Hawaiian Volcano Observatory Record Book 1913

This volume is one of a series of record books compiled by the Hawaiian Volcano Observatory (HVO) from 1912 through early 1966. The pages for this volume were transferred by HVO to the Bishop Museum, in Honolulu, Hawai‘i, in 1972 and are held at that institution (accession number 1972.265). In 2010, HVO entered a cooperative agreement with Bishop Museum to scan many of the record books in their repository. The scanning was done by HVO volunteer Frances Wong using a flat-bed scanner at a resolution equivalent to 600 dpi. The raw scans were then delivered to HVO volunteer Ben Gaddis, who processed each of the scanned pages by cropping and by adjusting the exposure and contrast using a photo editing program.

Some of the scanned pages were of inferior quality and were replaced with pages from an original record book housed in the rare book room of the U.S. Geological Survey Library at Reston, Virginia (catalog number 220(950) H3d). Because the record books from the U.S. Geological Survey Library were tightly bound, scanning was not practical. Instead, HVO volunteer Ben Gaddis photographed the replacement pages using a tripod-mounted Canon 5D Mark II camera with 16–35 mm lens, and then processed each of the photographed pages by cropping and by adjusting the exposure and contrast using a photo editing program. The scanned and photographed pages for this volume were then combined to form this digital version of the record book. Quality control and posting was done by Tim Orr of the U.S. Geological Survey Alaska Volcano Observatory.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Date

ABBREVIATIONS

A camera ..... Anderson
A ing or A. ..... ingento A
Al V. or A.V. .... Al Vista
Alex ..... Alex Lancaster
aper. ..... aperture

B. ..... ingento B screen
B & J ..... Burke & James

C.M. ..... crag mass
cam. ..... camera
chan. ..... channel
C. camera ..... Century

D.K. ..... Devil's Kitchen
D.P. ..... double Protar
Dall. ..... Dallmeyer
dist. ..... distance

E.S.S. ..... E.S.Shepherd
ex. ..... exposure
elev. ..... elevation

F.B.D. ..... F.B.Dodge
F.P. ..... focal plane
fum. ..... fumarole
F.C. ..... front combination Zeiss Anastigmat lens
ft. ..... fountain
f. or F. ..... F system of stops

Green Hg-CO_2 ..... Green mercurial with compressed CO_2
G. (camera) ..... Grpahic
G. (screen) ..... Wratten G
Gl. ..... glycin
grot. ..... grotto

Hale. ..... Halemaumau
h.i. ..... height instrument (5 feet when not specified)
hor. ..... horizontal angle
H.O.W. ..... H.O.Wood
H.V.O. ..... Hawaiian Volcano Observatory

I.H. ..... Instrument House
ing. ..... ingento
I.P.M. ..... I.P.Maydwell
I.P.J. ..... I.P.Jaggar
Iso. or I. ..... isochromatic

Kil. ..... Kilauea
K2 ..... Wratten K2
K2 cel'id ..... Wratten K2 celluloid

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loc. ..... location
lev. ..... level reading

M.L. ..... Mauna Loa

N.R.H. ..... New Rest House
N.F. ..... New Faithful
no. ..... number
N & G ..... Newman & Guardia
N.C. ..... non-curling

O.F. ..... Old Faithful
O.R.H. ..... Old Rest House

penin. or pen. ... peninsula
prob. ..... probably
pt. ..... point photographed or located
pl. ..... plate
pan. ..... panorama
P. (camera) ..... Premo
P. (film) ..... panchromatic

Q.P. ..... quarter plate

R. or rod. ..... rodinal
ramp. ..... rampart

stag. ..... stagnant
stalac. ..... stalactites
sta. ..... station
scr. ..... screen
spat. ..... spatter
S. pan. or S.P. .. Seed panchromatic
s.h. ..... stadia hair

t. ..... time
ther. ..... thermometer
temp. ..... temperature
tele. ..... telephoto
T.A.J. ..... T.A.Jaggar
Tech. Sta. or T.S. Technology Station hut at Halemaumau

U.S. ..... uniform system of stops

vert. or V.A. .... vertical angle
vz ..... Zeiss 5x screen
V. ..... 5x screen
V.H. ..... Volcano House

wea. ..... weather
Woll. ..... Wollensak
W.P. ..... Wratten panchromatic
W.M. ..... Wratten M
W.A. ..... wide angle

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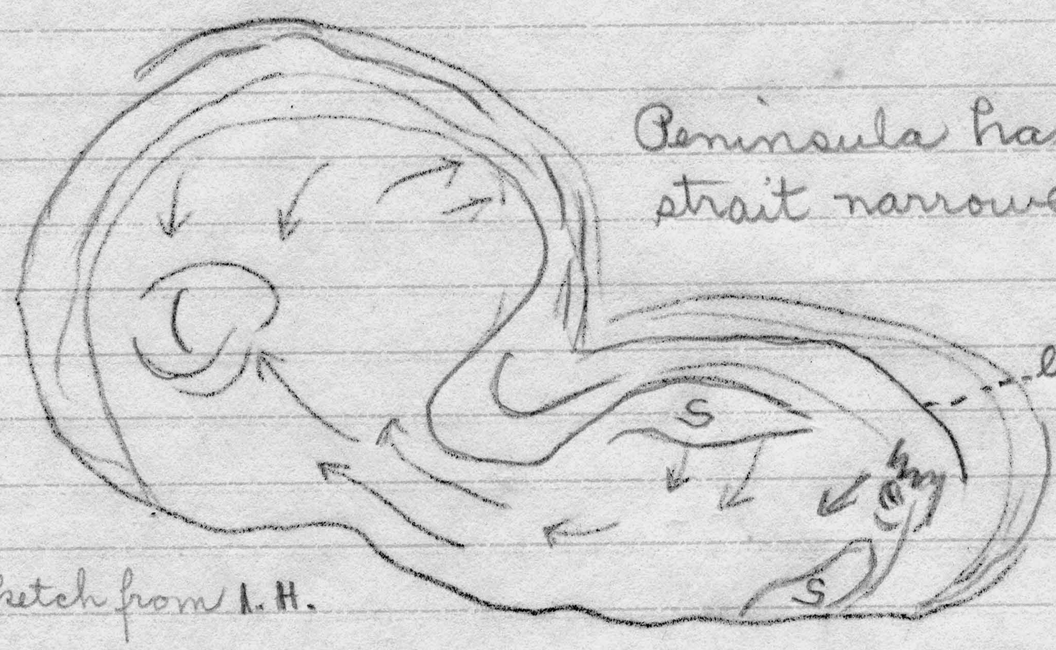
X. ..... 10x screen
5xz ..... Zeiss 5x screen
3x ..... ingento 3x screen

Z.T. ..... Zeiss Tessar
Z. Ana. ..... Zeiss Anastigmat

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Thurs. Date Jan. 2, 1913
Fri. " 3 "

Jan. 2, 1913. – 4 to 6 p.m.



Peninsula has been revealed by sinking; strait narrowed.

last week's level (Dec 31, 388).

S = skins which part from wall

Sketch from I. H.

Level about 400 feet down. Has sunk 30 feet since last week. (370, Dec. 26)

J. a. f.

Jan. 3, 1913 – 9–10 p.m. Quick survey NW & I.H. Pool low and small. Peninsula big. Current E-ward. One small avalanche heard. Depth of S cove, 10 p.m.:–
From NW 390 feet.
" I.H. 383 " .



Started camping at station this day.

J. a. f.

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Friday Date January 3, 1913

t	sta	pt	hor	vert	lev diff	dist	elev	h. i.
9:30 p.m.	NW	S cove	31° 26'	0 7'	31 19		390	
	9. H.	" "	32 39	1 25	31 14		383	
								J. a. g.

			no	pl	scr	stop	ex	cam	

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

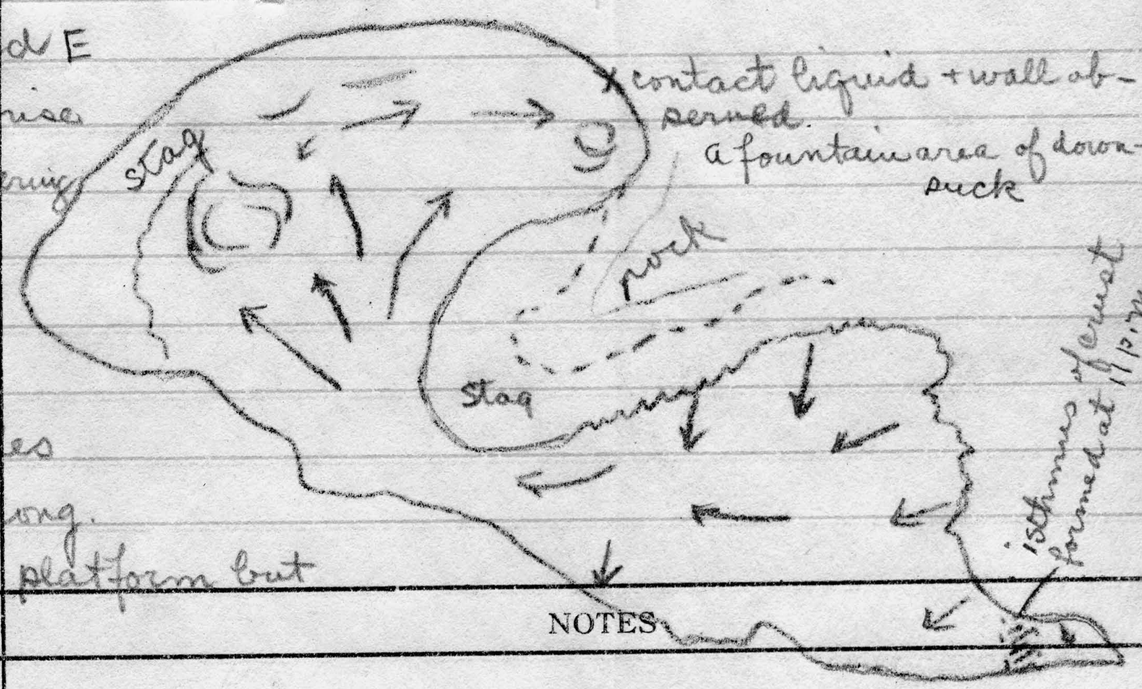
Day Sat. Date Jan. 4, 1913

t by watch fast 3m. 25 sec.

t	sta	h. i.	pt	lev	vert	dif.	dist	elev	lava wall depth	Top of wall same vert pl. vert L (dif)	NOTES
9.30 1 a m	I.H.		Scove	33.14	1.35	31.39	626	386.5		° '	At 9:30 a.m. set up Alidade in I.H.
10	"		"	"	1.37.5	31.365		385.			for a test of hour to hour levels on
10.20	"		Top wall	"	4.43		beg 628		341.7	28.31	Scove. Place it on bench in I.H.
10.30	"		" "	"	4.41				341.7	28.33	Depths calculated both nat. tang. +
10.30	"		Scove	"	1.58	31.16		379.8			graphic partly. Decided to use
11	"		"	"	1.55	31.19		380.7			round numbers. Dunge against
11.7	"		Top wall	"	4.39				341.8	28.35	wall where angle is taken. Alidade
11.30	"		Scove	"	1.58	31.16		379.8			not moved. Now taking wall as
11.30	"		Top wall	"	4.41				341.7	28.33	well as cove to test bench movement?
12.10 noon	"		"	"	4.40.5				341.75	28.33	fumes bad Somewhat more
12.20	"		Scove	"	2.5	31.9		378.3			" " active fountains & stream
12:45	"		"	"	2.12	31.21		376			fumes this a.m. & less parting
1 p m	"		Top wall	"	4.41				341.7	28.33	" from the walls. General
10.2 "	"		Scove	33.22	2.8	31.14		379.5		not visible	shape pool same as last night. Cur-
10.35	"		"	"	2.13	31.9		378.3			rent sluggish in strait, more rapid
10.21	"		"	"	2.15	31.7		378			toward O.F. Peninsula submerging slow-
10.40	"		"	"	2.15	31.7		378			ly under folded blankets on shore shown
10.45	"		"	"	2.20	31.21		376			at 1 p.m. when half hourly readings dis-
11.7	"		"	"	2.19.5	31.2.5		376			continued for 9 hrs. Started Alec
~~8~~	"		"	37 7	6 2	31 05					building stations + paths. Measured
9											I.H. for new timbers.
10											At 10 p.m. resumed on same marked
11											position on shelf. I. H. Pool appears
12											much the same. Large crescent

t	cam	pl	no	lt	stop	ex	scr	dev
11:30a (overexposed)	3X4			bright	F 16	1	X	Rod

shaped blocks of crust LOC form around peninsula from NW. and break up + stream toward O.F. At 10:45 entire crescent of peninsula broke up and floated E cracking + foundering. Noted a distinct temporary rise shown on wall probably due to displacement of foundering crusts. (See angle above from 31.7 to 31.21)



At 11 p.m. checked the quick survey made last night Jan. 3 by an intersec. on S cove from N + NW sta. Shows that survey was wrong on acct. of oblique angles from 2 stations too near together + I.H. located wrong. There is a tumble of fallen blocks on SW side of platform but

t	~~loc~~	~~ther~~	~~temp~~	~~wea~~

NOTES

no avalanches O.F. intervals at

were heard about 10:30 p.m.:-

Seconds			
24	26	12	35
40	16	14	22
33	40	fumes	
13	21	56	
14	15	10	
8	35	30	
36	15	19	
28	46	fumes	

Sketch from I.H.

J.A.J.

1913, Jan. 4.



J. a. J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

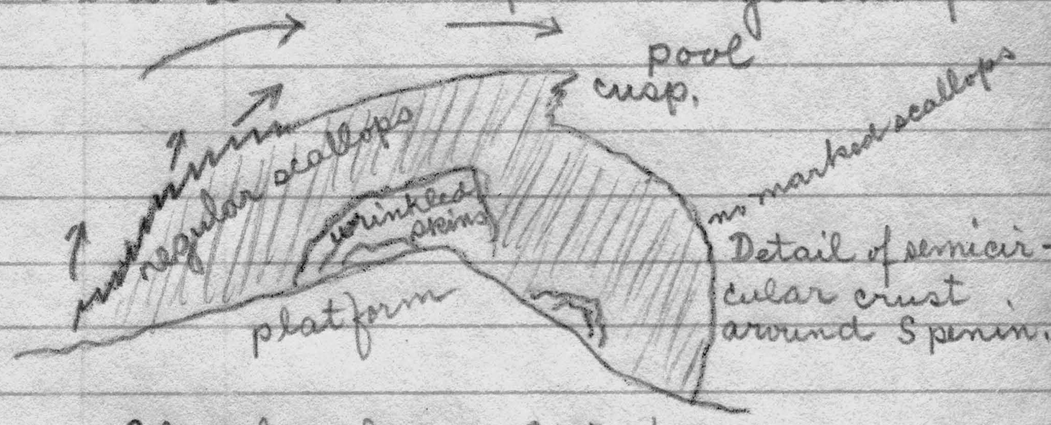
KILAUEA DAY SHEET

Day Sun. Date Jan. 5, 1913

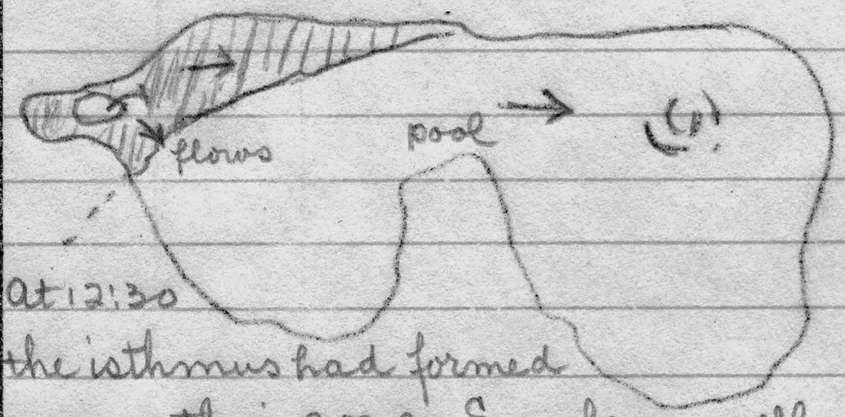
t	sta	h. i.	pt	lev	vert	dif	dist	lava elev
1 a m								
2								
3								
4								
5								
6								
7								
8								
9	1 H		Scove	33°25'	2°15'	31°10'	627	379
10								
11								
12								
1 p m								
2								
3								
4								
5								
6								
7								
10:20	"		"	33.34	2.44	30,50	"	374
10:30	"		"	33.36.5	2.24	31.11.5	"	380
10.45	"		"	33.30	2,37	30.53	"	375.5
11								
12								

NOTES

At 8:30 a.m. pool appeared the same. N.E. wind obscured view at I.H. Propose repeat survey + make L observation I.H. (See table). Isthmus still across W end at 9 a.m. but at 10 it was gone + the cove at west end was more open than yesterday.



Sketches from SW sta.



at 12:30 the isthmus had formed across this cove. Saw lava well up in cove Instrument moved. and flow across hard crust on isthmus + north of it + break down the crust and then merge all into one open pool. Completed survey from N, NW + SW and corrected + pricked position center of I.H. by intersections N, NW + SW.

t	cam	pl	no	lt	stop	ex	scr	dev

LOC

At 10.50 p.m. + thereafter watched lava on wall S in telescope. 10.50 on 10.45 mark.
10.55-sunk half way to upper stadia hair from middle S.H. (Building rocks in wind somewhat readings however only when quiet.)
11-sunk to upper hair.
11.02-sunk above upper hair

t	loc	ther	temp	wea

NOTES

11.05-rising, halfway to middle hair.
11.08-sunk above upper hair.
Rose when peninsula broke up.

J.a.j.

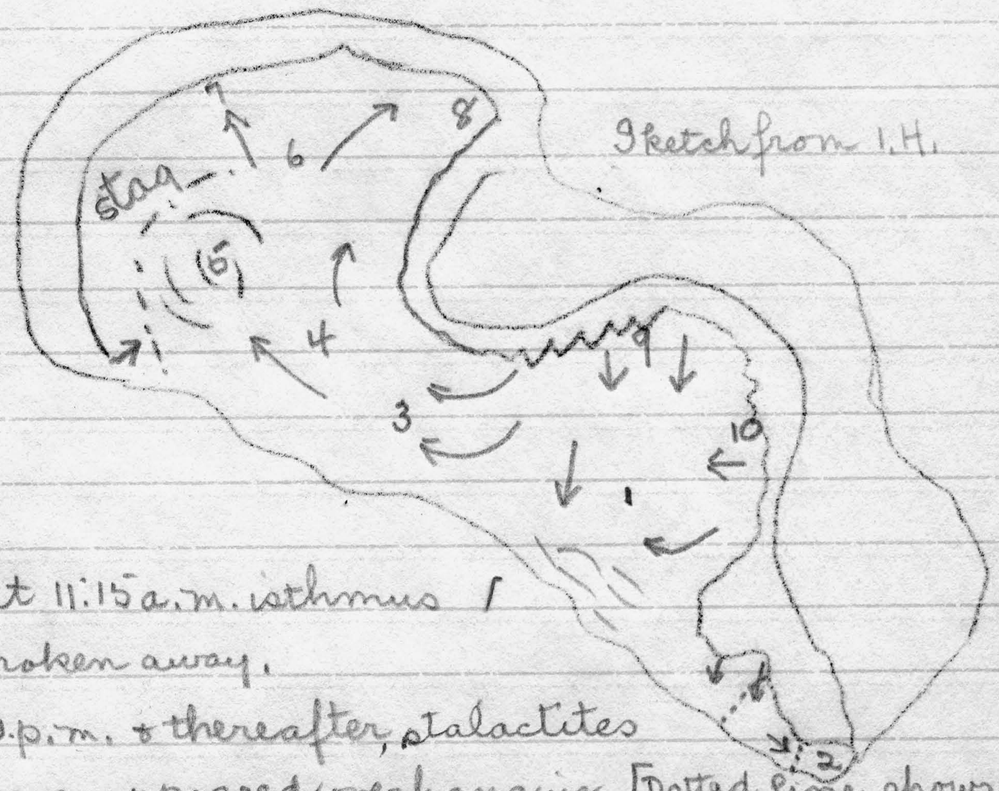
KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Mon. Date Jan 6, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev
1 a m								
2								
3								
4								
5								
6								
7								
8								
9								
10	I.H.		Scove	33°.22'	2°.11'	31°.11'	628	380.5
10.12								
11	"		"	33.25'	2.12'	31.13'	"	381
12								
1 p m								
2								
3								
4								
5								
6 10	"		"	33,12	2.11	31.1		377
10 20	"		"	33,14	2.10	31.4		378
10 30	"		"	" "	2.9	31.5		378.5
10 50	"		"	" "	2.22	30.52		375
10 11	"		"	" "	2.21	30.53		376
11.40	"		"	33,11	2.18	30.53		376
12								

NOTES

Clearly down again, shown on rocky promontary of peninsula, which stands above the lake this morning. Very smoky. Drizzling on S.W. side.
At 10.35 a.m. heard a heavy avalanche S or E; could not see.
At 11.15 a.m. heard another fall W.



At 11.15 a.m. isthmus broken away.
10 p.m. & thereafter, stalactites have appeared overhanging pool at point of telescope observation - lava appears to go under. Is just at the stalactite level, however. Activity great at W and about O.F., no isthmus across W end, the

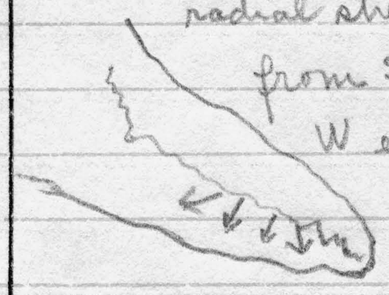
t	cam	pl	no	lt	stop	ex	scr	dev
11a	3×4	Seed 30	1	By meter Wynne	F16	1/10		
11.30p		"	2		6.3	1	(NW station)	

LOC

From I.H. Isthmus across W end, small new ledge all around, spattered.
crescent of crust about peninsula broke up at 9:50 p.m. when observations began. At *1 (above map) spouts & baby fountains, with a large rhythmic fountain in the middle (New Faithful N.F.). At 2 violent churning and overhanging stalactites flow in. At 3 eastward streaming. At 4 streaming distributes S & E. At 5 O.F. is double and triple and in the intervals of its eruptions the scene of many baby fountains. The streaming and fountaining ends abruptly along a line parallel to the phone marked —·—·—·—. At 6 a few small fountains. At 7 glowing but still flowing in and overhanging stalactites as

t	loc	ther	temp	wea
at 11.45	the W end flow is out.	(2) in contrast to 10:15 - Crescent breaks away again. At 10:50 the telescope on stalac. place reveals a marked & rapid rise as the boiling corner has drowned the stalactites & risen to lower stadia hair from middle. No stalactites there shown. They are still in evidence, however, at W end.	9 + 10 where the edge is a scalloped skin and crescent of crust about peninsula broke again - chiefly at pt. 9. At 10:24 crescent breaks

NOTES



Intervals of W fountain (N.F.)
(Sec. hand read directly)

27	
56	O.F. (very violent tonight)
30	38
50	20
18	53
55	x
26	03
45	33
smoke	50
smoke	smoke

Intervals = difference

J. A. F.

1913, Jan. 6.



*1

J. a. g.

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Massachusetts Institute of Technology
Hawaiian Volcano Observatory

Day Tues. Date Jan. 7, 1913.

At 6 a.m. from I.H. S. cove has hanging stalactites again, also W. end. Steaming and boiling arrangement same. Isthmus forms between 6 a.m. and 6:15 across W. end, flow more sluggish and crusts larger than last night. Crusts on shore SW side W. pool,
N. shore,
E. side E. pool,
Around peninsula

The stalactites surface over the lava is surely the bottom surface of the platform crust and goes under. The floating skins pass under and disappear.

Heard a small slide at 9.10 a.m.

Pit very smoky this morning.

10 a.m. Peninsula a rocky platform, a crescent. Crusts not forming and breaking away this a.m. the way they were last night. Sinking this morning up to now. Note no stalactites at this time at point observed.

11 a.m. A marked rise. No stalactites S + very nearly submerged at W end. Activity moderate, thin black skins streaming. Crescent block breaks away W side of peninsula. Edge of pool brimming and convex in E pool. Spatter rim SW side W pool. Crescent block lodges against N shore.
There is an inner platform 2 to 10 ft. wide from recent subsidence around E pool + part of W. Appears 6 in. to 1 ft. above lava level. No isthmus at W end. Wind has changed from NNE to NE + very strong SO_2 fumes in I. H.

1 p.m. A stalactite rim appears again. Is this due to spatter? Level appears stationary. There is a spatter rim.

3 p.m. A pronounced overhanging spatter rim as result of the stationary level for 2 hours. Raining.

4 p.m. Surface under the stalactites rarely touching them.

6 p.m. Pronounced rise within the hour. No stalactites, even at W end. Pools brimming + active, peninsula smooth rounded curve. Baby fountains in O.F. area and W pool.

7 p.m. Another stationary hour + beginnings of a spatter rim + stalactites from the back drip. Above this shelf there is now a glowing chimney with a blue flame, a perfect filagree of incandescence, perhaps 4 ft. back from the inflow which is pouring under the bank. Cove S has become evenly rounded in plan from the formation of the spatter rim.

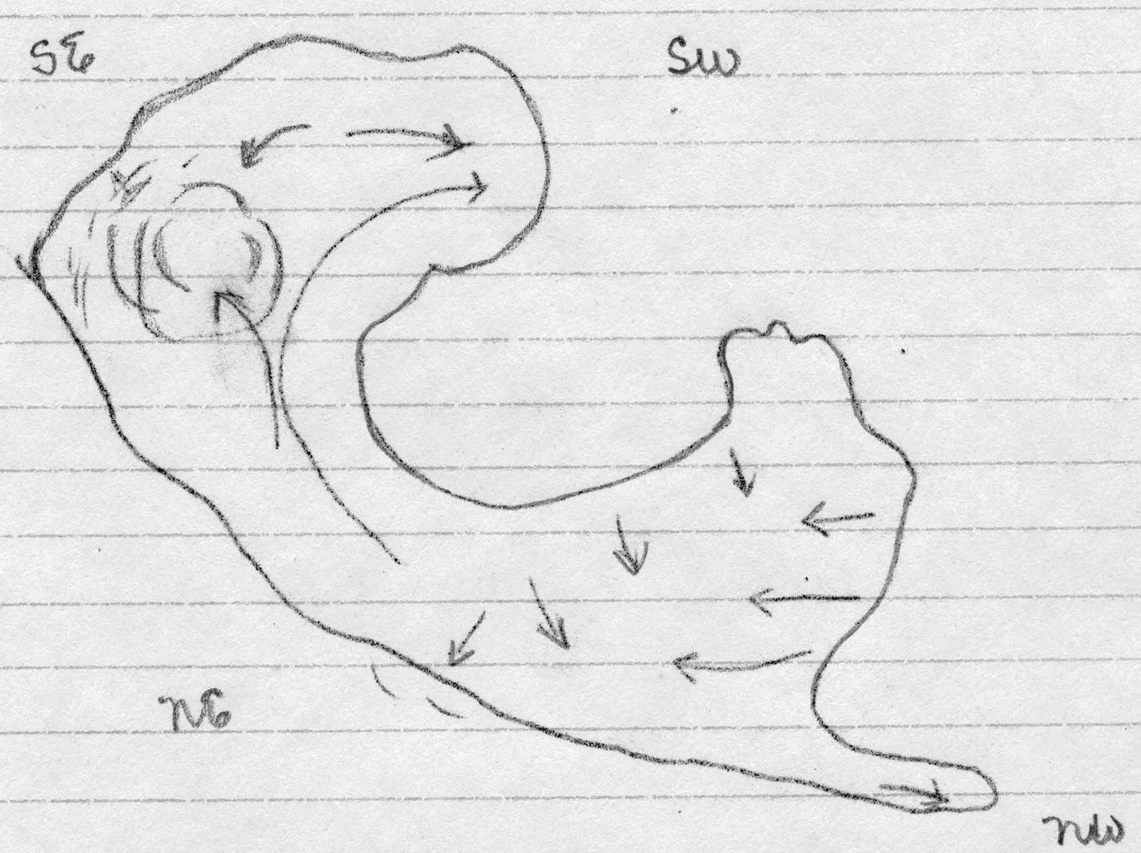
8 p.m. Went to E station. Noted isthmus across W end with streaming E to W from it. Streaming under the bank W, N, O.F. + S, in all of which directions there are flaming chimneys in the talus. They are very conspicuous just at present; 3 of them W; at least 2 north; 2 at different levels S.E.; a crack in platform SW which glows; Shepherd's cone; and various fuming places in the W and SW talus and benches. Some of these are very high especially SE, ragged sulphur stained holds, with glow within and fumes and flames at night. The main places of streaming from the

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Tues Date Jan. 7, 1913

bank, from under ragged or scalloped skins, are all around the peninsula SW, and the SW part of western half of the pool.

9 p.m. Stalactites have again appeared and some overhang in the spatter rim, with hard boiling and streaming lava pouring under. Where not otherwise mentioned this means S cove — the place of telescopic observation. Fumes strong I.H. of sulphuric acid, and fairly thick.

11 p.m. Great blocks breaking away SW bank W pool. Overhang and stalactites S cove. Almost a line of travelling fountains W pool.



Sketch from I.H.

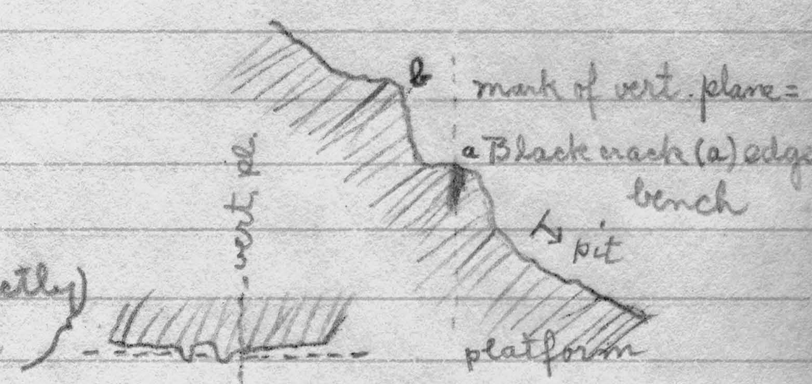
J.a.j.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Tues. Date Jan. 7, 1913.

t	sta	h. i.	pt	lev	vert	dif	dist	elev (Base)	Jolo Well	Ke pit Well	NOTES
1 a m											
2											
3											
4											
5											
6	1H		Scone	33.21	2.13	31.8	628	379.5			
7	"		"	33.22	2.12	31.10	"	380			
8	"		"	33.21	2.11	31.10	"	380			
9.15	"		"	33.21	2.0	31.16	629	381.5	28.31	343	fumes delayed
10	"		"	33.21	1.58	31.23	"	383.5	smoke		
11	"			" "	2.19	31.2	"	378			
12	"			33.9	2.12	30.57		377			wind rocking house.
1 p m	"			33.9	2.10	30.59		378			
2	"			33.10	2.4	31.6		379			
3	"		"	33.11	2.5	31.6		379			
4	"			33.15	2.1	31.14		380.5	28.34	344	
5	"			" "	2.3	31.12		380.5			
6	"			33.14	2.21	30.53		376			
7	"			33.15	2.20	30.55		376.5			
8	"			33.18	2.25	30.53		376			
9	"			" "	2.25	" "		376			
10	"			33.24	2.26	30.58		377.5			
11	"			33.26	2.22	31.4	line	378.5	edge pit	opposite	level line exactly
12 mdt	"			" "	2.23	31.3		378			



t	cam	pl	no	lt	stop	ex	scr	dev	LOC
X 6:30a	3x4	Film pack ordinary	20		6.3	1			From E. J. a. j.

t	loc	ther	temp	wea	NOTES

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Wed. Date Jan. 8, 1913.

7 a.m. There are stalactites at SW end of W pool showing an overhang from which the flow comes. There has been a rise since 3 a.m. and from the spatter rims and stalactites W, SW + S there has been a stationary condition for at least 2 hours.
Smoky and rainy morning at I.H.
Cleaned alidade. Cross hairs not in collimation line yet.

3 p.m. Heard a small slide. Very smoky, no seeing.

10 p.m. Fumes strong but some seeing from I.H. Marked fall back to what it was Jan. 4. Heavy fumes this p.m. as seen from U.H. At S cove stalactites and lumps overhanging a cavernous space into which the lava slowly migrates, watery, covered with skins, fountaining, but underneath glowing orange. There are stalactites and overhang in SW part W pool also to-night; pool is rounded in this part in plan and the flow as before is out from under. The activity is strong, glow intense, the W end has become a long thumb, there is no isthmus across it now, O.F. and N.F. both working, former double and triple domes, and there is a distinct stream out from E bank into O.F. Otherwise the streaming is as last reported.

11 p.m. Circular crust around peninsula breaks away and floats E. The stalactites hanging over the entering stream WSW drag on surface and flap like paper. Crusts breaking away S side of W end.

J.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Wed. Date Jan. 8, 1913.

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m	1H		Scove	33.23	2.21	31.21		378	
2	"		"	" "	2.17	31.6		379	
3	"		"	33.25	2.23	31.21		378	
4									
5									
6									
7	"		"	33.23	2.38	30.45		374	Small isthmus W end.
8	"		"	" "	2.28	30.55		376.5	
9	"		"	" "	2.23	31.0	630	378.5	
10									
11									
12									
1 p m									
2									
3	"		"	33.28	2.27	31.1		378.5	Poor reading. Very smoky.
4									
5									
6									
7									
8									
9									
10	"		"	33.27	2.8	31.19		383.5	
11	"		"	" "	2.5	31.22		384	
12	N		Scove	34.18	2.46	31.32	645	395	

	t	cam	pl	no	lt	stop	ex	scr	dev	LOC
X	10 p		W.P.	1		6.3	3/4			Clear. From E sta.
X	"		"	2		"	"			1 min. after no. 1. Peninsula + W end broke up

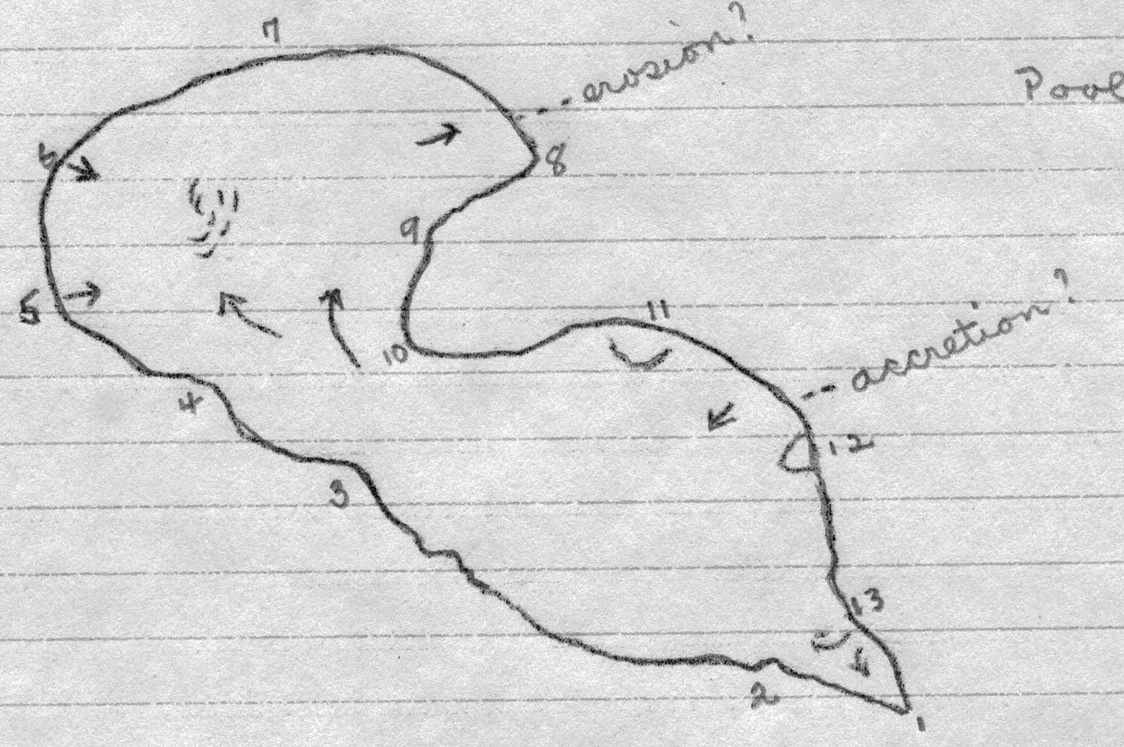
J.af.

t	loc	ther	temp	wea	NOTES

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Thurs. Date Jan. 9, 1913.

6 a.m. The W pool is growing narrower, the curve of WSW less deep and the W cove more open at the mouth, as though accretion to shore WSW. Stalactites of S cove wholly different shape from last night.



Pool 6:30 a.m. from I.H.

7 a.m. Stalactites S cove mostly submerged. Rising. Isthmus across W end.
9 to 10:15 a.m. Survey S + SW. Make tracings.
11:30 p.m. The activity is quiet. Stalactites S cove. Boiling dominated by blanketing, ragged edged blankets which form in situ and migrate with the surface currents. Not much breaking away from the shore. The blanket pattern is distinctive just as the baby fountain pattern is. Radial streaming from the pt. next S of W finger, two protuberances (probably only blankets) in WSW cove, a blanket with outward streaming between O.E. and N.E. shore, current toward N spatter and across the strait, which blocks itself with blankets. Sluggish current toward the strait, and a general strong progress toward S cove. Streaming outward from point of observation S cove, inward just to the west of it.

