KB

UNIVERSITY OF WASHINGTON
LABORATORY OF RADIATION BIOLOGY
SEATTLE, WASHINGTON

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FL
A*S

Locality ENIWETOK - MAJURO Date 4 FEB 59

Personnel RICHARDSON, HELD, COLE, JOYNER, KIMMEL, KENNEDY Weather CLEAR

Water conditions CHOPPY

Radiation level(s)

Operations:

LST ARRIVED AT ENI [illegible] 25 FEB

7 of CONRADS PARTY + COL [illegible] DEPLANED

AT [illegible] [illegible] [illegible] OF SEAT

ARRIVED ENI ~ 1500.

FINENS & PAIGE IN AEC OFICE, SCHLACKS

DUE IN LATE THIS WEEK.

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Locality ELMER - [illegible] **Date** 25 FEB 59

Personnel FR, TJ, JK, RK, [illegible] **Weather** Clear, Windy

Water conditions Choppy

Radiation level(s)

Operations:

1330 To Island. Collected 5 adult, 1 young rat. These were large rats which may not be R. [illegible]. Richardson preparing skin + skull from one. Very few small Scaevola seedlings in the area around building + bunkers, all other plants usually found appear typical. Collected [illegible] Ceanothus [illegible] plants, Sida leaves, Mesembrianthemum leaves, Scaevola leaves, Trumpet leaves, Iperua leaves, Euphorbia tops (no seeds), + Iva [illegible] plant we can't remember name for. Rat [illegible] preserved in tubes leading from bunkers. Collected surface + deep soils at five locations in vicinity of large building + bunkers.

Chopper disabled on Irene while picking up a second party. We sat there until ~1920. [illegible] in a second chopper + got back to Times 2005.

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Locality: Elmer - Belle - EDNA Date: 26 Feb 59

Personnel: FP, JK, [illegible] Weather: [illegible] cloudy

Walt Chaney & Pat [illegible] Water conditions: [illegible]

alone for photographs

Radiation level(s):

Operations: EDNA

LEST Elmer 0800. Stopped ½ hr on Edna. None of the old plants left - no indication of transect markers. 4 photos taken from approx location of old zero point showing general appearance of island. The following marine plants were seen: Several Mesogloia - largest ~10cm high; 20cm diam; 1 Iyonema w/6 leaves; many Trichomanes 40cm diam; 1 Porphyra; many clumps Laminaria up to 30cm Diam - one w/long runner (100cm long).

BELLE

Arrived ~0915 poisoned in vicinity of large hole soon after arrival - old Rotenone almost no Kill. Repoisoned large hole at low tide about 1500 - fair kill (TC will list fish below).

PHOTOGRAPHS & LAND [illegible] COLLECTIONS AS FOLLOWS:

Area A. - #1408 stake in place, Bikini [illegible] Eschscholzia leaves, immature fruit, stems.

Near Zero Point - Atypical Mesogloia [illegible] photos 9+10 & Ecto leaves narrower & [illegible] than usual, drooping appearance though density not [illegible].

General slot of island is N dir from zero point. Most shrubs have come back

no

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Locality _____ **Date** 26 Feb 59 (Cont)

Personnel _____ **Weather** _____

_____ **Water conditions** _____

_____ _____

Radiation level(s) _____

Operations:

Iron rods & branches & are mostly under 3' high. [illegible] green [illegible]

AREA C — Plant 1217 stake is gone but feel sure we found it in relation to coconut stumps and other plants which were growing. Photograph. Bark & Ecto - leaves & stems [illegible].

Plant 1412 - no plant or stake found, no living coconut trees found on island

Plant 1211 - stake down, replaced next to nearest Portulaca - 17" diam - photo Bark & Ecto, no sample

Plant 1209 stake down replaced where lying.

" 1206 " " " " "

AREA D All stakes down found two bamboo stakes at stake 1319. Replaced latter next to closest Scaevola. Photos [illegible] & Ecto. Leaves, & stems sampled, no fruit found.

