *Spirulina*. Most rocks had some small algae on them. No inverts were seen except for the black poran sea urchin (*Centrichinus*) and a few *Echinometra*. In the rubble rock area just inside the reef edge many sea urchins were seen inside the rocks, including *Centrichinus*, *Echinometra*, *Echinochrix* (banded) and *Tripneustes*. Some of the former of a pair up to 6" long. One sea cucumber (sphaerocoma) spotted holes was found within one under a rock, a boat 18" long. Two clumps of *Laurencia* were seen under a reddish branching algae covering the dry rocks, looks like

Locality

Date

29 Sept 1954

Personnel

Weather

Water conditions

Radiation level(s)

## Operations:

Lysichiton. On the ridge, life is apparently just starting for many organisms. Many *T. crocea* about 1" long were seen on the ridge, as well as small *Echinometa* but no slate pencils were seen. 3 small *H. citreus* about 4" long were seen and 1 about 6" long. Many black *Juncus* seen on the ridge, most of which were about 2" diam. *Porolith*, *Conocelis*, *Marlet*, and other small fish were seen. Algae present were *Halimeda* *gambusia* about 1" tall and 5-6" clumps maximum and not too plentiful. *Conocelis* *fragilis* clumps 7-8" spread were seen, most clumps were 3-4" and few in number. Many isolated balls of *Dictyo sphaera favulosa* (?) were found on the extreme edge, most of which were 1/2" diam. A few very thin fragments of *Dama* + *1* *Rhizaria* were seen. This reef would be an excellent place to measure algal growth as the existing *Halimeda* is very young and not very abundant. After lunch the Pagan at the sail end was inspected. Here *Ectocarpus* + *Sargassum* were the dominant algae in the area close to shore, whereas close to the inner reef edge *Hydrocolethra* and a gelatinous reddish blue green (not yet identified, but probably *Sargassum*) were dominant. Other present in the area were: *Sphacelaria*, *Cladophora*, *Phaeocystis*,

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(P. 3)

Locality Edna ~~Isle~~ <sup>Elmer</sup> Date 29 Sept 1954

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

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

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

Operations:

Chaetomorpha (?) and Licoropus. In one area near the east end and close to the crater Hydrocoleum was the only algae seen. This is surprising. Turne because it is an advanced brown alga and usually it has been found that the simple filamentary Lycium is present, and there was not present. Edna and a few pieces of Pectyca were seen in the area close to the reef. Most of the rocks in the area were covered with a small matting of Ectocarpus and Diphytysa about 1/2" thick. w/ the exception of the area mentioned above. Many fish were seen in this area most of them small (under 6") w/ the exception of one or two jacks.

The land plants were inspected, measured and weighed. Very little growth has taken place on the land plants from 1/2 hr. - 54 small plants on the high tide wash line were counted. There was seen of the type of the mark D. It was very hot and we have talked to Wynnkoop regarding some kind of a portable frame to take a camera. He suggested a beach umbrella - w/ straps!!

While Ralph spent 1 1/2 hours on outer reef trip, KB. took less than 1 hour to avoid sunburn. We conjectured the source of the band of large rocky pro-  
cesses about 100-200' wide and about 100' from reef.

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(24)

Locality Elmer & Edna Date 29 Sept. 1954

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

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

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

Observations:

Echinoderm preponderate in the reinvasion picture.  
Reasons are not apparent, since other free swimming  
larvae are common in other groups of invertebrates.  
It seems also that the first species to come in are  
not, <sup>necessarily</sup> the ones found most commonly in an established  
community.

On the lagoon side reef K.B. was farther west,  
straight off mid-Edna, where many fish: 12"  
blue-green jacks, 12" half beaks, schools of small siganids  
swimming and then sifting out from other fish of similar  
size. Large (5") brown jelly fish of 2 spp.

Left Edna 1435 Arr. Elmer 1516: 7 sharks, 8 eagle  
rays, 3 sting rays seen from air.

At Edna took Robot 41 & 42 of fish on sand w/label  
4" wide. Robot 43 of algae on flat w/Ralph in distance  
Robot 44 of fish including small box fish.



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Locality Elmer & Plankton circuit Date 10-1-54  
 Personnel Palumbo, Bradley, Blake, Weather 74-93  
& Bonham Water conditions Moderate

Radiation level(s) 22/m, for 1 hr.

Operations: Left Elmer 0830 on M-274 w/ George Clark, Skipper. Trolled 2  
 3 lines at all running times except on last leg. Took only 4 at regular  
 plankton stations because late. Fish caught from Glenn to Kieth  
 were 3, 2-line tuna; Kieth to Leroy 1 more 2-line tuna & 3 mako  
 runners; Leroy to Belle 4 bonita by Blake. ~~Met at the off~~  
 Henry Ralph caught a 5-ft female shark fitting Smith's description & pair  
 of Eulamia limbata. When he finally almost exhausted (yes, Ralph) got  
 it to the boat, <sup>(Robt 46)</sup> Brad gaffed it but the gaff straightened and line and  
 shark tangled in screw and 3 young sharks came out, of which  
 Brad gaffed one aboard. Off Belle in glassy water schooling fish  
 skipped on shore side. Skipper turned that way, port; Blake, on aft,  
 in trying to prevent line tangle, fell in. Life ring followed 50'-100' from  
 him, but he was just staying afloat. Reversed engines. Deck hand went in  
 without skipper's knowledge; was being approached by backing boat; seen in  
 time to swim aside. While backing rest of way Blake scared all by going  
 under; came up. Life ring (second) & Ralph <sup>giving him ring and holding</sup> went in, near him; Blake too  
 line thrown him and all ok. He said he was just getting his second win  
 when boat got there; kept his glasses on; lost his rod, reel, & line. Boat  
 cruised around, picked up rings & hot. Elmer 1700

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Locality Elmer & Deep Entrance Date 10-2-54

Personnel Palumbo & Bonham Weather 78-91 Partly cloudy

Water conditions moderate

Radiation level(s) 22/min for 1 hr.

Operations: At 0745 smitty engaged M-273 (M-274 on duty) to take us for plankton tow Deep Entrance. Left Elmer 0830; returned 0905, including 20-min scheduled tow. Ralph worked up plankton samples, <sup>and water samples.</sup> weighed bags, and fish tissue samples, took bag. K.B. dissected fish of 9-29 from Edna and of 10-1 from plankton trip. Both worked on finishing cards for these fish.

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Locality Elmer & Sand Island Date 10-3-54 Sunday  
Personnel Palumbo & Bonham Weather 77-93 Calm, Intermittent,  
Clear & cloudy  
Water conditions Calm

Radiation level(s) Bgd 1hr - 21 c/m

Operations: with Brad, Ralph Diettemeyer (sp?) & Walter Hughes,  
took rubber boat, motor, and 3 aqualungs on M-boat to at  
0900 to Fishing Barge. Then to Sand I. where we unloaded  
the rubber boat, and 5 dogs went ashore, as well as 5  
people. Shell- and sea bean- (none) hunted until 1000. Then all  
but KB & 5 dogs took off in boat and dived in 60' water.  
The dogs retrieved sticks from shore and water. "Swimmer"  
always got it from the water, but the other 2 ♂♂ on land.  
One of the water tosses was a coconut bearing goose-neck  
barnacles. It sank in 3' of water but Swimmer brought it in.  
Watched fish in shallow water. Loaded 5 people & 1 dog on  
rubber boat @ 1050 and headed for Elmer; nearly there,  
met M-boat going to pickup @ 1130 from Barge, and asked  
them to get 4 dogs @ Sand I. After lunch, at lab: log;  
identif. of small tuna from bonita gullet; large cuc from Parry lab area  
decays, letter written to Lab, schedule for coming  
week, and examination of plankton sample.

