LAU Islands

Ongea
Nukusongea
Teteika
Namuka
Kambara

Komo
Lakemba
Thikombia-i-lau

XV.

BERNICE P. BISHOP MUSEUM

HONOLULU, HAWAII

FIELD NOTE BOOK

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7		100		
8		110		
9				
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11		105		
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16	870	110	S	
17	105	115	SW	Rough
18	916		S	
19	940	140		
20	1050	120	N75E	
21	1072		E-ST	(S67E)
22	1210	120	S15E	
23	1319	100		
24	1515	110		
25	2010	140		
26	2750	100		
27	2915	95		
28	2980	85		
29	3035	65		
30	3085	60		
31	3340			
32	3420	80		
33	3500			
34	3610	75		ation
35	3670	43		
36	3663	5		

(L108) (See p. 2) — 5 ft. slope about 60 yds.
Rock for station self cost of 35¢ +
[illegible] Brow. Coral all ad along top
strongly buffed + deeply undercut. So
far not show good reef structure though
exactly incalculed for such a purpose. Not
a single good coral head seen in cliff
face, though fragments of coral do occur
in talus. Acteon + other gastrop. common, a
few gast. molds, one bivalve (?), no
echinoid tests, though some large echinoid
spines were found. So numerous are the
mollusk molds that I am convinced that had
the bottom ever been pad. rock — coral would
would now be sticking out all over it
Is fauna a littoral and organic molds clear?
Rude discordance. Nothing is complete —
exactly about hangatel

(L114) In fossil outcrops like this in rock
sec. material about all that can be
reached at surface! — Is it clear, sol?

Will this explain rarity of fossils in
some interior outcrops?

R (F47) #1 — coconut crab climbing.

Fri. Mch. 23rd

Anchored 27.7 at 6 10/AM
To coast E of Ongea village
— start inland at first cove bay SSW of Ongea Village
" heading 5±

L115 — divide on trail 28' (rise to ±) — lis outcrops
deeply pitted — mud of rock replaced by dense
banded mat. — quite much molds small, conch. esp.
spines. Some ferrug. sec. mat. — no good reef
structure or bedding discernible

— pits distinctly elongated a few rods beyond —
is this enlargement of one's hot holding planes?
— surely do the opt. fissures continue open for some
1' or so.

R (F48) Trail left fair S shore of E horn north of
Ongea Vill. — looking S FOW. The coast nearly
fronted by rocky undercut bench but small beaches
occur in recess.

R (F49) Bedding in lis? — not clear standing up — not at right angles

L116 As seen from here the shape of
Ongea is suggestive —

Village

1

20-25'

corale

for

(Sanghed mine by water-high tide $11\frac{20}{60}$ ±)

(F50)

28.9° – the Alleghany and flat

[illegible] on [illegible] flat [illegible] (from new field and [illegible]) – they certainly show a [illegible] N-S trend + that the [illegible] of [illegible] + the [illegible] (of [illegible] + [illegible] there [illegible])

Sat. Mch 24th

Barom. 29.28 + 5 [illegible]

Temp. – [illegible] 28.5° [illegible]

[illegible]

115
~~145~~ (c) L124

~~107~~
77

(F52)

✓ Temp. reading at L120 = 29.7°

✓ SECTION

condit O.K.

The last surprise of the day was the finding of an excellent elevated coral reef on the leeward side of the island, at the foot of a cliff (Sta L) the steep cliffs are broken by massive slumping downward a few feet from the sea level. These slumped blocks & masses are all of reef rock. It is one of the best reef & beach sections some clearness up to one foot in diameter & colored with an position of growth. There is a good variety of living coral & numerous corals & a number of reef molluscs & echinoderms, etc. Coral sponges — both elevated & living specimens, better more. Fine specimen colored lots though sponges are beautifully weathered to shape & small organisms. Reef rock fairly soft & in places broken down to form coral powder. Corals mostly big large percentage of coral & bryozoan colonies are many hundred — branch & massive — massive type of Pocillopora coral & probably one of pol. The corals are worn and polished on inside — the place was occupied by the living stony on a flat or rounded convex with the crest of the upper surface of the corals pointing down when viewed from below. Since many of the colonies had flat growth forms the colonies have grown outwards indicated by self parallel, descendants down slopes. Many of the branched structures are also more horizontal & the axes of the branches of the branches.

In the position where each of the reef-shaped masses & rested the reef structure tended accordingly and the northern end the reef crests seemed to have stopped more or less abruptly (see fig. L123). It may be a coincidence that the crests that I found only at the northern ends have a tendency to be "compressed" in the direction of the reef structure rather than the opposite.

In the position of the present reef the depth was not so great as on the leeward side.

115

R III #1 View of Sta. 125-126, [illegible] @ 1500
(F18)

R III #2 Looking S at Sta. 123, [illegible] steep face & [illegible]
(F19) + pillow lava (inset?)