T.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Thurs. Date Jan. 9, 1913.

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6	1 H		Scove	33.25	2.13	31.12	631	382.5	Smoky.
7	"		"	" "	2.17	31.8		381.5	
8	"	no seeing - smoky							Heard stone fall.
9	"	"	"	"					
10	SW		Jip penin	29.59	1.49	28.10	722.5	386	
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11:30	1 H		Scove	33.18	2.11	31.7		381	
12 mdt	"		"	33.16	1.58	31.18		384	

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
10.15a	6x8	S Pan	9		F16	1	l.s.		From SW. O.F. pool. (Over night view Dec. 14, 1912)
			10		"	1	"		" " " " " " " " " "
			11		F64	4	"		" " " Wend.

T.A.J.

t	loc	ther	temp	wea	NOTES

JANUARY PHOTOS, ~~xxx~~ 1913

Jan. 9	10	I. Pattern
1/14/13	3,4	Tech. Station
16	1	IP Incandescent Pattern
17		IP
26		IP

1913, Jan.



J.a.g.

#10

1913, Jan. 9.



J.W.G.

11

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Fri. Date Jan. 10, 1913.

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
11215	SW		E + N (1) Spatter	29.14	3.3	26.11	788	391	
11330	"		(2) Spatter Waide Wend	29.6	0.58	28.8	724	387	
11445	S		(1) above	28.0	3.30	24.30	841	385	
12500	"		(2) "	27.58	4.8	23.50	871	384	
6									
7									
8	IH		Scove no seeing				632		
9	"		"	"	"				
10	"		"	"	"				
11.	"		"	"	"				
12									
1 p m									
2	"		"	33.29	2.5	31.24 (Top wall Diff)		385.5 Depth wall	Heavy overhang and stalactites.
23,15	"		"	33.25	4.37	28.48*		348.6	* To angle in wall ("b" Jan. 7, 1913.) Some caving has changed wall. Time correction 5.13 fast.
4									
5									
6									
7									
8									
9.20	"			33.30	2.27	31.3		380.5	Rock slide W. Time correction 13 sec. fast.
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
									Noon.- Lower. Isthmus across W end. Much smoke. Big hole SE, high belching fumes. From SW. 9:30 p.m. From I.H. Broad isthmus across W end. End pond almost hidden by wall. Blanket pattern. Flow & thar O.F. to Scove. Rain all night. Wind WNW to SW. Fog.

t	loc	ther	temp	wea	NOTES

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sat. Date Jan. 11, 1913

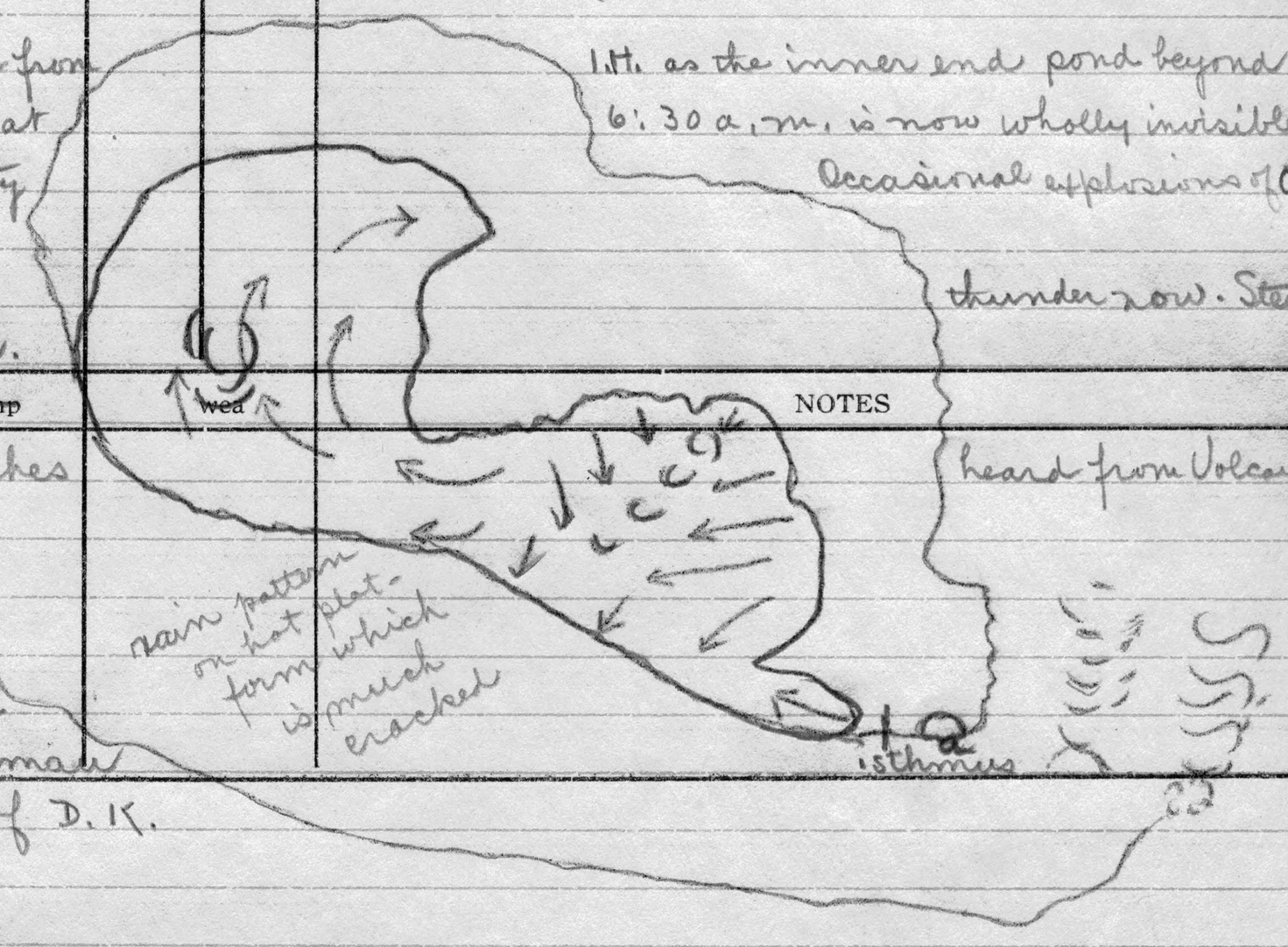
t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6:30									Rock slides.
7	I.H.		Scove	33.22	2.3	31.19	633	385	
8.30	"		"	33.23	2.11	31.12		383	
8 9 30	"		WSW cone	36.59	1.18	35.41			Small slide just under I.H.
9 10 30	"		"	36.59	1.8	35.51			
9 11 45	"		Scove	33.21	2.4	31.17		384.5	
12 10	"		"	" "	2.5	31.16		384	No such increase angles as in W.S.W. Probably no real inner edge but an edge of crust. Shore out too far.
1 p m									
2									
10 3 a	I.H.		WSW cone	36.56	0.41	36.15			
11 4 15	I H		WSW Cone	37.1	1.41	35.20			Telescope reversed.
11 5 15	"		"	37.2	1.27	35.35			Telescope as formerly. Difference due to cross hairs
12 6 noon	"		Scove	33.22	no reading				Good reading on real inner edge of skin.
1 7 30 p	"	smoky	"	" "	1.37	31.45	633	392	
1 8 45	"		WSW	37.1	1.31	35.30	Stalactite		
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

6.30 a.m. Lava way down. Long finger Wend, cracking + foundering on W shore peninsula. Noise of steaming + fountains. Brilliant flame chimneys Wend, the cone left one, and a filagree opening back of it. Some rock slides but not much.

9:30 a.m. Point (a) which showed from the isthmus at Wend at I.H. as the inner end pond beyond 6:30 a.m. is now wholly invisible. Activity sluggish, blankety Occasional explosions of O.F very heavy. thunder now. Steam

12 noon Rain all a.m. Heavy rain pattern on platform.



t	loc	ther	temp	wea	NOTES

Between 12 + 1 two strong avalanches Station. Strong fumes I.H. Pele's hair drifting into I.H. With the heavy rain and humidity a complete cuvole of vapor around Halemaumau about the distance back of D.K. (Devil's Kitchen)

T.A.J.

Massachusetts Institute of Technology

KILAUEA DAY SHEET

Hawaiian Volcano Observatory

Day Sun Date Jan. 12, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									11.30 p.m. Active; can see W pond. Pool looks larger & of O.F. and peninsula smaller. Streaming same directions. No stalactites.
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11,25	1H		Scone	33.27	1.58	31,29	635	388.5	Parting crusts. Edge W pond in sight. W of isthmus
12.30	"		WSW	37,8	1.23	35.46			Edge of skins; not shore.

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
									T.A.J.

t	loc	ther	temp	wea	NOTES

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Mon. Date Jan. 13, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6.15	1H		cove WSW	37.10	1.27	35.43			Small stalactites.
6730	"		S	33.32	1.58	31.34	636	390.5	One slide. Fumes bad.
8	"		fumes						Blanketey. Sluggish.
9 8	"		WSW	37.8	1.10	35.58			Steins. Fumes. Corner W pond shows.
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10.30	"		S	33.31	1.69	31.32		390	W pond shows.
11	"		WSW	36.31	0.50	35.41			
12.30	"		"	no wall seen					

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
									11 p.m. Blankets about WSW cove. Parting crusts W. Roundish crust around peninsula. Line of down-puck NNE-SSW W prof. S cove lava against wall. No stalactites visible. WSW line now on left (SE) side of head of cove. Hard at night to see real shoreline as the blanket skins attached to the shore lie like flaps out over the liquid lava. At this time caught a moment when the

t	loc	ther	temp	wea	NOTES
					skin parted along the shoreline. T.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Tues Date Jan. 14, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6	1H		WSW	36.32	0.4	36.36			Steins. Poor reading.
6:20	"		S	33.31	1.53	31.38	637	392.5	Slide heard. Stalactites.
8									
9	6 a.m.		No great change. Sluggish, blankety. W pond not showing. Crust
10			panting from shore W above.
11	9 to 11 a.m.		Went E, SE, + S to photo with 3x4. Film pack ordinary + 2
12			Wratten Pan, backed. Took 1.H. + Vol. Sta. Fumes bad. Nothing
1 p m			E. Wind NNE. Scotch mist. Half sun.
2			From S station observed large round hole, Shepherd's cone. S bench
3			(40 ft.) has more blocks on it + gapes at wall. 200-ft bench S
4			appears to slope more into a talus over platform, as though
5			one could walk all the way down.
6			The talus is sliding in a small way E + S. Large S + W + SE fuma-
7			aroles + NE but the vapor appears H_2O and smells not strong
8			at S.
9			Is not this forming of circular holes on a small scale by lavas be-
10			neath at the crater fumaroles same process as pit making?
11			Fresh glass blobs, 2 to 3 inches long, on the Pele's hair beds at new
12			W station on the actual edge, and 10 to 15 ft. back. Smaller

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
9-11 a	P	Film Pack	3		22.6	3/8			1. H. Poor focus of fumes.
	"	"	4		"	"			Station. Good.
+			5						Shutter spoiled
	"	"	6		"	1/8			Rock fall on S bench. 60 foot focus.

+	loc	ther	temp	wea	NOTES
		Pele's tears back of that can carry up such stones at times. These look as though of last July or January.			Shows strong vertical winds that T.A.J.

1913, Jan. 14.



#3



#4



#6

J. a. g.

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Wed. Date Jan. 15, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7 8	IH		S	33.34	2.8	31.26		388.5	W pond shows.
8 9	"		"	33.32	2.5	31.27		389	" " "
9.10	"		WSW	37.3	0.50	36.13	550	402.5 389	dist = 531 as on survey Jan. 20
10	"		"	37.6	0.47	36.19		390.5	
10	"		S	33.33	2.3	31.30		390	
12	"		"	33 32	1.56	31.36	687 (check)	392	Survey (poor?)

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
X	pts. of survey						pond		at (a) radiation of permanent tears in blankets diverging. 9 radial glow lines counted. Mottled baby fountains
								isthmus W. skin at stream W end.	W. Skin at place of departure of stream W end. Pours under the bank in a steady stream S. Violent boiling and W-ward flow in W pond. Whole effect is of a great flow from W to E, around the peninsula. Seems as though it would move in a ring or circle if the

t	loc	ther	temp	wea-	NOTES
					peninsula could be made an island. Fountains all N, streaming out rather from the shore. O.F. moderate and not noisy. Fumes less. Noise steady plash. Isthmus at W end broke away and reformed.

9:30 - Survey for distance.

T.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Thurs. Date Jan. 16, 1913.

t	sta	h. t.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4	1H		cove S	33.32	1.54	31.78	637	392.5	
5	"		"	" "	" "	" "	"	"	small stalactites
6	"		"	" "	" "	" "	"	"	
7	"		WSW	37.10	0.44	36.36	S 31.5	392	stalactites
8	"		"	" "	1.17	35.53	"	391.5 / 384	dist = 580 to above bump. Poor reading.
9			no reading		-			"	
10.30	"		WSW	36.69	1.18	35.51	"	384	
11	"		S	33.30	1.24	32.6	637	399.5	small stalactites.
12									
1 p m									
2									The cracking due to mining differs from that due to pinching in that as limited crack opens track + here wells up it as a flow and then splits the block off.
3									
4									
5									
6									
7									
8									
9									
10.45	"		S	33.30	1.54	31.36	637	391.5	
11	"		WSW	37.2	1.12	35.50	631(!) 650	393.5 397	dr. pr.
12 mdt	"		S	33.30	2.0	31.30	637	390	

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
12 mdt	3+4	W.P.	1		6.3	1	Some fumes from E.		
"	"	"	2		"	15	Neutral. Overflow in foreground fuming. Wind clears.		

4 a.m. Parting shows from W base of peninsula. Much gas sputter, occasionally with bombing and remain intact to the wall and under it, and the gas escaping under the wall spits back. No steady fountaining there to - night.

5 a.m. Parting exists W end.

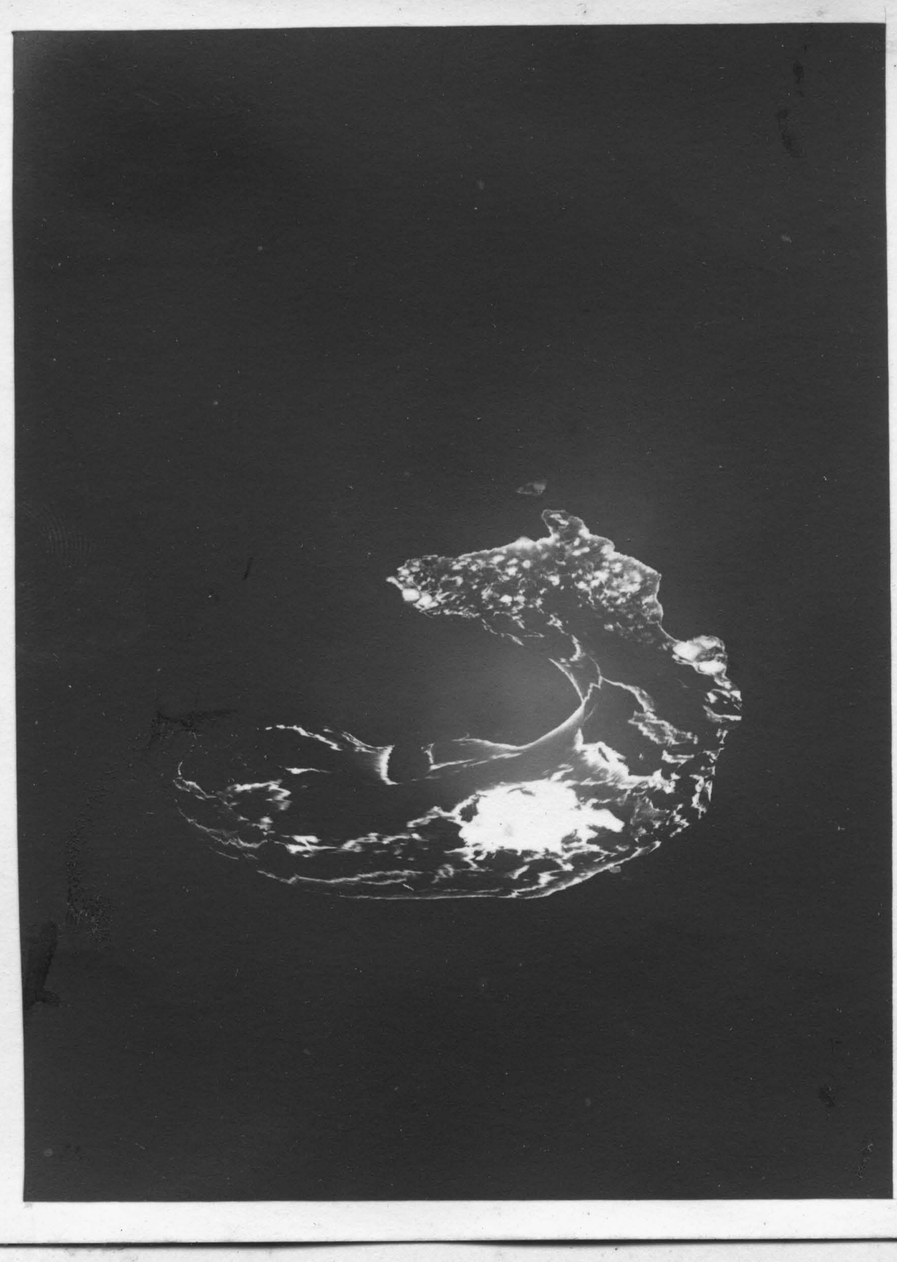
6 a.m. " " W, isthmus NE near O.F. There is a general progress from all shores " " toward the S cove. Jagged edges W wide peninsula. W end one track of O.E.

t	loc	ther	temp	wea	NOTES
	Baby fountain pattern at This passes by O.F. area noisy than last night) under the S bank, which is only are thick and black harbor seum under	W ends graduates into blanket pattern middle as a permanent fountain area. (This a.m. more streams majestically the whole width of pool 4 or 5 inches over the floor. The blankets S but they slide under without interruption like a wharf.			

11 to 12 p.m. - Very active; noise, fountains, flow streaming all quicker; up 5 or 6 feet. About 11,45 p.m. was photographing from E sta. when I saw (1) flows on spatter bench S to SE; (2) flows + breaking by pressure from below small N spatter bench; E side penin; (3) Falls still playing N; (4) blue flames from piled blankets against wall S cove; (5) streaming in under bank small area N wall; (6) fissure fountaining mass

J.A.P.

1913, Jan. 16.



#1



#2

J. a. g.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Fri. Date Jan. 17, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3	I.H.		cove S	33.29	1.54	31.35	635	391.5	
4 7	no seeing - Fumes								Slide N. talus.
5							581?	379.5	
6 8.30	"		WSW	36.59	1.29	35.30	546	389.5	
7							550	392	
8 9	"		S	33.27	1.58	31.29	635?	388	
9 p.m.	"		"	33.24	1.20	32.4	637	390	
9 10	"	"	WSW	36.56	1.42	35.14	616	386	Overflow 86. Spatter rim built out changes (Poor) Survey
11	mat "	"	S	33.24	1.20	32.4	546?	385.5	Just the same. Mark new pt. to-morrow.
12							616	386	
1 p m									new pt of observation, 6a.m. Jan. 18
2									old pt. of observation
3									This cove building out in this direction
4									old line strikes shore here. hence error.
5									Big stalactites.
6									radiation
7									
8									
9									
10									I took 2 Wratten pictures which will show this
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
9 a.m.	P	Film Pack	7		F8	1/50			From desk I.H. to pool. Clear.
"	"	"	8		"	"			W cone.
"	"	"	9		"	1/37			E end new flows. Very clear
10 p.m		W.P.	1+2		6.3	3/4			In 2nd picture peninsula = W end From E sta. 1 min apart, crusts broke up.
9 to	12 p.m.	Score has changed; deepened. The old signal point has built out + the cone angle is not on the old line. Hence angles are different as shown in sketch which appears the fact. At 9 a rise from W end. End pond plainly visible rim on most sides protruding							steep, distance changed. WSW cone shows saw a flow S.E. like last night. Steaming above. The isthmus makes + breaks to-night from I.H. O.F. noisy. Spatter over the pool. As it rises the heat is

t	~~loc~~	~~ther~~	temp	wea	NOTES
	not sufficient to maintain as big a pool, hence a new platform building. Big avalanche. Bench fell in. At 11 p.m. heard movement there for a minute or more. Made a quick survey from NW and I.H. Glass thumb tack in board. Peep hole for seeing NW station from I.H. lantern on I.H. 12.05 marked rapid rise. Stalactites drowned WSW. Bench broken away E.				

T.A.J.

1913, Jan. 17.



#7



#9



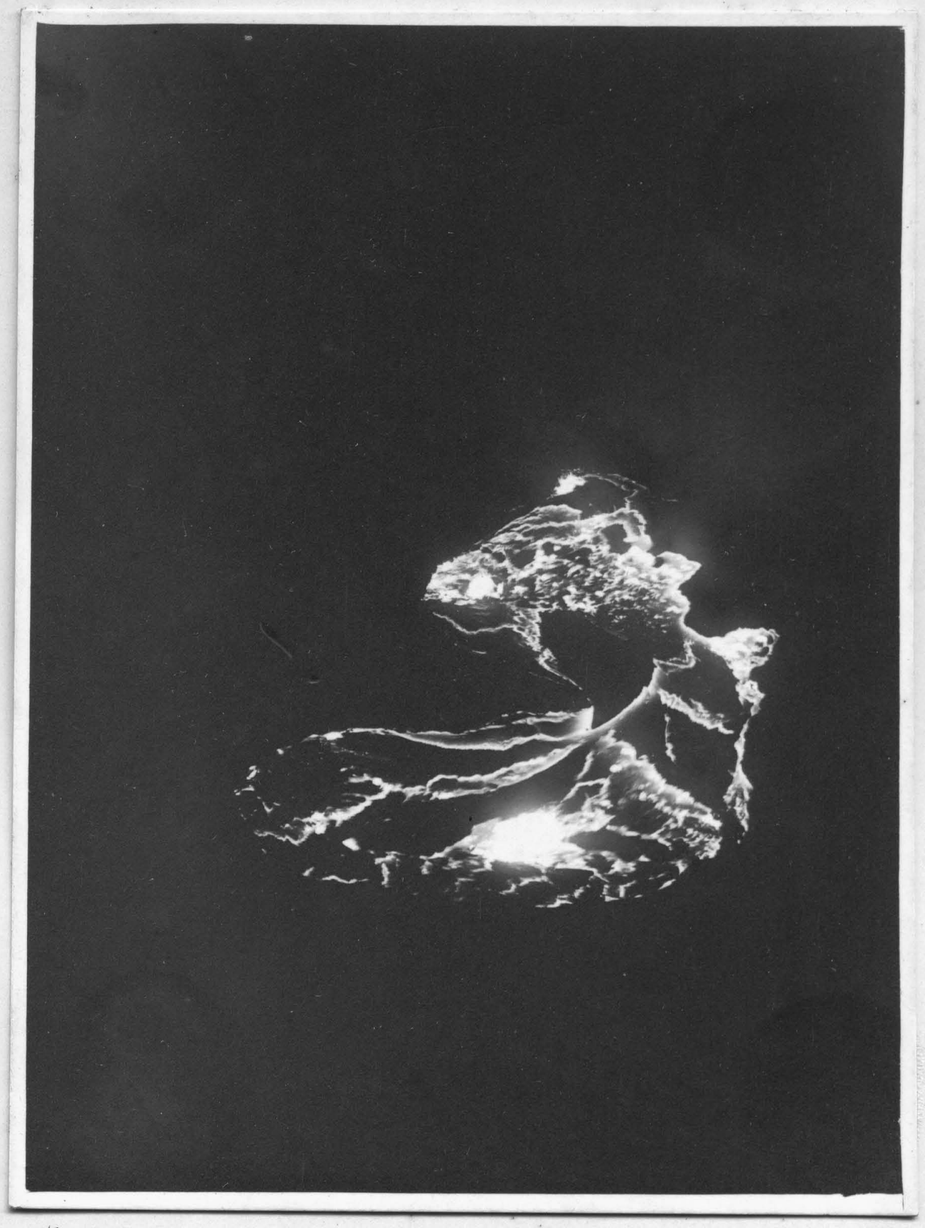
#8

J. a. g.

1913, Jan. 17.



#1



#2

J. a. g.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sat. Date Jan. 18, 1913

8:30 a.m. Rising fast. Overflows and places of piled blankets and welling up all around pool. Foot of S peninsula buried in flows. W pool in full view. Note where avalanche of last night slid on to platform W. E end inner pit all changed with new piled blankets + overflows. Fumes thin, clear view this morning from I.H.



Rain storm p.m. with SW wind.

1 p.m. Heavy booming rock fall SE. Several falls to-day.

8 p.m. E Station. Went in motor and after a day of extreme raininess, SW storm, fumes all over Kilauea floor. At first clear pit for sometime. Set up 3×4 camera but was balked by rain. Almost same view as night of 17th, with an overflow in S E corner which broke over as I watched. Heavy cold rainfall of pouring kind. This produced REMARKABLE effect on lava pool. After pouring some minutes, say ten, the pool was still visible from time to time through the fumes, and the rain was so heavy and cold that it checked the streaming from W to E, the E pool became dark blanketed and stagnant, all but O.F., and the W pool started streaming from E to W. At the same time tremendous tumultuous fountaining began at W end splashing high on the banks; and, similar effect in less degree all around, notable white glow in fountains under bank S cove, and pool hissed and rumbled. Then became quiet and dark, with few small fountains, thick blankets, O.F. breaking as usual and slow resumption of E-ward flow. Then pit filled with water vapor and pool became invisible. No photo.

T.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Sat Date Jan. 18, 1913.

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6	1H		core S	33.25	1.16	32.9	616	387	
6 30	"		new S core	33.25	1.51	31.34	630	386.5	New point. End of core.
6 30	"		WSW	37.2	1.42	35.20	540	382.5	
6 45	"		W pond	41.23	2.44	38.39	466 (1/24/13)	372.5	Cavern in extreme W pond.
8 10 30	"		"	41.25	2.57	38.28	"	370.5	
" 11 "	"		new S core	33.32	2.20	31.12	630	381.5	
12 10	"		"	33.25	2.40	30.45	630	375	
1 p m 10 a	"		WSW	36.58	1.58	35.0	540	378	
2 "	"		WP	40.48	2.20	38.28	466 smoky	370.5	Not same shape. Pond smaller, Pt. nearer.
3 "	"		"	40.46	2.20	38.26	466	370	
4 "	"		WSW	36.55	1.52	35.3	540	378.5	Shelf built?
5 p m	"		NS	33.17	2.7	31.10	630	381	
6 "	"		"	33.14	1.52	31.22	630	384	Stalactites lower. Peninsula radii.
7									
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
12 noon	•	Film P Ord.	10		F 8	1/10			From 1H, Strong but blurred. Film pack on account of buckling requires a smaller stop than glass.

T. A. J.

t	loc	ther	temp	wea	NOTES

1913, Jan. 18.



T. a. g.

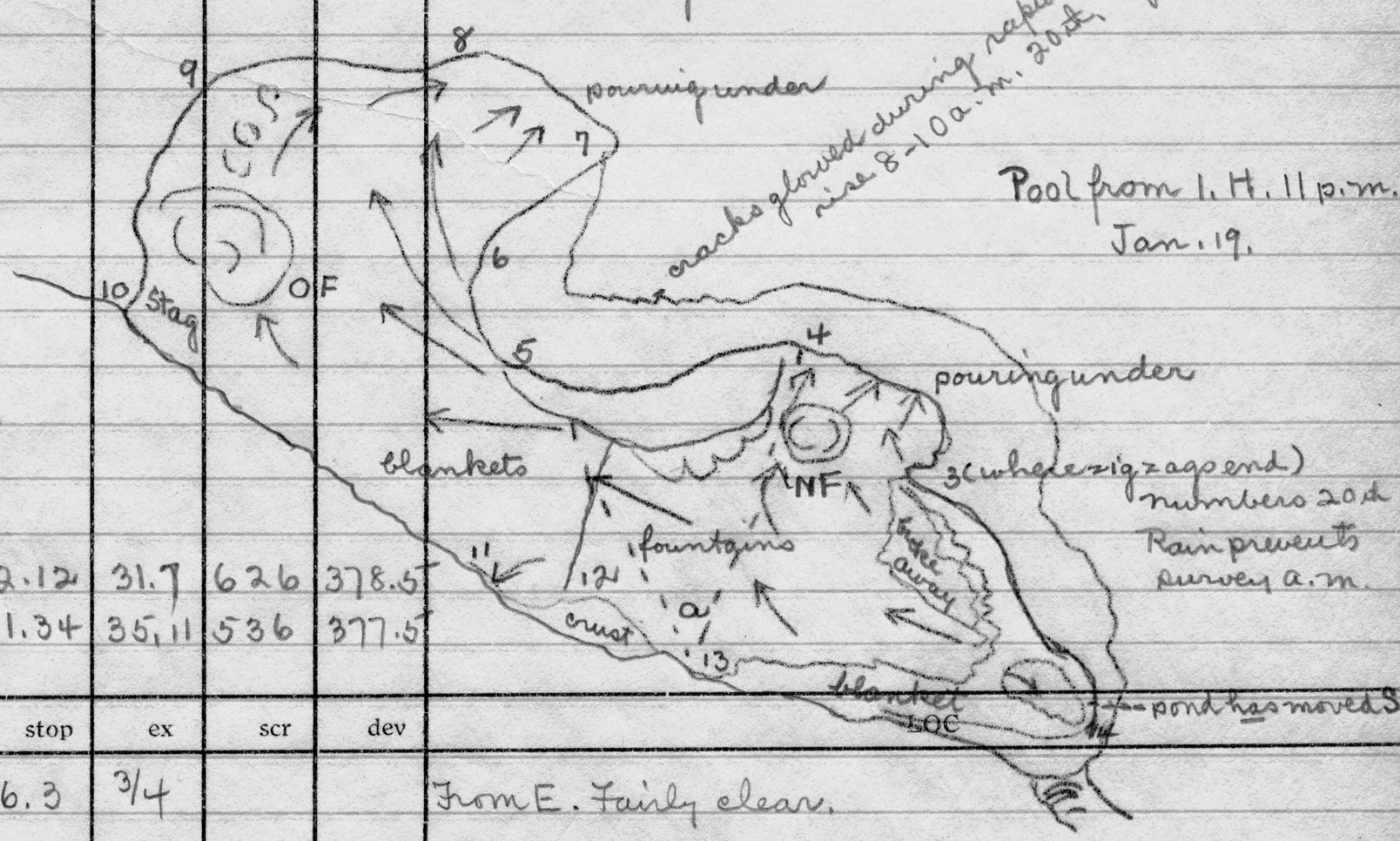
Massachusetts Institute of Technology

KILAUEA DAY SHEET

Hawaiian Volcano Observatory

Day Sun. Date Jan. 19, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									From U.H. very strong development of fumaroles on Kilauea floor. Radial line pronounced S, also ENE and N.? Is there one SW? Morning fumes thick and steam-like; noon less so; afternoon thick. Heavy rain.
2									
3									
4									
5									
6									
7									
8									
9									
10									10.40 p.m. No marked changes. Glowing recent flow on wide new bench E of pool. Isthmus west end. Whitish steam fumaroles around platform. Hissing going on noisily under S overhang.
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10	I.H.		N S	33,19	2.12	31.7	626	378.5	
11	"		WSW	36.45	1.34	35,11	536	377.5	
12									



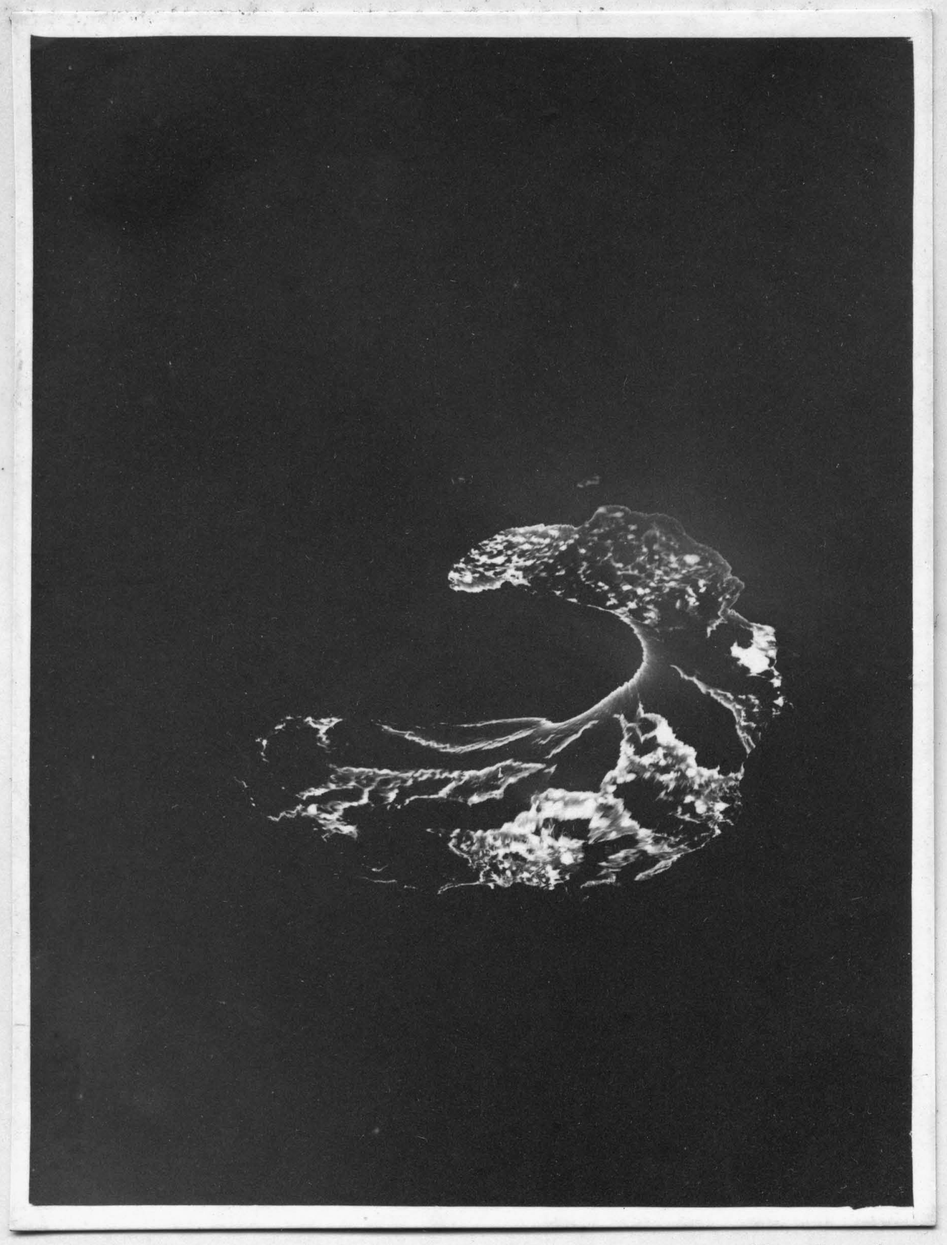
t	cam	pl	no	lt	stop	ex	scr	dev
10.40p		W.P.			6.3	3/4		

From E. Fairly clear.

T. A. J.

t	loc	ther	temp	wea	NOTES

1913, Jan. 19.



J. a. g.

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Mon. Date Jan. 20, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
7 a m	I H		N S	39.11	2.3	31.8	622	376	Lower. Stalactites W, WSW. + S.
7.30	"		WSW	36.52	1.29	35.23	531	377.5	
8.30	"		"	" "	1.38	35.14	531	375	Stalac. submerged.
8.30	"		N S	33.8	2.1	31.7	622	375.5	Building from the W as before. Overflow flows.
9.30	"		"	33.8			"		Rain and steam.
10.30	"		"	33.10	2.18	30.52	"	372	W end open again.
10.30	"		WSW	36.50	2.10	34.40	531	367.5	
1 815 p.	"		"	36.52	1.56	34.56	531	371	
1 930 p	"		N S	33.14	2.17	30.57	622	373.5	Stalactites.
3 30	"		WSW	36.46	2.3	34.43	531	368	
11.30	"		N S	33.14	2.21	30.53	622	372	
12 9 p	"		"	33.13	2.15	30.58	622	373.5	SURVEY
9.30 p m	"		WSW	37.0	2.14	34.46	531	369	
2									7 a.m. Pool low and sluggish, dotted line on
3									sketch, Jan. 19, shows a crust which wholly pre-
4									vented the E-ward flow from W pool where the flow
5									was all to WSW end. Few fountains west and
6									sluggish blankets E. Heavy stalactites at the inflow
7									caverns showing a lowering. Slides on W tal
8									7:30 a.m. Change + rising noticed. Stalactites be
9									gin to drown, crust (a) breaks + E flow resumed
10									8:30 a.m. Stalac. gone. West pond black, crusted over,
11									soft + swelling in middle + shows some red crack
12									a little splash at W wall. Throws off cover/slug.