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Locality Elmer Date 4 Sept. October, 1954  
Personnel Palumbo & Bontram Weather 77-100 Lt. North wind  
Water conditions moderate

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

Operations: Ralph identified Eelra algae and made 7 plates. K.B. examined plankton; notes on white sheet clipped in plankton book. Early tows had green pear-shaped Protista. Variation in composition of haul must be due to diurnal vertical migration rather than to horizontal distribution. Some information could be gained on this question by tows in the same place (Parry, lagoon) periodically throughout the day.

After lunch prepared for tomorrow's major collection at Belle. Sent dried skink to Loveridge. Packaged samples. Labeled 10-1-54 fish. Art or Frank: Have the 6" auger and 3" spider shells left in a pan in per freezer, any special significance? Ralph plotted decays. JSP

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SEATTLE, WASHINGTON

Locality Elmer - Belle Date Oct 5, 1954  
 Personnel Bentham + Putnam Weather Sunny - cloudy 77-93  
 Water conditions moderate

Radiation level(s) By 1 hr 2.2 c/m

## Operations:

Major collection: 2:30 via helicopter. Ralph  
 sampled land plants, soils water, and helped  
 insects and fish - also algae. Kelly collected  
 invertebrates and fish and tried to locate  
 Ed's F-1 coral head. No luck w/ birds in the  
 afternoon - should have taken when we first  
 arrived. The land plants are doing very well.  
 Algal growth is tremendous in area 6 - lots  
 of new species seen not found before shot.  
 Diatoms not seen at all. New species include  
 Lyngbya, Cladophora, porocollera, Phaeocystis  
 Jungermannia, some others not identified yet. Growth in  
 area 6 is also in the upsurging with lots of new  
 clumps of Cladophora, Halimeda, Siphonocladia, Siphonocladia,  
 Siphonocladia, Dictyosphaera and a gelatinous  
 blue-green. Coral growth in area 6 is also  
 tremendous especially young colonies of Porites,  
 Pocillopora and a branching Acropora - very few  
 I. crocea seen, one spider's web, no sea  
 cucumbers. Lots of fish, no seems to be  
 the case all over. Area 6 is also active with  
 new clumps of coral, algae and many fish.  
 Note: Our orders are okay as written for the return  
 trip we have sufficient orders. Forwarded to  
 us from JTC - Hawaii.

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Locality Elmer - Date Oct 6 1954  
Personnel Berham + Pilunke Weather 75-95° F  
Water conditions mild

Radiation level(s) B<sub>g</sub> 1hr - 23 c/m

Operations:  
all day spent working up the  
collection of Balke 10-5-54. Completed  
load plants and water.

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Locality F Imet Date Oct 7 1954  
Personnel Benham + Palumbo Weather Some Rain 76-92  
Water conditions Mild Stormy

Radiation level(s) By lhr. 23c/m

Operations:

Continued working up major collection of  
10-5-54. Completed inverts, algae, and  
sand. Packaged yesterday's work.

Received air shipment of 12 doz 4oz  
Jars and 12 doz 2oz Jars - probably ordered  
by Hatt for EMBL.

Swam at Mission Beach after securing.

RECEIVED

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Locality Elmer Belle Drisy Date Oct 8, 1954  
Personnel Benham, P. L. L. Co Weather 76-94 Sunny - B. C.  
Water conditions Moderate

Radiation level(s) B3. 1hr 22 c/m

Operations:

0830 - H-19 to Belle w/ Jack Livingston of ~~Proctor~~  
it + N for bird collection. Jack shot one. Ralph  
shot 2 fairy terns shortly after arrival.  
Alidade set up used to relocate F-1 and  
over coral head - located both heads, which  
had remnants of buoy ropes still attached.  
Kelly took photos of F-1 head from 3 ft as  
requested by E.H.H. however, Kelly thinks ~~the~~  
~~most~~ advancing and the photos were actually  
taken. Leakage noted in case glass enough  
to cause moisture droplets inside window - must  
getting to camera yet. Will try to repair or have  
repaired out here. Coral on these heads seem to  
be doing OK. Noted a few small (1-2") T. Crocea  
living in coral heads in these two areas. The  
algae is doing well, especially Halimnathra, ~~and~~  
blue greens and some unclassified filamentous algae  
(not examined microscopically yet). At 10:35 went  
to east end of lagoon to look around. Belle  
Noted great beds of Spyridia (red algae)  
and a green alga, probably Cladophora and  
some Lynchna, Ulva, H. opuntia and H. laticornis  
blue green jelly masses, and Etocarpus or and  
Sphaerularia - fairly abundant in these areas.

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Page 2.

Locality \_\_\_\_\_ Date 8 Oct 1954

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

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

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

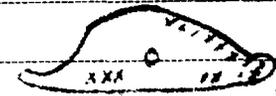
Operations:

Very little live coral seen, a clump of blue Porolithothamnion look OK. Invertebrates practically lacking from this algal pasture.

Drove iron stake 3 ft. offshore from coral head and drove iron stake into F2. Tied sticks to stakes for project above water level. F1 looked about as in the Kodachromes taken by Ed, which we had along. Our pictures w/ Robot since 9-17-54 on UDDK-35-36-4F1 will undoubtedly be all lost since every indication is that the film was not engaged on the sprocket at the beginning of the roll.

Picked up at 11:30, dropped off at Daisy Livingston, went on to Elmer w/ birds and other gear. After short lunch period, Palumbo made tour around island at high tide mark to check plants previously recorded and to check for new plants. Of the plants marked

23 were still present. These included: 12 Leptanura, 4 Messerschmidia (one 3' tall), 3 Guettarda, 1 Sarcocornia in poor shape, 1 pertulana, and 1 probably Canavalia.

18 plants were staked, but no remains were found. This included a sea bean. Plants seen for the first time and staked were: 10 Leptanura, 7 Messerschmidia, 3 Guettarda, 1 Pandanus (?), and 4 unknowns. These plants are found in the marked area.  At a boat

1:30 we went out from the northernmost survey stake

Locality \_\_\_\_\_

Date Oct 8 '54

Personnel \_\_\_\_\_

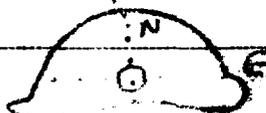
Weather \_\_\_\_\_

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

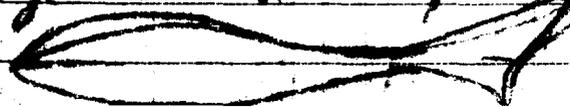
outer Ridge

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

Operations:



towards the outer ridge. The water was about 5 feet deep and darkness was in order most of the time for Ralph. Kelly walked out as far as he could. There was a strong current coming in and it was difficult to stay in one position. Ralph got out about 3/4ths of the way. The flora was monotonous and practically uniform all the way out. Seen were: H. spumia and H. strigosa, Udotea, Pocockella, Pardina, Lynceus, Jurina and Elachon which covered much of the rock. Invents seen were top shells (Trochus), limpets, shells, Loctopus, black + black, white banded poison sea urchins (lots), Echinometra, auger shells, 1 long oyster <sup>pinna</sup>, 4 sea cucumbers (Heterostichus), small patches of Scopeloglossum and Pocillopora, and some interesting parasites farthest out. Fish were abundant. As I was about to go further out I saw <sup>what I thought was a rock,</sup> a dark (black or blue) shape <sup>but it was a fish</sup> coming towards me. I realized it was a big shark. I immediately in front of the Smart Is. and the black striped pilot fish, which I first thought was the shark's teeth! It veered away from me and I turned to the west and got a good view of the big tail and body - shaped something like this:



I was too scared to

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Locality \_\_\_\_\_ Date Oct 8. 54

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

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

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

(Received 5 boxes of shipping containers for water and living coral, we assume; did not open)

Operations:

remember anything about the fins. He looked dark all over and at about 50 feet he looked about twice as big as anything I've seen out here probably 10 feet - I'm trying to be conservative! It was much larger than the barracuda we saw last Sunday (B. Kelly estimated to be 7 feet. That at least (6 ft). Anyway, I came out on prows to argue with him about his size and turned back w/ great haste - according to Kelly. We both saw a sting ray <sup>(Ralph pointed out)</sup> sitting on the bottom in the sand. He estimated his size to be about 3-4 ft across - dark colored (blackish) whip about 1 1/2 - 2 x body length and about 1/2" thick w/ two spines. Later we saw two of the rays together. They sure slip up the "clust" when they take off! Saw some large spotted fish chased by larger fish close to the beach. Trip to outer reef from 1400 to 1500. <sup>High tide 3.45 PM</sup>  
Stranded on beach where we ate was cucumber white w/ tan speckling *Actinopyga mauritiana*. On lagoon side were stranded *Tethys* previously seen on 10 Sept. The outer reef would be accessible by landing and would harbor fewer denizens of the deep if visited at low tide when water was 2 or 3 feet shallower. On return flight I stopped to a slow low to see extensive beds of *H. atra* between Wilkes & the Koonne, appearing as dense as 1/ft<sup>2</sup>. Pilot circled to show us 2 *Actinopyga* just north of Clude on lagoon side. Elmer 11:32.

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Locality Elmer Date 9 October, 1954  
 Personnel Palumbo & Bonham Weather Rainy; almost no sun; cool  
 Water conditions Moderate.

Radiation level(s) Bg 1hr 21 c/m

Operations:

Samples ready for shipment:

Plankton	8263-8272	10
Plants	10325-10405	84
INVERTS	11507-11576	70
Fish	14286-14390	105
Seals-Water	9848-9863	16
	Total	285

Left with Smalley late in afternoon.  
 Kelly worked up three birds from Belle. Ralston  
 packaged samples, ran decays, wrote logs and  
 letters to Lab and typed code numbers for reference.  
 then checked numbers w/ Kelly. Kelly developed  
 films taken last week, & negatives of fish. D-60-467  
 Pan X, 16, LRD-D-00-467 SXX 10, 11, & 12. Gave to Smalley.  
 Lyle <sup>LR</sup> DK-35-36-4FL loaded into Robot 9-17-54, unloaded 10-9-54 and  
 probably not exposed due to faulty loading. It & samples & cards will  
 go on Wed. plane.

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Locality Elmer Parrot Fish Barge Date Oct 10 1954 Sunday  
Personnel Bonham & Palumbo Weather Rain 75-85 (cool)  
Water conditions Rough

Radiation level(s) By 21 c/m in air

Operations:

Received latest code numbers with note from Kay.

Kelly to bring. Took samples from unicorn fish, parrot fish, siganid and rainbow runner, worked these up in PM.

Ralph examined algae from Bell and Perry and ran decay counts all day.

Photos in color of fish caught on barge; heavy overcast. <sup>Photographs</sup> in barge  
Robot #0 of Unicorn fish f: 5.6,  $\frac{1}{50}$ , 2.5-16, 14.5"

" 1 Sea bass

" 2-6 Siganid "Guamanian" changing color from yellow to blue-green in a matter of 1 second; 5 shots in about 15 sec.

" 7 Group of fish: Guamanian, unicorn, Jack (papiyo), Remora

8 Jack - papiyo

9 Large trigger fish.

10 Parrot fish 3-lbs, 16"

11-12 Naso vlamingi, purple vertical stripings <sup>caudal</sup> <sub>Filaments</sub>

13 Goat fish, red

14 "Bass, red; 3.5-16, 16.5"

15 Scorpaenid.

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Locality Elmer - Fred Date Oct 11 1954 Mon  
Personnel Palumbo - Baslam Weather Part - Sunny 75-91  
Water conditions mild

Radiation level(s) Rg 1hr 23c/m

Operations:

Am. Both of us plotted decay curves and  
today it looks as though the first counts are  
not in line with the counts made later (more counts  
in pig), such that the curves have questionable  
value. Many of the "curves" after two months  
still show no sign of curving. Maybe this is  
as it should be but the counter jams at about  
16,000 c/m - Some of the better sampler counts  
jerkily on the first shelf and apparently  
OK earlier when better. So? For example, Muller  
just on July 4th counted 100 c/m first shelf. But we  
could get on 1st shelf today was 16,000 c/m and  
it was evidently not counting right.

PM. Total to pick up fish from Sgt. Praxier  
got 1 shark's liver, skin, muscle + gut, 1 bonito,  
5-2 line tuna and a red snapper. Returned on  
1420 boat and processed shark, bonito and  
3 tuna.

Smitty brought 2 reams onion skin 8 1/2 x 11.

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Locality Elmer & USS Belle Grove LSD-2 Date 12 October 1954

Personnel Palumbo & Bonham

Weather Strong So. wind, gusty

Water conditions White caps, choppy

Radiation level(s)

Operations: Spent morning preparing for Bikini Atoll trip. Departure was advanced @ 0930 from 1500 to 1200 with personnel to disembark @ 1100. Also on our register were Wayne N. Grant, Arvel F. Edwards & Major Paul Stuart, all of whom helped load our gear: 4 jugalugs, & 5 sacks. Room 105(?) Stbd. amidships, same as in 1952 but w/ porthole. Running on 1 instead of 2 boilers, 2/3 speed. As we boarded and put our jugalugs of ice in Refter, Lt. Gilman turned over to us the Captain's (Cdr. Claude Lowe) Sunday catch trolling north of Nan, on ocean side as well as inside. Catch: 15.3 & 17.8 lbs, 3 blue channel bass, 2 bonito, 1 mackerel, 1 red snapper, as well as a 55" ♂ sand shark. These were sent ashore to our reefers.