[illegible] face facing N of Sta. 120

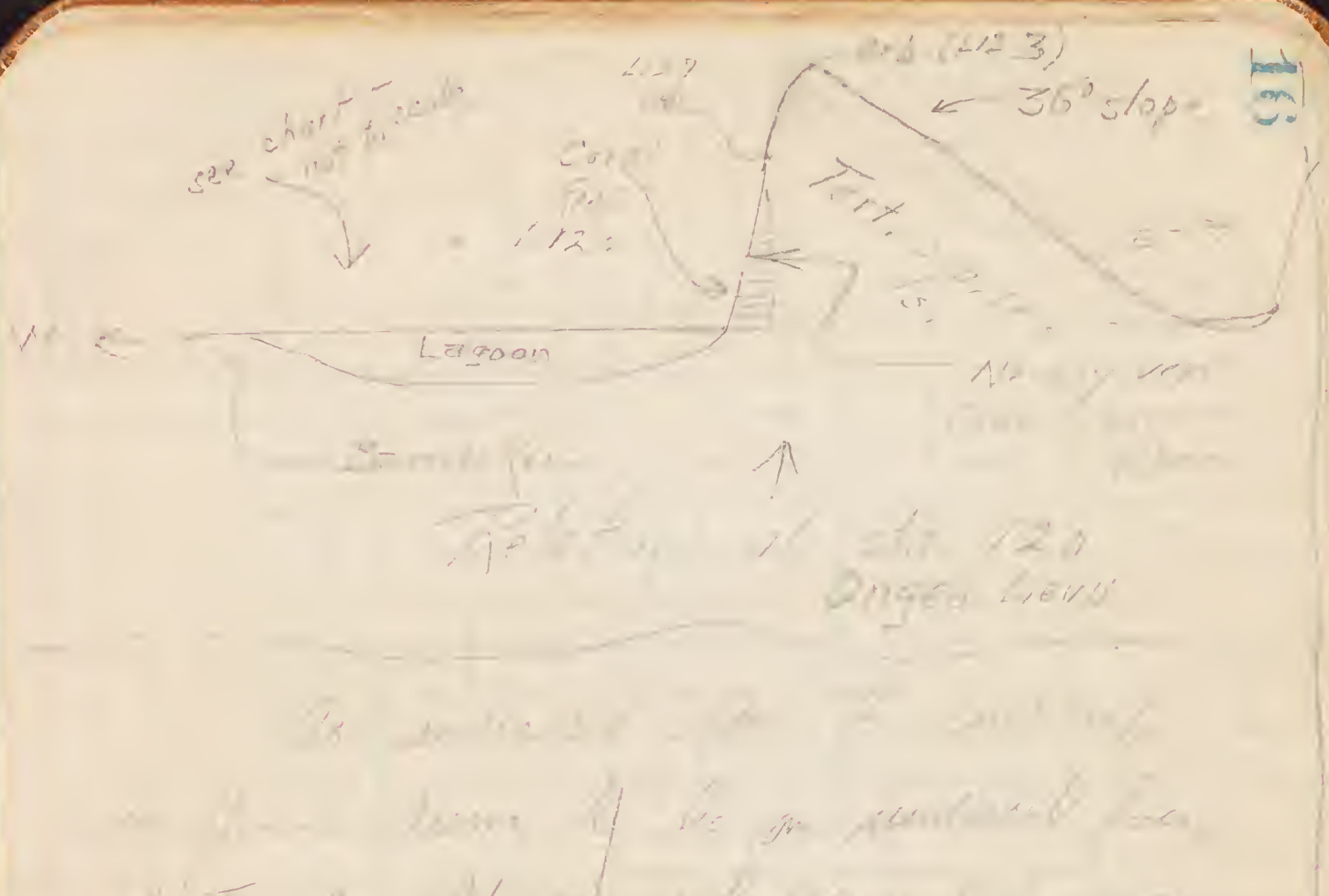
well [illegible] & [illegible] - [illegible]

(L.123) [illegible]

(L.124) [illegible]

L.127 [illegible]

(L.128) face of reef here —?

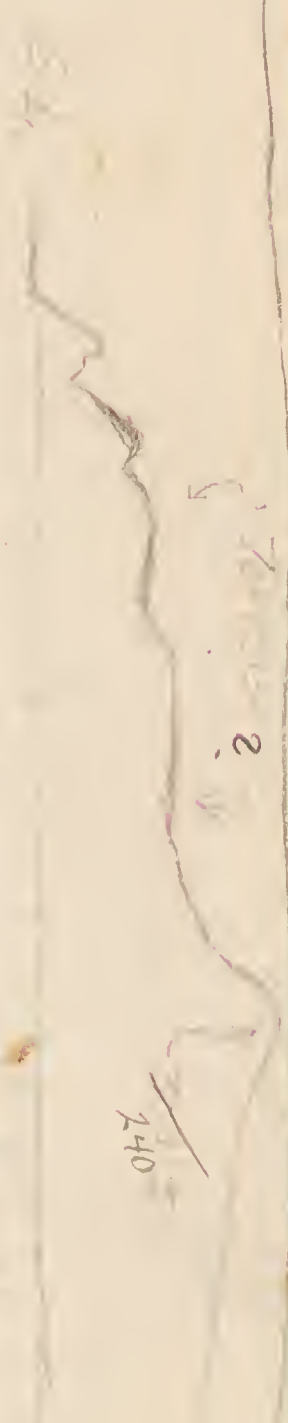


If Tide be of such that appears to have been from 25 feet below crest of barrier (see sec)

Re. seaward of reef to south end does not show reef structure - if so much altered - change to reef structure seem gradual.

N.G - NG.
N.G.

240'
~~250~~



L129 ~~180'~~

140'

L130

85'

70

75 - 50 60'

45'

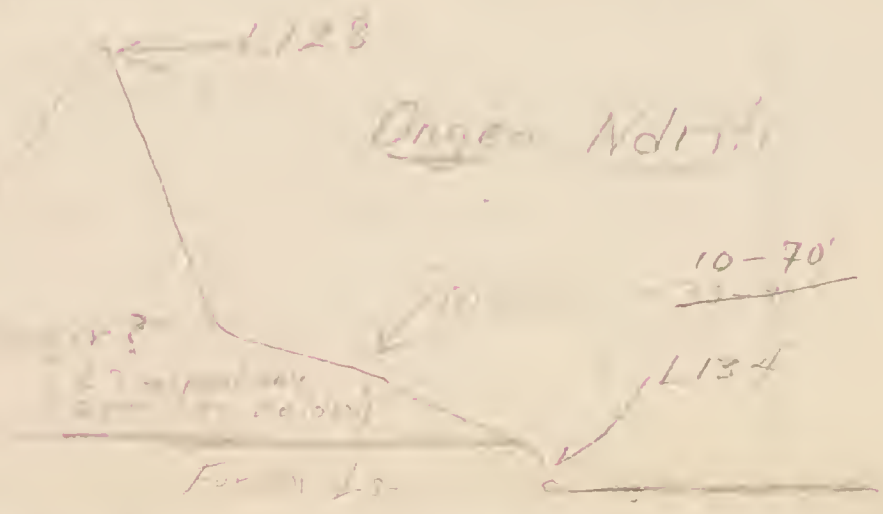
20'

10 – 30 – 70

check OK.