Photographed Area D as close within boundries as we can estimate from the concrete slab.

No signs of Mangroves in pothole - there are fish in the hole.

Eight Fairy Tern eggs & one young found

Algae collected [illegible] Area E. Samples have been preserved for identification by RFP. (Current surgeons were observed feeding

R

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Locality _____ **Date** 26 Feb 59 (cont)

Personnel _____ **Weather** _____

Water conditions _____

Radiation level(s) _____

Operations:

almost continuous [illegible] in "F" area (see map for identification).

One [illegible] collected near Area 5. Only [illegible] Parinari & Heliopsis.

No lambis or sea cucumbers found.

Returned 5 miles at 1545.

Birds seen on island were as follows:

1 Wandering Tattler
4 Ruddy Turnstones
5± Golden Plover
12± Sooty Terns (flying over)
35± White Terns (8 eggs, 1 young)

Although the vegetation is coming back well - averaging 3 or 4 feet high - it will be several years, I judge, before there are branches large enough to be suitable for nesting of species such as White Terns and White-capped Noddies. In the meantime the small number of suitable logs or stumps - the majority of which are represented by the 9 White Tern nests found - will serve as a severe limiting factor for breeding of the usually most abundant species, and the White-capped Noddies will probably not breed.

The migrant shorebirds seen - tattler, turnstones, and plovers, all northern breeders as from Alaska and Siberia - seem to be finding normal feeding as on the open ground (of which there is probably more available to the plovers now than originally!) and beach and reef.

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Locality ..... Date 26 Feb 59 (Cont.)

Personnel ..... Weather .....

..... Water conditions .....

Radiation level(s) .....

Operations:

Soil samples taken in Areas A & D 0-20" in 1" increments. Fish samples collected from zone "F". First poisoning at ½ low tide unsuccessful. Spearing productive until low tide, when second poisoning at slack water produced a fair yield. Following families obtained: Serranidae, Pomacentridae, Holocentridae, Fistularidae, Mullidae, Acanthuridae. Only 2 convict surgeon, 2 goatfish. Groupers were mostly Epinephalus, one Variola louti - TJ.

...ES
...ARIES

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Locality Elma Date 27 & 28 Feb 57

Personnel [illegible] Weather Clear, windy

DC. Water conditions Choppy

Radiation level(s)

Operations:

Duvall Co.

P[illegible] LST [illegible] AM, LOADING P.M. DAO[illegible] [illegible] [illegible] PM.

28 Feb. [illegible] [illegible] [illegible] out. To be [illegible] [illegible] no later than 1600 depart ~ 17.30.

There is a small chopper [illegible] which we may be able to use for [illegible] [illegible].

PLEASE NOTE: If additional samples are [illegible] Eniwetok notify immediately [illegible] we do not plan further collections here.

ES
RIES

KD

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Locality Arrived Rongelap 2 Mar AM **Date** 1+2 Mar 59

Personnel Same as 27 Feb **Weather**

Water conditions

Radiation level(s)

Operations:

Met by Neal Morriss, Trust Territory Agriculturalist & most of the council members. Greetings friendly + courteous. Conard talked to Billman, the new magistrate, about use of buildings. Billman said ok to go ahead. By this time it was time for lunch & we all returned to the ship. In the meantime a council meeting was held & the council decided that they might not permit the medical examinations. A general meeting was called by the council & Conard was requested to be present to answer the questions concerning the necessity for the medical examinations. In the meantime off loading virtually came to a stand still. The meeting lasted over three hours & although it was decided that the examinations could proceed, several individuals indicated that they would not cooperate. Held was called in for about the last hour & half when questions came up about the poisonous fish + the matter of the coconut crabs. It turns out that the poisonous fish were red snappers caught in the northern half of the atoll. Most, if not all, finally agreed that radioactivity had nothing to do with the poisoning but several were still of the opinion that something connected with the events of 1954 had some undefined connection with the poisoning. This matter is certainly not closed. It was also asked, today, if the soil + plants are