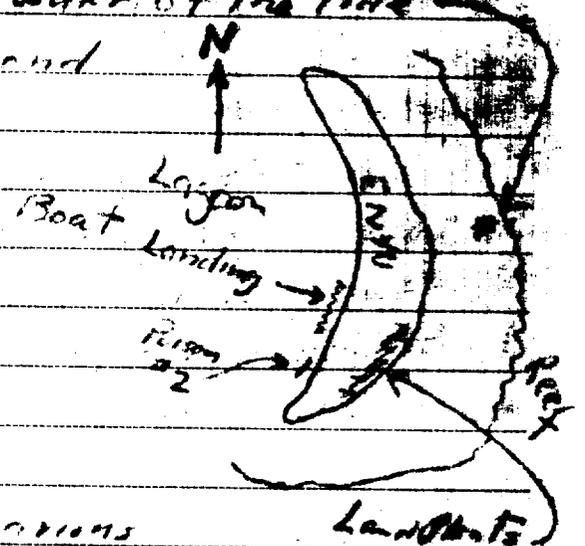
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Locality Nan (Bikini Atoll) LSD-2 Date 13 Sep October 1954  
 Personnel Palumbo, Bonham, also Bob Taft, Taylor, Edwards, Weather clear calm - hot  
 Water conditions mild

Radiation level(s) at Nan (Bob Taft report - we 1-2 hr. - on 252 detector)

Operations: LSD-2 arrived Bikini lagoon 0700. We got ashore on Nan 0830. Bob Taft met us, promoted 1 of the 2 jeeps on Nan and took us to the outer reef. Collected insects, algae and made fish poison in shallow water of the tide

Flat. At about 1030 made second poisoning at SW end of island in the lagoon with help of Edwards and Taft. Algae insects also collected here. Algae were limited to Harknessia and Sargassum and insects to T. crecea, Drepan



Sea cucumber, rock crab, slate Penaeid searacher (surgichannel), and various species of coral. Had lunch on houseboat (LCU) and then w/ Bob Taylor (Rad Safe) we made collection of land plants in area indicated. Plants numerous and healthy looking except for many of the arrow root which were dying. Leaves were scorched looking yellow and all curled up. Photographs of ground roots, Pandanus and forest were taken. Kelly knocked down a coconut w/ along curved branch. Had natives trying to down birds w/ rocks, sticks, or knife although we threw many of them.

Radiation readings as obtained from Rad Safe personnel by Kelly and Ralph differ so will check and report later. Above values were those secured from Taft. Some can be seen

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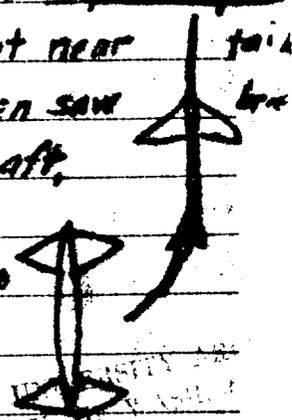
Locality Bikini Nam Date 13 October 1954  
Personnel \_\_\_\_\_ Weather \_\_\_\_\_  
Water conditions \_\_\_\_\_

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

Operations:

as to whether these figures apply to scraped (boulder etc) or unscraped terrain.

After land plant collection, tried to catch crabs on rock pavement, but had no luck as the 11 boat came to pick us up (1430). Stopped by houseboat to pick up jugs and spot fish catch (Taff, <sup>caught</sup> engineer) and then to ASD. Put away stuff in cooler and found that Capt. had caught more fish in the lagoon, including a 47, 22" barracuda, red snapper, bounta and others. The ship set under way at 1630. Arrived at 1130 the 14th. Leaving lagoon the water was glassy. Could see bottom thru the pass. Flying fish abundant up to 12" as ship left lagoon and headed into sun. K.B. & Ensign Dave Taylor stood at bow and watched them for an hour. Besides hundreds of typical Cypselurus-like, saw one flying half-beak like Smith's #216 Eubetula about 10" long; flew 50 ft, flicked water & went on; body bent near during flight, once straightened out; total flight 150-200'. Then saw two 7" dark bodied, slender fish w/ equal fins, triangular, fore & aft, but fins light or white in ones K.B. saw; purple in 1 Taylor saw. These are like some seen by K.B. 1/2 way Hawaii to San Francisco while observing from ship's prow, occurring in schools of 12.



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Locality USS Belle Grove & Elmer Date 14 October 1954 (Tues)  
Personnel Palumbo & Bonham Weather Good, partly cloudy  
Water conditions calm

Radiation level(s)

Operations: LSD-2 anchored 1100; ashore 1130. Halstead's group ~~was~~ arrived Tues 12<sup>th</sup>. He has 2 helpers Chester Liritt, and Bob Habe Kost. Accompanying him is Commander Francis D. Fane from Coronado, Calif and his helper Gerald Darrak who are observing <sup>& photographing</sup> actions of predacious fishes, especially in the presence of injured & dead fish from dynamiting. It is a gruesome description of the whirling mass of frenzied sharks tearing everything to pieces including themselves.

Halstead feels we can all use the walk-in reefer, and he would like to have the remains of our large fish after we use them. He samples liver, gut, & some other organs as well as muscle for toxins; hopes to get 2000 lbs of fish; So far has kept out of North half of Atoll, sampling at N. end Leroy yesterday; is aware of closure of N  $\frac{1}{2}$ .

P.M. Ralph weighed bags & fish samples, made out cards while KB dissected 6 fish caught near Tare 10-10-54 by Capt. Lowe.

Capt. Lowe, Cdr. Johnson (Exec.), & 2 other officers are at Parry Mess, AEC. tables; w/ Halstead's group, made 13. After, Lowe, Johnson, Halstead's group came to lab. The skipper was much interested in the fish, bottled, frozen, and pictured. Stayed 1 hour; officers returned to ship.

Many thanks, Phlorence, for the letter & absentee ballot requests which we mailed today. No comment about the picture?

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Locality Elmer Date 15 October 1954  
Personnel Palumbo & Bonham Weather Clear 75-91  
Water conditions Calm

Radiation level(s) By 22 c/m 1hr

Operations: Processing Bikini sport fish. Morning - did Bob Taft's collection of 10<sup>th</sup> to 12<sup>th</sup> caught off stationary boat; afternoon - did the captain's troll catch of 13<sup>th</sup> taken over the reef running between Nan & Oboe. Ralph weighed bags & samples, filled in cards, stamped cards. K.B. dissected; photographed on Rebot 21 Epinephelus emergit, 22. Variola louti, 23 & 24 Moray eel young 51", 15 3/4" lb, power arballotted (augmentation of band directed shaft by proximity-triggered 38-caliber bullet) this morning at Parry Fishing Barge by Cmdr. Fane. This fish attracted ~10 visiting groups or individuals necessitating opening the Reeter so many times, fish almost thrown

Hank Burgess (Int. Eng. Engineer) came to barracks after supper to discuss his display of "Flora and Fauna of the Marshall Islands". This is to get underway in November. We are to loan him some of our preserved material and help w/ nomenclature etc. This display is to be a continuous one, being changed periodically. We shall cooperate as much as possible, but can't see where that will involve much time.

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Locality Elmer + Olive Date 16. October 1954 Sat  
 Personnel Bonham, Polunsky and Weather Sunny 78-94°F  
Cuda Fane (4dT) Water conditions mild.

Radiation level(s) Bq 22 c/m hr run

## Operations:

Taffs + part of outer

AM - worked up fish and algae of 10-11 AM  
 along w/ all necessary preliminaries.

PM. w/ Cuda Fane by H-19 w/ 7 man boat  
 raft tied to bottom of helicopter to Olive  
 1330. Fane's gear made our small boat  
 look minute. He and his crew all wear life  
 regulation, a special new vest (cost about \$200)  
 whenever they dive. He powered a baton that is  
 quite a gadget - he did not use it this time.