L133 – 5 –

L134 – 6 –



25-35 E N 4h. 35 E

Temp. 27.2 – Rain & thunderstorm day – clear – 5 PM – no rain

Tem. Med. 29 –

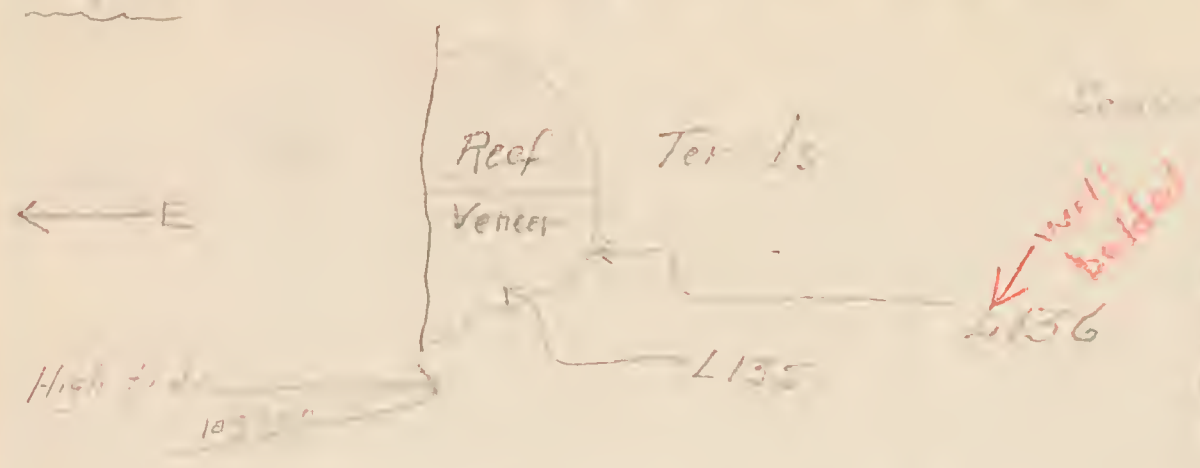
Rain 2.52 at 6 AM, clearing, no rain

Temp. 25.9 – clearing from NW – [illegible] at 6 AM

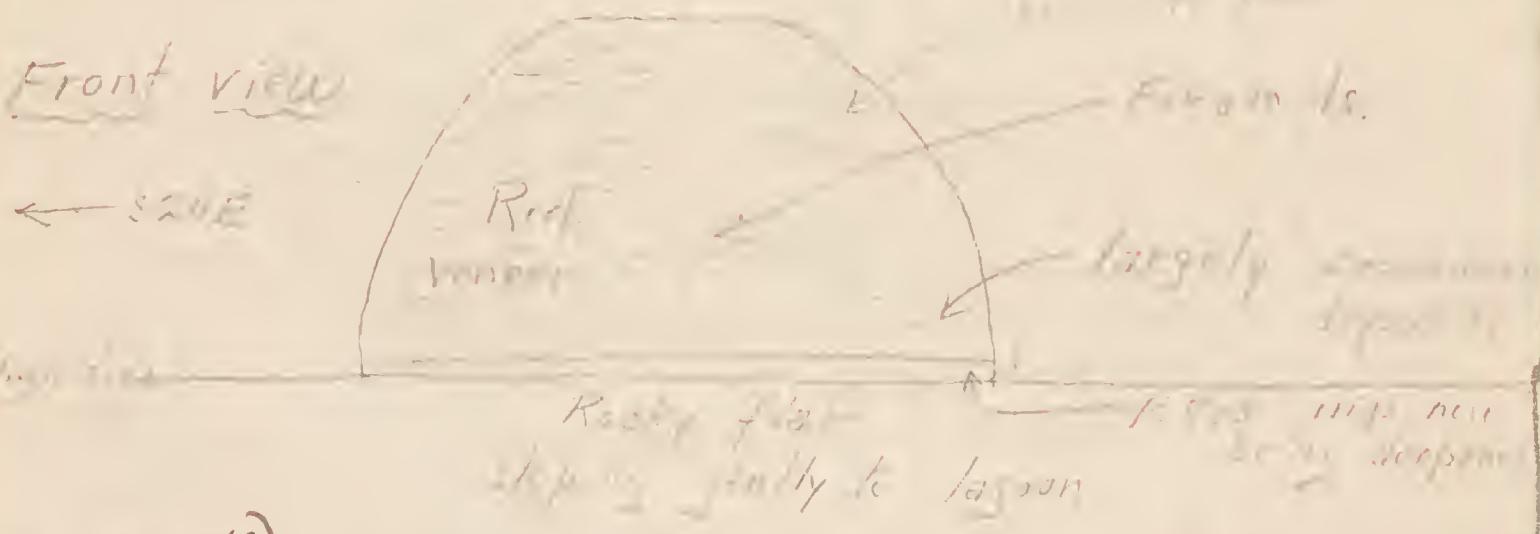
Roll VIII, #6 (F20)

L136

Profile



Front view



R. IX (F53) (F54)

R. II, (F55)

(F56)

L137 275 (Toronto)

N.G.

L138 235'

L139 195'

L140 162'

L141 140'

L142 110'

80'

70'

90'

corrected OK 55 80 40 55 45 50 38 45

30'

52'

40-55'

65

55'

40'

30 – 40'

45

25'

20'

40'

30'

35±

25

45

corrected OK.

500

L147

L148

R 1 (F57)

L149 185'

L150 137'

117'

L151 80'

L152 35'

corrected OK

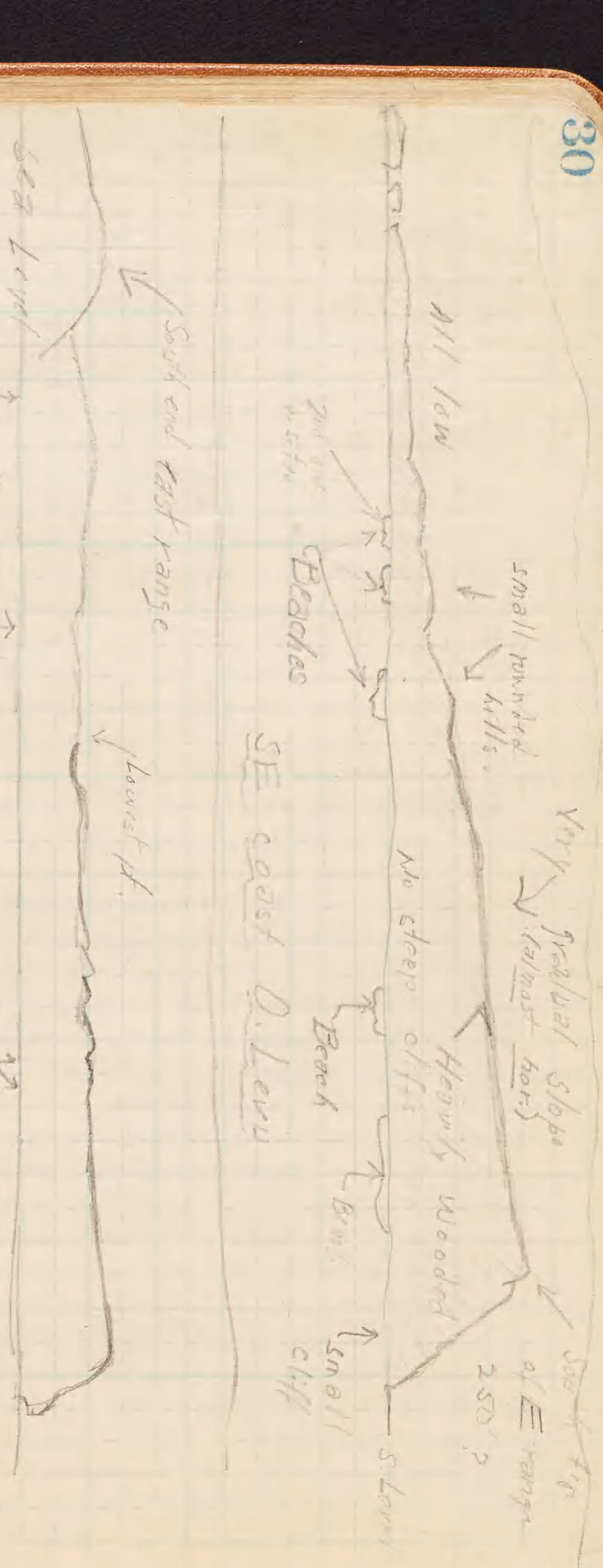
Saturday

[illegible]

Sat. Mch. 31st

Barometer 29.8[illegible]

[illegible]



Traverse across Barrier at point due East of high pt. at south end of East Range.