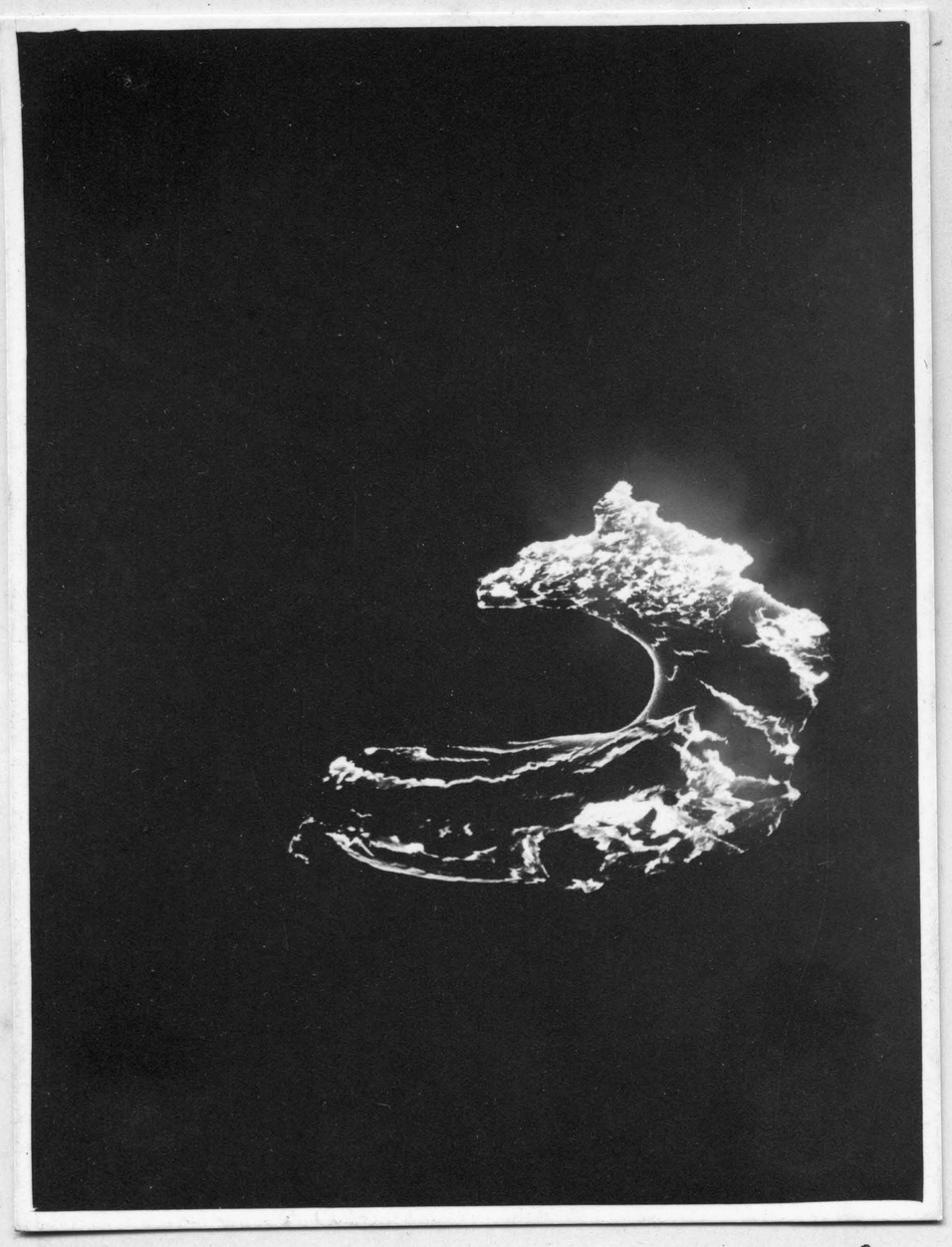
t	cam	pl	no	lt	stop	ex	scr	dev	LOC
6 p.m.		W.P.			6.3	3/4			From E. Clear.] gishly now + then.
									9.10 a.m. lava flow at N end of E spatter bench
									opposite O.F. Waves from O.F. make the flow pul
									sate. 9.15 - Heavy rain. 2 other flows E bench.
									1.30 p.m. Wider stream from W end. Note on
									high S bench (200 - ft. bench sloping down, of las
									July) the rain vapor tails on the bench more
									toward its back part under the pali; main
									deep cracks + heat there. W pond shows
									large rim of blanket N W. Rock slide.

t	loc	ther	temp	wea	NOTES
5.45	p.m. Loc. for Survey. Angles from plane table				
	set up in I.H. Precise position I.H. 2 holes side of I.H.				
	on N + NW. W SW is pt. between two coves end of bay				
	nearest peninsula. Track middle of hanging down pt.				
	S is gap in wall left of most active place with a weaker				
	active place left of it.				

Survey from E to NE 7 to 9 p.m.
6.30 p.m. Rapid rising. Flow SE.

T.A.J.

1913, Jan. 20.



J. a. J.

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Tues Date Jan. 21, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
7 1 a m	no	seeing	WSW				528		Fumes + drizzle
8 "	1 H		"	37.0	2.5	34.55	528	368.5	Stalac 12 in. bench. Stagnant skins W. Isthmus W.
8 "	"		NS	33.17	2.19	30.58	620	372	
9 30	"		"	33.13	2.13	31.0*	620	372.5	*Overhang. Small slide W. Another N.
9 50	"		WSW	36.53	2.11	34.42*	528	365.5	*Wall.
12 30	"		S	33.26	2.42	30.44	620	368.5	On plane table.
12 50	"		WSW	37.13	2.15	34.58	528	369.5	" " "
12 50	"		"	36.48	1.49	34.59	528	369.5	" pill.
2 9 p.m	"		S	33.12	2.20	30.52	620	370.5	" " . Long stalactites.
7 10 "	"		WSW	36.46	1.52	34.54	528	368	
10 11 "	"		"	36.51	2.5	34.46	528	366.5	No stalac. Active. Skins NW.
12									
1 p m									8.15 a.m. - General low condition, blankets protrude from bank N + W, sluggish, isthmus and pond W, stalactites general.
2									
3									
4									9.30 Greater activity and less skins W. Overhanging stalactites 12 inch bench all around. Parting crusts W. No isthmus. Pool wide W end, no narrow stream now.
5									
6									
7									
8									11.30 Rising
9									12 noon - N talus sliding. At 12.15 this sliding increased, the rocks were tumbling directly into the large N fumarole and 3 or 4 large noisy avalanches alternated with
10									
11									
12									

	t	cam	pl	no	lt	stop	ex	scr	dev	LOC
X	11.30a		ord. film	11		F22	1/5			Bright sky.
X	1p			.		F6.3	1/50			Held in hand 1.H. New fall.
	8p.		speed film	1		6.3	1			Clear. Thin.
X	8:30p			2		6.3	3/4			
				3		"	"			fair } 1½ min. Three stages in quick succession.
				4		"	"			Poor }
X										
X	9p			5						From S station. Poor.

~~t~~	~~loc~~	~~ther~~	~~temp~~	~~wea~~	NOTES
clatter of an	actively	working	talus. The	puggestion was that the fumarole was undermin-
ing the slope. That fumarole has been very active of late + source of much of the smoke ob-
scuring view from 1.H. Finally (about 12:16) a great avalanche occurred, carrying down the E end of N
bench just under the O.R.H. + 1.H. Perhaps 40 yr. long of this N bench went; it subsided, as seen from
above, like a fluid + a tremendous roar below followed. Evidently the undermining began
at the base of the slope + worked upward for half an hour. 1.H. was shaken twice at least.

A pronounced trembling - it would have been recorded on the seismograph. Slope continues to work. 12:15 to 12:45. 12:37 p. Feels as tho the ground were rocking slowly. As tho an earthquake were going on. This landslip happened when the pool was rising. At 12:47 another avalanche same place - small. 1 p.m. - change of wind + clearing of pit. The whole fragment of bench of last winter Jan. 1912, under NE sta. has fallen away. Fumarole buried under a new immense talus cone. 2 p.m. 2 yr. (?) bench all around + long stalactites. 8 p.m. conditions much the same. Stalac. being submerged

T.A.J.

1913, Jan. 21.



#1



#3

J. a-g.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Wed. Date Jan. 22, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m	I.H.		WSW	36.52	1.52	35.0	528		Fumes. O.F. noisy.
2									
3									
4									
5									
6									
7	"	No seeing							
8	"		WSW	36.56	1.55	35.1	528	369.5	1 rock fall N6.
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10.30	"		S	32.38	1.53	30.45	625	372	After changing pill to 10 in. higher.
N	"		WSW	36.21	1.14	35.7	530	372	
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES

8 a.m. - Foggy. Fumes dense at I.H. and 8 a.m. Heard rock fall N6 at 8 a.m.

J.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Thurs. Date Jan. 23, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6	IH		WSW	36.21	1.32	34.49	530	368	Parting skins + isthmus W end.
~~6~~	"		S	82.38	2.4	30.34	625		Stalactites W.
8.15	"		WSW	36.13	1.3	35.10	530	372.5	Heavy stalactites. Ledge smoky. Sluggish.
9									
10									
11									
12									
1 p m									
2									6 a.m. Skins on W banks. Activity strong, diminishing 6 to 6:30. Note stalactites and a smoke vent just over pool W pond. Steaming unchanged. (See sketch Jan. 19.)
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
12 p.		W.P.	1		6.3	3/4			From I.H.

T. A. J.

t	loc	ther	temp	wea	NOTES

1913, Jan. 23.



J. a. g.

45

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Friday Date Jan. 24, 1913.

t	sta	h. i.	pt	lev	ver	di	dis	ele	NOTES
1 a m	I.H.		WSW	36.11	1.21	35.9	530		Low - clear.
2									
3									
4									
5									
6									
7									
8	"		"	36.12	1.5	35.7	530		Isthmus W end. Radial skirt spenin. S cove
8 9	"		S	32.38	1.48	30.50	630		quiet, blankets going under. Stalac WSW.
9 10	"		"	32.37	1.49	30.48	630		
9 11	"		WSW	36.19	1.5	35.14	532	375.5	
10 12	"		S	32.29	1.40	30.49	630		
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11	I.H.		WSW	36.6	0.57	35.9	532	374.5	Talus sliding W - isthmus - W pond - cusp or penin - active
H	"		S	32.32	1.44	30.48	630	375	Survey 1/25/13

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
11:30p	Pn	W.T.	1		6.3	3/5			From I.H. Fine - clear. Wind S.E. strong. Halemau-
? "	G	S.P.	3						Emau looking S.
X 9.30a		"	2		16	1/10			From I.H. Sunr.

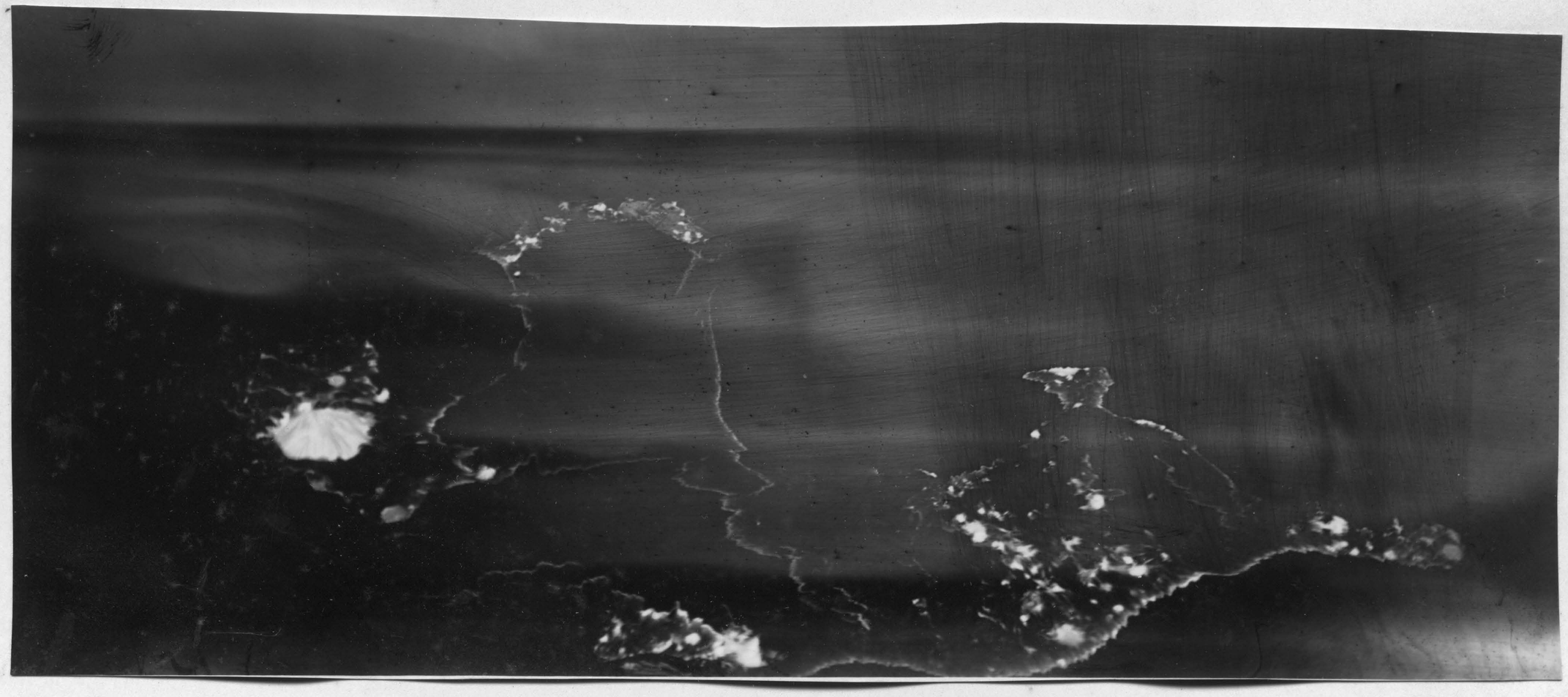
t	loc	ther	temp	wea	NOTES
					1 a.m. Clear & still air. Pool appears very low. Long stalactites. Rim about peninsula has largely caved. Pool appears larger & spatter rim narrower. Feel tremor at I.H. No radiation pattern. Fumes dense W & N but going straight up. Isthmus and parting crusts.

F.A.J.

1913, Jan. 24.



#1



#3

J. a. g.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Saturday Date Jan. 25, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2	I.H.		S	32°33'	1.45	30°48'	630	375	
3									
4									
5									
6									
7	"		S	32.33	1.42	30.51	630	375.5	Stalac. Consistent. ⌐ higher
9	"		WSW	36.19	1.7	35.6	532	373.5	Inconsistent. ⌐ lower
8	"		"	36.13	0.59	35.14	532	375.5	Consistent now. ⌐ lower.
10	"		S	32.32	1.45	30.47	630	374.5	Inconsistent. ⌐ higher
9:30	"		S	32.33	1.46	30.47	630	374.5	Spatter rim forming.
10:30	"		S	32.38	1.43	30.50	630	375	" " "
12 p m	"		S	32.22	1.42	30.40	630	373	" " "
12:30	"		S	32.27	1.39	30.48	630	375	
1.30	"		S	32.27	1.34	30.53	630	376	Stalac. A small pitching like this immediately makes a rim all around.
3.15	I.H.		W.S.W	36.16	0.55	35.21	532	376.5	
5.45	"		S	32.50	1.59	30.51	630	375.5	S glossy
6									SURVEY from E + N + SW aft Jan. 25
7									
8	SW		N cave	39.4	3.30		797		Dimensions = WNW 355 x 187 E x 125 W
9	"		bench over N cave	39.4	5.46		799		Length = 440 ± following curve
10	"		NE cor	28.56	3.32		794		Survey.
11	"		" " lower bench	"	3.53		794		
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
11.20a	Pn	W.P.	2		32	1/2			wind, I.H. shakes. Overexposed. Reduced from I.H.
× 11:30a	Pn	Sp.f.	6		22.6	1	150		" "
× "	Pn	"	7		32	1	150		" "
1:45p	G	S.P.	4		11 (8)	1/2	150		wind more N + fumes after this. After rim of slight sinking began to form. From I.H.

t	loc	ther	temp	wea	NOTES

48

1913, Jan. 25.

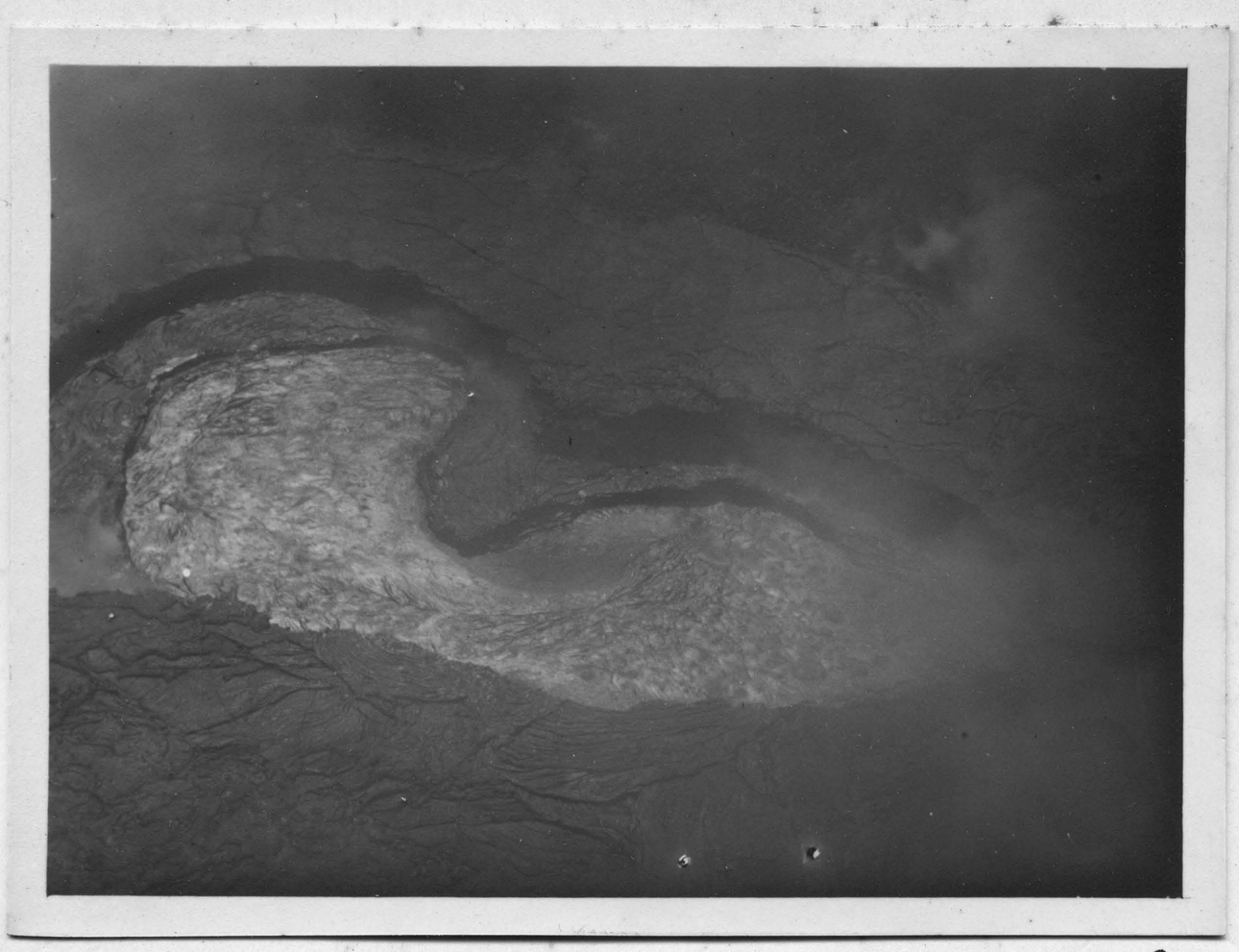


J. A. P.

#4

49

1913, Jan. 25.



#2

J.a.g.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Sunday Date Jan. 26, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5	1H		S	32.32	1.49	30.43	630	373.5	
6	"		WSW	36.17	1.10	35.7	532	373.5	
7	"		"	36.15	1.4	35.11	"	374.5	
8	"		S	32.33	1.47	30.46	630	374.5	Stalac
9	"		S	32.35	1.49	30.46	"		Rocks falling N talus
10	"		WSW	36.6	0.50	35.16	532		Fountains continuous thunderous thud possibly W or N cave. Long stalac.
11	"		S	32.39	1.51	30.48	630		
12	"		WSW	36.4	0.41	35.23	532		Same rumble - parting crusts - weak fountain action

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
11p	9	S.P.	1		5.(2)	3f.p.			Clear night view. Focus on east end. From 1H.

J.A.J.

t	loc	ther	temp	wea	NOTES

1913, Jan. 26.



J.a.g.

Massachusetts Institute of Technology

Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Monday Date Jan. 27, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6									
7	1 H		WSW	36.5	0.50	35.15	532		Smoky. less rumble. Wind N.
8	"		"	36.4	0.46	35.18	582	376.5	Almost no rumble. Rumble due to hollow space on
9	1 H		WSW	36.4	0.52	35.12	532		Fountains active [sinking, under platform
10	"		"	36.3	0.58	35.5	532		
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11	1 H		S	32.29	1.44	30.45	630		[small stalac. O. F. noisy
12	"		WSW	36.9	0.49	35.20	582	377	Some rumble. Rocky peninsula free from crusts. Very

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

T. A. J.

t	loc	ther	temp	wea	NOTES

Massachusetts Institute of Technology

Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Tuesday Date Jan. 28, 1913.

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6									
7	T.H.		WSW	36.10	1.2	35.8			Stalac. small.
8	"		S	32.28	1.41	30.47			
9	"		W.SW.	36.17	1.1	35.16	5321	376	Stalac. larger.
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

T. A. J.

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES

54

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Friday Date Jan 31, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2	1H		S	32.31	2.3	30.28	625	368	
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
X 1.45p	P	S.F.	12		8	1/25	V	R	underexposed much. From E. Recent slide NW.
"	"	"	9		11.3	1/2	V	R	" thin " " . Halemaumau.
"	"	"	10		"	1/5	"	"	" " " " " . Jan 50-6.3
									[open. No serv.
									J.A.J.

t	loc	ther	temp	wea	NOTES

1913, Jan. 31.



#9



#10

J. a. g.

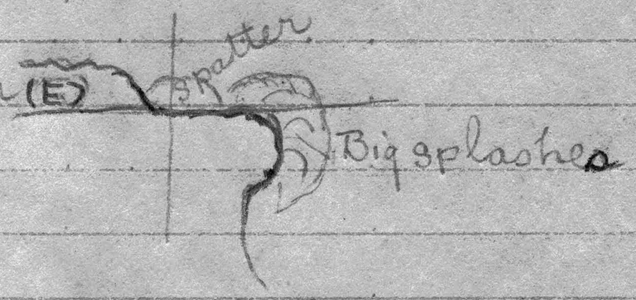
"?	2/6/13	Swirl patte5n
	2/15/13	Double pit patterm

JOURNAL

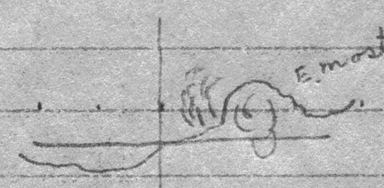
Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Saturday Date Feb. 1, 1913

At noon spatter rim of rapid growth all around, tremendous rise since yesterday. Growth out from wall farther WSW than S. Sharp blowing apparently mostly from S cove where there is a fountaining cavern. Steaming much the same. At 12:30 noticed large block break off E side peninsula and float out.

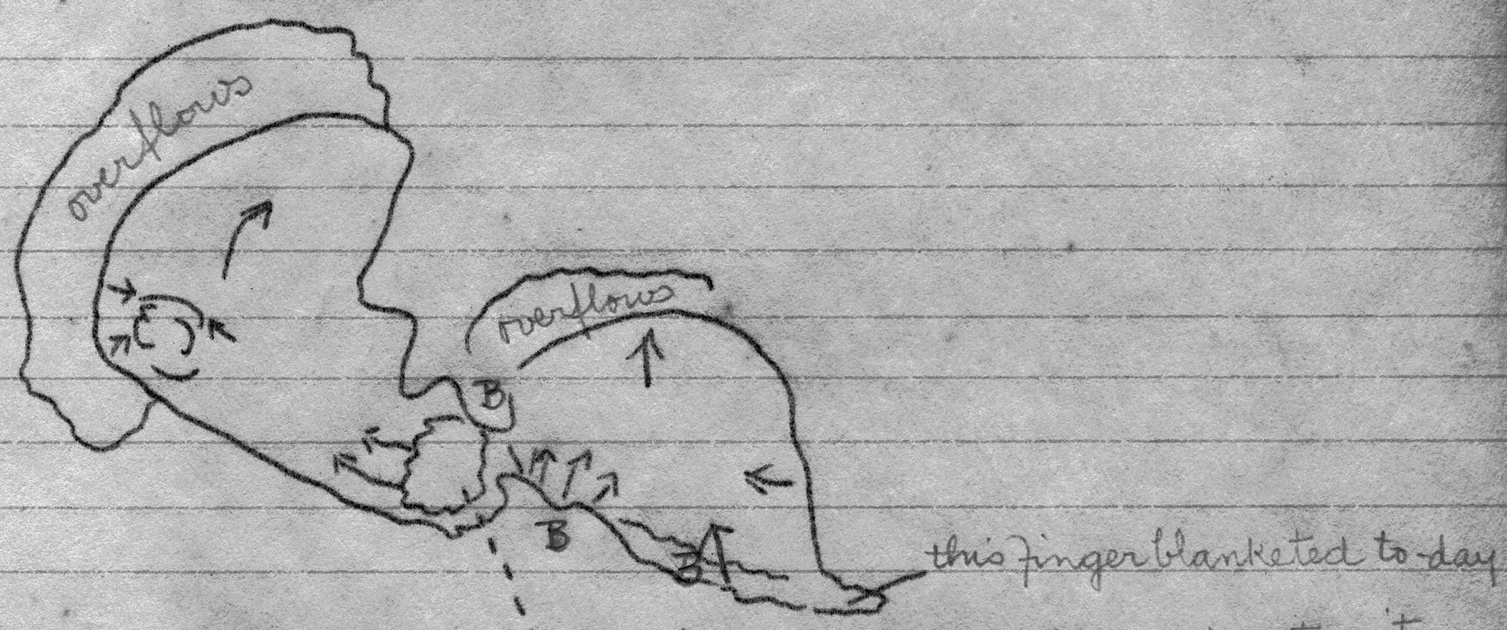
Char. of banks S = left of roaring cavern (E)



Char. of bank WSW Spatter point E of fountaining



At 8 p.m. steaming different:



B = blankets.

Sketch from I. H.

T.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Saturday Date Feb. 1, 1913.

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6									
7									
8									Flows all around. Wind hard SE. IH rocking
~~10~~ 9 a m	IH		S	38.10	7:43	30,27	619	364.5	Very rapid rise - appears 2 ft. below platform E; over-
~~10~~ 10:25	"		WSW	38.7	3.22	34.45	527	365.5	Fumes bad I. H.
~~11~~ 11 p	"		S	38.8	7.51	30.17			
~~12~~ 12	"		WSW	38.5	3.20	34.45			
~~2~~ 2 p m	"		"	38.5	3.25	34.40	average 361	364	Hissing increasing
2	"		S	38.9	8.6	30.3		358?!	
3	E		W	29.43	5.4		789		
4 3	"		WSW	29.42	2.21		711		
5 3	"		Jip rock	29.42	−1 +13		624		
6 3	"		S	37.12	4.43		577		
7	IH		"	38.9	7.50	30.19			Has been lower; began to sink 2 p. m.
8 7	IH		WSW	38.7	3.24	34.43			
9 8	"		"	38.2	3.18	34.44			
10 8	"		S	38.6	7.51	30.15		361	At 8.3 skin formed from penin. N clear across just as on Dec. 14. Instantly all skins broke from shore both sides. Current three strait under blanket for a time.
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
9.30p	P	W.P.	1		6.3	1		R	From E. Strong, good detail. Pool higher, caverns & splashing.
9:45p	"	"	2		"	½		"	less luminosity. Detail no better. Steaming in O.J. shows.

J.A.J.

t	loc	ther	temp	wea	NOTES

1913, Feb. 1.



#1



#2

Taf.

59

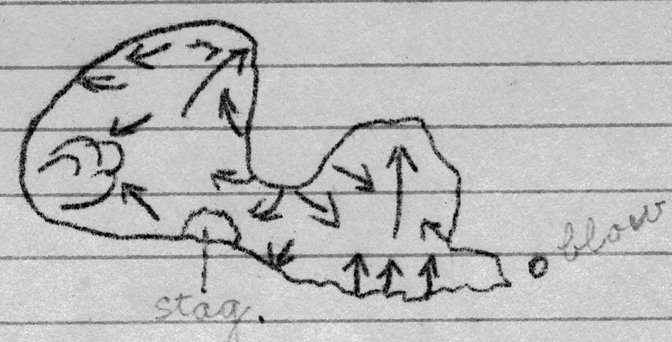
Massachusetts Institute of Technology

Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Sunday Date Feb. 2, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									At 10 p.m. crust on penin. nearly across – wholly across just before. Broke away. Stalactites long.
2									
3									
4									At 10:30 Breathing vent at W end. Flow radial out from penin. S + WSW
5									
6									caverns very quiet. S wind. Clear
7									views I.H.
8									Breathing stopped after half hour
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10.30	I.H.		S	38.14	7.51	30.23		362.5	
11									
12	"		"	38.14	7.44	30.30		364.5	fumes bad.

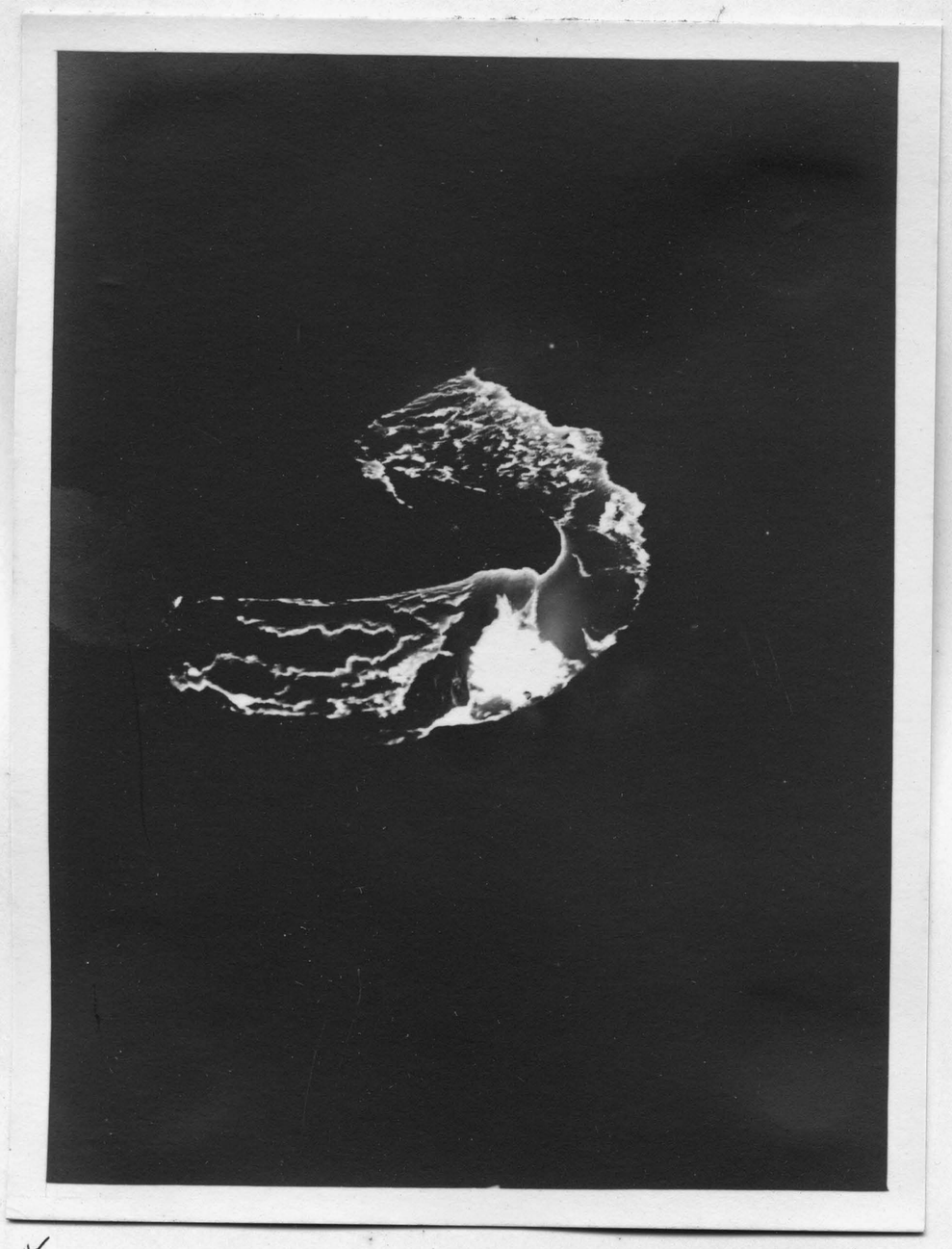


t	cam	pl	no	lt	stop	ex	scr	dev	LOC
10p	P	W.P.	–(1)		6.3	3/4		R	From E. Wide skirt on penin. Caverns quiet

T.A.J.

t	loc	ther	temp	wea	NOTES

1913, Feb. 2.



#1

Jag.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Monday Date Feb. 3, 1913

Night of Feb. 2-3 at Sta with Mr. Raymond Gaumont of the Gaumont Camera Co. in Paris.
7 to 10 a.m. - Arranged ladder to 1912 60-foot bench from channel at S. Sta. Rope over E end of bench. Returned for second ladder - (T. A. J.)
At 11:30 Mr. Gaumont went down and arranged second ladder from bench to talus below and went out toward SE fumaroles a hundred yards. Wind SE drew fumes over and although he had a nose guard he was forced to return. Object was to get moving picture apparatus down to a favorable place.

T.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Monday Date Feb. 3, 1913.

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6:45	IH		S	38.14	7:53	30.21	620	363	Pool appears much same as weeks past. Fumes bad.]
7									
8									
9									
10									
11									
12:45	"		S	38.14	7:54	30.20			First 3 hrs. to 10 a.m. Pool appeared to be rising.
1 p m									Now spatter appears stationary.]
2.20	"		S	38.14	7.55	30.19			Cavern W S W. Rumblings.
3:35	"		S	38.14	7.54	30.20		363	Stationary. Caverns. Stalac + spatter. 3 ft rim around pool.
4									
5									
6									
7									
8									
9									
10									
11									
12									

T.A.J.

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

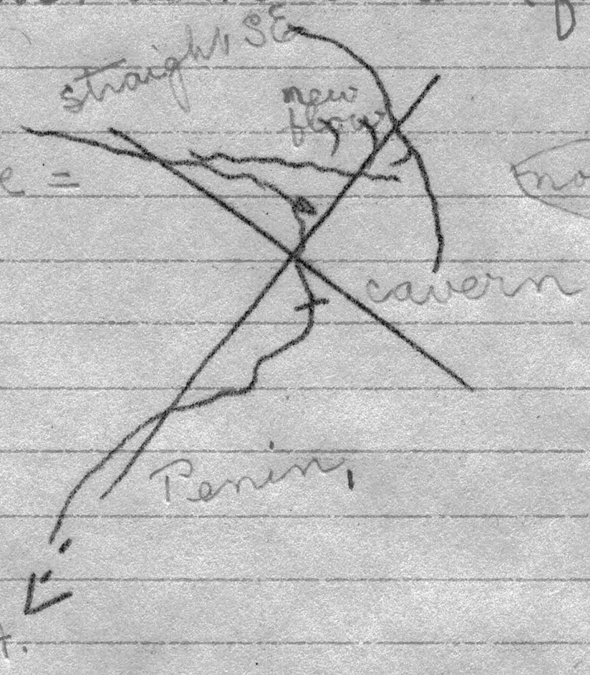
t	loc	ther	temp	wea	NOTES

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Tuesday Date Feb. 4, 1913.

Came to crater at 11 a.m. with Gaumont.
South wind makes ladder impossible. Views E + I.H. occasionally
fumes heavy, may. N vent. At noon note strong surging and
back-throw of liquid into pool at S, WSW and opposite O.F.
Suggests the activity during rising Feb. 1. Rumble is strong
however. Took picture pool Miss Merrill's Kodak from SE. Skin from penin. clear across
on W side. At 11:45 this entirely gone. Two-foot ledge

Pt of ob. S cove =



(not used for intersec.)

all around. Stalactites and spatter. Rumbling strong.
At 1 pm rumble and cavern splashing less. Skin nearly
across from peninsula; streaming E + W therefrom.
At 2:50 p.m. rumble has ceased. Scavern splashing out and
up at 45 degrees - noise splashing continuous.
Pool has fallen but appears to be rising now.

Jag.

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Massachusetts Institute of Technology

Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Tuesday Date Feb. 4, 1913.

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6									
7									
8									
9									
10 ;45									
11									
12	1 H		S	38.13	7.53	30.20	621	363.5	
1 p m	"		S	38.13	7.52	30.21			
2.50	"		"	38.12	7.43	30.29		365.5	Nose splash not rumble.
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

T.A.J.