We piled all the gear in the raft and powered by  
 our motor, we explored the channel between  
 Olive and Nancy, collecting giant clams, Tridacna  
Tridacna, some finger shells and lots of Tridacna  
Shells (6 in size) color w/ his Benjohn Camera  
 (cost \$1490). Quick recharging and adjustable  
 controls. We saw two large gorgons, a white tip

Shark or chiron <sup>14" yellow coronet fish</sup> many king bluntnose  
prick fish, and much beautiful coral.

Heard I used Triple tank set up. very funny  
 I had trouble trying to swim 'up hill' we  
 down water up to 25 feet. The current was  
 strong in one spot especially. The entire area  
 contained hundreds of Tridacna and dozens of large  
 clams - about 2 feet long. We explored the area  
 of about 1/2 hour and then to smaller areas.

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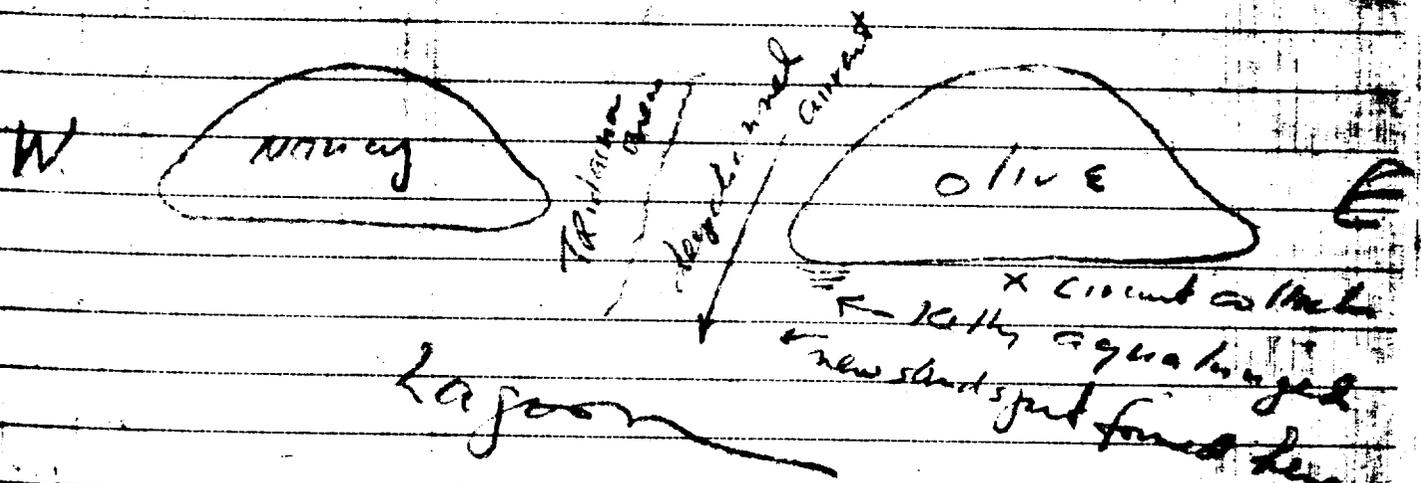
(P.2)

Locality Elmer Olive Date 16 Oct 1954  
 Personnel \_\_\_\_\_ Weather \_\_\_\_\_  
 \_\_\_\_\_ Water conditions \_\_\_\_\_

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

Operations:

The plane's capacity was overrated. Two trips were made. Kelly and I plus Sam. Sam stayed behind. Kelly strapped on a ring and we went in the lagoon side to look around. (Previously a collection was made of algae, sand and Halothere for next week's ground hogs).



Kelly said that today's aqua lunging was the first he has felt comfortable and has really enjoyed. Plane pickup at about 1730.

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Locality Elmer- Date 17 Oct. 1954

Personnel Bonham + Palumbo Weather Rainy + Sun 77-95

Water conditions Mild

Radiation level(s) B<sub>g</sub> 22 c/m 1hr

Operations:

Sunday Lab routine. Kelly dissected fish and Ralph did lead plants of 10-13-54 collection, still more to be done. Cruise for planned for Monday cancelled. H-19 not available for few days. Kelly sampled a black tip shark caught from the canal barge.

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Locality Elmer Date 18 Oct 1954 Mon.  
Personnel Banham & Palumbo Weather 76-97 - Hot & Sunny  
Water conditions Soft running heavy, inside

Radiation level(s) Be 1hr 22.1m

Operations:

Sealed yesterday's samples. Processed fish, algae and landplants of 10-12-54 and in the evening processed invertebrates, wrote up cards etc. Two draft legal size scale delivered this date for other scientists use. Security ideas (when approval).

Received mail from Doc and Art. You will take Angler Eel fish collection and save some for NYCO. The contents of water & coal no less and we'll collect as suggested. Will get some of the stuff this time on circuit town day - will try to pick up on trigger model, Art - will use our (Kelly's) money. Haven't had time to ship your parcel of fish, Art - but will try to get it in before we leave. are very busy and don't think it will let up for while yet. As far as the fish you had is concerned. There are 2 bottles were included - Clupea Punctata - Britton's Species - a split between Rod. Sorry to hear you missed Max Pety. The algae with the number 1 & 2 was already identified - refer to photos taken - all will know the one I refer to.

Collected algae and sea urchins behind lab and again for current collection. Received duplicates of letters from the Alameda - now we are well sealed up letters.

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Locality Elmer Date 19 Oct. 1954 TUES  
Personnel Palumbo & Bonhom Weather cool morning, late aft. 77-73  
Water conditions moderate

Radiation level(s) 0.22 c/m

Operations: At lab dissected Bikini invertebrates. Were visited at 1400 hrs by about 20 brass for 1/2 hr.

Brass included:

Rear Admiral Charles B. Momsen - Commanding IFF  
Goldthwaite Chief of Staff

Col. Byers - chief of operations

Col. Kerwin - operations

Lt. Col. Greenburg - DMA General Fields Office

Lt. Cmdr. Parley J-3 - operations

Lt. & address - Washington D.C.

Lt. Stone

Col. McGoldrick - Atoll Commander

Paul Spain - J-6 operations

Simon Wynn Koop ACC Resident Engineer

Plus several other Colonels, Majors and

Commanders. During various Air Force

Kelly gave short speech on the purpose of the

field studies and then we showed them around and

answered questions from inspection of the center

to methods of collecting and readings at Rn. place

at 5:30 pm. Collected party for the group followed

by steak dinner in mess hall and then a fly

home drinks w/ singing.

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Locality Elmer Date 20 Oct. 1954 Wed  
Personnel Palumbo & Bonham Weather 78-92  
Water conditions calm

Radiation level(s) 135 222 m

Operations: Worked up invertebrates of 10-16-54 olive, &  
10-18-54 Elmer

In pm. boxed in a long narrow (inside 52" x 16" x 22")  
the following marine specimens & equipment:

1 stadia rod	1 Juno meter #46
1 tripod for plane table	1 " " #59
1 plane table	1 " " #108
1 Alidade in case	1 Nuclear B-g meter #418
1 100-ft cloth tape	12 Tridacna crocea shells; numbers:
1 typewriter	11404, 11533 11594
1 box miss. marine specim. FGL.	11410 11539 11674
1 helmet shell KB	11416 11582 11680
1 tridac RFP	11527 11588 11686

After supper prepared for tomorrow's circuit tour.