L158 1) Marginal zone - mainly algal - dry-packed coral clumps & lined nodules - cover at least 70% of surface. Coral 20% ± flat growing branched col. up to 1' ± in diameter - many shelf like colonies & a few others. General surface of zone level - irregular in detail - outline is ref. - scattered across much dry rectangle which are serious & fairly dell for water - off shore patches close to marginal zone - many rounded leathery-looking corals - film of slimy algal mangle with pools & algal encrustation. Range Temp. - Indoors (landward edge) - Max. width estimated at 75'. Looks like good living reef - mainly algal but with notable contributions by corals & other organisms - not a real algal ridge. Temp. 28.6°

L159 2) Sub-marginal zone - flatter, fewer corals - higher pts of #1 projects all low water but are scattered - some small clumps weed. [note to #1 - algae tend to encrust - & smother? - living corals look not to same extent on old reefs - here they especially from the shelf coral - but here instead the accretion

Temp. 29.1 at landward edge

[Algae here really do bind the coral together - on top of clumps - larger forms, middle of zone, smaller forms landward edge]

3) Marginal hard zone - flat - mostly algal - part of reef & from flat stream bed behind - some fine sediment - small irregular pools - 30° temp.

{#L160 L161 Next page}

L162

L160

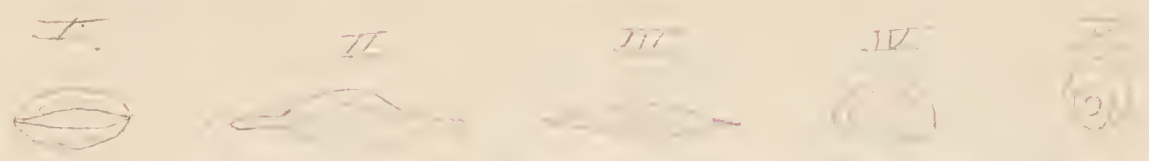
L161

L163 Re. clue to L158 = also 3-4 - contains large forams
Ann. Report 1st

Ground 29.525

Does it use —

In the [illegible] Stela 13 of Sta. 1314 5 different types of orbital [illegible] can be seen (and [illegible]) [illegible]



The same kind — [illegible] — [illegible] not [illegible] [illegible] example of one example [illegible] II + III are the "[illegible]" [illegible] (thus the [illegible] + other [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] the hand [illegible]. [illegible] [illegible] are from [illegible] [illegible] (Sta. 156 - Type V): [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

Traverse across West side Nukusange
(Heading toward South tip O. Ndrili
- traverse less than ½ dist. south of
Sand Cay)

Page	Zone	Remarks
0	Lagoon	Inner edge - 6' deep at edge - sand & shell on bottom - see sample of this & U. S. #29 - temp 28.6 at surf - U. S from surf. just before lowest ebb - partly cloudy (1 p.m.) - (no heavy rain) Edge steep - vert & overhang in places - lagoon light green algae & ends at edge of lagoon - rich growth of variety of coral on edge - some colonies large - Pocillo very abundant - There are spit-like projections into lagoon on either side - much of old coral at top covered by thin algal (?) layer.
L165	Old Reef Flat	
0 - 100		Flat, shallow tide pools up to 1' deep - thin sand film on them floor & considerable coarse debris, broken coral, etc. - some live coral but mostly dead & algal covered - live corals (when present) grow around edges of elev. masses between shallow pools - pools ½ - ⅔ of surface.
100 - 250		Pools now gone - deep & cover ¾ sur. - some colonies of branching coral exceed 2' & are commonly(?) found due to lagoon (windward) side of "elev." patches - like miniature reef patches in shallows lagoon - patches diameter. Wind - to lee they tend to elongate in that direction(?) at 155 p. coarse
L166		grey debris very common - & sand - old coral head up to 1' at 200 living coral very rare now - few Pocillo; little more
250 - 280		- Shallow again - little more than ankle deep - surface undulating sand & sharply broken elev. patches of living coral - some small wood - flat rock - sand film with coarse debris - is of flat coral rock than sand debris (living?)
L167		(Sample L167 taken at pace 250) - at 270 steep ridge capped by branches developed out of undulating ridge noted at 250 - steep - hummocks also - the beginning of terracing.
L168	280 - 315 Alg. Pav.	Algal pavement - steep at p. 305 315 - edge a thin crust on hard which is pavement
	315 - 405 Alg. Ter. - rch. zone	Algal terrace & development of various channels ∥ to terrace & rel at ½ to surf front. (L169 from edge dim. at pace 405) - pedon resting SE from p. 405.
R II, N.G. L169		
	405 - 536 Dead cor. pav. + Sand flat	Water deeper to 1' at 450 bottom of hard coral pavement - flow to form sand in deeper pools - large heads Pocillo (up to 1½') standing above general

surface & turning around edge - truncated above. - 465 ft. the water knee-deep at 490 all sand bottom & crotch-deep. at 505 - worst deep & large head living coral appearing, growing up 2'± in from floor. 1' at 506 shelf to surface rich coral & algae. swift channel to left - margin of atoll with ~~reentrants~~ - at 517 = all pools (8" - 1') general surface undulating - dominant color yellow-pink - live coral over 30% ± of rock with algae a lith pavement that looks alive - best I have ever seen.

L170

536 - 577 Outer leeward (at 475 ft.) coral over more than 50% of surface - shelf (30 yds) & [illegible] marine lat cor to reef a few paces. Algae [illegible] the same. at 550 ft. due south & channels first coral - at 567 large area of soft brown encrusting organism

Cor.-Alg. zone

577 - 605 Edge of reef (proper) - with deep narrow channels to sea - many algae & much pitted - small head coral become increasingly abundant to sea. Algae overgrown but not rough or proper organ varieties - all lith apparently face the shelf - lithos coral seem to encrust the algae! good assoc. of lith - deep irregular pits, fissures & suggestion of terraces, algae outward encrusts dead corals & surround them closely - should call this a flourishing reef.

Marg.-Zone.