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES

Massachusetts Institute of Technology

Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Wednesday Date Feb. 5, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									At 4 p.m. when I arrived, pool overflowing + flows both ways on lower bench at O.F. corner. Also small overflow W of O.F. corner. Crust clear across from penin which soon broke up. Tendency penin to grow out from N bank to meet S penin. Heat stronger in N.H. Fairly clear here. Took notes of past 4 days - loose sheets blown over cliff by wind. Went down to 60 ft bench & rescued them, one with a long batten with a safety pin tacked on the end. The paper 127 ft down the crevasse back of bench.
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									p.m. 5:15 Steady hissing noticed. Baby fountain pattern around O.F. Fumes.
2									p.m. 7:30 - Isthmus of blankets across - Broke up.
3									p.m. 6 at E obtained intersec on S. Large
4									Sine.
5:35	1H		S	38.13	8.11	30.2	622	359.5	5781
6:30	"		"	" "	8.4	30.9		361	5808
6.50	"		"	" "	8.8	30.5		360	5792
8:30	"		"	38.14	7.55	30.19		363	5847
9	"		"	" "	7.48	30.26		365.5	5874
10									blue flame on lower bench just opp up penin. Overflow from a pt. just E of it along the NE bench around and beyond O.F. corner.
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
6 p.	P	WP	1		6.3	1		92	From E. Very good - specks carbon on film Shows blue flame.

J.A.J.

t	loc	ther	temp	wea	NOTES

1913, Feb. 5.



*1

J.a.f.

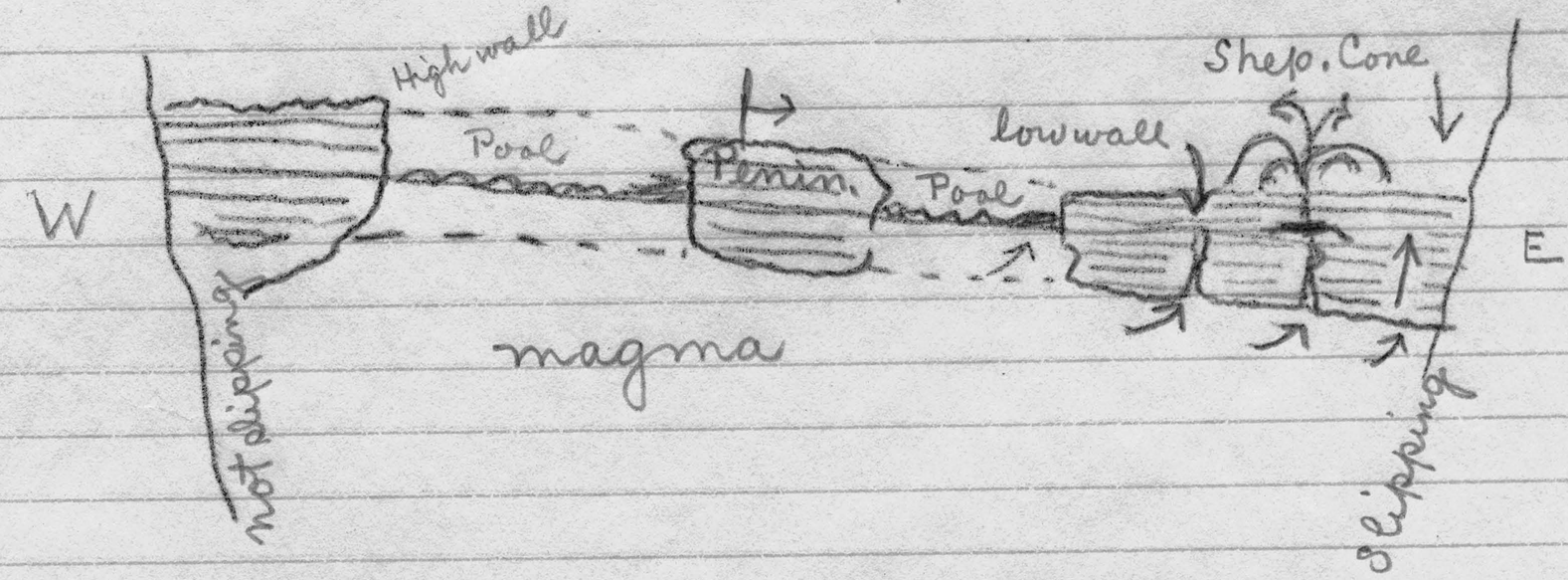
JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Thurs. Date Feb. 6, 1913

With Wilder-Reinig-Goodrich-Cabot party till 1 a.m. Large stalactites and high bench at 10 p.m. Glowing veins of flows on the December platform - same phenomenon observed Dec. 14 at night when I thought a great flow had come down from the SE chimney. Explained later by obsdrvation as follows:- the flows in question were at E end - the lower end, for a high wall 10 ft. at least overhangs pool N + W. The flows were in the neighborhood of Shepherd's Cone.

At 10 p.m. there were cavernous hollows + rumbling O.F. corner, S + W S W. The steaming to-night was mostly S + W from skins making isthmuses across from peninsula. These would break, part + the crusts flow both ways. The flow even after breaking was W'ward in the W pool to WSW, W + NW shores which were quiet - quite a new condition.

After midnight a pronounced rising was seen drowning the stalactites; this vids was from SW. The lake was still well below the bench but near Shepherd's cone a crack opened and a small flow welled out. This is what had been happening earlier in the evening. And these flows welled through cracks in the upper platform. It will be remembered that the E end of pool has overflowed much lately and built up the lower bench to within a foot or two of Dec. platform whereas the W end, from which most of the flowing has been, maintains a high wall. I have been puzzled by strong overflowing sometimes at E end and W side peninsula and none W end and E side peninsula. The explanation would appear to be that the whole ellipse of the Dec. platform is slowly subsiding into the lava beneath and subsiding most at the E end so that as it there founders lava wells up its cracks and out on its floor thus:-



Can the numerous inconsistencies in observed vertical angles between WSW + S points of observation be due to a forcing up of the lava level differentially in the same way that these flows on the upper platform are forced up, probably by differentidl gas pressure?

(Feb. 7 - South storm. No record.)

J.A.F.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Thursday Date Feb. 6, 1913

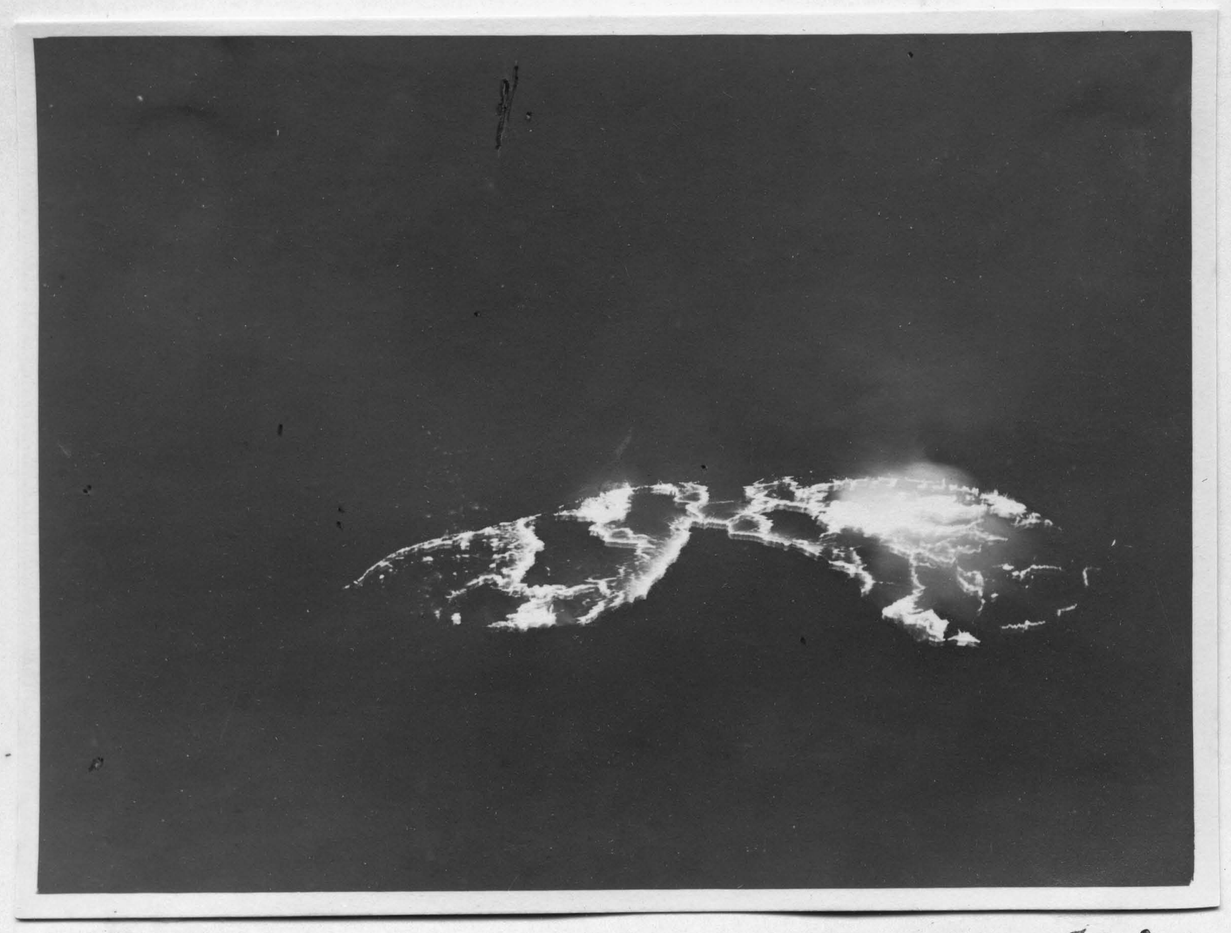
t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10:45	1H		S	38.5	7:00	30.35	620	366.5	5910
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
12 mdt	P	WP	1		6.3	1			From SW. } Both pls show motion between lens
"	"	"	2		"	"			" " } and plate. Lens works loose.
									Shows O. F. cavern + stalactites + glowing
									edges of flows on E bench.
									No 2. a few minutes after No 1. Clear

1913, Feb. 6.



#1



#2

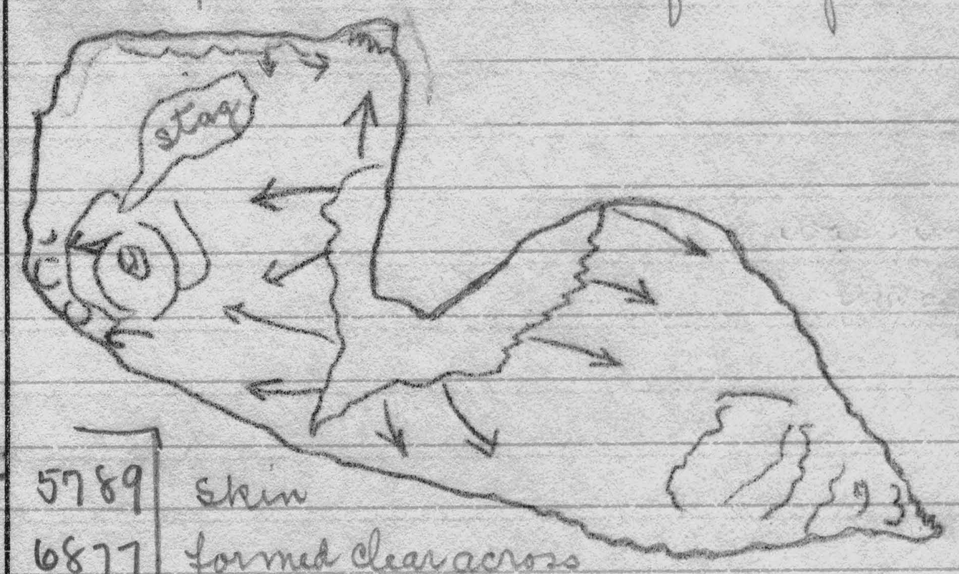
Jag.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Sat. Date Feb. 8, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									Flow has changed to steady E+W from penin. No cavern or inflow at WSW. Skins pile up W end. WSW is smooth wall with flow against it.
2									
3									
4									
5									
6									
7									
8									
9									
10									
11	1H		S	38.5	8.1	30.4	618	357.5	5789 Skin
11	"		WSW	38.1	3.30	34.31	525	361	6877 formed clear across
1 p m									broke 12-m.
2									SURVEY - 1-4 p.m. from NE + E - good
3.30	"		Soplash	38.8	7.28	30.40	608	360.5	5929 intersections 10 pts + 3 tang.
4									Distances = S cor W end from 1H 466
5									W cor WSW cove " " 529
6									E " " " " " 516
7									W " Peninsula " " 487
8									E " " " " 502
9									S splash " " 608
10									Shepherd's cone is destroyed - overwhelmed by flows. These flows have run over
11									margin E end. Wall still high W end. Plains of Dec. platform slopes
12									down from W to E.



t	cam	pl	no	lt	stop	ex	scr	dev	LOC
12m	P	SF	1		6.3	1/25		gl 1-12 30 min	From 1.H. Spoiled. Out of focus. over-exposed - dense.
"	"	"	2		"	"		"	Inclination 34°. Focus ∞ wide. Out of focus. Over exposed
2:10p	"	"	3		"	1/10		"	From NE. Inclination 34°. 10 sec light = 1/20 F 90. Bad
									focus. Some overexposure.
2:30p	"	"	4		"	1/5		"	From E. Inclination 34°. Same. Bad
									focus. Slightly overexposed.
									Are these bad focus or fumes?

Jaggar

t	loc	ther	temp	wea	NOTES

1913, Feb. 8.



#1



#2



#3



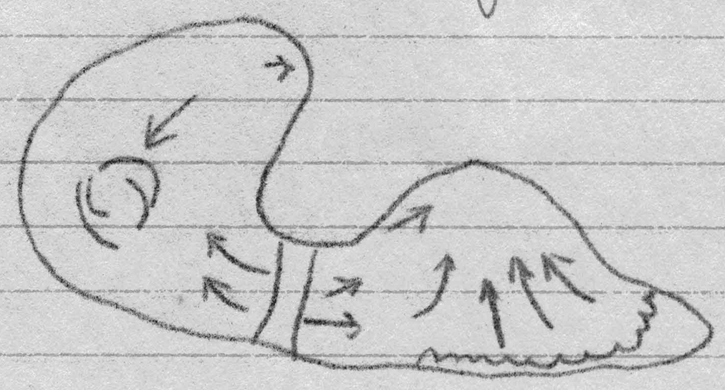
#4

Jaf.

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sunday Date Feb. 9, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									Wind hard E N E. Pool down somewhat. Stalactites. Steaming this night had resumed more the character of recent times.
2									
3									
4									
5									
6									
7									
8									
9									
10									
11:38	I H		Sapl	38.11	7.34	30.37	608	359.5	5917
12									
1 p m 30	"		"	" "	7.32	30.39		360	5925
2									
3									
4									
5									
6									
7									
8									
9									
10:50	"		"	38.12	7.26	30.46		362	5953
11									
12									



t	cam	pl	no	lt	stop	ex	scr	dev	LOC
12 m	P	SP	5		6.3	1/25			From NW. Fumarole fumes across field from Whole. Inclined 34°. Slight overexp. no detail.
12:30 p	"	"	6		"	1/15			Clear view. Cloudy. 3 sec light. Greatly overexp. Inclined 34°. No detail. From NW.
11 p.	"	WP	1		"	1			From I.H. Turner. O.F. Hand spring. Italian leaf leaning on table. Some wind. Shows motion.

J.A.J.

t	loc	ther	temp	wea	NOTES

1913, Feb. 9.



#5



#6



#1

I.a.g.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Monday Date Feb. 10, 1913.

a.m. Quiet. Fumes heavy N side. Streaming again from middle to W end. Acid fumes very strong I.H. S & E wind.

p.m. O.F. noisy. Some rumble. Streaming E & W from penin. into S, WSW + W + O.F. + N; out from S & E bank forking to S & O.F. N.F. occasionally. Baby fountain pattern has diminished of late.

In S cove at pr. of observation one can see a heavy layer plastered against a higher stalactite layer, at least 3 ft thick, its bottom edge flush with the liquid. The higher layer is yesterday's row of stalactites as seen in telescope. This layering confirmatory of view that pool leaves a thickening crust above it as it sinks. A "curtain wall", with stalactites above and below. May show in night phots. (below).

J.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Monday Date Feb. 10, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6									
7.45	1H		Sopl	38.11	7.28	30.43	608	361	5941
8									
9	"		"	38.8	7.20	30.48		362.5	5961
10									
11	"			38.10	7.25	30.45		361.5	5949
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9:40	"		"	38.10	7.25	30.45		361.5	5949
10:40	"		"	38.10	7.20	30.50		363	5969
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
9.45a	P	SF	7		6.3	1/50			From W. Bright. 8 pulled W.7. Spoiled. No detail. Bad focus. [Overexp!
11a	"	"	9		"	1/25			" I.H. Much overexposed. No focus.
"	"	"	10		8	"			" " Overexp. Fumes obscure. Thinner than #9.
"	"	"	11		6.3	1/50			" " Bright pun on pool. No detail in shadows. Better than #12. No clear film. Still overexposed.
"	"	"	12		"	1/75			From I.H. Bright pun on pool beginning of O.F. Slightly thinner more fumy than #11. Still overexp.
10.20p	"	WP	1		"	1			Screwed down I.H. Little wind. Fumy. Wedge under front. Bulb. Previous timed pictures with this camera show motion between front and plate. Not leaning on counter.

t	~~loc~~	ther	temp	wea	NOTES
					This whole series of 12 speed films is much overexposed: 1/100 and 6.3 would appear to be correct F 8 = 1/50 or F 11 = 1/25. Brilliant pun on pool would stand F 11 = 1/50

Photo No. 1. (above) – Violent O.F. Pool dim and reddish. Practically no baby fountain area W. Little spitting fountains both E + W. Whole pool blanket pattern. O.F. spraying on bank. A new flame hole high NE opposite O.F. Current pouring under both E + W SW small stalactite overhang. W. end dark. Stream pouring into it. The streams divide opposite peninsulas. T.A.J.

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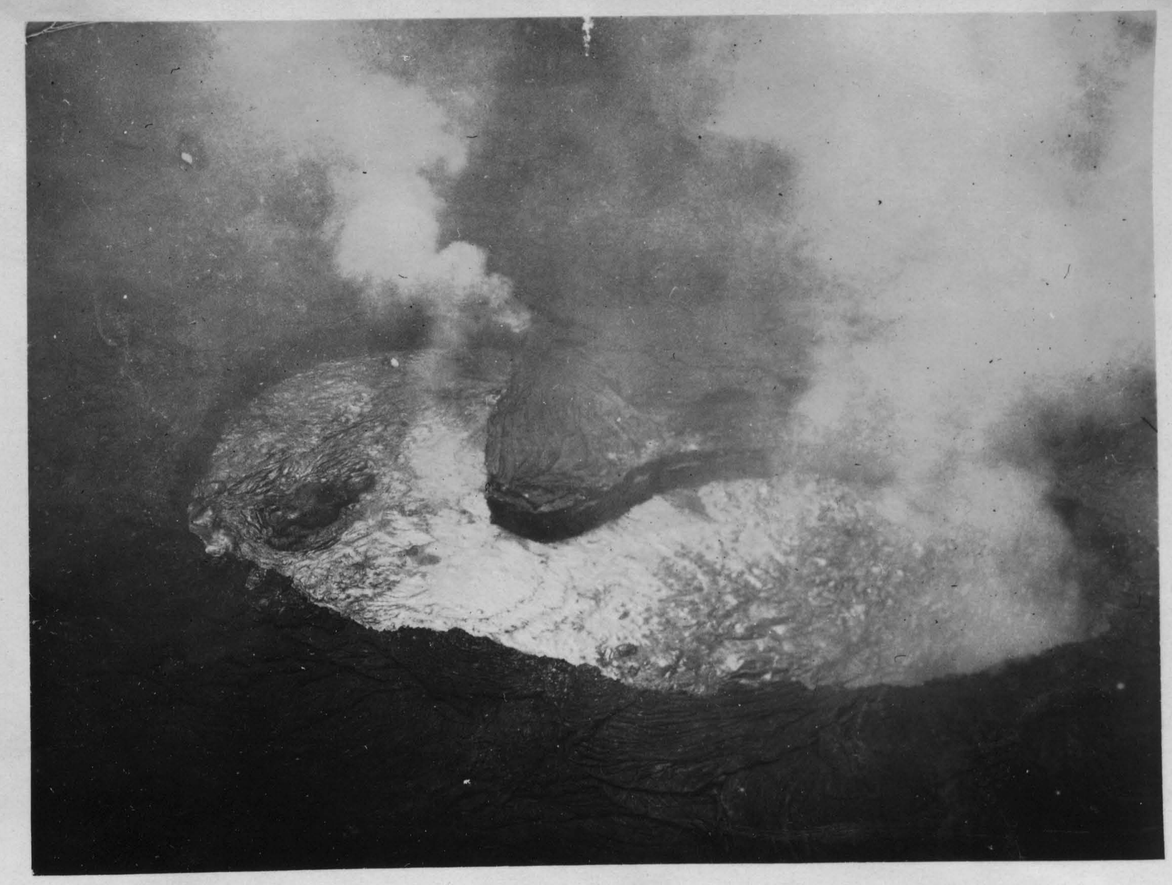
1913, Feb. 10.



#7



#9



#10



#11



#12



#1

J.a.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Tuesday Date Feb. 11, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									Very heavy stalactite masses in the "curtain wall". The new fumaroles E of the pulphur patch on the S bench under SW sta are fuming strongly. Some motion perhaps may be expected there shortly. Perhaps the pool is now undermining in that direction as the currents flow thither both S & WSW.
2									
3									
4									
5									
6.40	IH		S opl	38.13	7.24	30.49	608	362.5	5965
7.40	"		"	38.13	7.35	30.38		360	5922
8:40		Fumes							
9									
10									H.O. Wood swings seismograph at crater. Driving clock + drums not yet in operation.
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

T. A. J.

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Wed + Thurs. Date Feb. 12+13, 1913

Feb. 12. - No important change, probably slow rise. No seeing I.H. Strong NE. wind - clear.

Feb. 13 - 9:30 to 11 a.m. Strong NE wind - clear.
No seeing I.H. Level 38.14 wind pressure N side. Waited 30 minutes, no view.
Pool seen, fumy from E, SE & S.
Level 1 foot below overflow rim E, hence level 1 foot lower than night of Feb. 6 = 365.5 ca.
Blanket isthmus across from peninsula. Current from it E + W. Small fountains and blankets in both halves of pool. Fumes under strong NNE wind blow down into pit from W and N fumaroles and prevent photo daytime.
I.H. totally cut off from seeing.

I.A.F.

79

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Friday Date Feb. 14, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									Baby fountains W. Streaming W to E.
2									O.F. noisy. Stalactites S.
3									N.F. active. Flow out from SE to
4									O.F. and a little inflow S.
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11:30	1+		S	38.13	7.41	30.32	615	362.5	
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
Feb. 15 (after midnight) 12.8a	P	W.P.	1		F10	1			From E. Isthmus. O.F. Held against Shep. tripod, hand snap.
Feb. 15 - " " 12.12a	"	"	2		6.8	1			From E. Isthmus breaks. Note flow out from SE to O.F. which is not exploding. Focus farther forward than #1. Screwed against tripod and snapped by bulb.

J.A.J.

t	loc	ther	temp	wea	NOTES

1913, Feb. 14-15



#1



#2

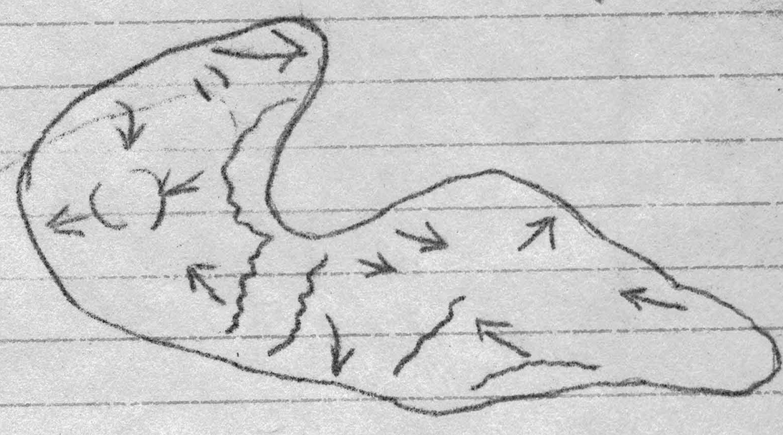
J.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Saturday Date Feb. 15, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									Survey by intersec E for dist S. No essential change last night. Pkins across. In telescope stalactites in same place, pool a shade higher. Small rim around pool. Fumes. Light rain. Stalactites S & WSW.
2									
3									
4									
5									
6									
7									11:45 a.m.-Clear. The isthmus breaking away floats bodily W-ward and in middle of W pool meets a flow from the W which rides over the swimming crust.
8:45	1H		S	38.11	7.421	30.29	618	364	
9									
10									
11									
12									
1 p m 30	"		"	38.3	7.45	30.18	618 on pl. T.	361.5	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									



t	cam	pl	no	lt	stop	ex	scr	dev	LOC
12.25p	G	S.P.	7	3	8	1/4			From 1.H. Pool, 3 sec lt. Block of isthmus being engulfed in W pool, meeting E-flowing current. Includes N fumarole which has opened a flame hole at the base of the avalanche. E wind, house rocking. Current just breaking thru isthmus. Last remnant of N block of isthmus going into O.F. vortex.
12.28p	"	"	8		"	"			
12:30p	"	"	9		"	"			

t	loc	ther	temp	wea	NOTES

Feb. 16, 1913 - Sunday - Alec reports that pool in evening showed no unusual change.

Jag.



J.C.G.



Fig. 83.

1913, Feb.

1913, Feb. 15.



4-2-5

6 #

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Monday Date Feb. 17, 1913.

T. A. J. on this day assumes seismographic as well as volcanic work. H.O.W. leaves for Honolulu to get Bosch-Omori.

At 5 p.m. found complete change in crater, happened this morning (since late last night and before 3 p.m.) Peninsula replaced by high island with pinnacles the latter glistening with black plastered pahoehoe. Apparently the mass of the peninsula broke away from the SW shore, probably along a crack vertical back of peninsula, and the peninsula spall pagged out into the lake, or sank and was revealed by a subsequent sinking of the lake level or upheaval from below.

A crusted strait between the island and the SW shore. S and WSW coves much wider. High SW fumaroles very active. Flaming cone on NE bench near the pool. Streaming is E & W from island and strait. O.F. very high sputter. Frequently two doming fountains in O.F. region far apart.

8 to 9 p.m. from E, SE & S hear rock falls W. Big glow chimney W; one high S under pt. between S and SE stab. About 7:30 p.m. the current broke through for a minute between island and SW shore, as seen from E. Did not recur.

T.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Monday Date Feb. 17, 1913.

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6	SW		High E. summit Sta.	29.13	3.47				
7.10p	IH		S	38.10	7.10	31.0	618	371.5	
8									
9									
10	"		"	38.10	7.20	30.50		368.5	
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
5.15p	G	SP	1		F 8	1/5		gl	From SW. L of inclination C. 26°30'. Thin fair view of island. 1t 8 sec. Ement. 1t 8 sec.
X 5.45p	"	"	21		F 16	1/2		"	From SW. L inclina. 26°30'. Much too thin. X Kept for measure
8.6p	A	WP	1		6.3	1			" S. Exposed on. T. catch. Night views isl. in series
8.10p	"	"	2		"	3			" " . from channel.
8.22p	"	"	3		"	8			" " . D of series gl. rsvd.
8.24p	"	"	4		"	3			" " . Block of crust breaking E of island.
8.35p	"	"	5		"	1			" " Shutter. W side breaks away.
9.8p	"	"	6		"	1			" " Crusts joining isl. to shore N + S. Small pot in crust N.

t	loc	ther	temp	wea	NOTES
					All plates 3 1/4 x 4 1/4 made with P = Premo or A = Anderson cameras, where no lens is specified, were made with Tessar 6.3.

Scale of maps 1 inch = 100 ft.

J.a.j.

87

1913, Feb. 17



fig. 1

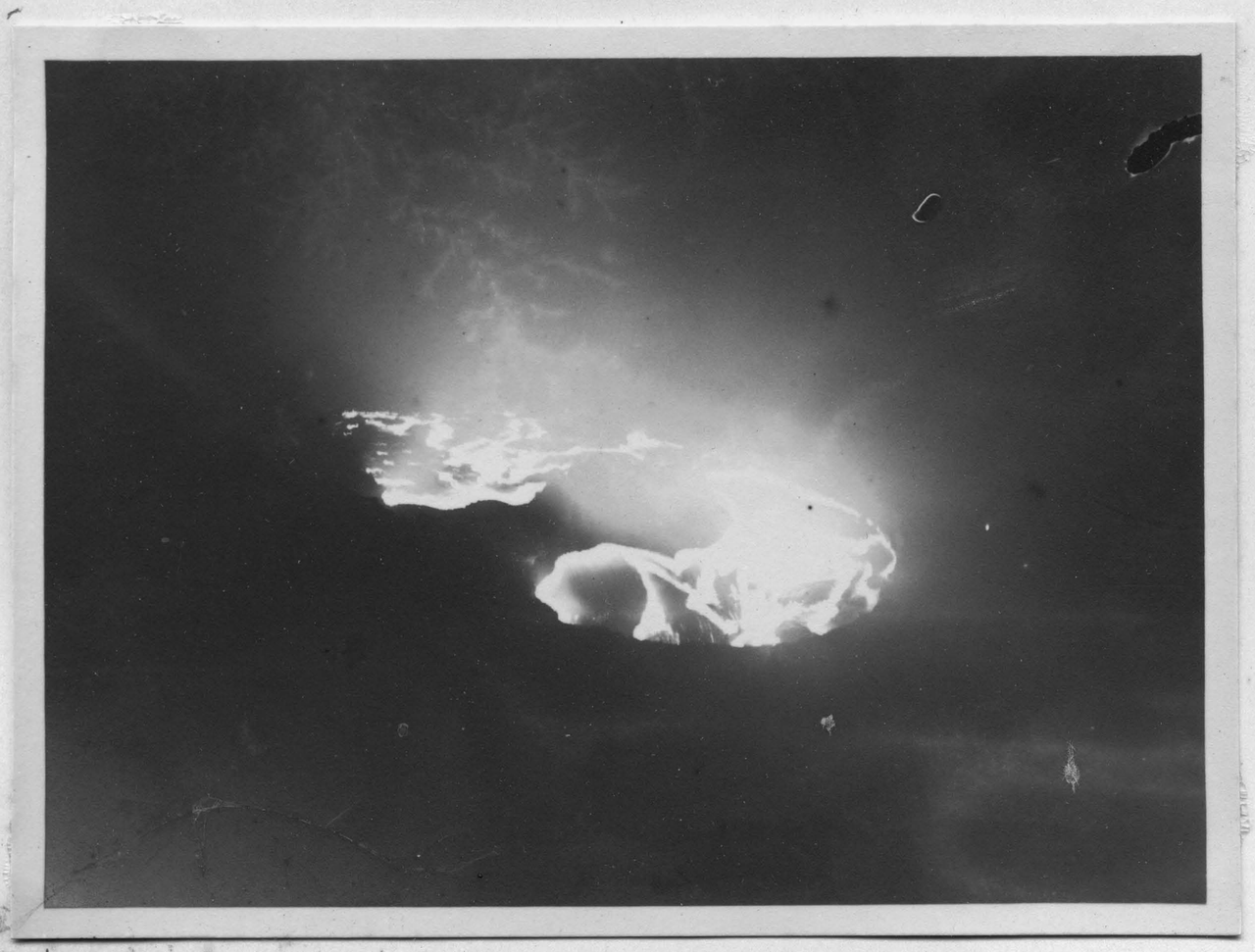
1913, Feb. 17



#1



#2



#3

Iaf.

1913, Feb. 17.



#4



#5



#6

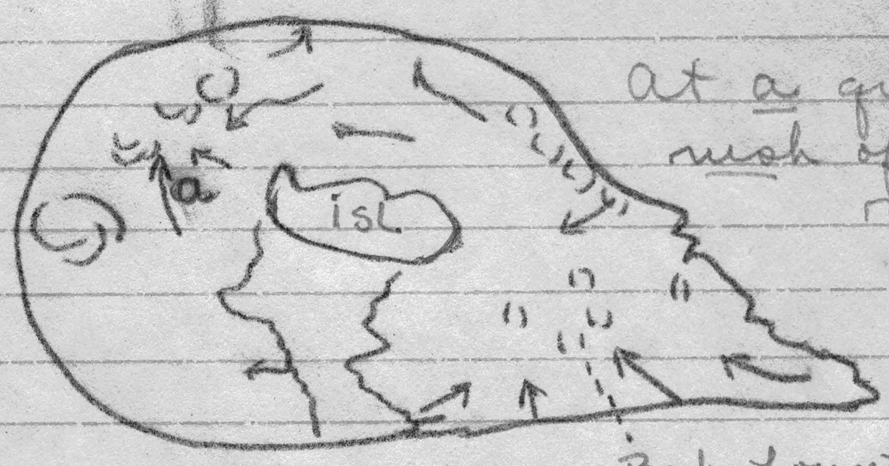
Jan.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Tuesday Date Feb. 18, 1913.

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									Pool sluggish + rumbling. At 5:15 p.m. pool large + circular, island greatly diminished. Active current S of isl. This evening pool a ring around a small isl, which is nearer S + SW bank of pool than W, N or E apparently. The island is glossy black with fresh lava on its smooth pinnacles, as though raised from beneath a flood of lava which had poured off its flanks. Activity greater than of late. Baby fountains in both E + W ends.
2									
3									
4									
5									
6									
7	1H		S	smoky	no re	a disp.			
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6	1H		9	38.12	7.23	30.49	618	368.5	
7	"		"	38.12	7.21	30.51	618	369	
8									
9.20	"		"	38.11	7.13	30.58	618	371.5	
10									
11									
12									



at a quick rush of current.

Baby fountains

Pool from 1.H.

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
8.30a	G	S.P.	11		F16	1	150	Rod	From channel. Underexposed. Thin.
9a	A	W.P.	7		22.6	1	X		" " Overexposed. Dense. From S.
X "	"	"	8		11.3	1/8			Telephoto Tessar. Cloudy blur. No detail. Prob. fumes.
3.5p	G	S.P.	3		11	3			From W. Shutter. Pool clear but no daylight detail at all; a night view.
8p	"	"	4		F6.8	1			From W. Full aperture of lens. Detail in rocks by light of pool.
9p	A	W.P.	9		6.3	1			From I.H. Fumes. Very weak.
10p	"	"	10		6.3	1			" N.W. Fumy but better.

T.A.J.

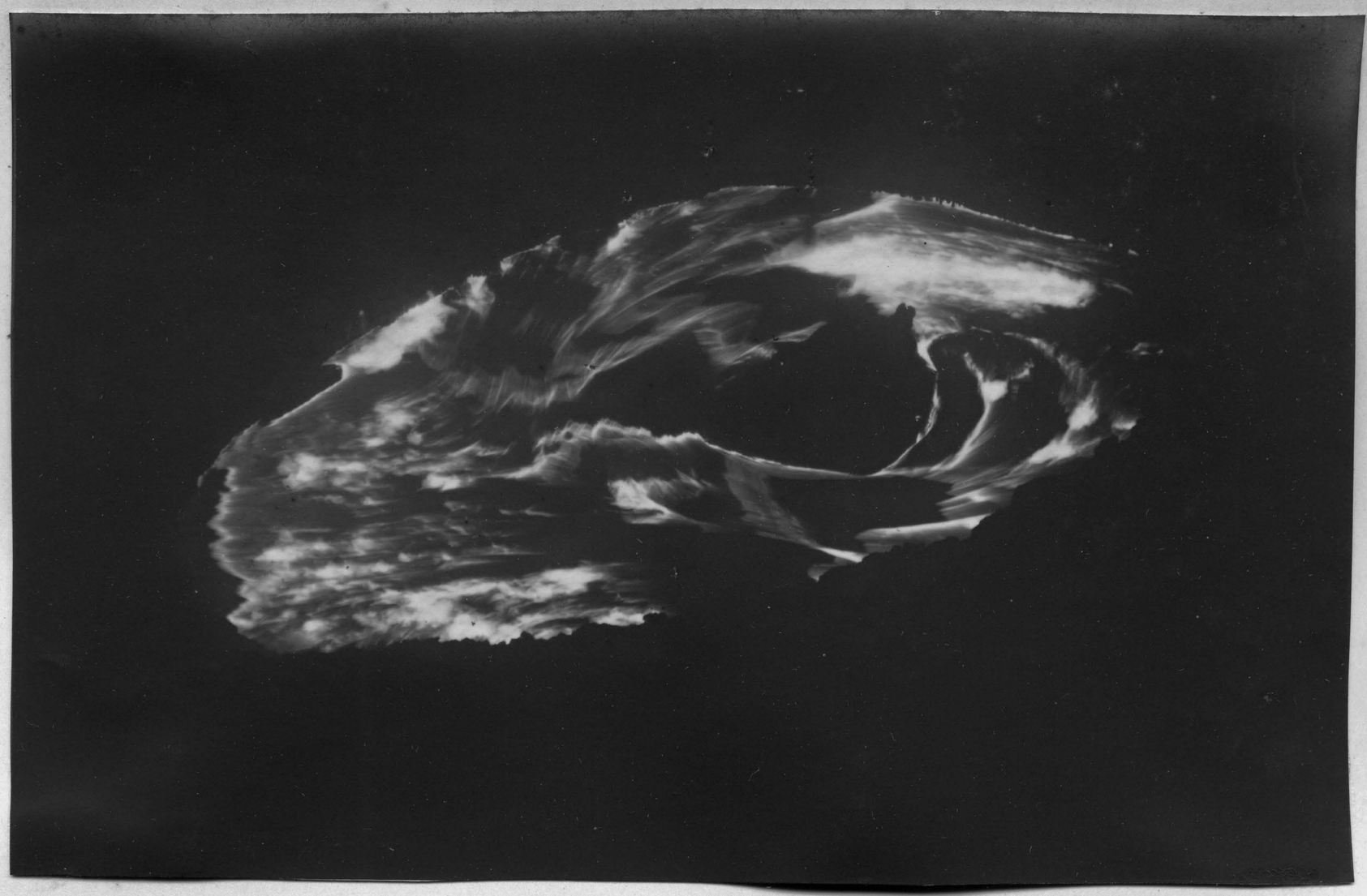
t	loc	ther	temp	wea	NOTES

1913, Feb. 18.



fig.