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Locality _____ Date 2 Mar 59 (cont)

Personnel _____ Weather _____

_____ Water conditions _____

Radiation level(s) _____

Operations:

are alright for the people to use, we continue to study them. It was explained that although we expected them to remain satisfactory it is desirable to be certain of that it is also desirable to know what changes, if any, might take place. This can be done only by continuing or periodic sampling, it was explained. Actually there did not seem to be any objection to the biological surveys, but rather an asking of questions for information. This opinion was confirmed by Mennis.

The rest of the group did some exploring around the island, relocating old sites or checking the condition of the lysimeters (several gallons of leachate had collected). Much cleaning of new land is going on for coconut planting. It was not possible to get out the gear or really get to work.

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Locality: Rongelap — Date: 3 Mar 59

Personnel: see 27 Feb — Weather: Clear

Water conditions: rough

Radiation level(s):

Operations:

Off loaded ship. Lab established in council house. Tarp & table set up on portside of ship for fish dissections. Running salt & fresh water available a few feet from table. Recipes to be used jointly by Med & Biol groups put in operation by Maynard Eicher in tank deck. ice established top line, shot 3 rats, observed birds on NE end of Rongelap, shot Frigate bird wing spread 78 inches. Tu made fish collection by seine side - few kill but no control surface or reef fish. King & Kotoe assigned by Council to work with us with Bruin keeping record of time & acting as interpreter when necessary (Titikus has taken his wife to Kwaj for cancer treatment).

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Locality Rongelap Date 4 Mar 59

Personnel See 27 Feb Weather clear

Water conditions

Radiation level(s)

Operations:

T.J. & J.K. collected crab seaward reef. J.K. checked vegetation for salt spray. Initial points established along village transect. Leachates collected. Pit 1 resampled both by horizons & by one inch increments. 16 rats total to date from shooting & trap line. Arrangements made for Copra, Pandanus (many fruit on island but all green), Papaya (few available, promised 3 or 4), tacca. No breadfruit available.

Early morning fishing trip caught 4 or 5 groupers.

P.M. got gear together for trip to Kabelle by chopper (VU-1 400 lb pay load, two trips to carry 4 men & gear).

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Locality Rongelap, Kabelle Date 5 Mar 59

Personnel See 27 Feb Weather

Water conditions

Radiation level(s)

Operations: Note! 3 HIRAN men have been stationed at Kabelle since October - they have disturbed nothing.

FR, DC, RK + EH to Kabelle by chopper. Collected guano, 5 Fairy terns. More birds nesting now than in August although there are few White Capped Noddy terns. 5 coconut crabs dug out all males, one had softer than usual carapace although the rest of the skeleton appeared to be as hard as usual (bled the crabs PM - part of blood taken for radiochemistry, part given to Barry Blumberg, NIH for protein analysis). Leachates collected at pits 4 + 6. Pit 4 resampled both by horizons & 1 inch increments. RK + EH checked soil & vegetation types on N half of island. Well water samples taken + water levels measured at previously established well points. Water definitely saltier to taste than last August. Soils are extremely dry (samples taken for moisture determinations.

J.K. & T.J. surveyed on Rongelap I using Japanese bench mark in front of village as zero point. This is a granite marker set in concrete + is marked on the hydrographic office maps as "observation point." Late evening poisoning of seaward reef tide pools with Kinel + Ketac. Tide ended at Kabelle for growth studies.