L171 (algae only)

*✓ - temp. 30.2° on lith outside - deep pools & seaward of pool-channel are

RX (E58 F59) - Outer drawing out of lagoon are stony beach - further to leeward flat rocks then to south of traverse - about middle of atoll

L172 Old to exposed up to 1½ above low tide - algae (red & g.) and barnacles but not "nigger heads" - only 20' long - many old large rounded cards - reminded of 6 shells - rock like this (on Tarawa) probably 3' rich of chart

L173 Sand from lagoon being washed on channels green & out of atoll to leeward ~~(see next with L172)~~. There are large crests of this to N (Bonnefoi is surface - much more - half covered with coral rock - yet this apparently does not tend to smother reef up to leeward

label destroyed

- worn & partially sand-covered flats to leeward - reef narrower to N of traverse - or rather dead flat is greater

L174 Algae N of traverse in channel Zone.

L175 Sand & Mathai from Cay - under surface of high part - few feet above high tide.

Summary of Nukuoroge

The Lith atoll lies 2½ miles SE of Ongea's barrier reef. It is triangular in outline, one of its 3 equal sides lying athwart the prevailing SE trade. The apex to leeward is a sand cay. The atoll is 2 miles in greatest diameter. It is one of the small atolls near large barrier reefs to which Dana assigns a 3-phase history, because he believes the

[illegible]

Paro

0 - - - - - - Lagoon edge
0 - 280 - - - Old Reef flat
a) 0 - 100 - very shallow pools; little live coral
b) 100 250 - slightly deeper " ; more " "
c) 250 - 280 - very shallow; grading into -
280 - 315 - - - - Algal pavement - algae (Lithothamnion) a thin crust on hard white ls.
315 - 405 Algal terrace and channel zone
405 - 450 Dead coral pavement - [illegible]
450 - 500 Sand flat - [illegible] " "
500 - 536 Coral - algal zone
536 - 577 " - " " with pools
577 - 609 Marginal zone - living reef.

One of striking features in great development of Lithothamnion in almost all zones - particularly in marginal zone, terrace & channel zone. In marginal zone with its flat edges & beaded edge, [illegible] & cliffed seaward it would look much like the reef of Fatunga - and would not [illegible] channels & passages offer already prepared cover & channels for production of atmospheric water? - many holes filled with spring sea dep?

[illegible] form a raised ridge (though [illegible] zone behind marginal zone) [illegible] do not encrust a coral but they entirely cover all rest of surface, including dead colonies of coral

2176 - Shell [illegible] of Nucleandra [illegible] [illegible] 200 yds [illegible] dredged [illegible]

[illegible]

[illegible] Lagoon [illegible] the [illegible] not [illegible] any [illegible]

The lagoon [illegible] [illegible] carried [illegible] [illegible] [illegible] [illegible]

[illegible] great difficulty for [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] of the [illegible]

[illegible]

[illegible]

Turn to page 3[illegible]

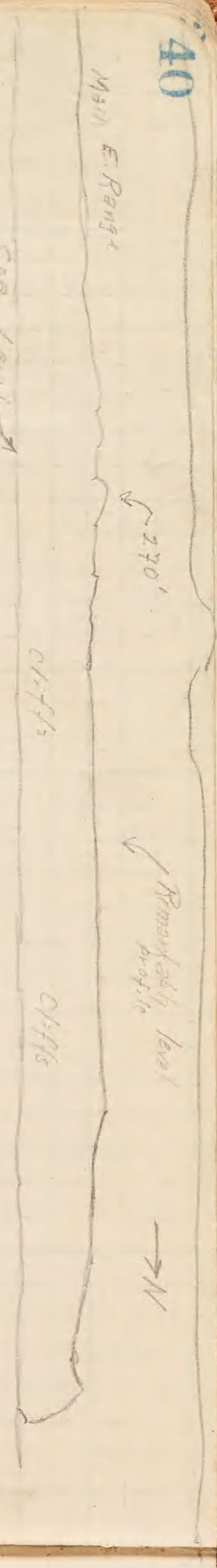
[illegible]

[illegible]

[illegible]

N.G.

no suggestion of a flat such as Fox mentions, can be distinguished from portion of cliffs (lower 1/6) appears to have suffered slides or cavern collapse as they show large concave recentrants (cf. Gardiner)
The N pt. of O. Mdutu looks a good windward cliffed coast. Gentle S slope of profile regards S. 270' hill - suggestive of crown-faulting - the latter of O. is really an atoll.
The 270' hill is much closer than high pt. at S end of range, yet the latter looks higher - both stand slightly above their surrounding with equal prominence.



Temp. at anchorage on leeward edge Tetuka 28.7° at 12¹⁰ - sunny - 2' water.

The current over the bank is strong + only small isolated waves break against it. A single rock drier 3' is more near edge of bank - much larger + higher than any others.

In spite of strong sea running the landing on Tetuka an easy one to leeward - due to absence of prominent reef rim there + lack of lagoon current pouring out. We simply ran on shelf over 2-3 feet water + await uncovering of main bank to E.

E-W Trav. - (40° ± to N of line to N. end O. Lava) L?

L177 1) Algal ridge.
1a) - Pink algal zone - see photo - brownish fossils - no clathrum - pink rosette (organ-pipe?) algae in large masses everywhere - solid base of Lith(?) - also deep-pit algae numerous. 50'+

Pace

1b) Lith Ridge - top - higher than #1a - a lith pavement but not pink - is dark brown. 0-14

L178 1c) Algal lower zone - see photo - second by ech. - forms landward edge of distant ridge 14-20

2) Submerged (8"±) - undulating rocky flat - no coral encrusters Porites - little weed - about 2' below top Lith Ridge - may uncover at lowest ebb. 20-110

3) Reef flat with dead + living Staghorn - no fungiacian - is dry - little weed - moss - at 62 fungiacian of good colonies + few rock boulders - some Porites - staghorn small + also Porites - rocks ech. of fungiacian type - living corals 5-6" or less by general surface - at 224 Porites - bruised - excess 3' diameter - zone in ankle to knee-deep - not much large debris save for little broken staghorn - 272 - few ~~stones~~ 2 large Acropora colonies - broadly erosion 110-290

4) Staghorn (Acropora?) zone - + few other corals - large bottom shell same

263

Ladd

XV

1934

Lau Islands

263

Ladd

XV

1934

Lau Islands

L179 - still less than knee deep - a very
- common coral - locally coral covers
over 25% of surface - fine diffused
surface coral - widely - branching
dull yellow staghorn in only abundant
species - bottom pond like - lots in
spots - little debris of any kind - some
coral clumps exposed 31 290 - 465

5) Transverse ridge of green debris
coral blocks up to 3' higher
parts dry - lots of staghorn debris
+ sand but no large patches
of sand - ridge extends in sound
line for 800 yds ± (300' target) 465 - 510