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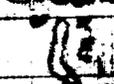
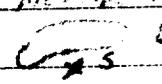
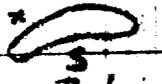
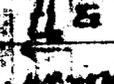
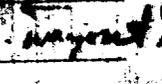
Circuit tour: Henry, Leroy, Alice,  
 Locality Olive, Vera, & Bruce; Elmer. Date 21 October 1954, Thurs.  
 Personnel Palumbo & Bonham Weather mostly bright. 79-92°F  
 Water conditions Moderate.

Radiation level(s) Boj. 1hr - 200m

Operations: Prepared for departure 0715. Left by 'copter w/ Capt. Glere 0808. Arr. Henry 0818; left 0935. Arr. Leroy 0943; left 1013. Arr. Alice 1025, left 1116. Arr. Olive 1125, left 1141; Arr. Vera 1150, left 1329; Arr. Bruce 1337, left 1434. Arr. Elmer 1443. We collected at each island cucumbers, Heterosigma algae, and for NYOD on both inner & outer reefs of each island about 1/2 gal. by volume of coral and 5 gal. seawater by immersing the can. Acropora only was collected at most islands except: Alice inside, Porites & Pocillopora; outside, Porites & Heliopora, Bruce outside Acropora & Pocillopora. Cucc's scarce on Henry; Ralph found some on west<sup>end</sup> water side. KB, a boiled beet from head to ankles. Ralph, black.

Arranged for NYOD specimens to be handled by H&N. Wynn Keet had to thru NYOD for manifest order and appropriations to send the material out. Nemokeys here for such items.

A following letter to John Hartney NYOD re coral + 420 should include:

Island	Coral species <sup>inside</sup> location	location	outside location
Henry	<u>Acropora</u> Lagoon 	<u>Acropora</u>	western end
Leroy	" northern end	"	N.W. Tip 
Alice	<u>Porites</u> & <u>Pocillopora</u> 	<u>Porites</u> & <u>Heliopora</u>	
Olive	<u>Acropora</u> 	<u>Acropora</u>	west channel 
Vera	<u>Acropora</u> Lagoon near KB	"	S. channel 
Bruce	<u>Acropora</u> Lagoon - S of Landing Sta	<u>Acropora</u> & <u>Pocillopora</u>	East end 

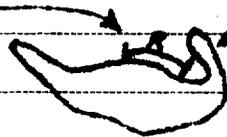
Hops thru make sense  
 this collected from coral

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Locality Elmer & Edna Date 22-October 1954 Fri  
 Personnel Palumbo & Benham Weather 76-90 E wind 15 knots  
 Water conditions Rough. 35-knot gusts predicted, but did not eventuate.

Radiation level(s) Rg 205/m

Operations: At lab early to prepare for 0800 departure. Deflated rubber boat and loaded it & motor on truck & helicopter. Left Elmer 0822. At Edna & Daisy, circled low & slow over outer reef; saw abundant poison spine urchins. Landed Edna outer shore 0848. Time 154,0759 H-35, 14057 for rotenone & collected fish 0900-1030. Only fair: <sup>small</sup> goatfish, wrasse, Tridacna



Then inflated rubber boat @ 1100 started

for outer reef, near edge of Mike crater and Gene. Saw ray of 4'-5' wing span. From Gene vicinity to ridge off Edna, saw many poison urchins, occasional Holothuria atra, 1 1/2" Tridacna crocea, banded-spine urchins under rocks, a few large snails - 2 1/2" Turbo, 5" Strambus. About noon, tied up and tried to wade out to surf but could not reach area of living coral because of heavy surf. Breakers appeared 8-10' high, towering much above Ralph's head as he maintained footing w/difficulty in the swift foamy wash from the breakers hitting him waist-high. Back to boat, ate, rested, putted back to Edna; deflated boat, picked up ~25 goatfish washed ashore. Left Edna 1517; saw 10 sting & 8 eagle ray & 6 sharks including 1 estimated by Pilot, Capt. Robert Gore, to be 7'-8' long. Circled low, taking Robot 35, 36, & 37 of it, near Bruce. Arr. Elmer 1539. On Edna, Robot 28<sup>429</sup> of Coccos & Scaevola, 200 W; 30 & 31 of Archidona & unknown, 300 W; 32 & 33 of Triumfetta & Fimbristylis, 400 W; 34 of onion @ NW tip N of EW transect; windy - movement in pictures. At lab, cleaned up from trip. Continued Bikini, Nan, invertebrate card write-up, which Livingston showed us in Los Angeles Stamp Co. catalogue a rubber stamping device like a dater with bands of alphabets so that words of letters up to the number of bands could be quickly set, 12-letter

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Date 22 Oct. 1954 Fri (cont'd)

Locality \_\_\_\_\_

Weather \_\_\_\_\_

Personnel \_\_\_\_\_

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

being the maximum, he thought. Also showed rubber type sets with a till for each letter, facilitating setting, and notched rubber letters that would not slip out of the grooves. It would be desirable to have both kinds.

The area between Edna and the outer reef rim of Bank was very dead looking sandy white bottom w/ remains of debris covered by the brown algae *Ceramium* and a green fuzzy like alga similar to *Chroococcus*. Also near the edge there was a red crust like covering due to a *Siphonophora* species. This covered the flat rocks on the reef zone. The surf was very heavy to get a good look at the ridge life however both Kelly & I agreed it was very unwise. We intend to hit this outer reef zone on Tues by flying to June and walking west to Edna's reef which is the reef at June is about 50 feet from the inner reef. <sup>to June</sup> New Elugelab

1/2 way out from Edna to the ridge we saw: *Halimeda* spines upto 4" tall in clumps *Blennius*, *Urolophus*, *Ceramium*, *Siphonophora*, *Maritima* and young *Ceramium*, also an encrusting blue house (sp?) *Ceramium* and the thick fish, almost no sea urchins found fish but the fish are in abundance. At 1/4 way from the outer ridge we saw some *Hepatica*, *Balanus* banded *Corallium*, *Poromoma* black sea urchin in great numbers at top wall (Trout), *Echinometra*, and lots of dead coral.

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Locality Elmer Date 23 Oct. 1954  
Personnel Bentham - Hilunbo Weather clear. E wind 77-92  
Water conditions Rough

Radiation level(s) B<sub>g</sub> 1hr 21c/m

Operations:

visitors: Col. Francis McGoldrick Atoll  
Commander and Lt. John Packard, Medical  
Corps. Fred Ext 3116.

In am, wrote up fish & invertebrate cards by 1000 hrs. Ernie Wynkoop arrived w/ above visitors; took samples & cards for mailings. McGoldrick left w/him. Discussed radioactivity in fish w/ Dr. Packard, also diving, fish, shells, etc., as he is interested. He wishes to visit again and accompany on trips if possible, sometimes. He left at 1115. In pm. dissected circuit four cucumbers & wrote up cards after supper, used small pieces of mimeo stencil over an improvised cloth pad on a  $\frac{1}{2}$ " x 4" block of wood. Did 64 cards in 2 hrs, first attempt. Doubled ink on pad w/ @-tip. Method has value where there is much duplication. KB. can stay awake!