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Locality: Rongelap Date: 6 Mar 59

Personnel: see 27 Feb. Weather:

Water conditions:

Radiation level(s):

Operations:

Well water taken from well point at pit 22. Decomposition study set out - 6 screened boxes at pit 24. Boxes 1+2 Scaevola leaves, Boxes 3+4 Messerschmidia leaves, Boxes 5+6 Cordia (Kona) leaves. Tacca collected from village transect area. Resurveyed village transect using Reads compass & alidade compass not functioning & compass previously borrowed from ship proved to be erratic. Soils mapping in vicinity of village. Weather station rewired. Mice traps collected & some plates changed in condition. Fish dissected & prepared. Fishing [illegible] brought in Jack, 2 blue mackerel, dogfish [illegible]. F.R. walked length of island from S E tip (AEC weather station) to ship. Saw crested terns, reef herons (white), in addition to birds previously seen. The herons were island about 150. No nests found anywhere along the length of the island. Moisture determinations made at lab. Walker's fertilizer plots observed - no visible obvious differences. Natives have removed 2 or 3 of the Tacca clumps. Kline says this was due to misunderstanding. Rain gauges set out in lysimeter areas 2 + 4 to measure interception variability.

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Locality Rongelap **Date** 7 March 59

Personnel See 27 Feb **Weather** light showers

Water conditions

Radiation level(s)

Operations: NOTE! records of catches from daily trolling trips being recorded in separate notebook by Tim. Scaevola & Messerschmidia seedings at S end of island photographed & remeasured. Unable to locate marked Scaevola at pit 21. Tensiometers installed at pit 22 & first readings taken. Moisture samples weighed & dried. Grass collected from K fertilizer plots near pit 22. Soil survey continued E + S of village. New pit dug near road east end of village. Fish collection south part of Island lagoon side. Survey of elevations + reference points continued. FR to Busche + Bokujarito by skiff (motor gave up + had to row back 5 miles in cross wind). One of the ~~boat~~ ship's crew who has his own small boat about went along for the ride. White terns + common noddies are nesting in numbers on Busche but are not using the Pisonia trees sufficiently to markedly fertilize soil.

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Locality Longelap Date 8 March 59

Personnel See 27 Feb Weather light showers all afternoon total about 0.1 in.

Water conditions

Radiation level(s)

Operations:

AM - cut about 1/3 of trail in straight line at pit 1 transect. Elevation & reference point survey completed. Odd chores in sample preparation in lab. All put in readiness for arrival of UN committee. Reid made tour of west end of island to rough in soil types. P.M. - usually Sunday routine swimming, walking around the island, beach at the beach.

Notified by Morriss that all hands must stay aboard ship until departure of UN committee tomorrow. No medical examinations to take place. Said UW group could continue working but should stay out of village area. Requested Conard & Reid be present at meeting with UN committee.

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Locality Rongelap - Gogan Date 9 March 1959

Personnel see 27 Feb Weather

Water conditions

Radiation level(s)

Operations:

Richardson & Dale to Gogan (near NE pass) by chopper to examine the mature Pisonia forest there. Soils appear to be essentially the same as at Kabelle Pisonia areas. Trees are 70'-80' tall. Greater concentration of breeding terns than on Kabelle. Numerous coconut crabs - 4 seen in the open. Only 2 unproductive coconut palms on the island.

Soil survey transect west of village completed. 6 pits in transect locating A_1 horizons on beach ridge - ran elevations. Survey for reference points & elevations continued. [redacted] Reef fish collected.

UN committee meeting attended by Conard, Lassiter (ships captain), Morriss, & Held. Visiting delegation made up of one representative each from Nationalist China (Mr. Kiang, chairman of committee), Burma, Belgium, Italy, & Mr. Neas, DISTAD Marshalls, de Young, Trust Territory Anthropologist, Mr. MacKenzie, District Agriculturalist. Details of meeting in letter to Donaldson.

Day pretty thoroughly disrupted, especially for medical group.

30 rads to date.