6) Deep - flat covered with coral
heads + sand ripples - very little
living coral - most of sea coral
is urchin heads - sand areas much
less than knee deep - at 570
a 10' truncated mass - Porites and
new water just over knee deep. 510 - 616

7) Tide pool zone - large mass
of living corals over most of
- more rest of less coarse debris
- water ankle deep to ankle - some
of coral patches over 20' across
- all truncated at low tide level
(very little only covered) - depression
below up to waist - locally
coral thickness over 50% of
surface (e.g. 630) but most of
this coral has no edges left 616 - 700

L180 8) Algal? flat with few shallow pools
+ some coral (L186 at 703 p)
tide pools of low elev show - algae
of little diff + living corals in this
zone now showing

pools now, are knee-deep.
- few negro heads over 2'
- accumulations of sand
in lee of each coral mass
+ thin film of it over most
of rocky bottom - near 900
but little of pools algal + most
- have rock, some small
weed, some sand - scattered
coral areas (less than 5%) 700 - 935
- little coarse debris - fair

9) L935 living corals - practically
gone - rocky bottom - ankle-deep
lagoon - shallower again at
990 - olive yellow brown weed
- 1010 debris increasing - corals (live)
continue absent - algae gone
- at 1032 are few live staghorn. 935 - ~~956~~ 1058

(the entire OK)

10) Boulders + sand - are knee-deep
- more boulders than sand - still 1058 - 1080
little coral ~~956 - 980~~

11) Tide pool zone - coral mass
(less or in other tide pool zone)
up to 12' or more - the
rocky floor - little sand - sample
of sand at 1186 - some pools
warm - deep at 1250 lithified debris
+ unconsolidated rubble back
100 yds to right fitting from higher L1080 1255
part of which rises ~~980 - 1055~~

L181

label destroyed

12) Algal flat like #8 - sample
at 1300 - practically no
living corals on this flat - surface
hard + lumpy - slight dip of bottom
toward - 10 fathom current
bed - at 1355 getting deeper
- no live coral in this zone

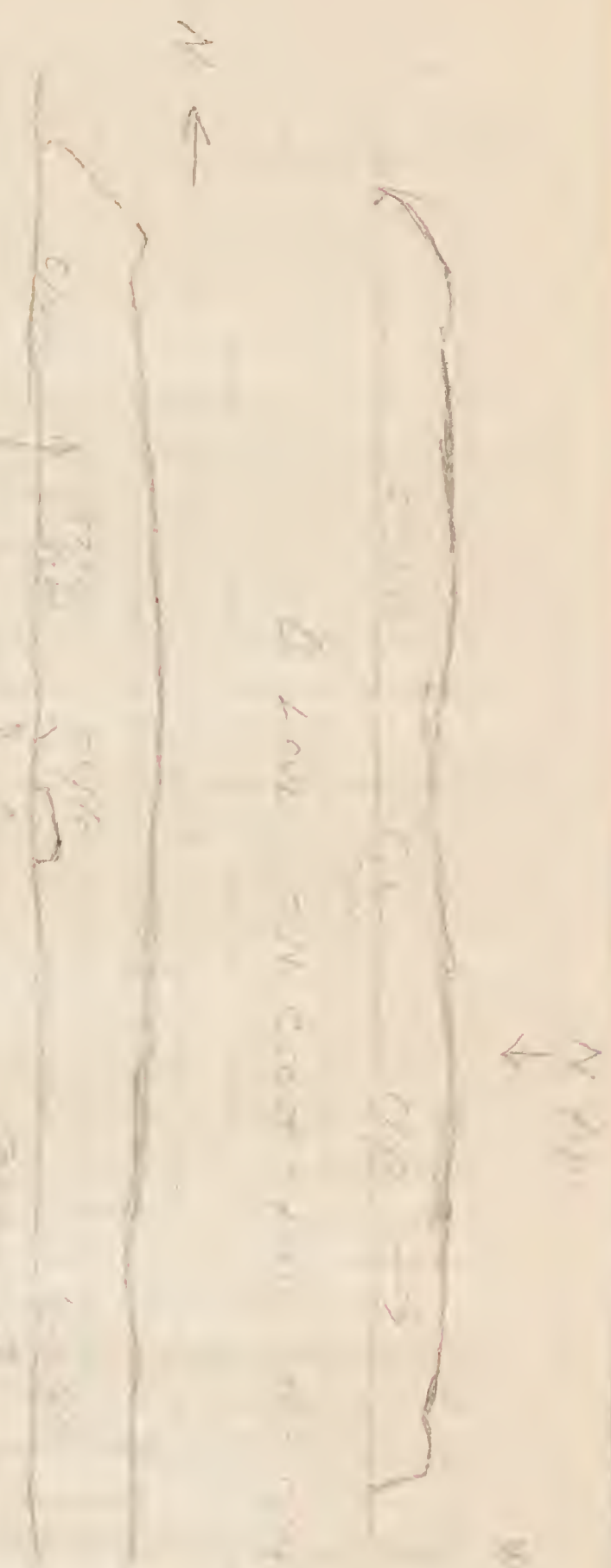
L182

reef.

(F60) - Reef Tetiaroa O. Levu

Summary - Tetiaroa

Tetiaroa is a flat bank of hard coral sand, partly covered with debris of living organisms. At Oldtown the depth does not exceed 1 fathom, per windward side is bordered by a reef of algal rock & this at low water comes almost to surface. In the south-west it is strongly affected by current & sea, & is comparatively bare. Here are all stages of the coral sand, from the small heaps of coral around the edge of the reef to conglomerate patches & finally the bank from breaking water. Here not a living bank (except clumps of coral) is left, as the surf has destroyed the coral sand.



L184

168'

L186 155'

L187 142'

L188 129'

119 - 123'

L189 98' ~~103'~~

54' ~~64'~~ 98', ~~103~~ - ~~64~~ 54'

54' ~~64'~~

38' ~~58'~~

~~52-64'~~ 32-44'

33' ±

* corrected OK.

Thurs Sept 5th

[Left shore not accounting of stepping of marine deposit & collapse of cavern (by water undercutting) & a gang of large masses & sand & gravel]

✓ Sun. 27. 96 at 5:30 p.m.

* Tang [illegible] 28' [illegible]

1/3 - 1/4 mi.

L195 ~~220'~~ 163' (average)

225'

190

100' ~~130'~~ ±

*

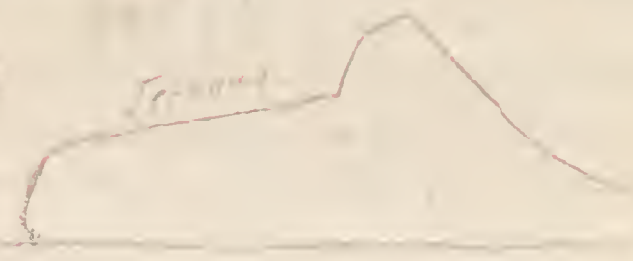
2-3 beds for legs

10' 6"

157' corrected for EH & for sea level.