1913, Feb. 18.



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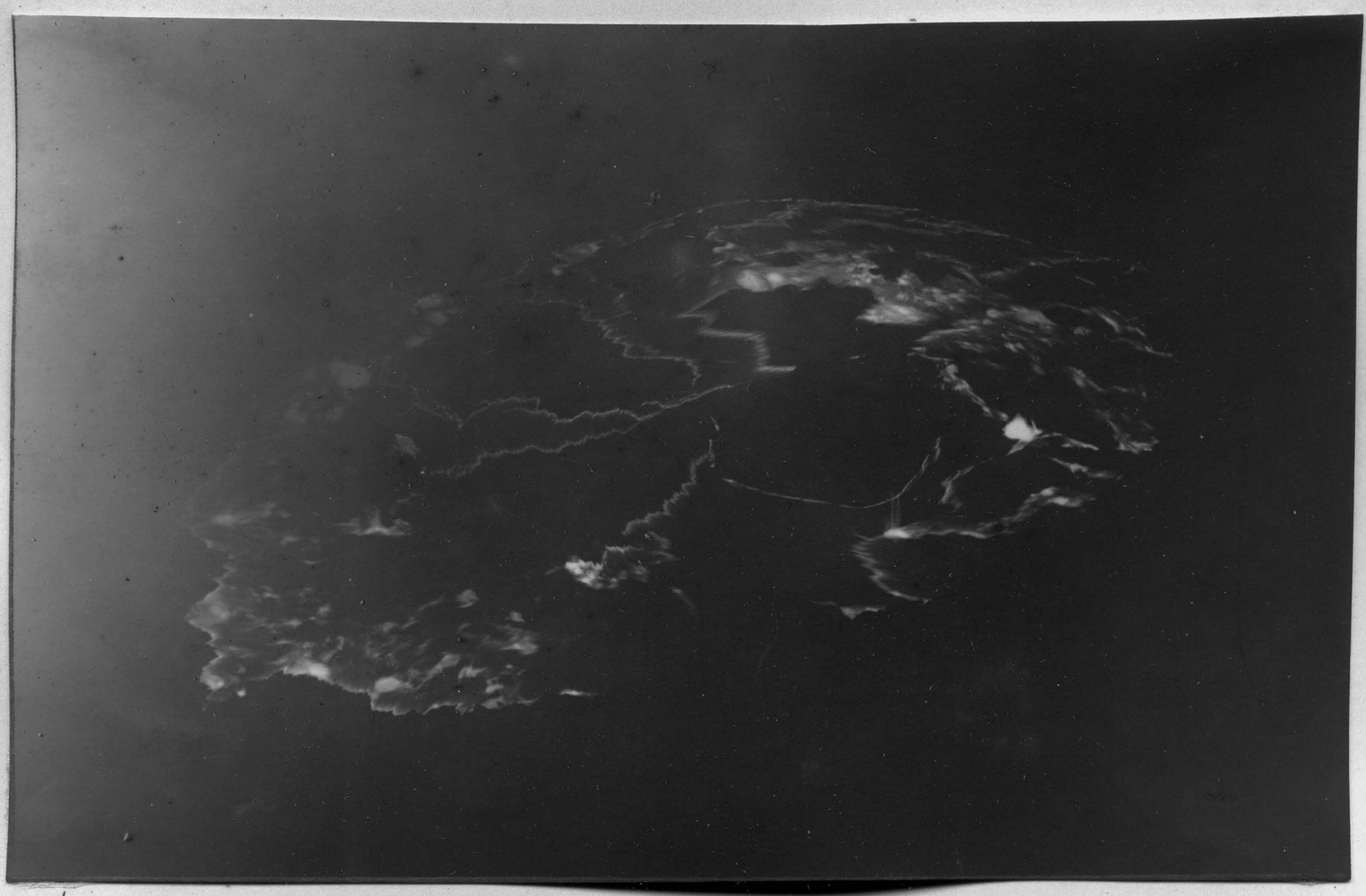


#4

T.A.J.

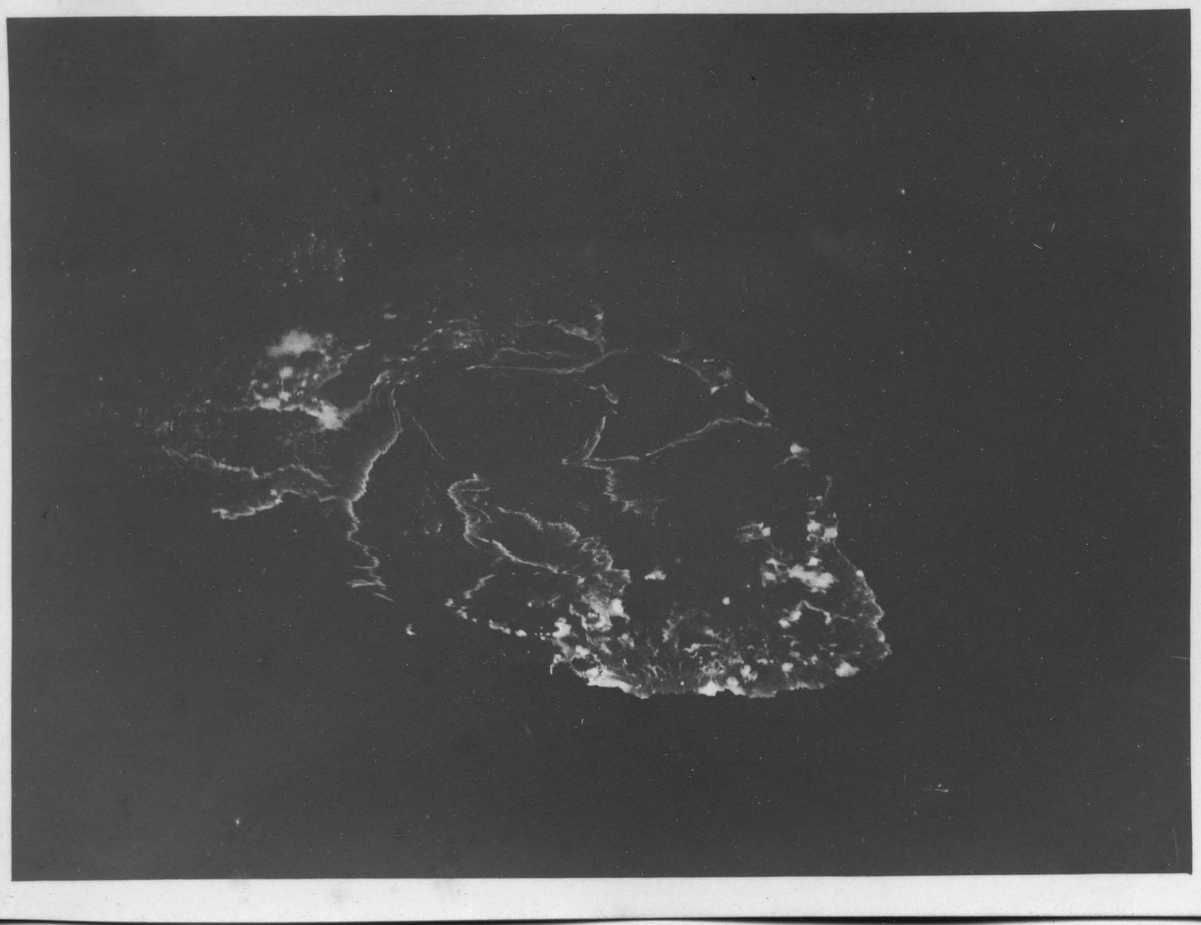
1913, Feb. 18.



#7



#9



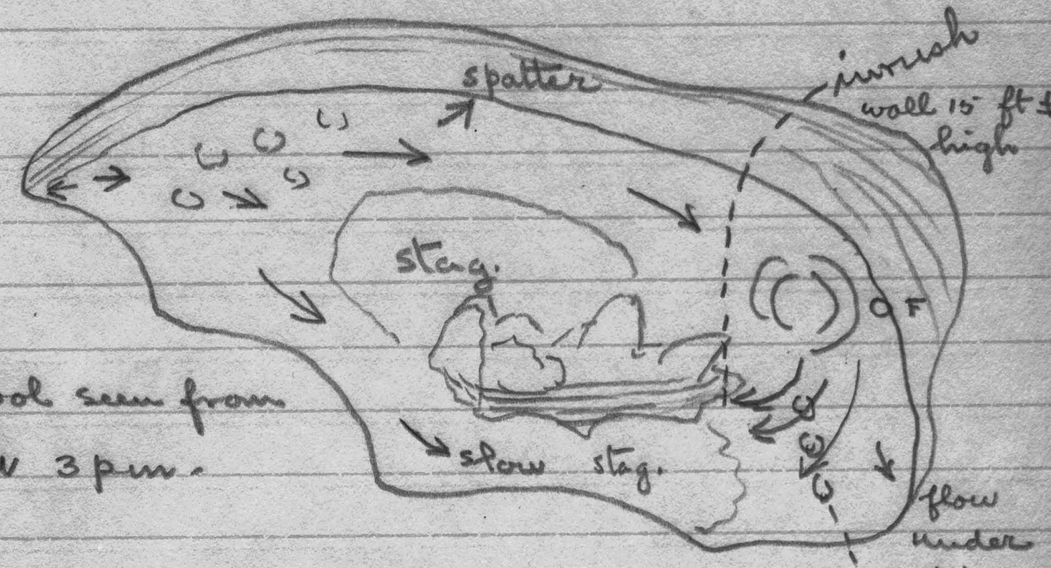
#10

Exp.

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Wed Date Feb 19, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m							This	day	Survey E, S + SW - E fumy, clear S + SW.
2									
3									
4									
5									
6									
7	1 H			38.11	fumes			- - - -	west fountain N Faithful very noisy. Fumes prevent
82 pm	E		E tip 9	36.48	1.22				
9 "	E		W peak 9	33.06	2.34				
10 2.30 p	S		E horn 9	29.28	2.00				
11									
12									
1 p m									
2	1 H		E tip 9				55.6		
3 pm 3	S W		" " "	29.35	0.31	29.04	698	388	Pool seen from
2 pm 4	E		" " "	36.48	1.22	35.26	5.45	387.5	SW 3 pm.
5 3	S W		W summit 9 sl.	29.35	0.36				
6 pm	Cold night. Noticed the 2 steam jets								
7	on mauna Loa between the 2 upper								
8	conelets - Profile extraordinarily clear								
9									
10									
11									
12									



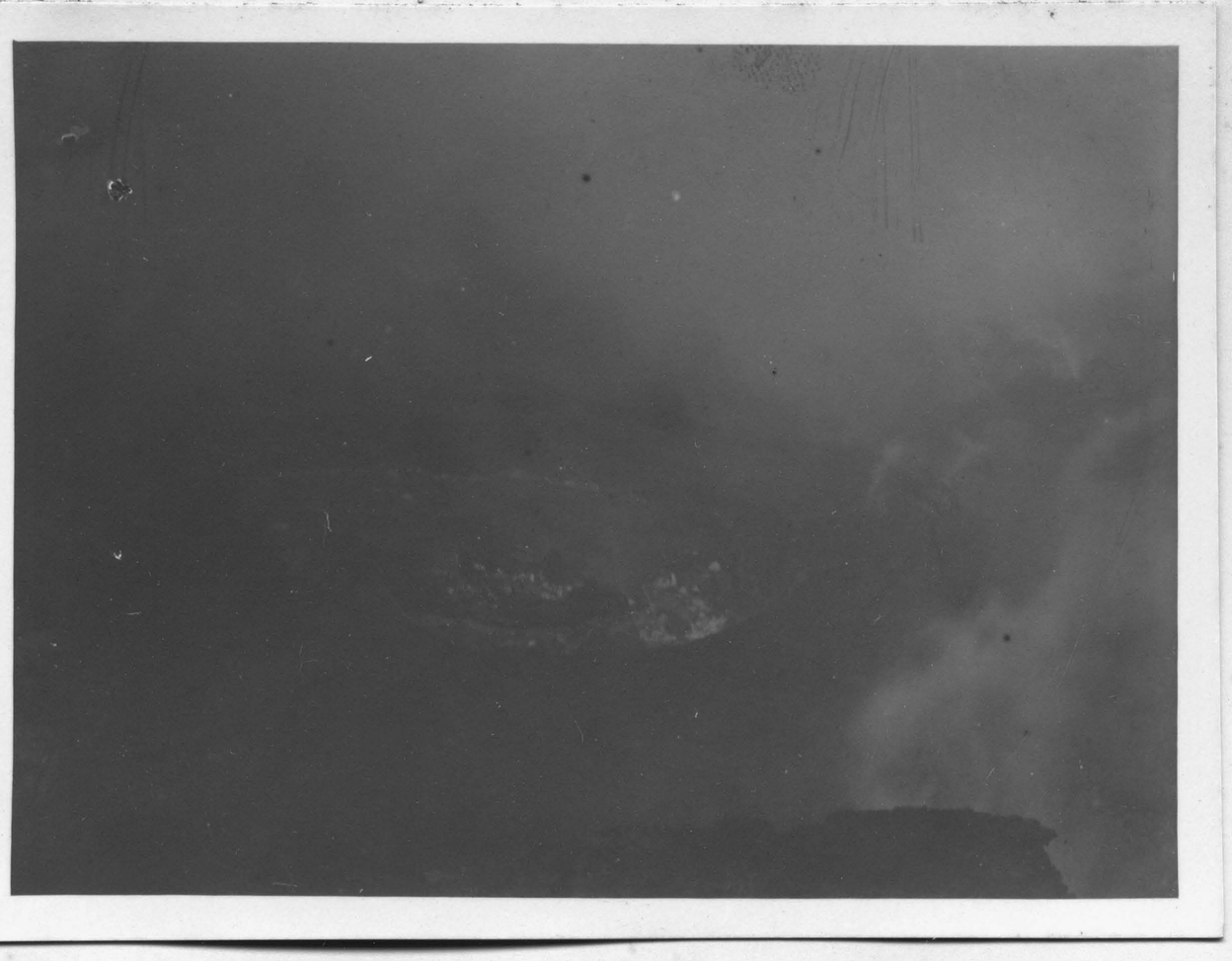
About O.F. an extraordinary acceleration of speed of current. A sharp fall is evident since yesterday but now appears active + rising

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
1.30 pm	A	WP	3		f 32	1/5	iso		from S. Ste
1.45 "	"	"	4	4 sec	"	1/2	"		" " " Sun on island. Pretty clear
2 "	"	"	5		22.6	1/2			" " "

T.A.J.

t	loc	ther	temp	wea	NOTES

1913, Feb. 19.



#3



#4



#5

J.O.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Thurs Date Feb 20, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									Lava at night falls many; large chimney W. end enlarging into an E-W chasm. NE and S corners of the pool angular and enlarged. W. end boiling. Pool has fallen much. Apparently 30-ft wall at E. end. Surface pattern of sluggish blankets. More activity early in the evening than at midnight. Immense slides heard W, probably falling into chasm. Rocks could be seen falling into the elongating W finger of the pool again and again; this finger was growing toward the large chasm.
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
									Photos after midnight recorded 21st. When marked on negative "12.10 mdt," of the 20th, means 12.10 a m 21st.

J.A.J.

t	loc	ther	temp	wea	NOTES

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

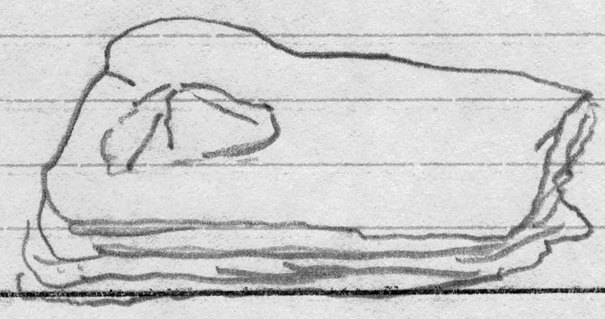
KILAUEA DAY SHEET

Day Friday Date Feb. 21, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
10 1 a m	I. H.		S	38,11	6.21	31.50	620±	385'	
21.20	"		E. tip isl	38,12	2.59	35.13	536	389.5'	
3									
4									
5									
6	fumes I H								Rocks sliding under I.H. below 60 ft bench
7.30	E		" " "	38.32	1.33	36.59	545	410.5'	Pool rising. Overflows have covered all but one pinnacle of the island (the W one?) and overflows cover a new SE bench. Overflowing at this time. Many small fountains. Continuous fountain noise - Not much rock sliding.
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									SW. fumarole gushing rapidly, 3 ft hole, transparent cauliflower vapor with blue edges below, which condense to lavender dense above. Some glow - illuminated brown puffs come up.
5									
6									
7									
8	4.30 and thereafter from S. channel, saw baby fountains at W end, streaming W to E, N of island, around island to S cove. A rush in back of island S. Avalanches tumbling W. High NE wind. WSW the streaming goes under bank O.F heavy also V.F. Boiling next shore NE corner, platform above bent down by slumping.								
9									
10									
11									
12									

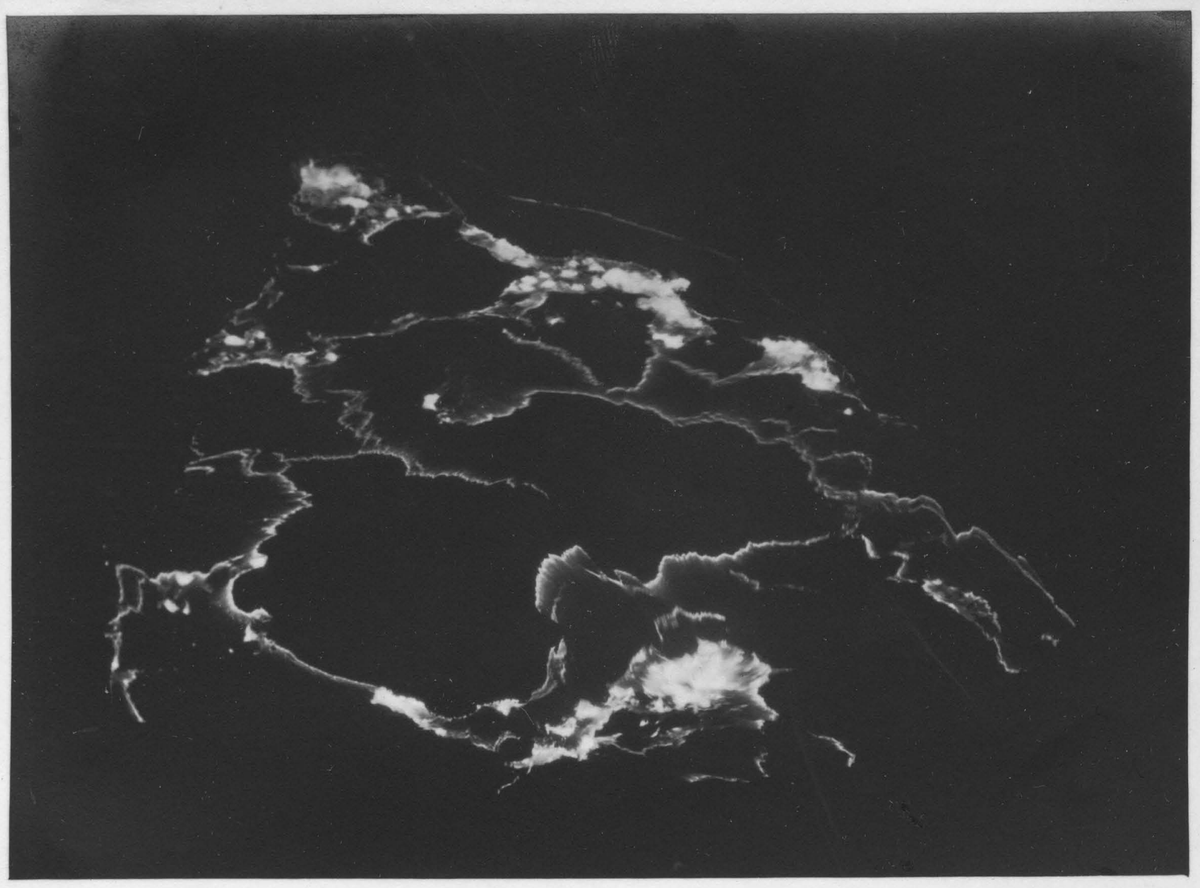
t	cam	pl	no	lt	stop	ex	scr	dev	LOC
12.10 am	Ds	WP	1		F5±	1			3¼ × 4¼. SE sta. E.W. line fountains extending out from W end of pool; very thin even veil of fumes
12.30 am	"	"	2		F7	1			F5+ means full opening Z. Area. F7- means largest marked stop U. S. 3.
4,15 p.	Ds	WP g.	1		f8	1/20			S. channel - New SW fumarole gushing from 3 ft. hole
4.30 p	"	"	2		"	1/2			" " Flat topped island

t	loc	ther	temp	wea	NOTES
					Shape of island =



J.A.J.

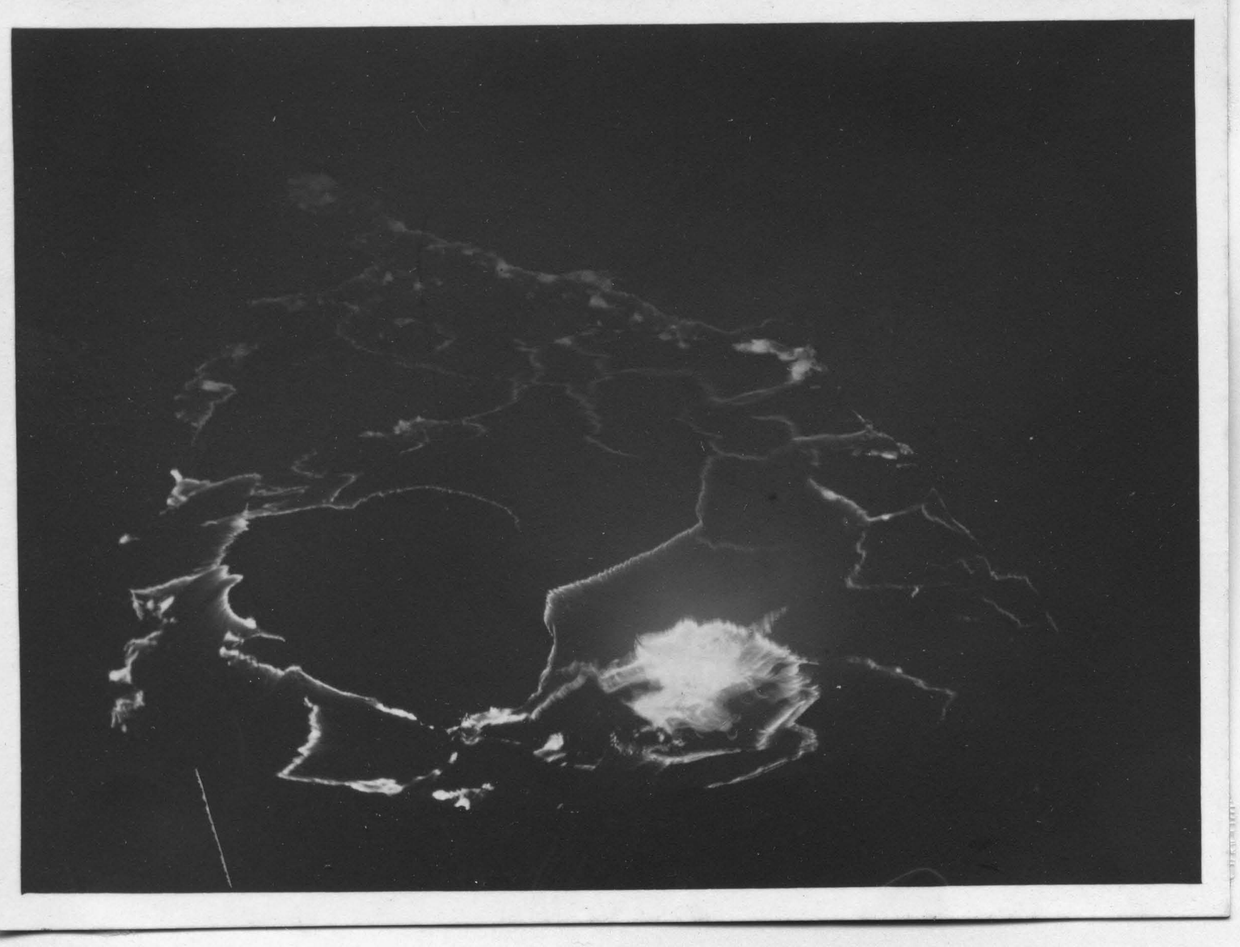
1913, Feb. 21.



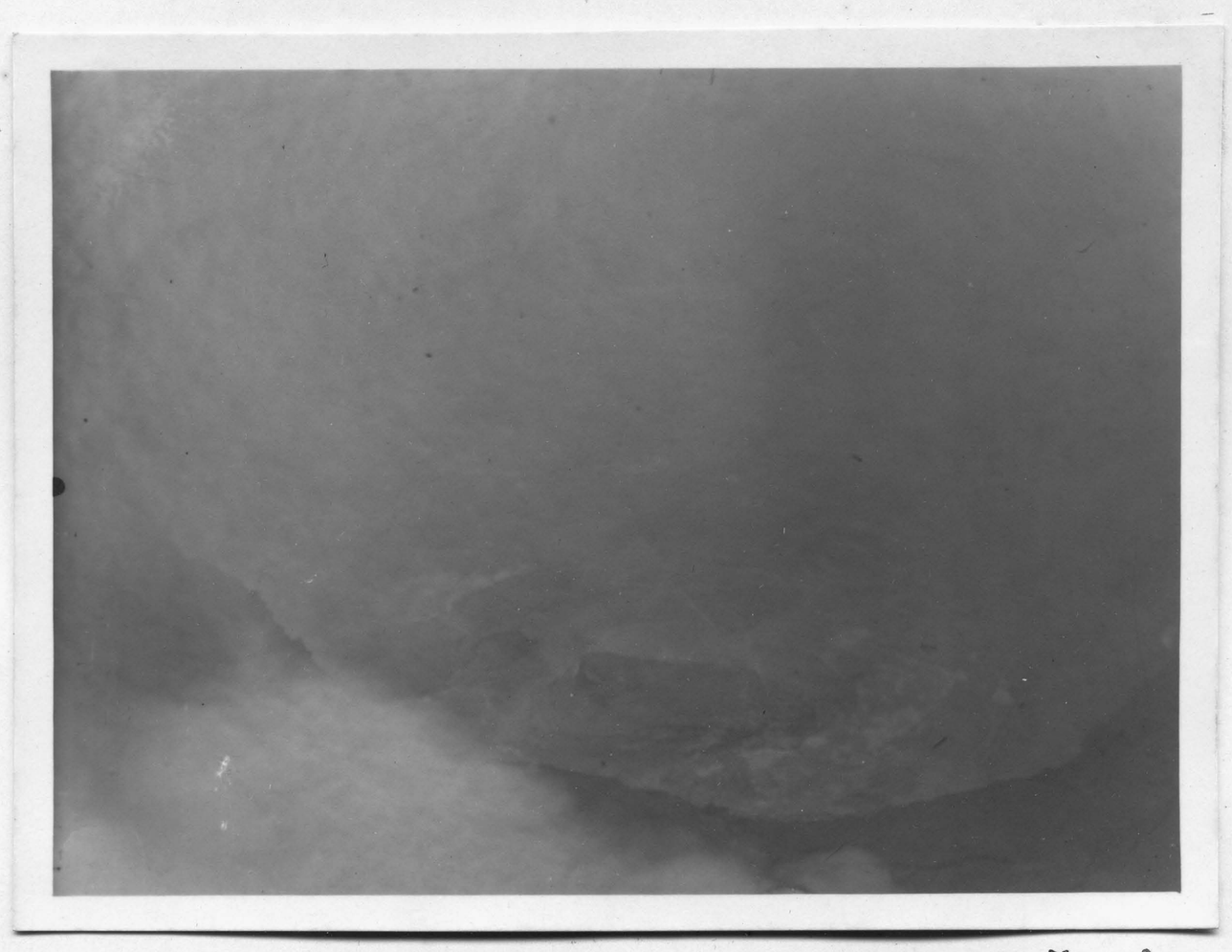
1a.



1p.



2a.



2p.

Jan.

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sat Date Feb 22, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									At 3 pm pool had sunk much. Great tumble into it NE 2.45 pm. A great hollow in the second bench down, looking E-ward from channel over what has been a glow-hole S. recently, has formed since yesterday and talus there is falling every few minutes into the hole - The SW hole has also greatly enlarged by caving in; quiet vapor is now rising from it instead of puffing vapor. The vapor from the south hole is more active. The island is joined to the SW bank - Walls around pool are high -
2									
3									
4									
5	SW	3.5'	E tip 9			31.25'	695'±	424.5'	Brunton
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									

	t	cam	pl	no	lt	stop	ex	scr	dev	LOC
X	3.10 p	Al, V	f	1-3	5" sec	smallest	3-vane		Rod	Series to test Al Vista. 5"-sec light + pit funny, poor subject. Camera leveled ⊥r, + l. w. spirit level, tilt fwd. 20°30' (Brunton): looking N.10°W. Including S fumarole. From Channel S.
	3.15 p	"	"	4-6	" +	"	5- "		"	Best neg. is 4-6. fogging? Try Vane 5" + mid-dle stop
X	3.35 p	"	"	7-9	" +	"	8 "		"	N-52 W Toward SW fumarole
	4± p	"	"	10-12	" +	"	13 "	dif 27.50'	"	
X	4.33 p	A	?	3	" ∓	F 8	1/3		ro	Series like this spoiled by rising front pushed up by tripod
	4.35 p	"	"	2	"	"	"		gl	S fumes from S sta
	4.45 p	"	"	1	"	"	1/2		"	Pool " "

t	loc	ther	temp	wea	NOTES
					T.A.J.

1913, Feb. 22



#4-6



#10-12

1913, Feb. 22.



#2



#1

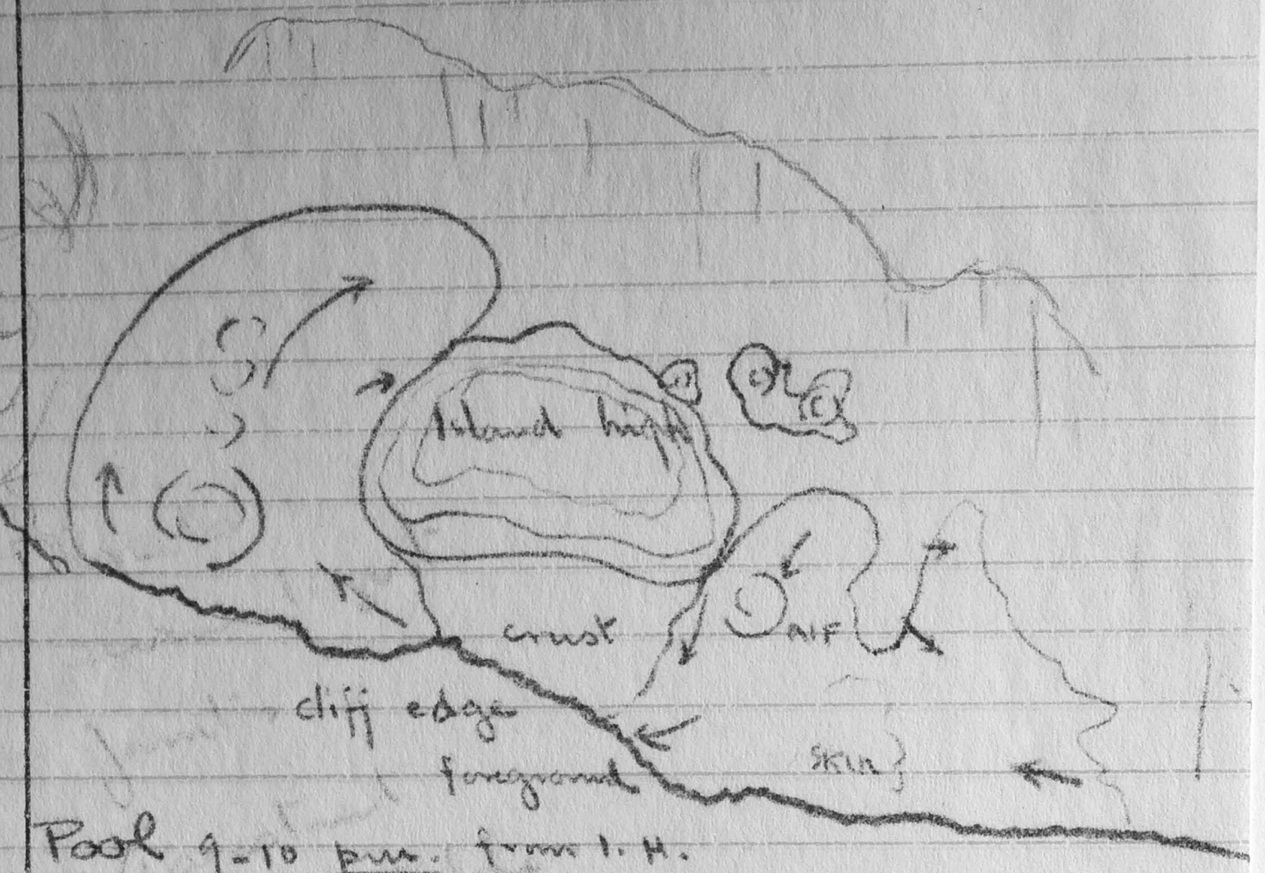
Jag.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Sun Date Feb 23, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9,25	I H		Eq. D	38.10	0.11	37.99	556	434	Isl. now a peninsula
10.30	+ Tremendous avalanches S								
11	" "		" " "	38.8	0.19	37.49	"	431.5	Almost continuous rock falls Dup rumble occasionally Fr. ing hole base of N avalanche.
12									



After 9 pm note that wall cuts off view from I.H. of channel N of peninsula, the pool has fallen so low.

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
10.40p	9	S.P.	9		F5	3			from I.H.
10.45p	"	"	10		"	60			" " Very clear. Avalanche falling S.
11 p	"3x4	W.P.	2		F6.8	1			" " 3 benches appear greatly fallen away all above 34° L

J.A.J.

t	loc	ther	temp	wea	NOTES

103

1913, Feb. 2



#9

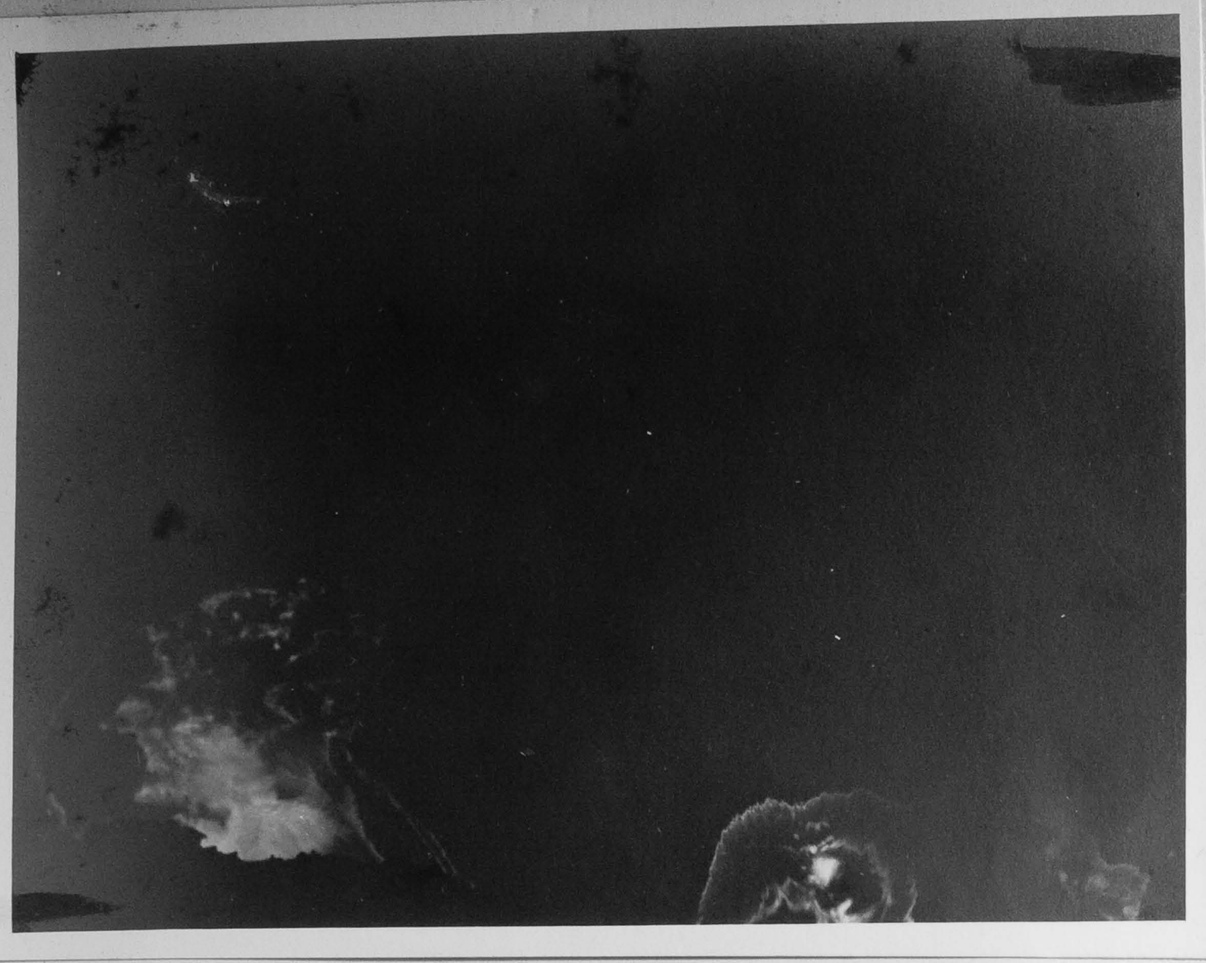
1913, Feb. 23



8 a.m.