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Locality Rongelap - Kabelle Date 10 Mar 1959

Personnel See 27 Feb Weather

Water conditions

Radiation level(s)

Operations:

F.R., K.K., DC to Kabelle. Remeasured trees in walk area & on island Kabelle. Took additional well water at pit 4. Located general areas for soil map. Collected samples for Walker at pit 4. Near verticals taken from chopper with speed graphic. Sea cucumbers collected for KB. More guano collected. Further attempts at estimating population (census of all nesting terns in Pisonia grove) size & amount of guano production in nesting areas. 3 Noddies collected.

Rongelap - completed pit 1 clearing of straight trail + side trail to each soil pit. Continued elevation + reference marker survey. Prepared fish samples.

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Locality Rongelap **Date** 11 MAR 59

Personnel See 27 Feb **Weather**

Water conditions

Radiation level(s)

Operations:

Took survey master readings in village area with MX-5 + Scintillation Survey Meter Model SM-3A Ser. No. 098 AEC cat No. SBX-5 Nuclear Research Corp., Philadelphia, PA. From from Radsafe. Finnetsky letter from Conard. Readings listed on hangoard sheets with previous readings. Scintillation meter more consistant + easier to read than MX-5. Composite soil sample collected. Random soil samples from fertilizer plots collected. Pit 1 foliage samples collected for comparison with August collection. Rough mapping of soils in eastern part of island. Tensiometers checked. Elevation of reference point surveying continued. Fish poisoning lagoon opposite village. Made arrangements to collect Jekro (coconut soap) from 5 trees.

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Locality Rongelap - Eniaetok **Date** 12 Mar 59

Personnel See 27 Feb **Weather**

Water conditions

Radiation level(s)

Operations:

Completed survey meter readings on Rongelap (pit 1 area & south end of island) & collection of composite soil sample. Set up range poles by marked plants in vicinity of weather station south end of island. Completed mapping soils from village to seaward beach. Prepared samples. F.R. to Naen & Gejen with Blumberg via chopper. Photographed "twin palms" collected soil samples, heart of palm, & fibers from dead palms. Made observations on birds. F.H. with Morris [redacted] & Billiman to Eniaetok. Took survey meter readings. Collected copra & sea cucumbers. Morris showed us damage to coconut trees caused by the beetle, Brontissima (spelling?), & found some of the beetles. Also showed us one grove that is well cared for & has good production. Only 8 persons were living on Eniaetok at the time of our arrival at the atoll - all are now at Rongelap Island. F.R. samples prepared. Soil mapping continued. Reference point loop completed & elevations completed. Tensiometers & weather station checked.

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Locality Rongelap - Kabelle Date 13 Mar 1958

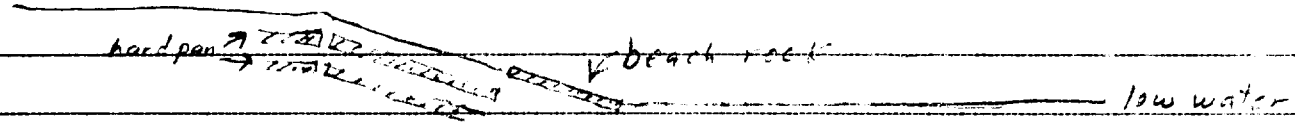
Personnel See 27 Feb Weather

Water conditions

Radiation level(s)

Operations:

DC & EH to Kabelle. Resampling of foliage in Pit 6 area. Survey meter readings & composite soil sample taken. Lysimeters checked. Trench dug from beach rock to high point on island following hard pan - details & measurements recorded in field book profile approximately:



Borrowed K-20 camera from ship & took aerial photos of Rongelap I. also with 35mm color. Soil mapping continued. Fish collected & prepared. Samples ready to date packed.

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Locality: Rongelap Date: 14 Mar 1959

Personnel: See 27 Feb Weather:

Water conditions:

Radiation level(s):

Operations:

Packing. Additional soil mapping. permanent pipes put in at reference points - painted orange, ~~labled~~ numbered serially from beach mark. Generator conked out - jury rigged power for freezer with Mayaward Eicher but we are without crew for the last few samples.