Cards & samples sent:

Inverts	11577-11726 (150)	Soil & H <sub>2</sub> O	986A-9871 (8)
Plants	10406-10502 (97)	Fish	14391-14660 <sup>(270)</sup> and
Birds	13205-13228 (24)		shark liver partially ashed.

Total samples sent - 549

Circuit four ridgna processed

Combination for safe changed / in date, and adjusted for second safe (H&N supplied).

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Locality ELMER - Date 24 October 1959  
Personnel Bonham + Palumbo Weather Windy. Temp. usual.  
Water conditions rough.

Radiation level(s) B<sub>2</sub> 1 hr - 21 c/m

Operations: Dissected Edna fish and stamped information on cards.

wrote a weekly letter to home lab, ran counts for decays, sealed packages, weighed bags etc.

PM with Burnett, Dick Cruikshank (ACC accountant), Bob Stafford, and Walter Hughes (Distillation) to telephone buoy in lagoon for drop line. found hole and touched bottom after marking 140 ft level on anchor line. Measured line later with Kelly's help. depth attained 157 ft. That's enough for me - for a while. Hughes came down a few ms - first use of agg along. Also he skin dived 72 ft. tied string to line and later measured it. Some shallow water diving near south beach. At deep spot saw snapper - like fish w/ brownish spots and a couple 1" black & yellow striped fish. Some Halimedes, dead coral and sand.

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Locality Elmer & Gene, reef off Edna Date 25 October 1954, Mon  
Personnel \_\_\_\_\_ Weather Sun & rain, cool, windy, 76-91  
Water conditions Rough

Radiation level(s) B<sub>2</sub> 1hr 2.15/m

Operations: With Dick <sup>(Harold R.)</sup> Cruikshank, A.E.C. accountant, Los Alamos, left Elmer 0835 by 'copter, arr. Gene 0858. Perused the outer reef E. of Gene to opposite Edna. On 0.9-ft. tide could walk outside of rubble area. Life sparse; scattered poison spine urchins, <sup>1 Echinaster</sup> 2 scopelus 18", cowries, Turbo, 1 Actinopyga, 2 Holothuria atra (small), and finally what Ralph was looking for, off Edna, a 1" Tridacna creca ~~under~~ in rock. At this point we stopped, turned back, having weathered a cold, stinging rain, sans raiment; walked back thru rubble or on inside seeing much the same invertebrates as farther out. Small sharks were both inside and outside the rubble area. At farthest point E of excursion, took Robot 38 & 39 of boulder w/algae for Ralph, and R. 40 & 41, W & E, respectively along rubble area, and another (numbers 1 off, somehow, because ended on \*41) looking off at surf with glove on rubble in foreground. At Gene, Ralph shot and hit small black tip sharks almost at surface in water < 6" deep, but sharks just scurried off unscathed; bird shot too light; need turksho  
Left Gene 1143; View good from 'copter; saw 21 sharks, 11 sting rays, 2 eagle rays, a turtle, Mo of David, and a 12" glass float on N. Yenne.  
Mail received in pm; first since 19<sup>th</sup>; including our ballots, Al's of 19<sup>th</sup>, & Phlorence's of 20<sup>th</sup>, w/loveridge's 14<sup>th</sup> enclosed.

Al: Ralph says he does not remember ever collecting water on the circuit tours; we are getting soil; water only on plankton tours. Will get both soil & water on circuit henceforth, or Ed & Paul will.

Re. classification of photos, enclosed are a carbon copy of letter fr. Wynkoop to Spain 10-7-54, and, <sup>original</sup> to K.B. from Wynkoop, 9-18-54 on which are indicated in pencil the changes the

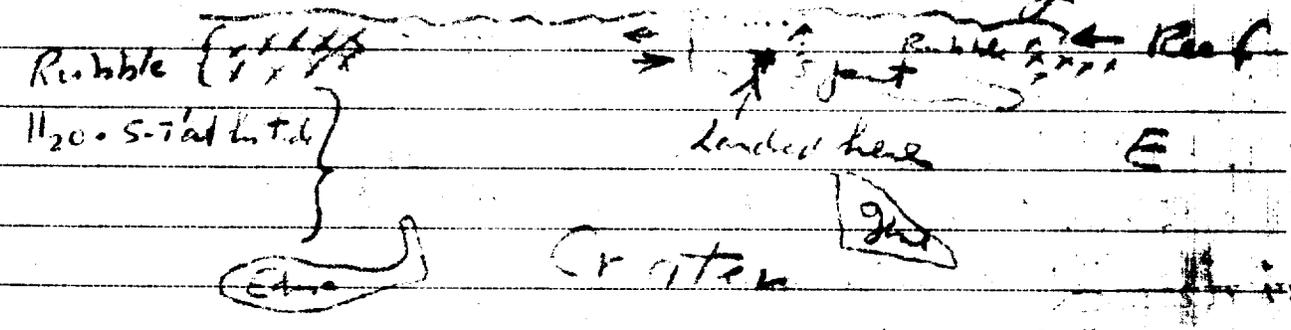
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Locality \_\_\_\_\_ Date 10-25-54 page 2  
 Personnel \_\_\_\_\_ Weather \_\_\_\_\_  
 \_\_\_\_\_ Water conditions \_\_\_\_\_

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

Operations: made on data sheets and prints here. Presumably the remainder are at U.W. Would 5 pounds of Bivalve be right for Dorothy? Someone will doubtless be willing to get it for us.

Also saw on Gene's flat reef 1-1/2" cysts, small clumps 1/2" tall up to 3-4" diameter of Halimeda opuntia scattered; many large Terrapin Lyngbya massonensis attached to the boulders and also to the bottom, small clumps of Canthopora racemosa and Canthopora truncatella, and covering the boulders in the rubble area and reef: Sphacelaria, Lyngbya, and a brown, not identified yet. Some Janus was seen further west near Edna Reef. The area inspected today was much less inhabited than the reef off Edna visited a month ago. We were just getting into the livelier area when we decided to turn back due to the incoming tide.



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Locality Elmer & Janet Date 26 October, 1954, Tues.Personnel Palumbo & Bonham Weather Sunshine & cloudbursts. 76-88Water conditions Rough.Radiation level(s) 21/min for 1 hr.

Operations: Left Elmer by helicopter 0812; arr. Janet 0830, near pier. Hunted in vicinity of bunker W of blockhouse. Got 3 rats by 0815. Last rat mangy, short, damaged tail, ears short, left hind leg w/ tumor @ ankle. (Remains saved, frozen after sampling) Collected sand, algae, water, and cucumbers about 100 yards W of pier. Saw 16" Tridacna living there. At 1000, walked to N shore where Ralph shot 2 sharks (blk. tip: 21" x 18.5") in very shallow water. Hit midbody; shot bulged skin on far side. Got these in 5 minutes. K.B. used spear gun & arbalette; after ~6 tries at distances 6-12 ft, at 1100 hrs, got an 18" at feet. Left Janet 1115; arr. Elmer 1134. In pm. worked up algae, cucumbers, & rats.