#10

1913. Feb. 23.



#2

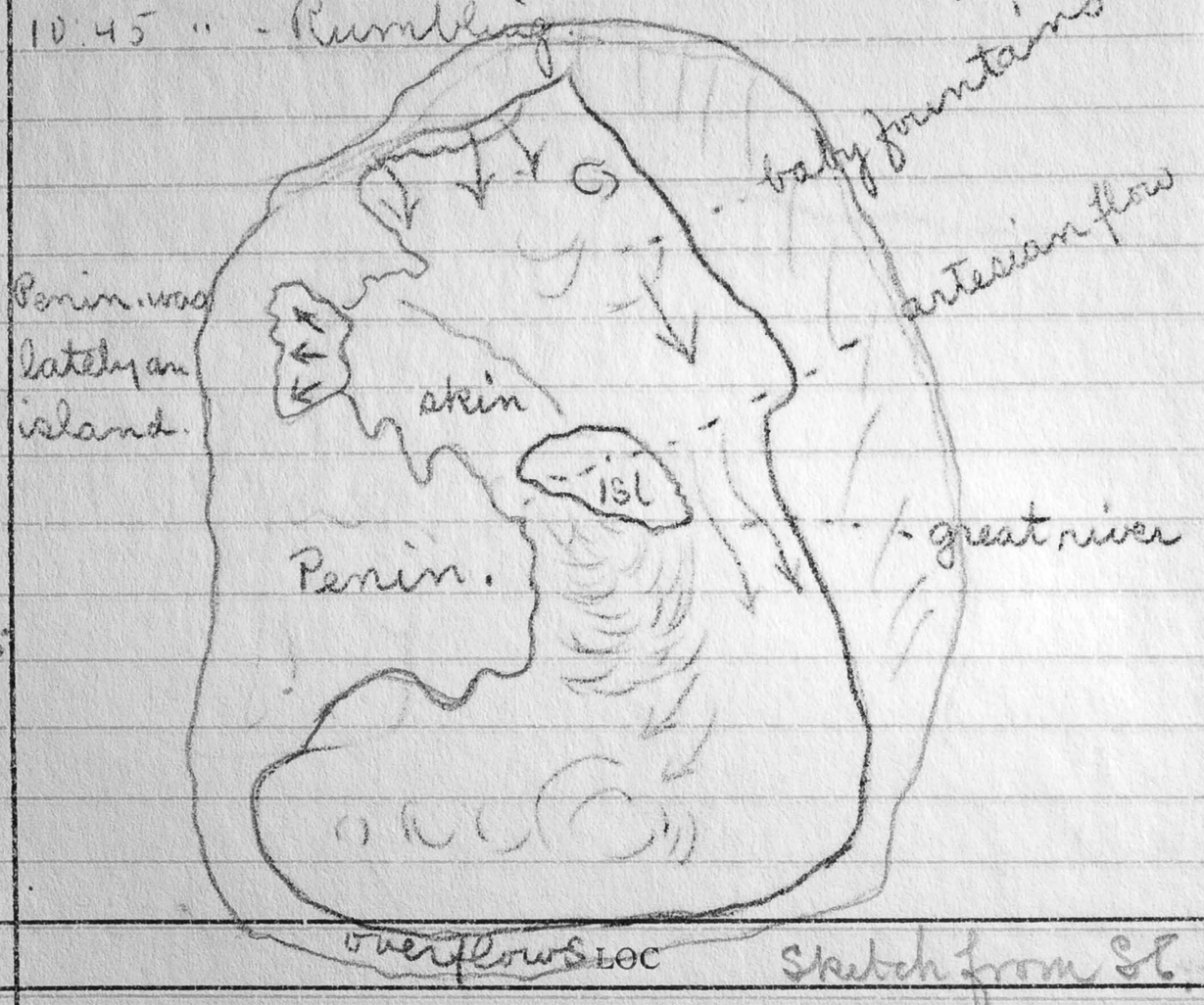
Jap.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Monday Date Feb 24, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									7 a.m. - Encircled pit.
2									Big S fumarole full of stones. No falls
3									perceptible from high edge. Inner plat-
4									form has sunk + caved much. Pool as
5.30	1 H	(E tip 9)	↘	38.11	0.22	~~27.49~~	556	431.5	last night. Much the aspect of a fine week
6									ago. Unusual SW wind. Rain. Fumes.
7									Started to arrange pit seismograph
8									7 p.m. Great change. Two rivers and
9									two islands, with great activity.
10									9:45 p.m. - Activity somewhat less. Rock falls.
11									10:45 " - Rumbling.
12									
1 p m									
2									
3									
4									
5									
6									
7									
8.20	E	3.56	E tip of	42.10	4.58	38.5	555	434.5	
9.	"	"	w end	29.54	1.37	28.18	770±	415	
9.45	1 H		E tip 9	40.53	2.57	37.56	556	433.	
10.30				38.12	0.22	37.50	"	432.	
12									



Sketch from SE.

t	cam	pl	no	lt	stop	ex	scr	dev
8 p	9 3x4	E	1		F5	1		
11 p	9	W.P.	2			3/4		

From E. Clear.
" S.E. Near part very clear. Two rivers

J.A.J.

t	loc	ther	temp	wea	NOTES

107

1913, Feb. 24.



#1



#2

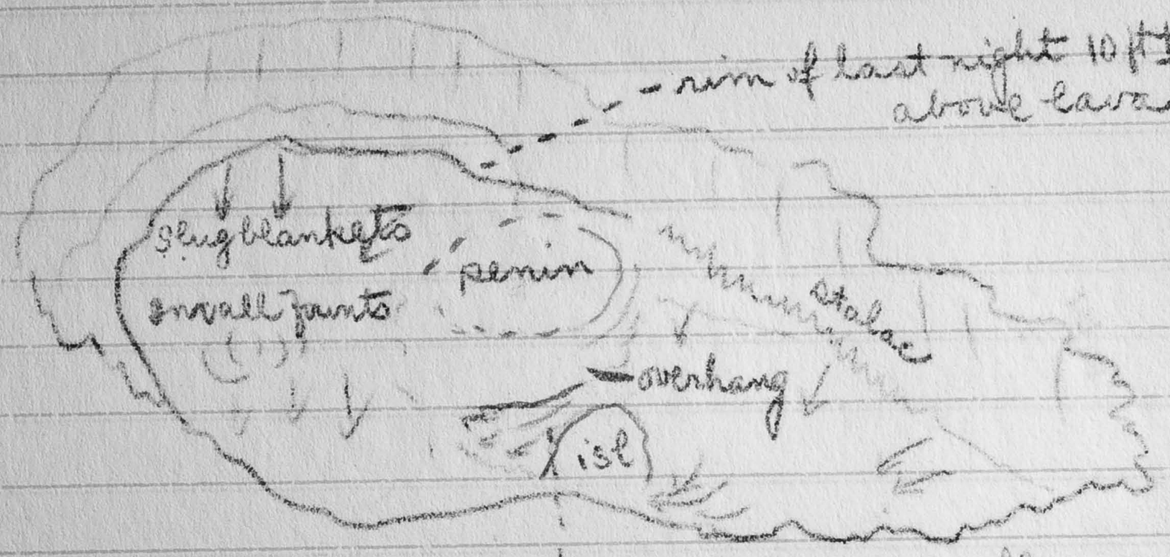
Yap.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Tues Date Feb 25, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									7 am. Wind E. Fumy L.H. Pool rumbling somewhat. Small stream bet. penin + isl, a quick chute. Narrow N river out of sight from L.H. behind cliff. Steaming N in O.F. region. Some light + rare rock slides. General ntree a steady surge.
2									
3									
4									
5									
6									
7									
8	1 H		Etp 9	52.50	13.20	39.30	55'6	45'8	Reading from 30' end of reference.
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									



Chute with quick steady flow

Sketch from L.H. at 8 a.m.

H.A.G.

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Wed Date Feb 26 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									6 pm. Pool down farther. From 1 H only two
2									coves of W pool show. River all cut off. From
3									SE this was seen to be one large steep torrent
4									with a standing wave or rapid in its mid-
5									dle. Skin blocks sweeping down it from W to E
6									O. F. active. Some rock falls heard. Noises
7									O F and weak surging sounds. Not much
8									rumble. Fumes very strong 1 H. Wind E-ly
9									N F active.
10									
11									
12									
1 p m									
2									
3									
4									
5									
6 .20	1 H		Eruptive	52.36	10.39	41.57	556	500	? was this sighted on a crust projection for the Eruptive? no
7 .30	1 H		"	52.36	13.02	39.34	"	459	
8									
9									
10									
11									
12									

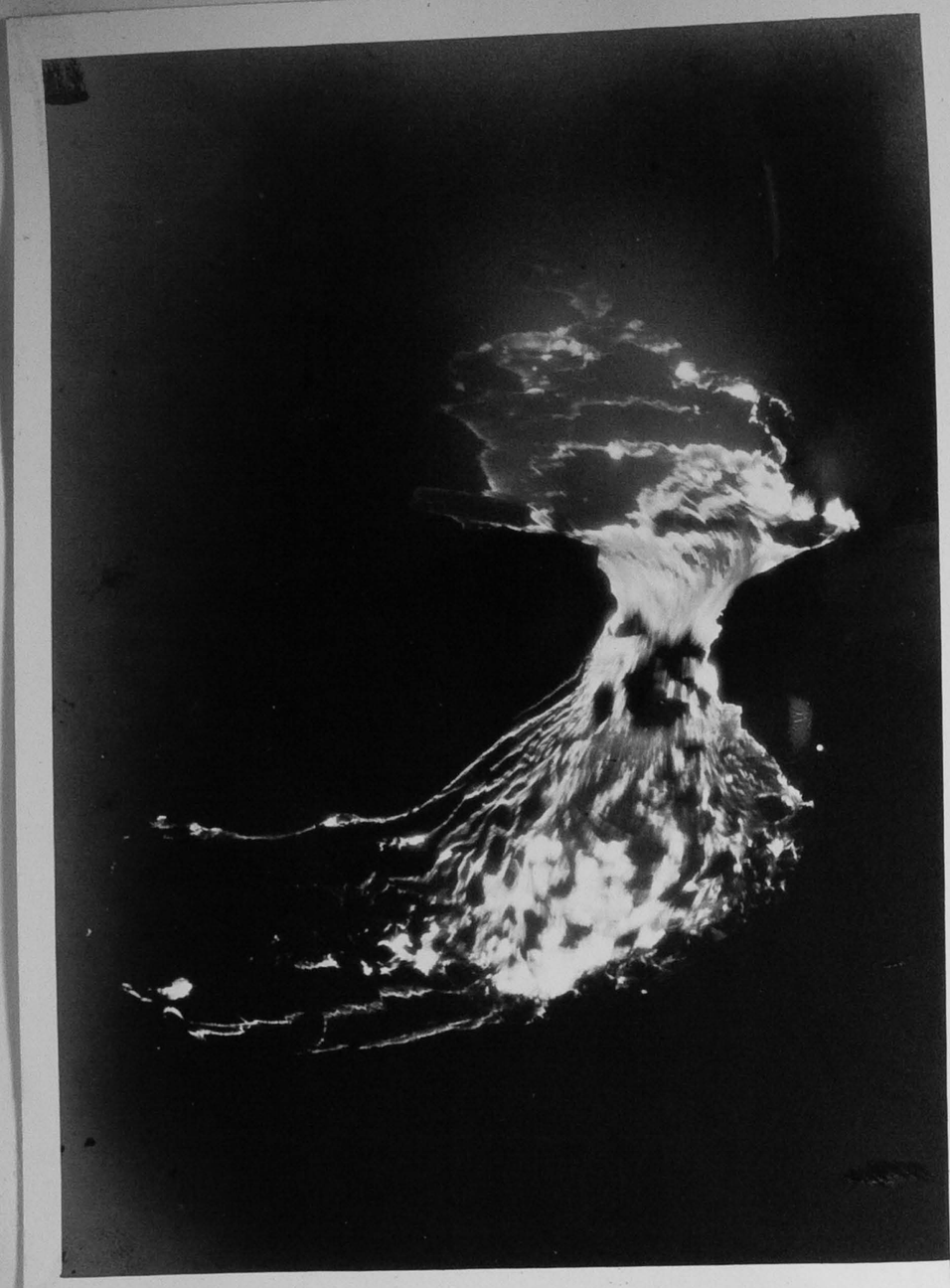
t	cam	pl	no	lt	shutter stop	ex	scr	dev	LOC
8.20p	S	W.P.	1		F.P.	1/25 T			from E, [illegible]
	"	"	2		"				" " Clearer & quicker.
									River of lava. Stalac N bank. Brimming
									S cove. Fountains W.

t	loc	ther	temp	wea	NOTES

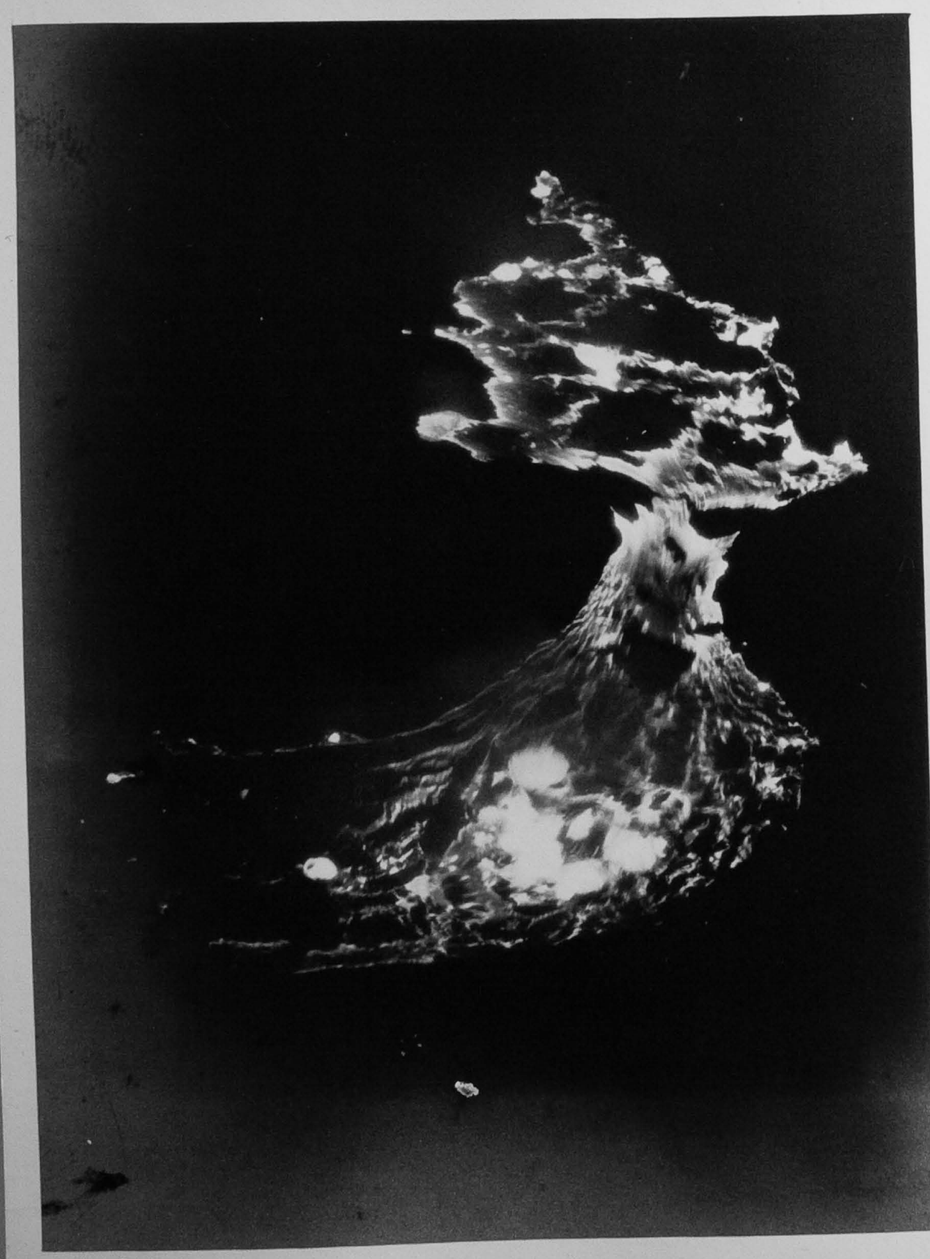
Feb 27 no record

Taj.

1913, Feb. 26.



#1



#2

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

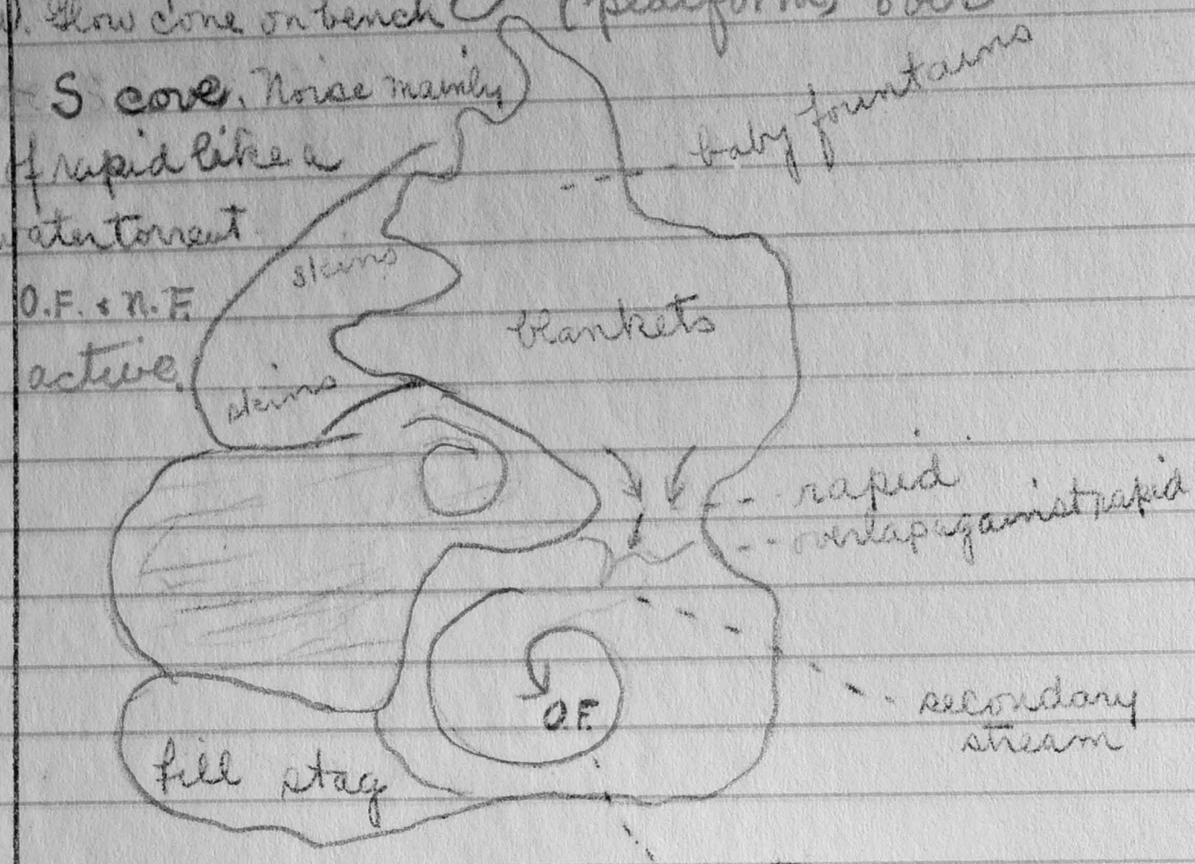
KILAUEA DAY SHEET

Day Friday Date Feb 28. 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev
1 a m								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
1 p.m								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11	E		Elpp	Brunton		40.30	553	472
12								

NOTES

11 a.m. Pool much as last night but narrower.
Wonderful whirlpool in O.F. Heavy rockfalls heard
W. Flow come on bench O (platforms) over
S cove. Noise mainly
of rapid like a
waterforrent
O.F. & N.F.
active.



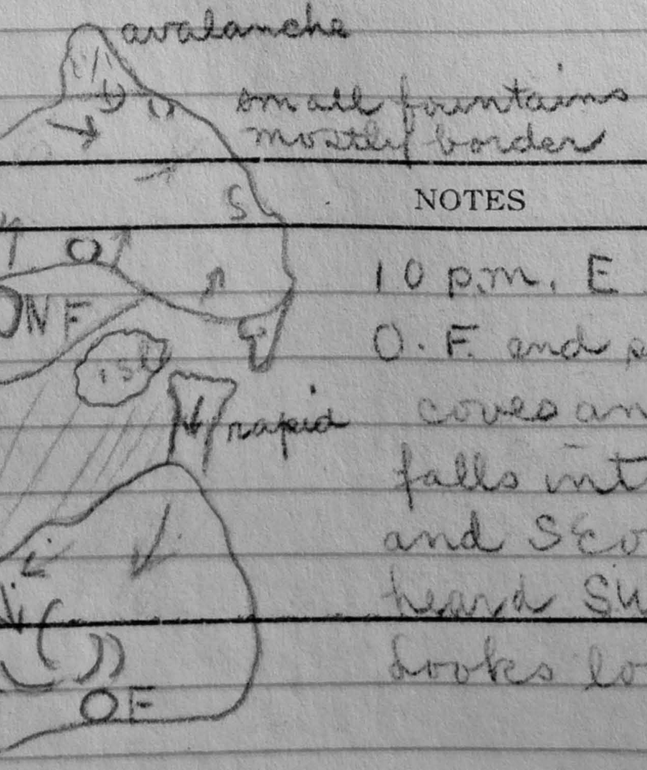
Sketch from E.

1 a.m. Only glimpses to be had from I.H. No measures
Sluggish. No vortex at O.F. Cannot see if stream
at W end of small ponds show. Fumes

t	cam	pl	no	lt	stop	ex	scr	dev
1a 10.30p	A "	WP "	1 2		F 6.8	1/3 1/3		

LOC

From E. Full aperature. Held against rocks.
" " fairly clear. ∠36°25'
[N 88 W.



Sketch from E.

t	loc	ther	temp	wea

NOTES

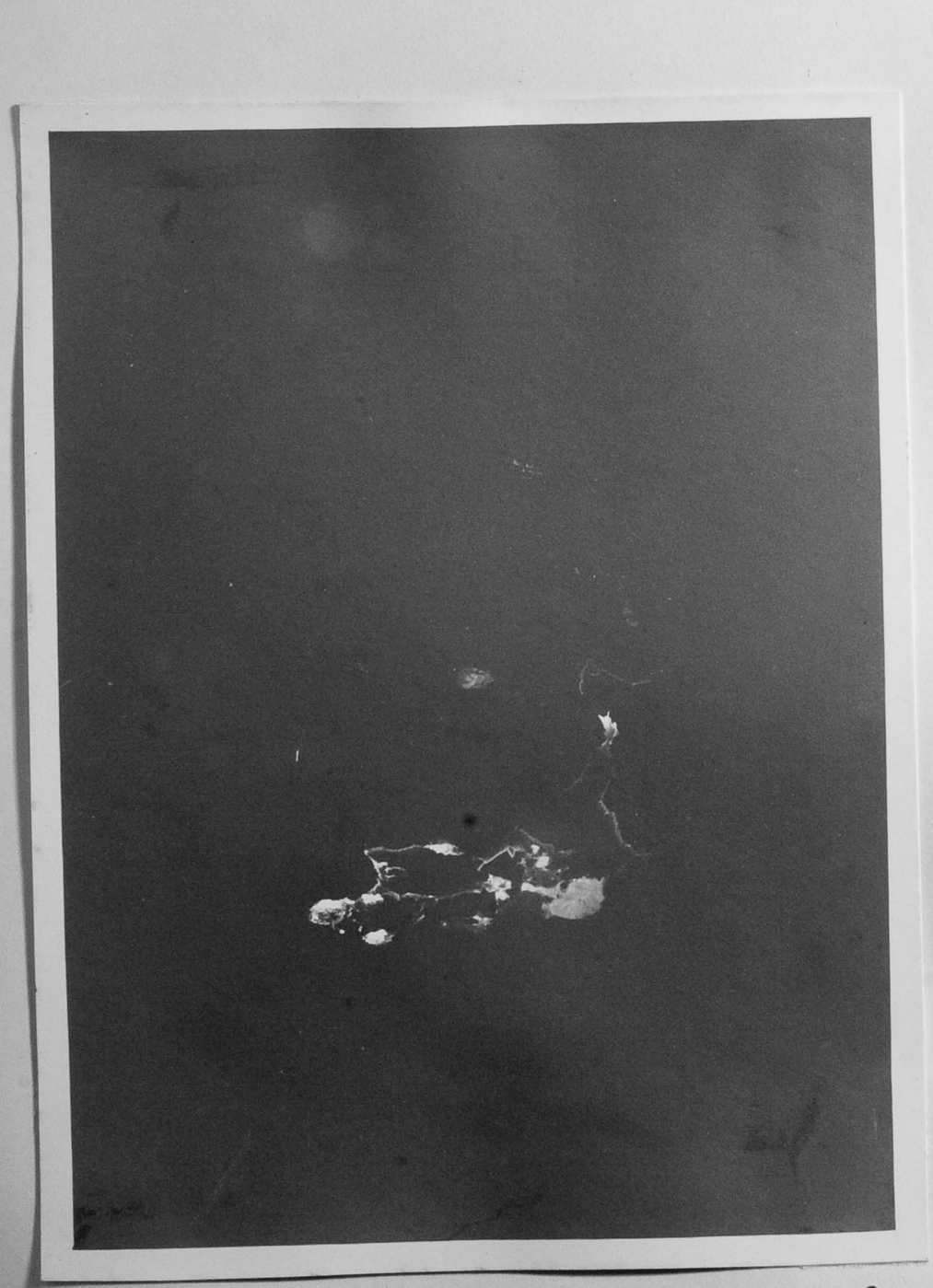
10 p.m. E Narrow torrent
O.F. and sluggish W end
coves and ponds. Rock
falls into lava W end
and S cove. Tumbles
heard SW - W.
looks low.

J.A.J.

1913, Feb. 28.



#1



#2

J. A. J.

March to July, 1913		Deep, obscure
July 8, 1913		Volcano house
Juoy 29, 1913	6,7,8	Ash bed, base of Uwekahuna Bluff
July 29, 1913	5	Redaing temp Postal Rift
	9	Driblet cone, men
Oct. 5	4,5	Seismograph room T.S. tech station ?
	3	

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sat Date Mar 1, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									7 a.m. Dense fumes. No seeing. Noise of fountains faint at 1.H. Clattering talus slides.
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7,35	SE		E tip p		Brunton	34.5	612	426	?
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
7 pm	A	W.P.	1		F 5	1 sec			
7 pm +	"	"	2		"	"			
"	"	"	3		"	1/3 "			From SE

J.A.J.

t	loc	ther	temp	wea	NOTES

1913, Mar. 1



#1



#2



#3

J.a.g.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Sunday Date Mar 2, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									Alec reports 2 avalanches in the evening. Streaming in the E pool N+S to meet O F.
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6	S		E tip p		Brunton	30° 20'	704	412	Conditions same as last night.
7									
8									
9									
10									
11									
12									

J. A. J.

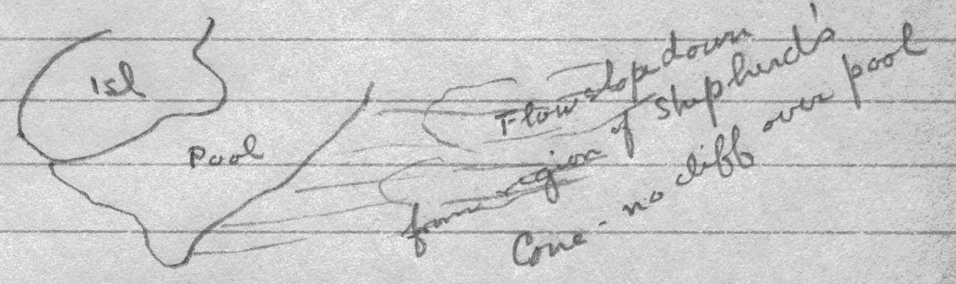
t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Monday Date Mar 3, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									At 9 am fountains active - Fissures E - Found the boulder embedded in frozen splash of lava (of Dec 1911) which had been a feature of 60-ft bench under S Sta (at channel), had all caved in, occasioning one of the avalanches accompanied by earthquake on the rim, reported last night - Large crack in rim above this avalanche notch, and the whole W end of bench sagged out with gaping crevasse behind it. The SW fumarole is all full of fallen stones - Profile of 200 foot ledge under S Station is changed by caving. The top of the talus slides under the southern cliffs SE and SW appears lower, and it has slid down 30 ft ± below the ladder as placed by Gaumont Feb 3 at E end S bench - Talus heard sliding 9 am - a block from bench at the new notch fell 9.10 am.
2									
3									
4									
5									
6									
7									
8									
9 .15	S		E. tip p	Brunton		32. 0	703	439	
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									



E pool from S sta 9 am

t	cam	pl	no	it	stop	ex	scr	dev	LOC
9 pm	A	WP			F 6	½			E sta.

T. A. J.

t	loc	ther	temp	wea	NOTES

1913, Mar. 3.



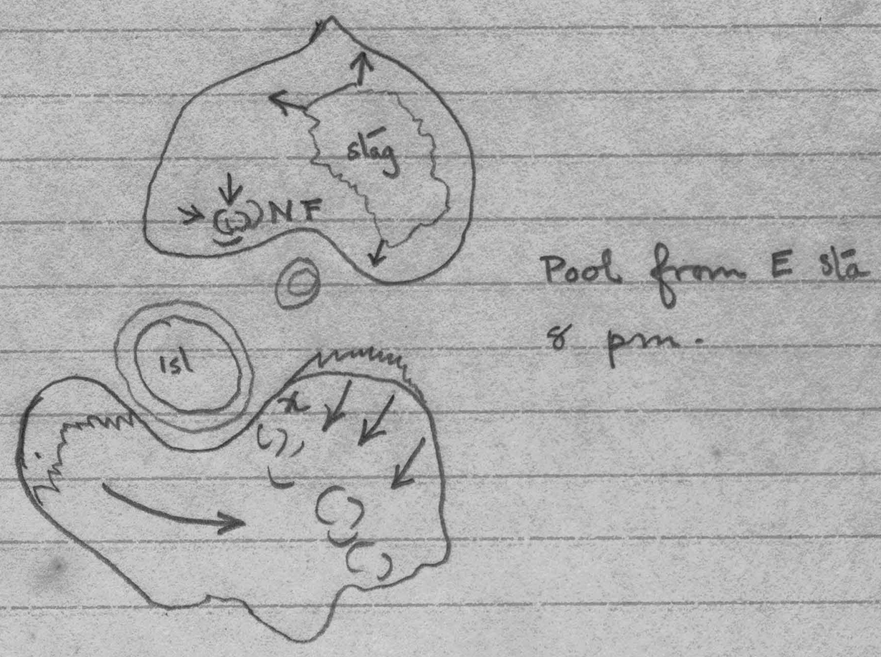
T.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Tues Date Mar 4, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4.30	I H	alidade on ε tip p shows tip has migrated E with sinking; readings from E have shortend dist.							
5									
6									
7.15	S		ε tip p		Brunton	32 25	702	446	azimuth N20W
8									
9									
10									
11									
12									



Pool from E sta 8 pm.

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
8 p	A	W P	1		6—	½			E sta Clear. streaming not strong W. not much talus sliding. O F quadruple. O.F. and N.F. both downsucking. Filagree cone W of isl. Large flame hole beyond that W. Shepherd's cone, or its successor, glows through two cracks. At π (see sketch) O.F. occasionally explodes right on the bank. Saw bank cave in under it. Streaming in E pool to a line of downsuck NE. High glow-holes W SW.
				1					

t	loc	ther	temp	wea	NOTES
					T.A.J.

1913, Mar. 4.



#1

J.a.g.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Wed Date Mar 5, 1913
Thurs NOTES Mar 6, 1913
Fri Mar 7, 1913.

t	sta	h. i.	pt	lev	vert	dif	dist	elev
1 a m								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
1 p m								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Pool continued about the same these three days - At 8 pm. mar 7 tried small strips W P plates in Anderson camera for quick exposures on O F by itself - Records to $\frac{1}{25}$ sec, but the air was not clear - Used 6.3 cms wide open. F 6—

The filagree cone s is brighter
Fumes are heavy all around pit -

T. A. J.

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

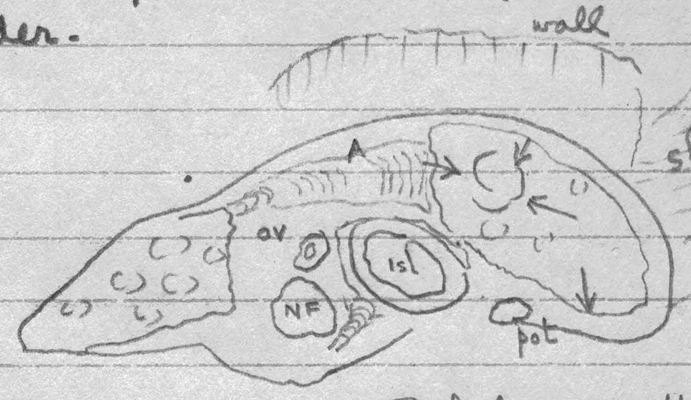
t	loc	ther	temp	wea	NOTES

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Sat Date Mar 8, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									at 3.30 pm from NW strong hissing heard W end appears unchanged. A round pot at NF- W pool largely crusted, a small festooned flow moved E'ward just S of N.F. There was boiling at extreme W end.
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12	Compass azimuths								
1 p m 3.30 pm	NW		I. H.						N 77 40 E
2	NW		S W sta						S 1 40 W
3	NW		W sta						S 21 50 W
4	N W		NF			41. 10	573	500?	S 28 20 E
5	"		E tip p			38. 10	595	468	S 30 20 E
6	W		SW sta						S 23 50 E
7	W		NF						N 76 20 E
8	W		E tip						N 68 10 E
9	SW		NF			32 45	666	428?	N 30 20 E
10 5.15 pm	SW		E tip			31 40	690	425	N 37 40 E
11									
12									



Pool from SW 4.30 pm

At ov = overflows broke up thro cracks at 4 pm.

The W is higher than E + overflows flow E.ward - Wall higher NE than W.

Hardly any sliding heard -

General arrangement same as last night but pronounced overflow is new.

At 4.45 pm the wide flow A was flowing

t	cam	pl	no	lt	stop	ex	scr	dev	~~LOC~~
									At 5.15 this had become a river and a large flow was pouring from NF Eastward S of the island -

J.A.J.

t	loc	ther	temp	wea	NOTES

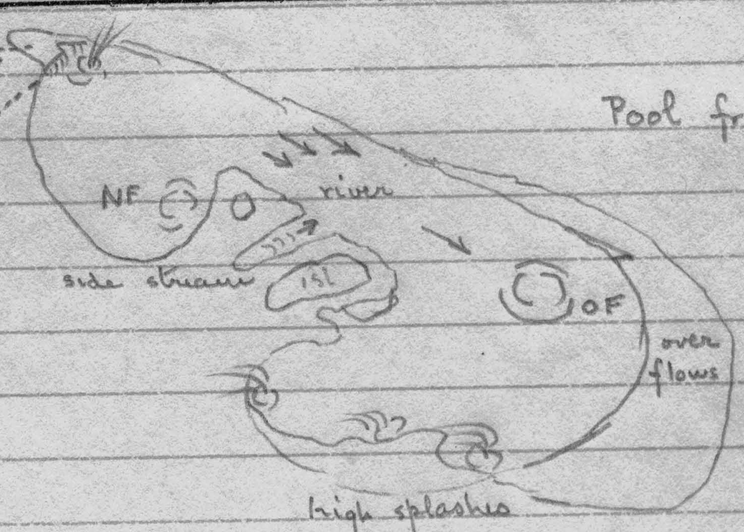
Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Sun. Date March 9, 1913

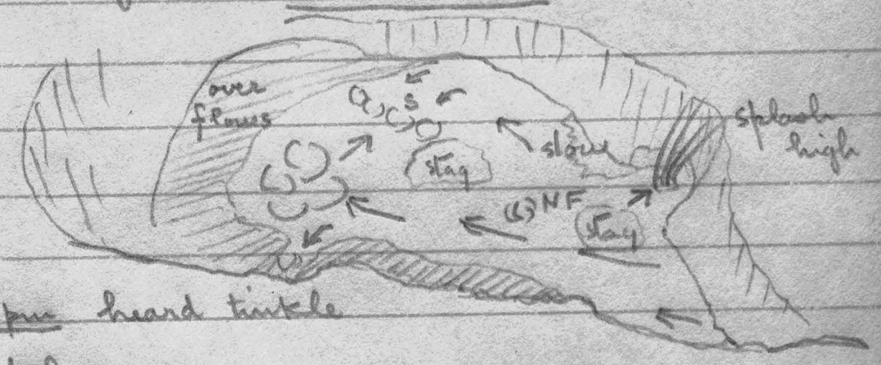
t	sta	h. i.	pt	lev	vert	dif	dist	elev
1 a m								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
1 p m								
2								
3								
4								
5								
6,30	S		W end					
~~7~~ "	S		E end					
~~8~~ "	S		NF				30.25	717	422
~~9~~ "	S		E tip				31.50	706	438
~~10~~ " p m	I.H.		E boil	37 59	2 21		35.38		
11 "	"		NF	52 27	12 29		39 58	548	459
~~12~~ "	"		WSW boil	37 56	2 13		35 43		

NOTES



Pool fr. S. 6.30 pm. Great activity. OF breaking in 5 or 6 domes At 7.15 pm a a quick rise overflooded E bench completely. At 9.30 pm the island submerged. The rate flow of river slowers as lava rose and finally normal streaming. (Phot #3) OF an area of downstick streaming W to E whole length. Sake oval E, pointed W. Overflows on bench E end, splashing in niche WSW. NF still exploding occasionally (9-30) blanket pattern no trace of peninsula or isl.