270'

W



270'

226 - 232'
~~175~~ 180'

213'

181 - 187' 180 - 185

167 - 180'

155 161' 150 - 156' ← corrected with St + sea level.

135 - 142' 137 - 143' ← corrected for St. barom. + for sea level.

Lost

110 - 116' 111 - 117' ← corrected for St. bar. + sea level

97 - 110' 98 - 105'

68'6" = H. Level

~~129'~~ 109'

58' - H. Level.

55' H. Level

58' = H. Level

32' = H. Level.

~~52~~ 32'

10' = H. Level

~~32~~ 12'

Water

After 7th reading corrected for st. barometer for sea level

April 8

If "green" be at the old level for every ? at a ref. level upslope of 100' or around

[illegible]

45'

28 ~~58~~

~~194'~~ 164'

~~183'~~ 153' hard

~~155'~~ 125'

~~295'~~ 265'

PIT OPENED

~~250'~~ 280

205'

1220

L221

Lost

L222

Lost

~~194~~ 232
164 202

~~194~~ ~~264~~
164 - 234

L223
L224

L225

~~194~~
164

65

144 - 157
~~174~~ - ~~187~~

L226

some algae nodules

a fond 10th soundings corrected for H. for and for sea level

227

228

L231

L232

L233 → Zone above L232 – weaker fracture

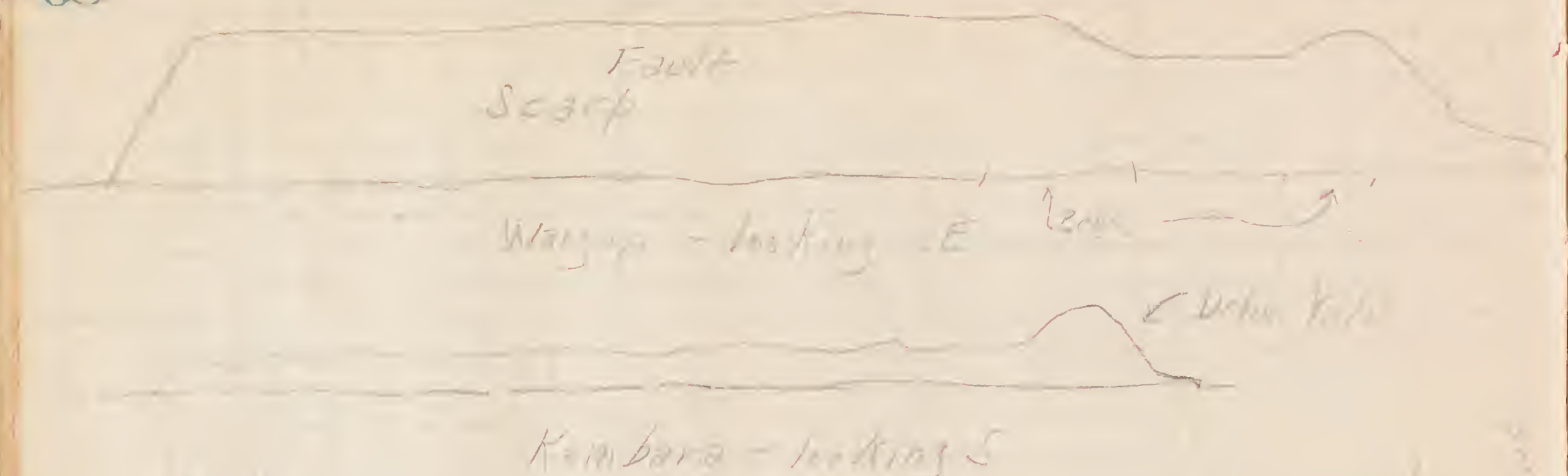
L234 Large coal – base of 232 to west slight fault
+ also in strip on opposite
* N35E; 85°W – pipe working on dark section

L235 Fault displacements L232 of Vert – 29 ft ?
fault breccia with some – 2 ft (see)
[illegible] no time for careful study
is very faulted [illegible] (but not
altered in [illegible] of breccia)

L236

strike – L 236 N-S 17° E
N45W but north [illegible]
[illegible] map.

(F21
F22)



(F23)

(F24) View of

F25 A-B

319' ~~323'~~

330' ~~335'~~

– calc. algae

~~445'~~ 440±

(F26)

~~323'~~ 320'

Apr 15 readings corrected for H. bar & for sea level.

1			6
2			6
3		111 ~~106~~	~~116~~
4		169' ~~164'~~	~~174'~~
5		137 ~~132~~	~~142'~~
6		106'	~~116'~~

93' / ~~103~~

67' / ~~77~~
93' / ~~103~~

93' / ~~103~~

106' / ~~116~~

113' / ~~123~~

80' / ~~96~~

93' / ~~103~~

80' / ~~96~~

61' / ~~71~~

67' / ~~77~~

56' / ~~71~~

37' / ~~52~~

24 / ~~39~~

37' / ~~52~~

37' / ~~52~~

37' / ~~52~~

4460
1790 S 30 E 0 ?

37' / ~~52~~

11 / ~~26~~

~~32~~ 17'

~~45~~ 30'

	5	17 32'
	5	
32	8	30 ~~45~~
33	1	50 ~~65~~
34	4	62 ~~77~~
35	6	69 ~~84~~
36	8	82 ~~97~~
37	9	95'
38	15	~~116~~
39	20	~~144~~
		~~100~~
		112'
40	3	~~112'~~
		138'
41	4	~~168~~
42	7	~~168'~~
43	7	138'
44	8 30	
45		
	8000	
		135'
46	4	~~165~~
		164'
47	7	~~194~~
48	8	
49	1	~~181~~
		151'
		138'
50	6	~~168'~~
51	6	~~194'~~
		164'
52	8	~~194~~
		164'
53	8	
54	10,050	215 ~~245~~
55	13 173	86 ~~116~~
		86
56	10 23	28 ~~58~~
57	10 3	12 ~~22~~ ~~52~~
58	10 3 5	0 ~~34~~ ~~36~~