Big party ashore with ships crew and entire village.

UNIV.

ROBERT LEE

7-4-59

The 24-hour run was completed at 1750 when the last set of samples which was collected at 1350, was filtered.
Water samples were collected for C^{14} & pigment analysis every four hours beginning at 1345 the previous day. Also two secchi readings were made & water samples were collected at each — i.e. surface, 2/5 secchi depth, & at secchi depth.

Number of filtered C^{14} samples (on millipore filter pads) collected thus far — 72
Number of pigment samples — 20

...ITIES
...ARIES

E.H.
8-18-59
Hickam

mc RR
JF PC
PRO
AW
DR
8/21/59
SB

Dear Joanne:

Holmes and Narver would like to be informed of the flight on which to expect the other members of our party, Ed, Dick, Stan, Ole, Anikouchine, and Behan, so that they can meet them at the airport. Could you inform them of this as soon as you know, please? H. & N. could be addressed at 1210 S. Queen or at Hickam Field, or as you wish.

They were rather put out at our (Conny, Reid, & I) unexpected arrival. We leave tomorrow morning at 8.

Would you please enter $1.50 on my expense account for limousine fare from the Olympic to the SeaTac airport on 8-17-59?

Thank you.

AHS

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Locality Seattle, Hickam, Eniwetok Date 8-17 to 8-21-59
Personnel Mahnken, Kenady, Bonham Weather
Joyner, & Kimmel Water conditions

Radiation level(s)

Operations:

Mahnken, Kenady & Bonham left SeaTac on Pan Am #895 2205 on 8-17-59; arrived Honolulu 8-18-59 at 0715; taken by Geo. Sakoda of Holmes & Narver to Hickam. Met Tim Joyner & Jim Kimmel at Internat. Airport. Consulted R.W. Hiatt on availability of microscopes at EMBL to take on Rongelap trip.

Departed Hickam 8-20-59, 1140; arr. Eniwetok 8-21-59, 2040.

Briefing at Fred announced that cameras & binoculars are permitted on Fred.

Met Dr. van der Schalie in Honolulu, also Capt. Fosse and Omsted, all on flight to Ent. with us.

From Fred we 5 & van der Schalie were flown by helicopter to Parry where Bldg 122 was assigned to our group, including v.d.S.

UNIV. C.

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Locality: Parry
Date: 8-22-59 Sat.
Personnel: Kimmel, Kenady, Joyner Mahnken, & Bonham
Weather: Fair
Water conditions: 15 mph.

Radiation level(s):

Operations:

Inspected boxes at J4 warehouse and removed to lab box of 36 buckets & sun ray screen for Walker's soil & corn expt's, 2 1/2-meter hoops; Kenady got lumber for screen frames. Joyner got primacord & wire.

Set up Janet copter trip with M-boat & Wep to carry back 700 lbs of sifted soil on Monday.

Manken, Kenady, & Bonham took plankton tows in Deep Entrance to compare with David, 1500-1630, using 1-meter, old net; examined & photographed a few organisms in evening.

Rec'd. 1-2-59
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RP
DS
9/17/59

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Locality Parry Date 8-23-59 Sunday

Personnel Mahnken, Kenady, Bonham, Kimmel, & Joyner Weather Rainy

Water conditions 15-20 mph

Radiation level(s)

Operations:

Preparation of sun-ray screen shelter for Walker's corn expt. Consulted with Fosse & Willis on arrangement of winches & platforms. Lent Fosse proposed plan of work for Rongelap, belonging to Mahnken. Sent letter & logs to Lab, Seattle.

Mahnken, Kenady, & Bonham visited Fred PX for shoes (field) & cameras.

Kimmel, Joyner, Schlacks, & [illegible] shell-hunted using glass-bottom boat and aqua-lungs.

K.B. developed yesterday's photo-micrographs, using solutions from Geo. Bernier (also changing bag).

Preparation of equipment for tomorrow's trip to Janet.