Pool from I.H. 10-45 pm at s=steady boil



8 and 11.10 pm heard tinkle of sliding talus.
11.30 pm Deep rumble splashing + trouble at I.H. Fumes bad - wind S.

t	cam	pl	no	lt	stop	ex	scr	dev
7.30p	A	WP	1		FF	1/3		
"	"	"	1a. same plate			1/8		
8 pm	"	"	2		6.3	1/5		
8.15 pm	"	"	3		FF	1/10		
8.30 "	"	"	4		FF	1/15		
10.30 p	"	"	5		FF	1/3		
Mar. 10. 2 am	(10th "	"	6		FF	1/2		

LOC

S sta - ∠21° 10' Az. N26W
" "
E sta ∠36° S 87 E show progress submergence island.
" " "
strip of plate " " "
I. H. island submerged. fumes
I. H. Haar. Island emerged

T.A.J.

t	loc	ther	temp	wea

NOTES

1913, Mar. 9.



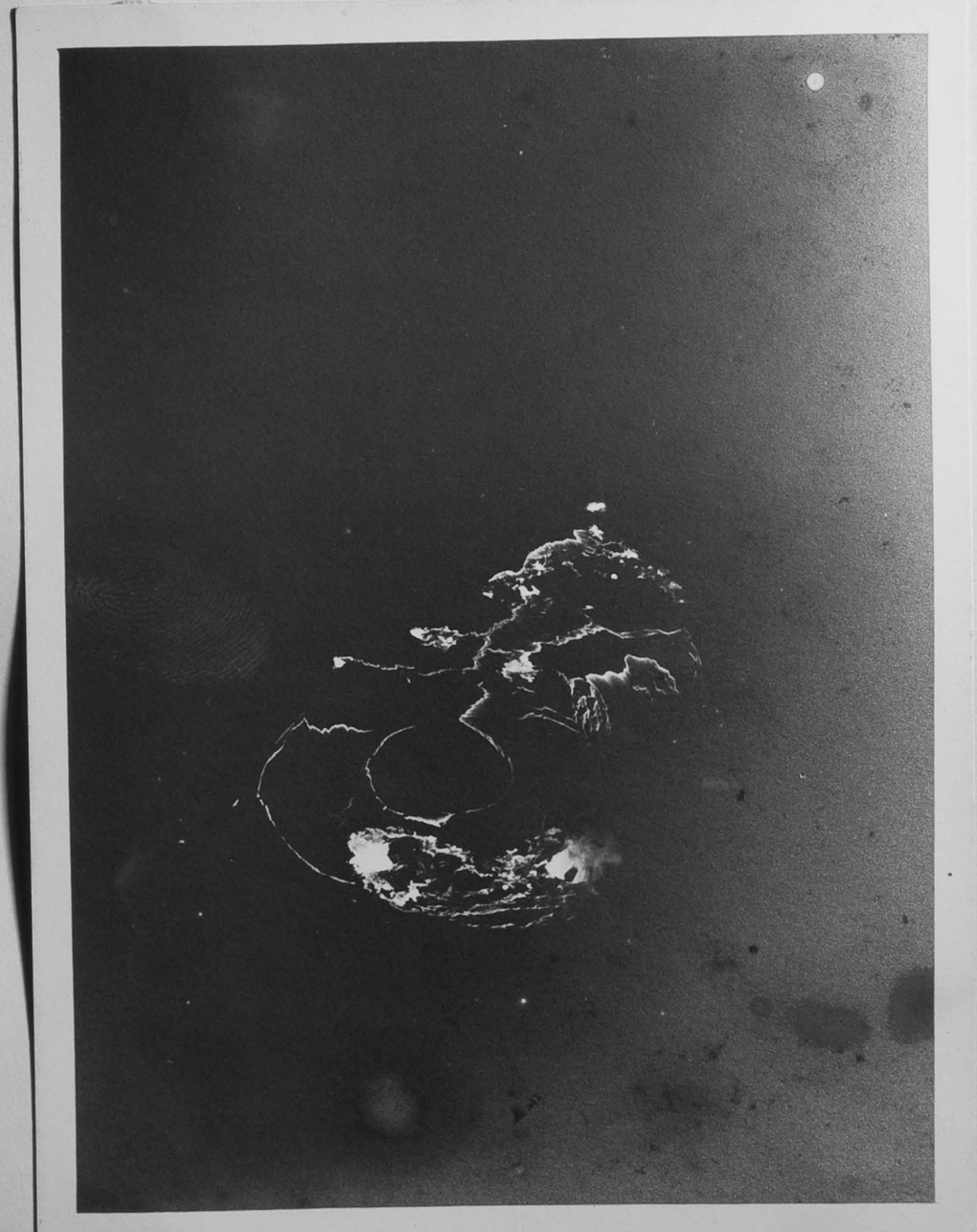
#1



#1a



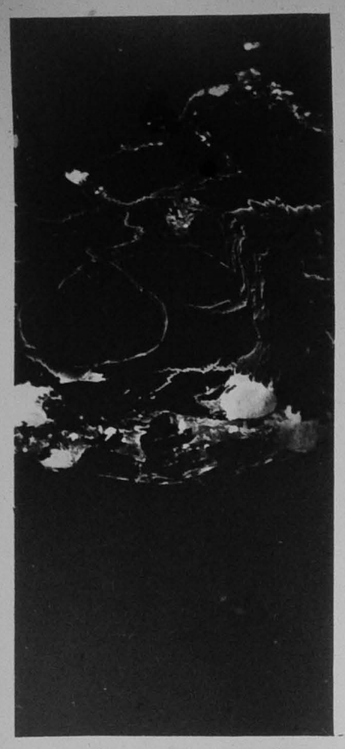
#2



#3

J. a. g.

1913, Mar. 9.



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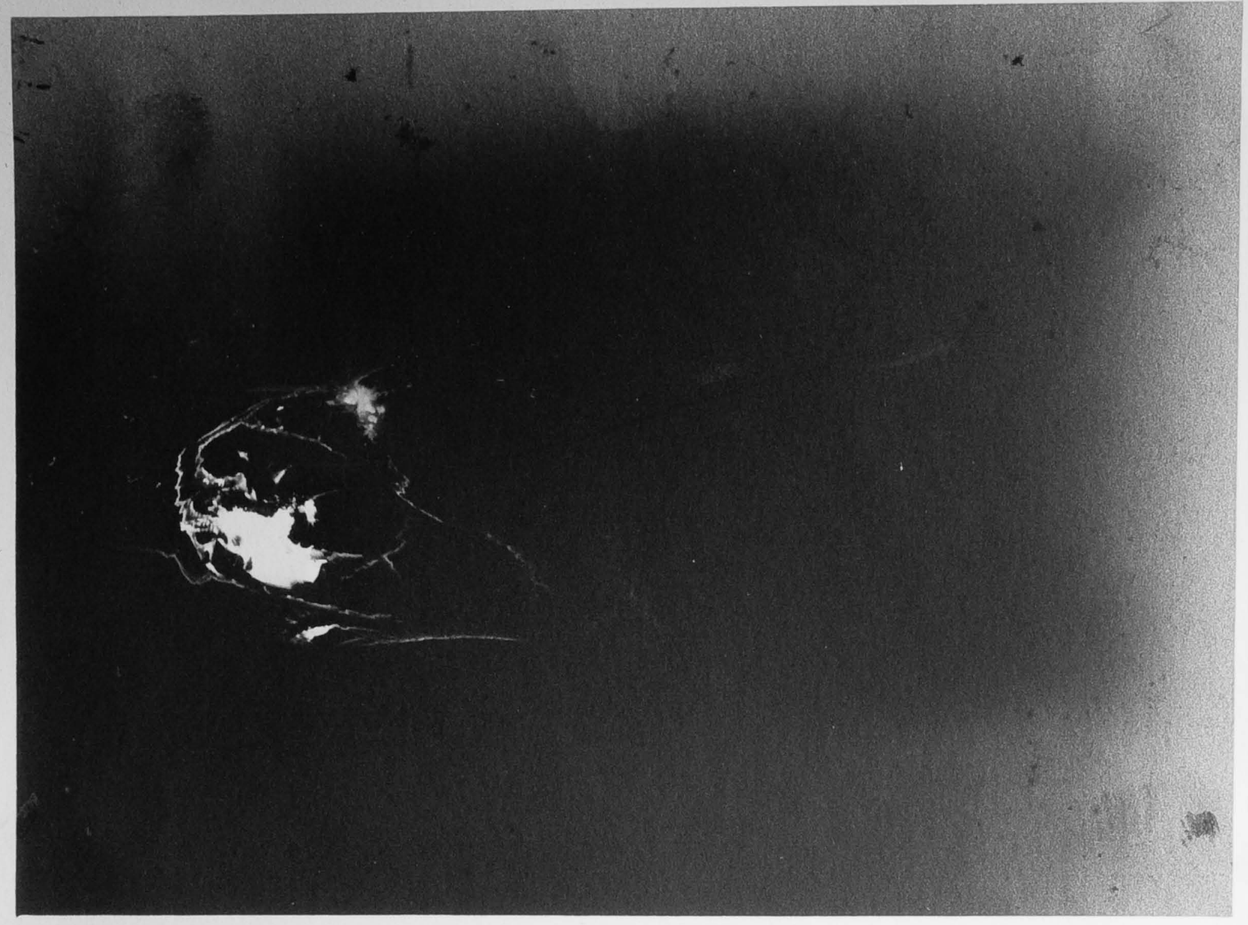

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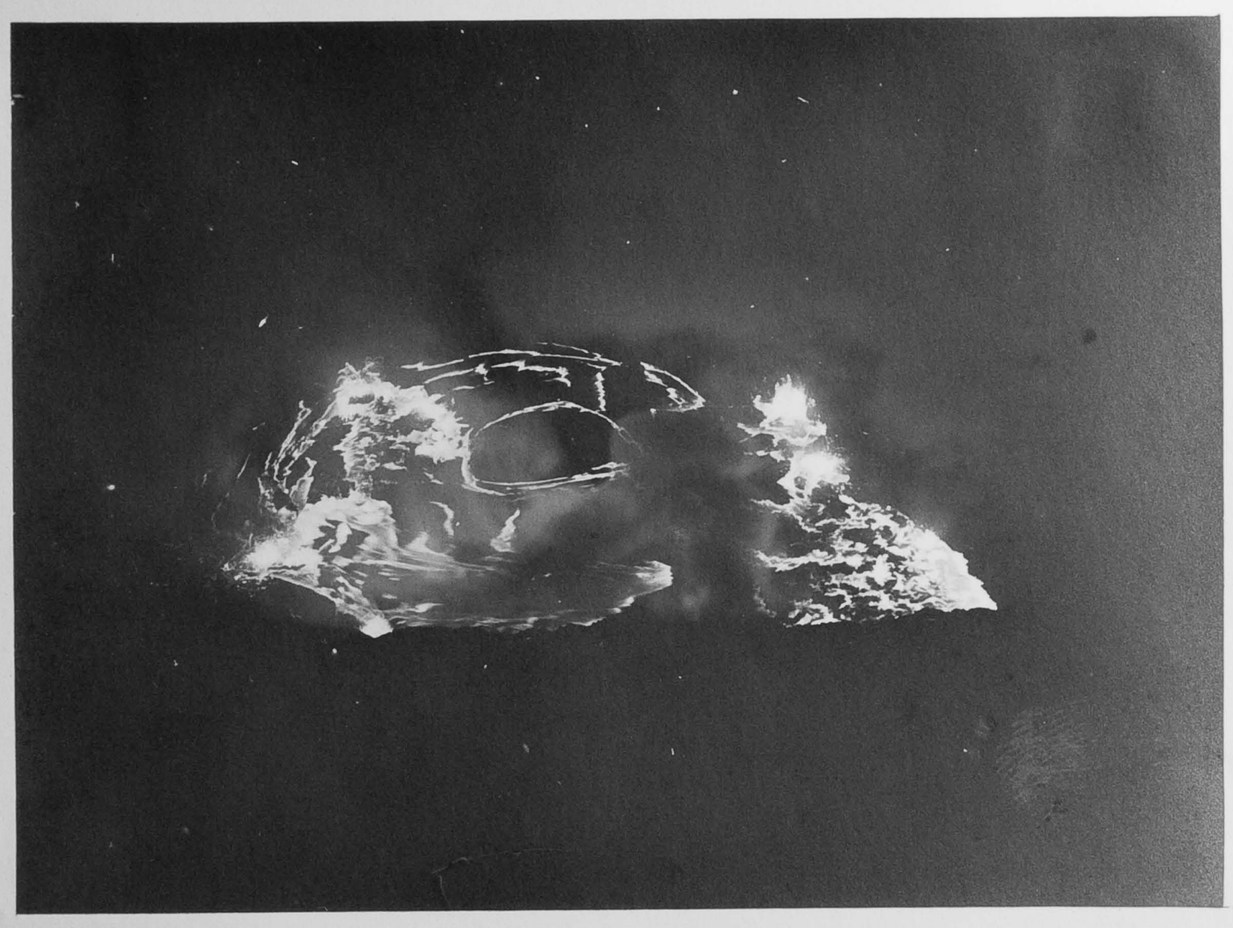


#6

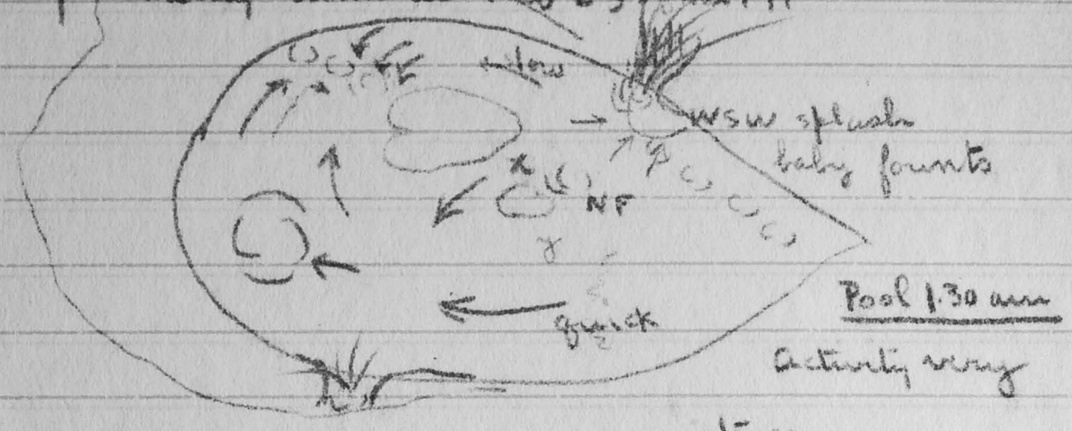
J. a. g.

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Mon Date Mar 10, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev
30 1 a m	Clear views from 1 H showed that a sinking had caused the island to emerge again, small and heart-shaped, and a small dark stationary area N of it near NF suggests the former islet. Cf. alidade readings 11 pm mar 9.							
2.30	1 H		N F	52.27	12 13	40 14	548	464
3 "	"	Bill	WSW	52.26	16 05	36 21		
4 "	"		E bil	37.59	2 12	35 47		
5 "	"		E tip islet	37.57	0.02	37.57	556 Lim	454
7.15		bil	WSW	37.59	0.46	37.13		
7.30	1 H		E tip	52.33	13.46	38.47	556	446
8 "	"		N F	52.30	11.27	41.03	548	477
9 "	"		E bil	38.02	2.07	35.55		

10 At 6.30 am the islet had appeared
11 with steam on each side of it. It was pointed
12 on the E and notched W- heart-shaped as
1 pm at y. Sinking was very rapid in the
2 next half hour. The island developed
3 overhang and the islet enlarged. A roar-
4 ing line of splashing and downsucking
5 E of island. River narrowed to 10 feet
6 and the noises were loud — rumble
7 splash and river rush.
8 The WSW niche at the lava level at
9 7.15 am was a pot with a stream from
10 the pool pouring as a cascade over am
11 edge (?) into it, and inside lava was
12 splashing.



1.45 am heard talus slide W. Deep rumbling in pool felt and heard.

3 am streams have increased speed and small stream has reappeared same position as Phot 2- 11 pm. Feb 24. between island islet. The islet once shows in telescope as slow moving skin, but much slower than the currents which diverge around it. Note in telescope that a fount such as NF has in the intervals of fountaining many small bubbles bursting in the steam about it. It is covered with a reticulate pattern as the dome sinks which ought to be photographed.

t	cam	pl	no	lt	stop	ex	scr	dev
8.45 am	A	W P	1	5 sec	11	1/15		
10.30 pm	A	W P	2		FF	1/3	from 1894 trench	E
"	"	"	3		FF	1/15	"	"

LOC

E sta - clear shows cascade pouring into WSW. Pool rising rapidly since 8 am. Islet submerged. Overflowing E, & S of Island - River N less rapid and noises without rumble. Seas explosive splashing at E. line of downsuck - NF sluggish. Pool of upwelling at W end -

The lake at 10.30 pm was essentially the same as at 9 am. Heart shaped island about 2 feet high, baby fountains W, steam N & S of island, flow W to E, line of downsuck E, overflows around rim, much at back WSW, N, NE and SE corner of island. Outflow from back at W end - Activity strong. Flows thro cracks. Wide rim widest E. OF and NF weak. Fumes thinner except N No change back to judge by last

t	loc	ther	temp	wea

NOTES

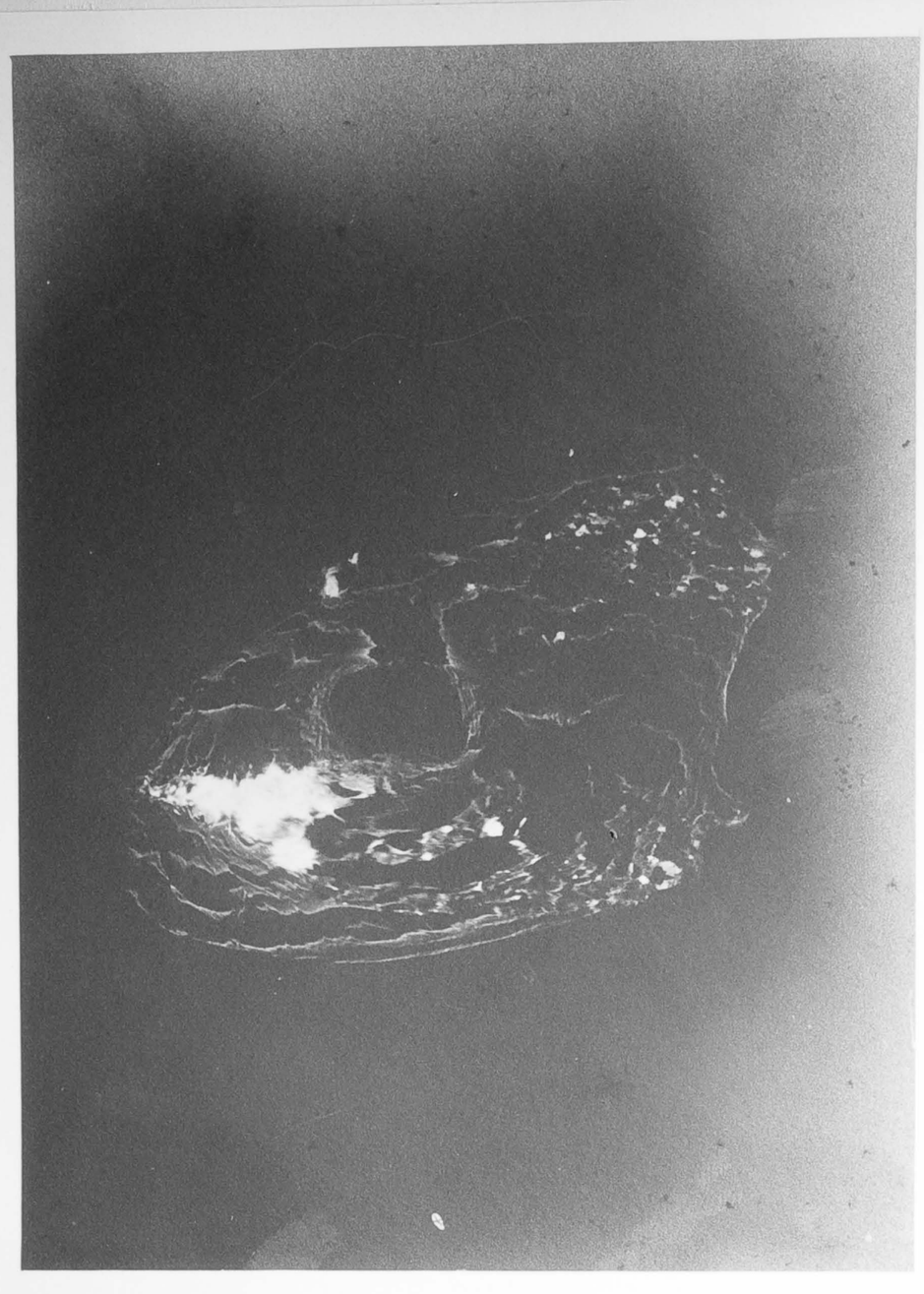
Note. The alidade which had been left in place in 1 H at 11 pm 9th focused on WSW splash, was found moved 1 foot W and had roughed up the sheet of cardboard tacked on table when visited at 1.30 am. A high W wind may have done it. A jolt?

Some overflows thro cracks in the back of island. Does the island grow? SW wind
Best seeing in evening at channel & E sta. J.A.J.

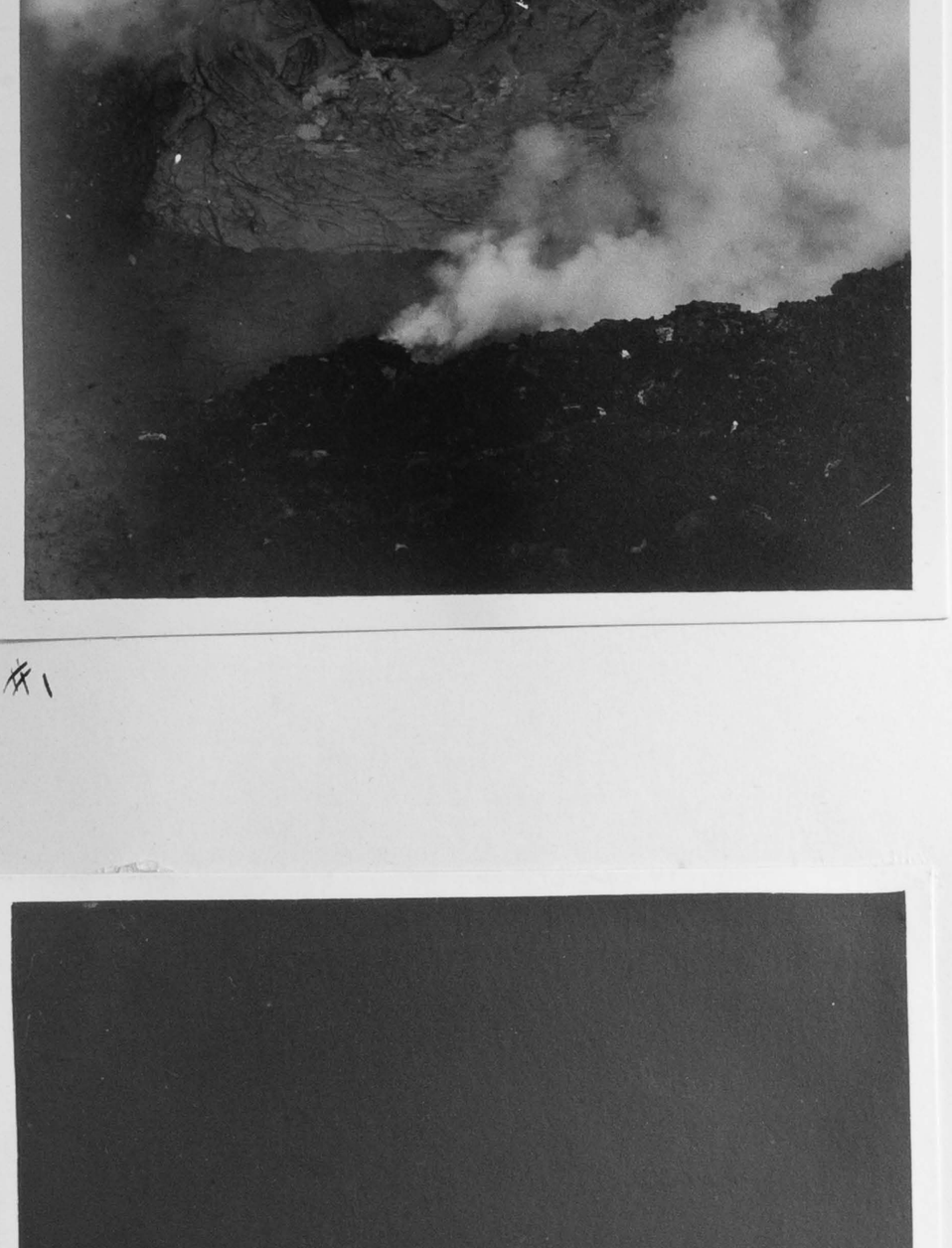
1913, Mar. 10.



#1



#2



#3

J. a. g.

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Tues Date march 11, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									1-8 am Pool active and conditions similar to last night.
2									
3									
4									
5									
6									
7 :20	1 H		E tp 9	38.06	0.7	37.59	556	434	
8 "	1 H		NF	52.32	12.73	39.49	548	457	Distance too great hence depth excessive in these NF readings
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES

Wed mar 12 fumes thinner - apparently rising
Thurs mar 13 fumes thickening - rising again - Island joined to S shore by crusts.

J.a.J.

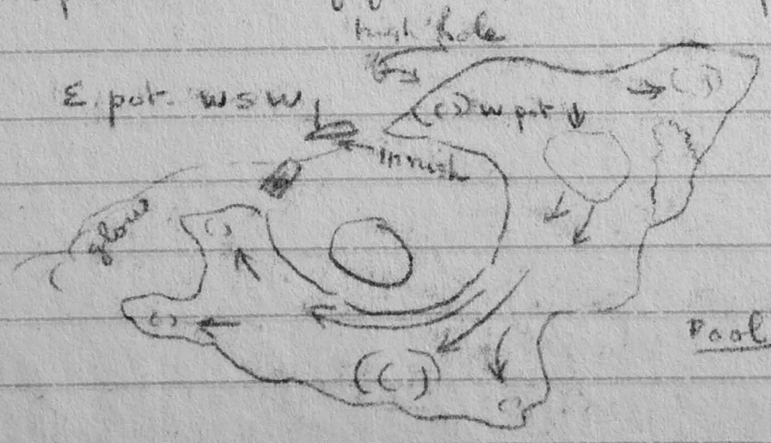
Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Fri Date mar 14, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									Came to pit at ~~2 pm~~ Thunder followed by
2									SW rain - Pool appears low. Island strait S crusted.
3									Apparently rising now. Steam W to E. 2 bursts
4									bets WSW. Took as measuring point eastern more
5									violent pot. Fumes very heavy S + W. N fume less
6									than recently. Overflow and glow rim E + SE
7									Fews breaking up ~~thro~~ cracks in S strait jig-
8									zag rim of stin along straight line W not from
9									which streaming pours E.
10									Located eastern wsw pit from N, 114, ~NW. No
11									seeing E. Signal posts remodeled today with
12									square board painted white facing pit on each post, show
1 p m									well at night by light of pit
2.30	N	Eastern	wsw pot	43.49	9.51	33.58	606	408	elev by pt to date 408 This the place of cascade into the wall
3.15	NW	"	" "	46.57	9 40	37 17	558	425	" " " 424
~~3.45~~ 4	1 H	"	" "	43.40	6 58	36 42	567	422.5	" " " 421
5	"	"	" "	37.59	0 57	37 02	567	428	5 to 7 pm note cascade flowing into wall at
6									E make WSW very great liquidity and rapid
7	"	"	" "	37 56	0 46	37 10	567	430	flow. W. end blanketed, steaming N + E-ward
8									N.F. very noisy at times. From 3 to 4 pm
9									the noise had been pure flashing. 5 to 7
10	"	"	" "	37 57	0 48	37 09	567	429.5	rumble was heard
11									
12									

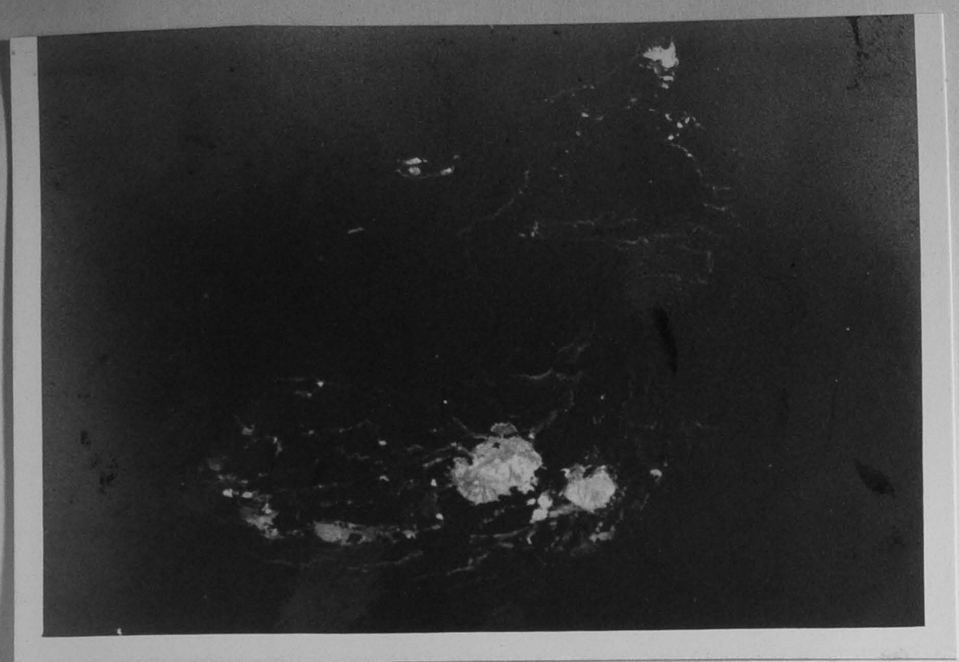
t	cam	pl	no	lt	stop	ex	scr	dev	LOC
8.40 p	A	WP	1		ff	1/20		gl	From E end 1844 bench. OF bursting - fairly clear
9 p	"	"	1a		"	"	.	"	Same plate. Detail of fountains. OF multiple clear.



J.a.j.

t	loc	ther	temp	wea	NOTES

1913, March.



#1



#1a

I. a. J.

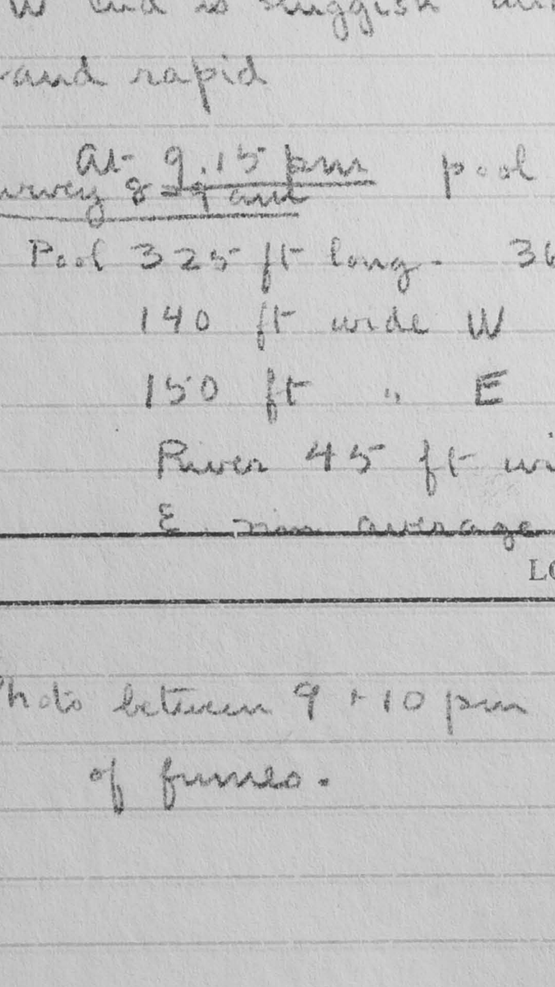
KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sat Date Mar 15, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev
1 a m								
2								
3								
4								
5								
6								
7								
8	E		E pot W of W	37 59	4 27	33 32	660	437.5
9	S		S bid	39. 22	5 59	33 23	700	461.0
10 "	S		top of island " "		7 51	31 31	720	442.0
11			These two readings in same line to					
12			determine height of island. "S. Bid"					
1 p m			is the cove next E of island.					
2								
3								
4								
5								
6								
7								
8								
9								446.5
10	I.H.		W pot	52.31	13 59	38 32	561	
	I.H.		NF				491	
11	~~I.H.~~ E		NF				665	
12	I.H.		W pot				561	

NOTES

3 am. Glimpse of pool showed no important change but much less active. Crusts around the two WSW pots and partly around NE. River swifter.



SW side of pool at 8 am from E.

E pot inactive - crusted. Flows welling up cracks E end.

Pool appears as the rising but W end is sluggish and river is constricted and rapid

At 9.15 pm
Survey 8 ~~24~~ Aug pool appears same.

Pool 325 ft long - 365 ft including E rim.
140 ft wide W
150 ft " E
Ht. island 19 ft.
River 45 ft wide
E rim average 32 ft wide

t	cam	pl	ho	lt	stop	ex	scr	dev

LOC

Photo between 9 + 10 pm from SE failed on account of fumes.

J.a.j.

t	loc	ther	temp	wea

NOTES

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sun Date Mar 16, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									Visit of Hawaiian Legislature to Observatory 12 or 15 men
2									and Halemaumau evening.
3									in Observatory set off pan of barometer.
4									
5									Pool much the same. W and sluggish.
6									No great activity. E pit WSW does not show.
7									Fumes strong. Tahu slides very rare.
8									Appears stationary.
9									
10	.30	I.H.		W pit WSW	52.25	14	18	3810	561	441	
11									
12									

J.A.J.

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Mon Date Mar 17, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									At 6 am obtained only a glimpse thro the fumes. At W pot a current was pouring rapidly into the wall.
2									
3									
4									
5									
6	I.H.		W pot	52.28	13.30	38.58	561	454	
7	glimpse thro telescope - a little lower.								
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

I.A.J.

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
~~6 20~~									

t	loc	ther	temp	wea	NOTES

133

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Two Date Mar 18 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									4 to 6 pm. Pool down and fumes very heavy. Two pools, steam crusted OF big and heating against a high bank. Small rushing or flaming place seen indistinctly WSW, separate from the W pool. Rocks heard falling on the N talus.
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5.30	SE		OF	50 00	13 35	36 25	603	445	The W pot could not be seen
5.45	SE		NF	47 26	15 34	31 52	728	452	
7									
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
6.20	um A	WP	1	funny	F6	1 sec			S sta channel. W pool dim. E shows.
6.30	"	"	1a	"	"	"			" " " Some daylight in these.

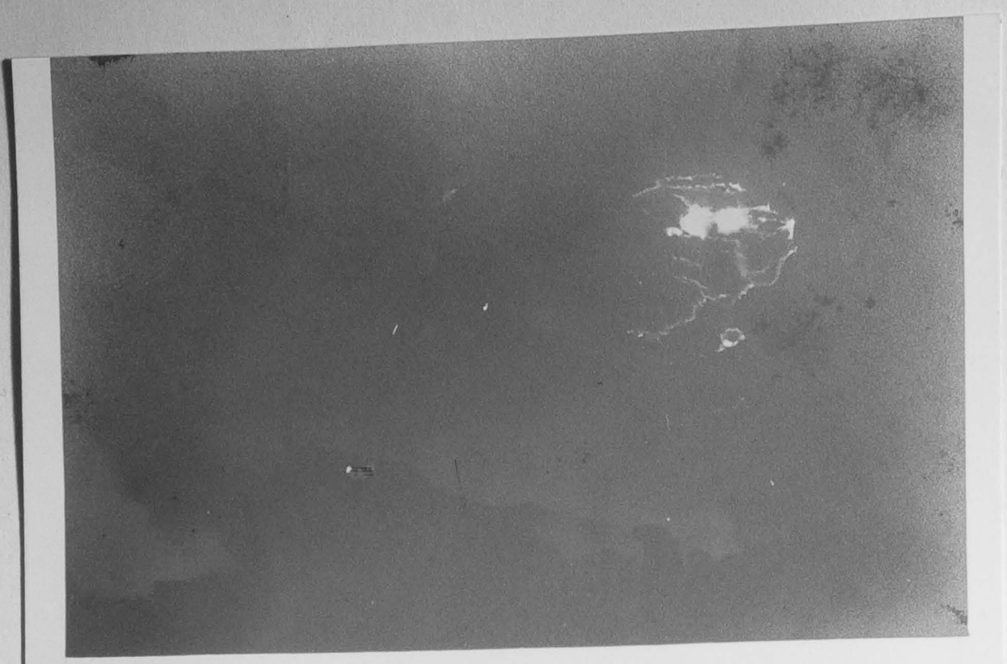
T.A.J.

t	loc	ther	temp	wea	NOTES

1913, Mar. 18.