with crosstrees

Apr. 16 corrected with H. barometer for sea level

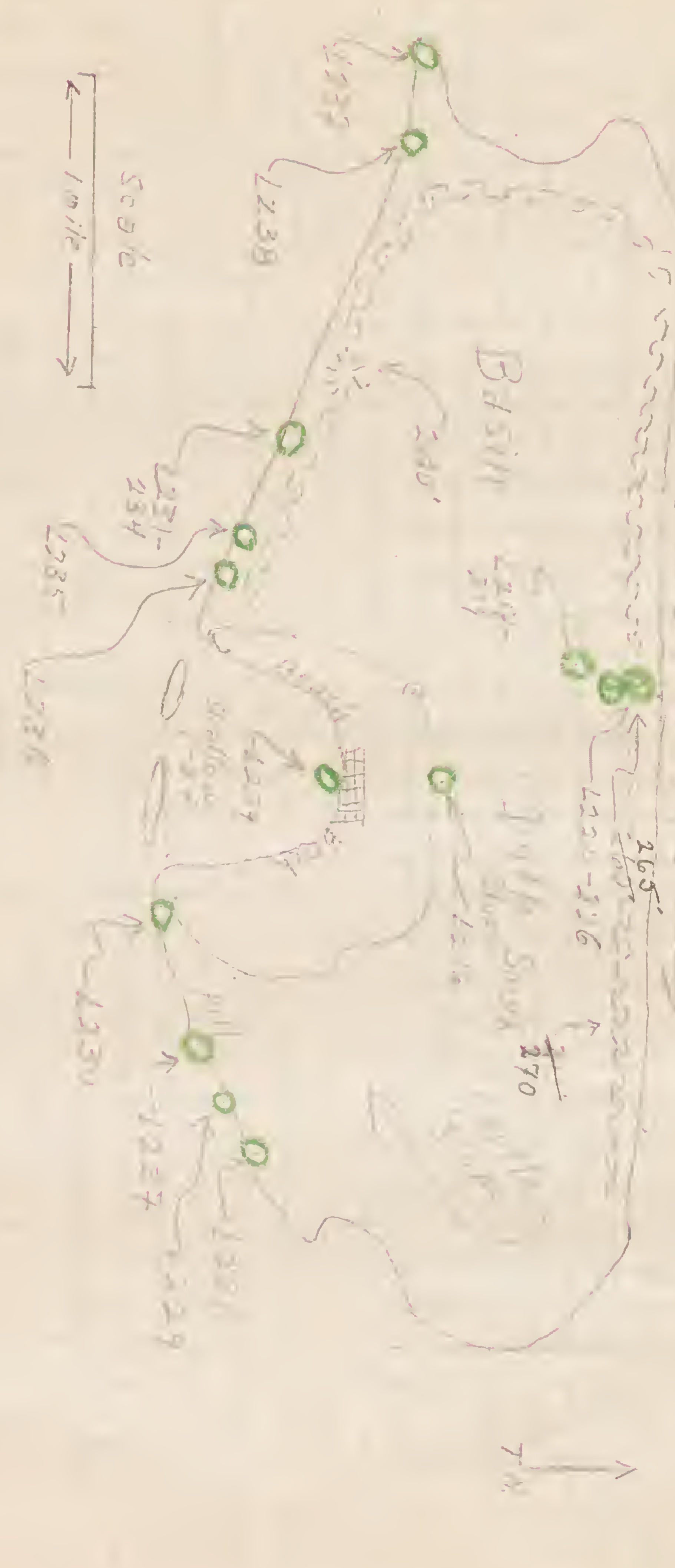
[illegible]

Tokalan [illegible] 39' [illegible] 39' [illegible] 39 - 58' [illegible] east, Tokalan [illegible] Tokalan.

Rhoomy around [illegible] not as strongly [illegible] as expected — [illegible]

Tue. Sep. 17th
✓ [illegible] 23° at 6 AM - [illegible]
* Water temp of Tokalan - 26.8° [illegible]
1/2 [illegible]

Wed. Sep. 18th
✓ [illegible] at 5 AM



(F27
F28)
L264

(F29)

(F30)

(F31)

84

L263 200'

L267 ~~194'~~ 174'

L270 ~~184'~~ 161'

L271 ~~166'~~ 145'

L272 ~~152'~~ 132"

L273 ~~139'~~ 119'

L274 ~~116'~~ 96'

corrected for 11 ft barometer & for sea level

N

200'

NE

Farmhouse

Traverse overland near

Sta Pass Diff for Remarks

145
155

L275	2	440		116' / 106'	
				80-87 / 90-97	
L274	3	200	"		
	4	1000	NE	74' / 86'	
	5	1100	E		
L280	6	450	NW	67' / 77'	
	7	1245	NW	71' / 61'	
	8	1350	E		
L281	9	1490 / 1455	N75E	45' / 35	
	10	1550	N55E		
	11	1640	E	65 / 55'	
	12	1650	N		
L287	13	1650	N70E	39' / 29'	
	14	1815	N75E		
	15	1910	N55E		
	16	1960	N10E	65 / 55'	

83 17 ~~39~~ 29'

18

19 ~~45~~ 35'

20

21

22 42'

1284 23 ~~52~~

24

25 67'

26 ~~77~~

1285 27 ~~90~~ 80'

28 101'

29 ~~116~~

1286 30 ~~123~~ 108'

31

32 ~~129~~ 114

33

34

35 ~~148~~ 133'

[1287 ~~166~~ ~~153~~ 148

36 ~~24~~ ~~39~~

Apr. 20th corrected with Ht. barometer + for sea level.

37

Home

206'

226'

1289

1291

1292

1293

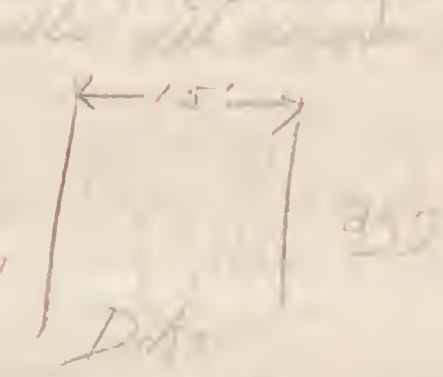
1296

1297

L 299

L 300

L 301



L 302

Section S15E-N15W

Pace	Elev. Ar.	4L	Remarks
0	~~230~~ 297'		
	52		
	65		
	84 ~~86~~		
	~~97~~ ~~99~~		
	90		

L304

52'

90'

L 306 Sample [illegible] for washing

L 307 Rock at [illegible] from 3' above base

L 308 " " " " " 307

Wed. April 25th
To Lonsdale on Arrow

Thurs. April 26th
On Lonsdale on foot work

Sun. April 27th
THIKOMBIA

F 11 70 = 60

F 14 [illegible]

T8 — 445 - 452

T9 — 475 (H)

490' (H)

340 (H)

387 corrected

255 corrected

T11 323' (325' to W.B.S.)

T24-J1?

N3E

TO DUPLICATE THIS ORDER
REFER TO
JOB No.
51709
HONOLULU STAR-BULLETIN