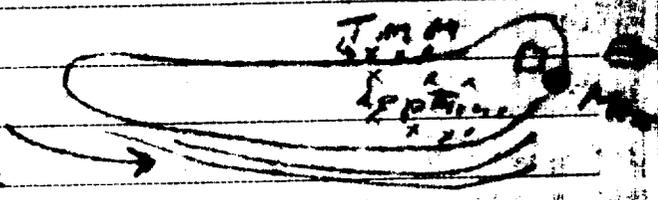
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Locality Elmer, Elma, Elara Date 27 October 1954 Wed.  
 Personnel Pentham, Columbus Weather 71-86 Cloudy  
 Water conditions calm to rough

Radiation level(s) Boj 21 c/m in count

Operations: By H-19 at 0811 for Elma to shoot or  
spear sharks for NYOO deal. <sup>0835</sup> These no luck.  
To Elara at 0930 for observations. Ralph got  
a small butterfly fish and a wrasse (washed up)  
and Kelly got a shark w/ the carbolatte. Saw  
very few sharks to shoot at. Hand plants doing  
fine, growing vigorously. Noted a small Typha like  
plant at high tide line on ocean side and two Messerschmidia  
plants to the east of this plant, also a 12" Messerschmidia  
India S.E. of the bank.

The beach on Elma side  
 was covered by a spongy mat  
 of dead and living algae whose  
 species were enumerated on 9-23-54. The sphacelaria  
Asparagopsis lyngbya and sphacelaria are  
 especially prominent. The outer reef areas  
 is covered w/ algae and appears to be composed  
 of Podium, Sphacelaria, Halimeda, Ceramium,  
Ulva, Lyngbya, Cladophora & others. Some  
Callinopygia encrusts and white sponges seen  
 on 9-23-54. 1 sponges mat on the prominent  
 on the lagoon side and several small sand  
 crabs. Shot 1 butterfly fish. Saw 3 sharks  
Sand sharks <sup>(later seen)</sup> but couldn't get a shot at them.  
 Insect one in lagoon. Saw a string very 2-3ft wide



Locality \_\_\_\_\_ Date 27 October 1954

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

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

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

Operations:

in outer tide flats. on way back to base at 1100 stopped at Edge for 30 minutes for more shark hunting. Ralph almost decapitated a small shark w/ the shotgun. The only one caught here. Two sharks are being caught in lieu of other fish to obtain large enough sample to send to N.Y. + Honolulu as suggested in recent letter from Doc. <sup>Left plane 1130</sup> Returned at 1200, Elmer.

P.M. wrote up cards for algae, soils + water and packaged soil + water sampler. Also have been working on the soil samples from Bikini collected by Paul Sate at Charlie, Fox and Tara at surface 3" below and 12" below surface. Samples dried in oven, weighed and counted. Results will be mailed per separate report remainder of samples will be shipped for future reference and use for analysis. No good slug will be available from Bikini for sometime. So this stuff may be helpful, Doc + other. Sorry we missed the request until after the trip had been made. Maybe you can mix the surface and 3" soils to get volume required. The counts are fairly high still.

Frank Buzgers picked up samples of fish, insects and corals for his display which will be unveiled Nov 2, I think. Most important

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P. 3.

Locality \_\_\_\_\_ Date 27 October, 1954 Wed.  
Personnel \_\_\_\_\_ Weather \_\_\_\_\_  
Water conditions \_\_\_\_\_

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

Operations:

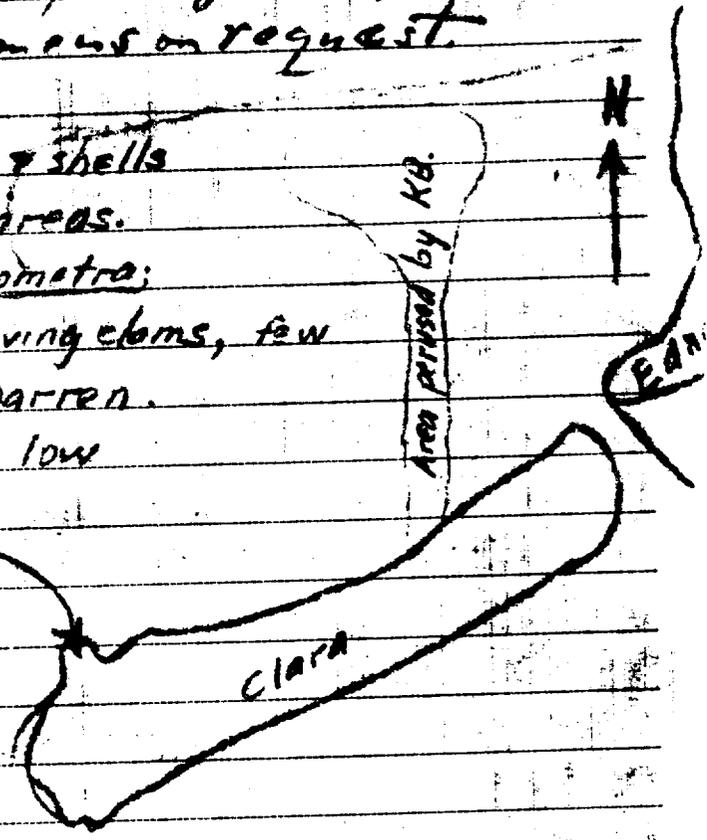
Things to note: he has the stonefish, lionfish, blind snapper, and large parrotfish. and will return all specimens on request.

Off Clara K.B. saw mostly dead coral & shells interspersed among larger sandy areas.

Living poison spine urchins and Echinometra; large, 2-inch, top shell, Turbo. No living clams, few corals, and cucumbers. Generally barren.

Large living spider snail above low tide on Clara

Tiny, brilliant coral dwelling fishes around coral heads, few fish of intermediate size, and an occasional jack, seen off Clara & Edna.



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Locality Elmer, Belle - Edna Date 28 October, 1954 Thurs  
Personnel Bertham, Palumbo Weather Partly windy 76-86 cool  
Water conditions Rough

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

Operations:

0830 Kelly w/ George Bernier in L-20 to aerial photograph islands from Belle to Edna and neighboring areas.

Ralph at lab counting and calculating Bikini soil samples and punning drags. Also cleaned Refrigerator (it stunk!) and cleaned out extra junk. Packaged insect algae and Rats samples of 10-26 St and Bikini soil samples. Bernier & K.B. met delayed 0830 pickup @ 0900.

Removed floor port covering in L-20. Geo. Bernier used his 4x5 w/5 1/2" lens @ f:11, 1/200<sup>SXX F.P.</sup> Sun shone most of shots. Wind speed on ground at Fred departure 20 knots; at northern islands at 2000', wind estimated 30-40 knots, E. Heading N.E. over Alice - Edna, @ 50 knots air speed, moved over ground almost imperceptibly. Pilot had difficulty flying directly over island because he kept plane level and could not see straight down. Using his SXX F.P. Geo. took 2 shots each of Alice, Belle, Clara, Daisy, & Edna @ 2000', then circled & took 2 of Belle F @ 1550'. K.B. duplicated most of these w/ Robot #45-54 1/250, f:5.6, color; took oblique of crater in color & bsw. Pilot received word to return because of impending high wind. Arrived Elmer 1000 seconds before a squall. We shall replace Bernier's SXX film packs when ours arrives. Geo. offered to process the pictures because his duties are slack.

Kelly processed 5 sand sharks and Ralph weighed. Ralph cleaned up files. Everything now in order, alphabetized and chronologized. Edna and fun class, out to Alice. Charles Talker.