#1



#1a

J. a. g.

135

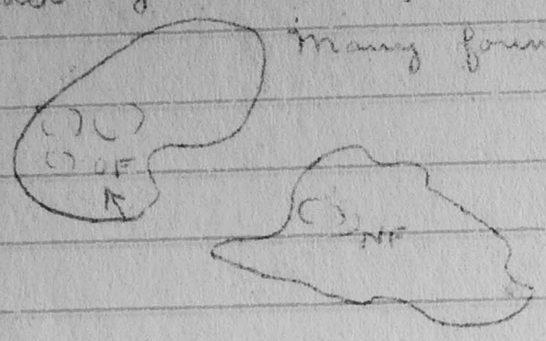
KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day IV 1 Date March 19, 1963

t	sta	h. i.	pt	lev	vert	dif	dist	elev
1 a m								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
1 p m								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

NOTES

6,45 to 8 pm Dark views from I-H. appears higher by 20 or 30 feet.
many fountains in Σ pool



From the Σ at 8 pm the pool appeared vigorously active. Good glow. Noise is of plashing and O.F. breaks in multiple domes. Some talus falls to the N. Pool higher than last night.

J. A. J.

t	cam	pl	no	lt	stop	ex	scr	dev

LOC

t	loc	ther	temp	wea

NOTES

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Thurs Date ~~Mar 20, 1913~~

t	sta	h. i.	pt	lev	vert	dif	dist	elev
1 a m								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
1 p m								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

NOTES

At $8^h - 11^m - 14^s$ by Bosch clock was watching Halemaumau from Volcano House [illegible] large fresh cauliflower cloud of dust rose from the N edge. Part of N bench (600 ft) fell. At this time the major tremors at HVO recorded a weak eq. and the pen spread the spacing eastward – i.e. ground tilted W. D. Lyncrus was at crater at this time – Large piece of E end of N bench (1910 - 12) fell.

Sara reported low.

T.A.J.

t	cam	pl	no	lt	stop	ex	scr	dev

LOC

t	loc	ther	temp	wea

NOTES

137

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Fri Date Mar 21, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev
1 a m								
2								
3								
4								
5								
6	S		NE cavern	39 57	10 05	29 32	792	4534.5
7	S		E tip isl	39 57	7 41	32 16	738	4666.0
8								
9								
10								
11								
12								

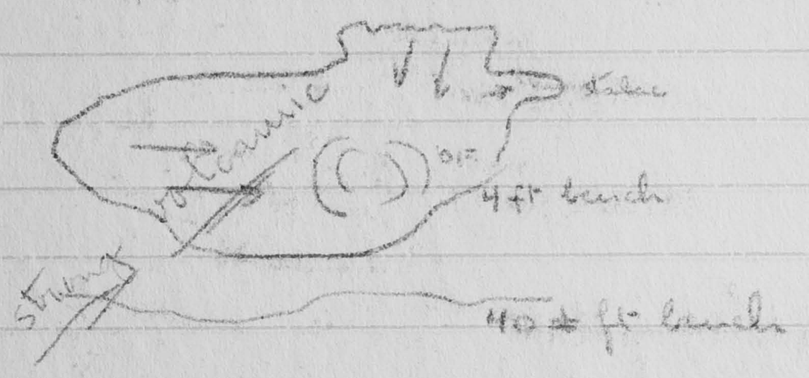
Distances by intersection S + S

NOTES

Pool as before 6.30 + pm - Island has become a wide isthmus. NE cavern with stalactites at edge of pool (2 pool). W. pool stagnant. Fumes very heavy. NF under a bank sometimes throwing up spatter. WSW is a big high E-W flaming crack emitting a very large sheet of flame. Streaming from under crust, N of island, eastward, where river was before, to O F.



View pool from SE.



Whole east end of 60 ft bench N under Old Reat-house is gone and the bench is no longer accessible from the higher 1894 bench. This is what fell March 20 at 8.11 pm. Ot cavern as before

t	cam	pl	no	lt	stop	ex	scr	dev
6.30 p	A	WP	1a		F6	1		
7 p	"	"	1b		"	"		

LOC

S sta
SE sta

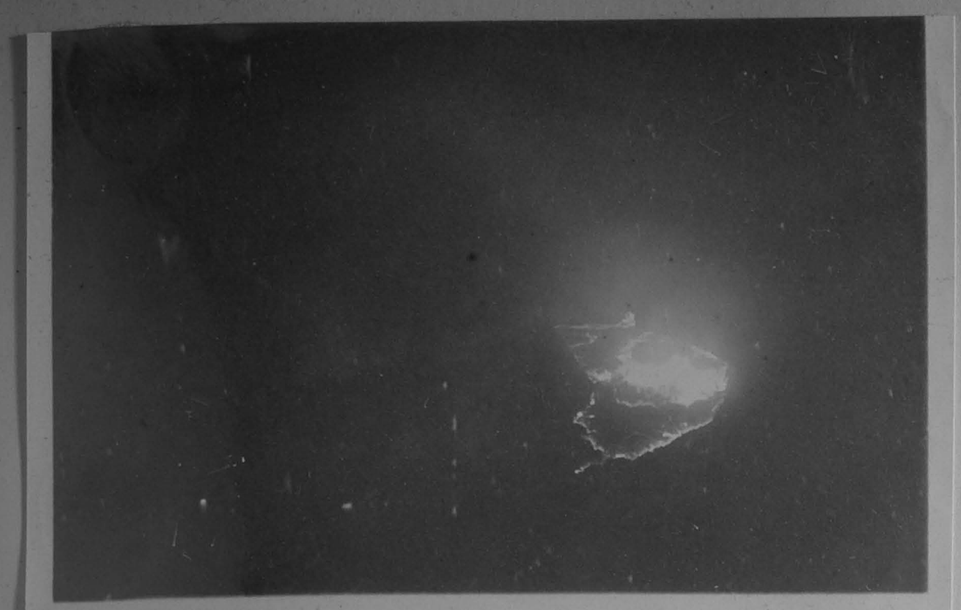
4m the high edge under the N sta appears to have gaped.

Jag

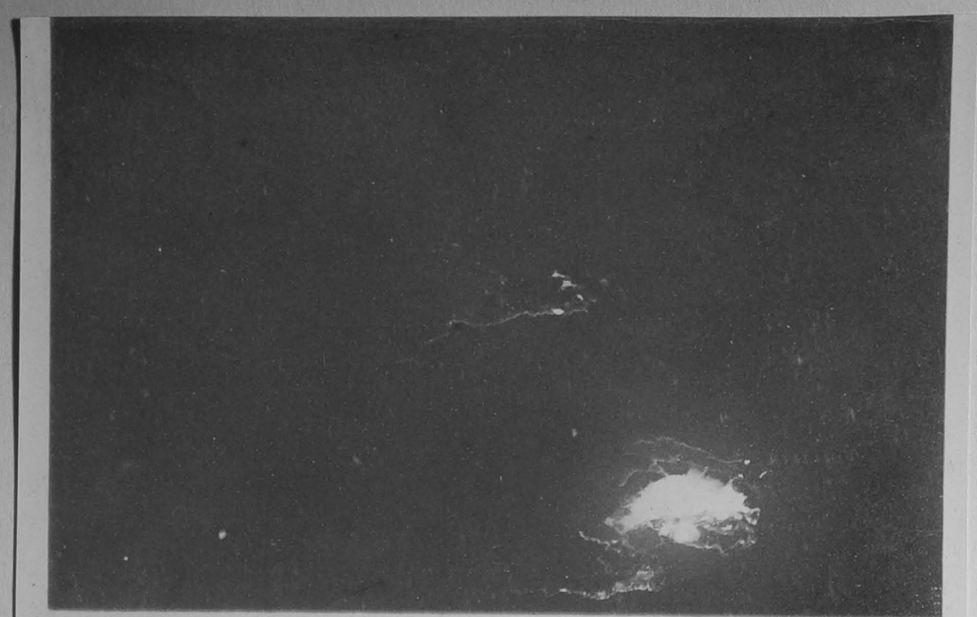
t	loc	ther	temp	wea

NOTES

1913, Mar. 21.



#1a



#1b

J. a. g.

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sat Date Mar 22, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									Heavy fumes with the flare of O F on the fumes in the evening very evident from Volcano House.
2									Visitors to the pit in evening reported avalanches, brown dust and perceptible trembling of the E edge of pit during avalanches. Falls especially from the N side
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

J. A. J.

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES

KILAUEA DAY SHEET

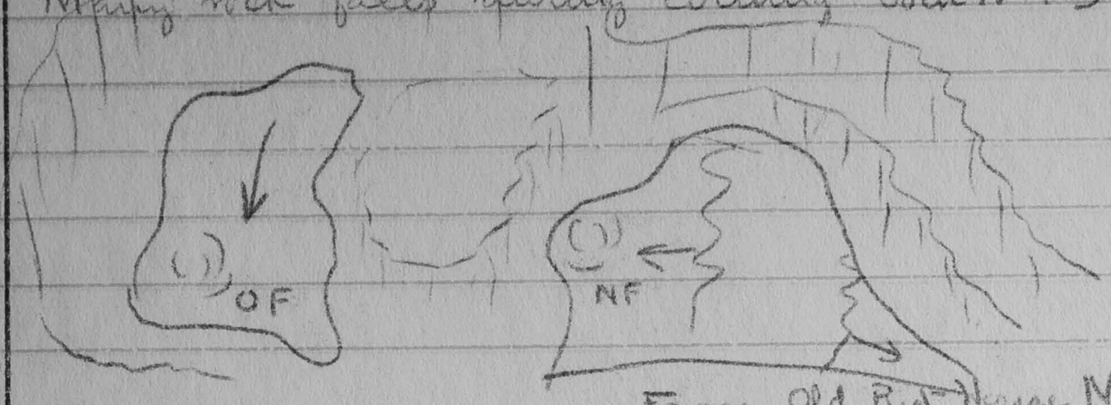
Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sun Date Mar. 23, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev
1 a m								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
1 p m								
2								
3								
4								
5.30	1 H		E Top	52.31	11.22	41.09	521	455.5
~~6~~ 11	" "		N F	52.30	10.03	42.27	501	458.0
7								
8								
9								
10								
11								
12								

NOTES

at 6 pm. found the whole W end of 60 ft bench under 1 H gone except a 2 ft strip next the wall The remainder between 1H + N cracked, lettering and slipped down. Rocks falling under 1 H 1 H still covered with brown dust.

Many rock falls during evening both N + S.



From Old Rest House N.

t	cam	pl	no	lt	stop	ex	scr	dev
5.50 p	A	WP	1	19	11.3	½		
6.10	A	"	2	19 +	11.3	3/4		

LOC

From 50 ft W of N Sta looking down at new break in 60-ft bench. 1 H in upper rt corner of plate. Clear

Looking down toward NE Sta. Shows place of fall of mar 20. From just below N rest house. Funny.

J.A.B.

t	loc	ther	temp	wea

NOTES



1913, Mar. 23.



#1



#2

J.a.g.

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Mon Date March 24, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									At 6 pm + The north bench has fallen more. middle part has slipped down 30 + feet.
2									The S bench under the channel has broken back to the wall back of where the avalanching began (just W of channel), undermined by peripheral fumaroles.
3									No great sinking of the lake. Appearance like yesterday - NE cavern gone.
4									Streaming same as yesterday March 23.
5									Avalanches incessant not into pool but from N + S high benches, undermined by vigorous fumaroles.
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7.15	E. sta		E tip Isl.	52.11	10.25	41.46	523	467	
8	S "		" " "	44.15	11 17	32 58	729	473	
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES
4.30 p.	1 = postcard ~ 50 E end main trail	Green - Borosil bl	crack 10 in diam 58°	fair	Temp air 19° C
"	2 - 110 feet W	Mercury - Comp	53		
" +	3 - " "		53		
" "	4 - " "	CO_2 - 500° + C	no deep cracks 25		
" "	5 - " "	wooden support	" 25		
" "	6 - " "		38		White solfatara area begins
" "	7 - " "		220		2 inch crack 40 feet W of iron ring
" "	8 - 20 ft - E		145		Hole 4"×6" 20 " " " " "
5 +	9 - 70 " W		285		Triangular "postal" hole 7"×4" - Blue-brown fumes under slight pressure
" "	10 - 30 " NW		303		Fumes denser - Thermometer left in only about 10 minutes did not reach max.

Temperatures higher where blue fumes are denser in postal tract

T. A. J.

143

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Tues Date March 25, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									At 6 am continuous gentle rattle on N talus - Some heavier falls 7 to 8 am One large crag about middle of N bench and fall drum all that is left of it. Heard other falls S. Pool sounds noisy and active fumes do not appear so thick as recently. 11 am to 12.30 pm S. Sta glimpses of E pool same as last night. Avalanched heard N during the morning - Fumes very thick. The E conelet on lower bench large and glowing (as seen at night) E pool active with small fountains Island high heat and fuming.
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
11 am	A	WP	1		f 28	1	X		Looking SW between E + SE at S bench
+ 11.30a	"	"	2		32	3/4	X		Looking W from S channel at fallen bench
11.40a	"	"	3		11	1/50			" NW " " " " SW fumarole
12.15p	"	"	4		11	1/50			" N " " " " lake - fumes.

t	loc	ther	temp	wea	NOTES
8 am +	3 places	Green merc.	30° 70° 40°	going East	West end of postal tract. Thin blue fumes - Temp air 25°
	3 places		60° 110° 90° ±		Going E from 50 feet W of triangular hole (loc 9 Mar 24)
	#7		290°		Tumbled hole - cavity 24" x 8"
	#8		158°		Stone wall IV of tract
	#9		323°		Locality #10 Mar 24. 12 inches down 25 minutes exposure
	#10		323° ±		6 ft west along same crack

At 300° ± wooden support for ther. crackled - Ther. reached 260° rapidly; took 5 minutes more to reach 300°
10 " " " " 320°
10 " " " " 323°

At #9 lifting ther and placing bulb under a shelf much higher but in a blast, it held temp 322°. End of pine rod completely charcoaled - Obliged to use an iron pipe

709.

144

1913, Mar. 20



#1



#3



#4

T.a.g.

145

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Wed Date March 26, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									In the evening reported more active but otherwise about the same - Northern avalanches.
2									
3									H. A. J.
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

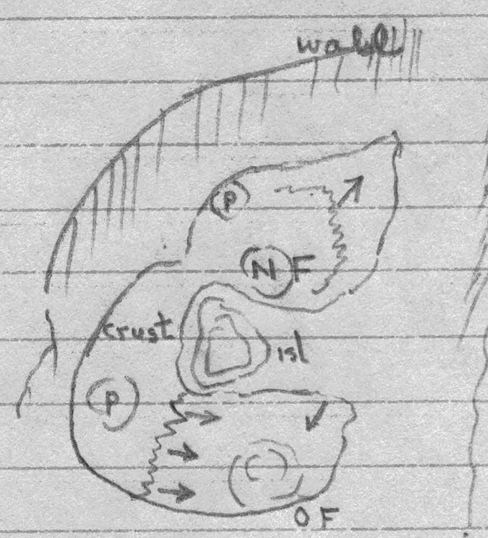
t	cam	pl	no	lt	stop	ex	scr	dev	LOC

- t	loc	ther	temp	wea	NOTES

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Thurs Date March 27, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									5 to 8 pm. Fumes appear thinner - Some seeing by daylight SE, E + N. Talus falls N, W and S - Heavy fall of last remnant of N bench with loud noise N at 8.01 pm.
2									Clear spell from SE reveals island, now an isthmus with marked south channel crusted, around it in semicircular curve.
3									At the time of the big N fall 8.01 pm or just after it, noted an extraordinary rise of O.F. with splashing on the bank. The ebullition and rising filled the whole N end of E pool. Both pools glowed excessively for a time after the fall.
4									Apparently the main stream under crust from W pool to E is now S of isl. Strong streaming edge S end E pool. Pools sluggish as a whole. Large pit of incaving around the pools.
5									
6									
7									
8									
9.30	1 H		E tip isl	52.31	10.30	42.01	533	479	
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
									 Glimpse of pool from SE about 7 pm. p = pots

J.A.J.

t	loc	ther	temp	wea	NOTES

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Fri Date Mar 28 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev
1 a m								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
1 p m								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Efforts to get vert. from D.H. futile all evening (from I.H.). Wind and rain.

Watched level bubble in evening in I.H. during many near and distant talus slides. Saw no effect.

NOTES

7.45 to 8.15 am. Examined pit NE, SE + S: no seeing N, E and SE. Large avalanches W, some N + NE. Noise of plashing - Raining, pit full of vapor -

From S sta glimpse of bottom - Same as last night -

5 benches now on S

1 = 60 ft

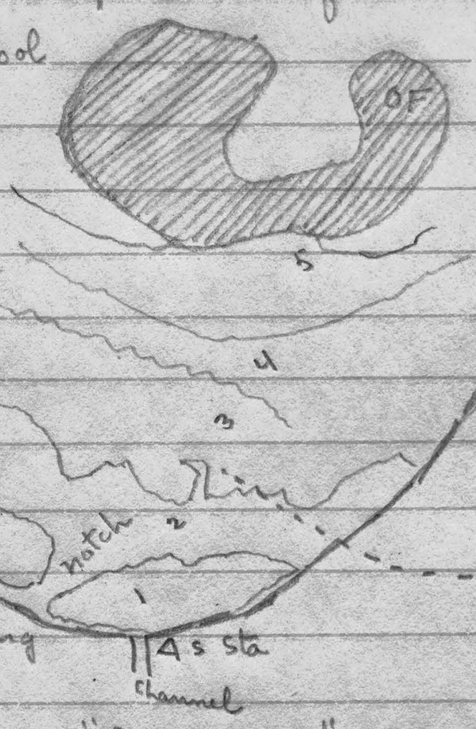
2 = 110 ± ft

3 = 200 ± ft

4 = Bench of Dec 1912, 300 ± ft now

5 = Bench over pool

Streaming in under E end isl. Spatter rampart about O.F. suggests a stationary level



Sketch pool + benches from S sta.

S. bench and "sheepshead" rock same.

5 to 7.30 pm. Glimpse of lake from S Sta same.

The western remnant of LOC the s highest bench gaped out from wall 2 feet ± in the morning, now it was 4 feet out. Avalanches numerous, at times the talus sliding was incessant, all the evening, on all sides of the pit -

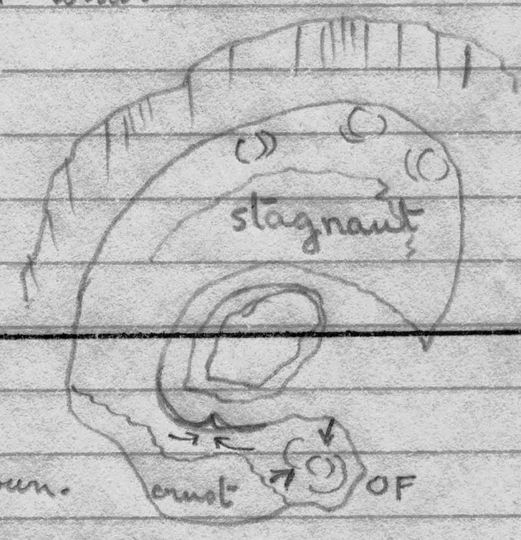
Dim views from I H suggested that the E. pool was narrower and lower?

8.30 pm view from SE shows E pool narrow W pool rather more active - The explosions of O F rock the whole N end of E pool -

t	cam	pl	no	lt	stop	ex	scr	dev

t	loc	ther	temp	wea
7-7.30 am	#9 postal (see mar 25)	Hg-CO_2 (screen)	318° C	16° C - Drizzle + N wind

NOTES



Sketch of pool from SE 8.30 pm.

Loc #9 is the hottest fissure - Hereafter used for temperature measurement



Thermometer in iron case wired to iron pipe, inserted, scale up, at 15° ± under projection in crack 8 inches ± down

T.A.J.

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sat Date March 29, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									8 am. Talus sliding still nearly continuous Pool splashing - No seeing.
2									Survey SE + S morning - Unsatisfactory no good seeing - The rock of bench # 2 (see Mar 28) shaped like a sheep's head has fallen -
3									9-30 am - From SE, channel south of island seen to be filled with much fallen talus.
4									Both pools stagnant - Fountaining around the rims - Continuous stalactitic overhang along
5									E side of island - Thick fumes rising along
6									edge of inner pit - i.e. as pool sinks apparently the thickest fuming moves inward
7									from periphery toward centre - This mostly S
8									side over above mentioned talus in S channel
9,15	SE		E tip 9s	53.03	12.44	40.19	609	516	S of island - Island high + flat topped -
10									West pool quite active around its borders
11,30	S		E tip 9s	52.58	17.20	35.38	728	522	
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
8,30 a	A	WP	1	3	16	1	X		From betw. E + SE looking SW at S bench
12 m	"	"	2		20	1	X		" S looking down at notch S bench.

t	loc	ther	temp	wea	NOTES
6,45 am to 7,30 am	#9 Postal	Green Hg - CO_2	31.7°C	Air 14°C Wind N. Partly cloudy -	Thermom. exposed 50 min, went no higher. - 20 minutes is required time -

T.A.J.

1913, Mar. 29



#1



#2

T.A.J.

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sun Date March 30, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									5 to 8 pm Dim views from E + SE in rain.
2									Pit filled with rain vapor as well as fumes-
3									Glow very dim. Both pools largely crusted
4									especially E. O.F. hissing and sputting
5									under a bank. N.F. more active and
6									W pool liquid around borders. Feaure
7									holes and pols. Avalanches, but less
8									than yesterday.
9									Lake apparently stagnant and low,
10									perhaps stationary. Apart from the rain
11									vapor the volcanic fumes appear somewhat
12									less. This week is very rainy.
1 p m									
2									Jaf.
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES

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KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Mon Date March 31, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									In evening pool very dark glow as seen V. H.
2									Visitors report continuous hissing, glowing pots, few avalanches in evening - Nothing but fumes in daytime.
3									
4									T.A.J.
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

Day Tues. Date April 1, 1913.

Glow dark in evening, rain, heavy fumes in daytime.

T. A. J.

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Wed Date April 2, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									5 pm and evening - No seeing except glow spots. Heavy fumes from bottom but the S fumaroles appear to be less. W. remnant of S bench fell about 4 pm. Sliding heard N. O.F. occasional violent hissing blasts - a little splashing heard, not much. Glow dark at night. Rainy morning and late afternoon.
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES

Thurs April 3. 1913 no change reported. Glow dark

T.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Fri Date April 4. 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									Afternoon. No seeing I.H., E, SE or S. Fumaroles less active S. No marked change observed in S bench - No avalanches heard. O.F. periodically hissing.
2									
3									
4									
5									
6									Glow dark - Fumes heavy
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

	t	cam	pl	no	lt	stop	ex	scr	dev	LOC
X	5.15 p	A	w p	1	10	11.3	1	X		W end of S bench from S channel. looking down

t	loc	ther	temp	wea	NOTES
6.10 pm	# 9 postal	Green Hg. CO_2	322 C	air 13 C	

Sat April 5. No change reported - Glow dark - fumes heavy.

J. J.

WEEKLY BULLETINS INSERTED FOR THE PERIOD

APRIL 5 - JUNE 19, 1913,

during absence of T. A. JAGGAR in Honolulu,

engaged in investigation of the Pearl Harbor drydock.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

JOURNAL

WEEKLY BULLETIN Day Thursday Date April 10. 1913.

The volcano has reached and remains in a condition which makes routine observation impracticable -- indeed, almost impossible. Consequently very little time has been expended at the pit during the past week, and this report must be brief and wholly general in character.

By daylight the lower part of the Halemaumau pit is obscured completely by swirling fumes, though these apparently are less in volume than during the corresponding low stage of eruption in September and October last. Hours commonly intervene between favorable eddies in the wind which lift the veil for brief moments permitting mere glimpses of portions of the lava lake. This is now almost completely frozen over. Survey of the configuration of the lake at present is out of the question and no measure of the depth of its surface, even, can be made unless by encountering favorable circumstances. Winds from the NE have blown so steadily and strongly in the last few days that no effort has been wasted by attempting this.

Glimpses by night are, of course, more frequent than by day, but nevertheless long intervals elapse between them.

Moreover, for the past five days the illumination of the swirling fumes at night has diminished very noticeably and steadily, indicating that more and more of the molten surface has crusted over, lessening the area of the residual open pools, and boiling pots. Also it is noticeable that the illumination has been more and more concentrating its effect in the center of the smoke column, suggesting that a further sinking of the magma surface has been going on. Occasional talus avalanches have occurred but it is estimated, from all reports, that there has been less collapsing than immediately heretofore. It is not unlikely, however, that periods of avalanching have passed unobserved. There is, of course, much hissing accompanying the rush of gases from the present constricted vents in the frozen surface of the lake. The evening glow seen from the Observatory is exceedingly dim.

H.O.W.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

JOURNAL

WEEKLY BULLETIN

Day Thursday Date April 17, 1913.

By its performance during the last two days the volcano gives promise of an early return to a normal state of activity. Previous to this it had assumed an unusually dormant condition, with the magma lake almost completely encrusted; so that it displaysd even less eruptive energy than in September and October last.

In the latter part of last week efforts to observe were fruitless owing to prevalent, strong NE winds which maintained a continual swirl of fumes in the lower part of Halemaumau pit. On Saturday night, April 12, when a watch was maintained for a considerable time, no clear view was obtained even for an instant, but at long intervals small portions of the floor were seen dimly through the fume veil. No molten pool was seen then, and, judging by the amount of the illumination amidst the fumes, there was at that time no open pool at any part of the lake surface. Occasional avalanches of small magnitude were noted. Flaring, due to fountain action on the part of O.F., was barely noticeable. Glimpses of the O.F. orifice showed only a short gash in solid crust, probably an opening at the top of a small cone. There was no pool in its vicinity. It is inferred that the magma column was still in sinking phase.

Judging from the illumination, from the reports of frequent visitors, and from the noises of eruption heard by day, this condition continued until some time Tuesday, April 15, except that a brief glimpse of a small pool W of O.F. was obtained on Sunday evening.

Viewed from the Observatory on Tuesday evening there were frequent bright flarings in the illumination of the smoke cloud and occasionally the glare of these persisted for a minute or two. Except for these no illumination was visible. There was subdued moonlight. This flaring was due to the irregularly periodic action of O.F. and the more prolonged glaring was occasioned by small flows. O.F. had resumed its normal condition of an open pool. Brief views were to be had. Thus the vent displayed the phenomena of a rising magma column.

During Wednesday morning the noise of eruption was louder and more continuous and views were to be had deep into the pit, though the molten pools were not seen. One visitor reported a brief glimpse of an open pool on Wednesday afternoon. Conditions remained much the same on Wednesday evening as on Tuesday. There was no decrease in the symptoms of increasing activity. If conditions continue to improve routine observations can be begun again very soon but no attempt has been made during the past week to carry on the usual program. Even yet much time would be wasted in the wait for serviceable opportunities for measurements.

H.O.W.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

JOURNAL

WEEKLY BULLETIN

Day Thursday Date April 24, 1913.

Even yet the molten lava stands at a very low level in Halemaumau, but a marked increase in eruptive energy is noticeable. The tendency to rise noted in the early part of last week suffered a check on Thursday, April 17. Throughout the afternoon and evening of that day and far into the night, huge avalanches of talus blocks swarmed down into the bottom of the pit, temporarily burying the pool and blow-holes at the bottom and reducing the illumination so that for several nights following, the glow was scarcely visible from the Volcano House; often for some hours at a stretch no indication of the glow could be detected. Following the avalanching the swirl of fumes again increased so that serviceable views into the depths of the pit were rare. At night occasional glimpses could be obtained.

By Sunday night a pool of molten magma had reappeared at the O.F. orifice, and one or two blow-holes were dimly seen as well. During Monday the eruptivity increased and on Tuesday morning a small flow was seen running into the open pool from a neighboring blow-hole. Throughout Tuesday and Wednesday the noise of eruption was tremendous. There were harsh blasts at intervals of about half a minute so loud as to resemble the roll of musketry commingled with the sound of the ex - haust of a powerful steam engine. Frequently these noises lasted for ten to fifteen seconds, often loud enough to drown conversation. When views could be had it was seen that these blasts were produced by the violent discharge of gas and lava, in small blebs, from a small and narrow orifice just above the O.F. pool and about N of it. In the evening this prolonged discharge of small, irregular globules of molten lava, some of which were hurled upward probably as much as 80 to 90 feet, produced the appearance of a giant rocket -- a very fine spectacle. During the quiet intervals, and just at the instant of outburst, a blue flame flared from this blow-hole, reaching up-ward sometimes several feet. The noises emitted by these outbursts were both louder and more prolonged than any heard by the writer last fall when similar phenomena prevailed.

Quiet air on Tuesday, April 22, permitted frequent glimpses of the bottom of the pit throughout the day and evening thus affording opportunity to measure the depth of the molten surface of the pool. This was determined as 554 feet below the NW triangulation station. Owing to oblique intersection and high angle of inclination, both necessitated by prevailing smoke conditions, this depth measure is not very precise.

The pool was very small in area and it was enclosed by minia-ture cliffs possibly ten to twenty feet high, Durimg one view it would be boiling violently and would show active fountains; at the next glimpse it would heave sluggishly. Several blow-holes were seen irregularly distributed in a very small marginal area of black floor-crust from the outer boundaries of which the talus slopes rose sharp-ly. The area of what we usually term the lake, -- the approximately level surface of floor-crust and open pool -- is now very small, prob-ably not longer than 100 to 120 feet in the E-W direction by 60 to 80 feet in the N-S direction. This is said to be smaller than at any time in the last few years. The unusual force of the present eruptive phase, as contrasted with the quiescence of the preceding three weeks, would seem to promise a return to the normal state of eruption such as we witnessed last autumn after the energetic phase which then followed its low culmination.

H.O.W.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

JOURNAL

WEEKLY BULLETIN

Day Thursday Date April 30, 1913.

The volcano continues to grow more active, though rather slowly and in an irregular manner. There has been no marked change in the depth of the molten surface, merely minor fluctuations. No measurement of depth has been made since the last report, for the swirl of fumes still greatly interferes with continuous or consecutive observation. However, frequent short glimpses of the bottom of the pit have been obtained, together with an occasional longer view. It has happened that these have been available to the writer from the NE station only.

There have been noticeable variations in the apparent vigor of the action during the week, -- as indicated by the greater or less noise of eruption as well as by the changes in conditions at the bottom of the pit. The small molten pool visible during the middle of last week gradually became encrusted and, accompanying this, there was a very noticeable decrease in the noise of eruption until on Sunday evening, April 27, nothing could be seen except a few small glow-holes, and only a hoarse intermittent wheezing could be heard. This condition continued until shortly before 10 p.m. Monday, April 28. Up to this time the glow over the pit could scarcely be seen from the Observatory, but suddenly the smoke column became brilliantly illuminated and so remained, with much flaring, for many minutes, after which the illumination became more subdued, though plainly visible. Throughout Monday night occasional brilliant flarings could be seen though none were so bright nor so long-enduring as the first. An immediate visit to the pit showed that a molten pool had reappeared, occupying the same position as the pool of last week. Its area was slightly larger than that of last week and, on the whole, it was far more active. While small in area it was in continuous ebullition and, when it was visible, there was constant, vigorous fountain action. The first observation was made about three-quarters of an hour after the outbreak and by then large stalactites were pendent from the low cliff-like margins of the pool. At considerable intervals very slight avalanching of talus took place. Consequently the outbreak cannot be considered as due to any sustained uprush of the magma column; nor did the phenomenon indicate any pronounced subsidence.

The orifice where rocket action was so conspicuous last week had become a sluggish boiling pot largely crusted over and traversed by jagged cracks. It looked as though a small flow had just poured out of it but in the uncertain night illumination the observation was not sure. Possibly the sustained illumination seen for some time following the outbreak was caused in part by this but more probably it was chiefly due to the breaking up and engulfing of the crust which had formed over the pool, with the usual vigorous ebullition which accompanies such a break-up. The illumination gradually died down until late on Tuesday evening the glow once more was hardly noticeable from the Observatory.

H.O.W.

JOURNAL

WEEKLY BULLETIN

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

Day Thursday Date May 8, 1913.

For this week this report is unavoidably brief. The promise of increasing activity held out by the flaring, and the thawing of the pool, on Monday night, April 28, was not realized. The pool quickly crusted over again so that on Thursday, May 1, only a few glow spots could be seen. On Friday nothing could be seen and no noises could be heard. By night the glow, while not entirely absent, is very feeble. Except at long intervals no glow can be seen from the Observatory near the Volcano House. By day on Sunday an occasional brief glimpse of the bottom of the pit was afforded, though it was not completely cleared of fumes. No molten lava was seen. By night the fumes concealed all. Though no measure could be made it can be asserted confidently that the depth of the congealed lava surface in the bottom of the pit has undergone no marked change, still standing at a little over 550 feet below the NE rim.

On Sunday there was practically no noise of eruption, -- merely fumes swirling quietly. At long intervals a very faint low breathing sound was heard. Since Sunday no change in this behavior has been observed, either by the writer or by other visitors to the pit. There is now less activity than at any time since the establishment of this Observatory.

H.O.W.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

JOURNAL

WEEKLY BULLETIN

Day Thursday Date May 15, 1913.

Conditions at Kilauea remain quiet. At no time since the last report has molten lava been seen in Halemaumau. Glimpses of the bottom show that coarse talus blocks now make up the floor, covering completely any minute glow-holes or cracks that otherwise might appear there.

Owing still to the dense cloud of swirling fumes, only now and then can any view of the lower part of the pit be obtained, and accurate measurement of the depth is consequently out of the question. However, the general configuration of the lower part of the pit seems unchanged and the depth, therefore, is considered to remain approximately the same as that last determined, that is, a little more than 550' below the northern rim. It is true, however, that heavy talus avalanches were observed to fall on Saturday, May 10, at moderate intervals, and slight avalanches occurred at long intervals on Sunday. Such action we have come to interpret an indication of sinking of the lava or magma surface.

Possibly there has been a slight diminution in the volume of the fumes rising in the pit, though there can be no certainty on this point. This is indicated, however, by the fact that views into the deeper portions of the pit are more frequently obtainable than they were a few weeks ago. These are chiefly brief glimpses.

H.O.W.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

JOURNAL

WEEKLY BULLETINS

Day Thursday Date May 22, 1913.
" " 29, "

May 22.

Molten lava has not yet reappeared in the Halemaumau pit. Views of the lower part of the pit on Saturday, Sunday and Monday showed a small, deep hole, whose bottom is beyond the angle of vision from the rim of Halemaumau, with talus-block slopes rising away from its margin at the bottom of the pit. It is not known whether this orifice has existed, hidden in the fumes, ever since the retreat of the molten magma, or has formed later with progressive subsidence of the matter beneath. Views of the bottom in the early part of last week seemed to show nothing but talus blocks on the floor. However, no views completely free of fumes have been obtained at any time. Avalanches, some of moderately large magnitude, continue to occur at long, irregular intervals. It is thought that the volume of fumes is diminishing steadily, but definite knowledge on this point is hard to gain, owing to very variable appearances in different kinds of weather and wind conditions.

H.O.W.

May 29.

During the past week no activity, beyond the copious exhalation of white fumes, has been detected in the Halemaumau pit. No molten lava is visible, even in clear views at night. There is no noise of eruption, no avalanches of any considerable magnitude have been heard and, in the opinion of the writer, the fumes continue slowly to diminish in volume, but there is no way of measuring this accurately.

H.O.W.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

JOURNAL

WEEKLY BULLETINS

Day Thursday Date June 5, 1913.
" 12, "

June 5.

The week from May 30, 1913, to June 5 inclusive has shown no very marked change in the condition of Halemaumau. Convergent slide-rock makes the bottom area, at a depth between 500 and 600 feet, with open spaces emitting fumes at several points. Good views of the bottom were obtained the afternoon of June 1, when the fumaroles were seen to be grouped around the border of the bottom area, the densest rising from the tumble of debris on the N side. These fumes were white, but more bluish smoke rose from a cavity near the position where O.F. was last seen in April, on the E side of the bottom, The bluish fume rose more rapidly than the white.

Since Sunday, May 4, 1913, no noise of eruption had been heard. May 30 very faint detonations were heard. June 1 these had increased to a rumble with some puffing, with a rythmic quality like O.F., the intervals of quiet lasting from 40 to 70 seconds. Careful inspection of the bottom at night revealed no glow. June 4 the noise had increased to strong hissing and harsh blasts, and glow was reported by one observer; an avalanche was also heard. This succession of events suggests increase of activity, which is certainly expectable with the approach to the solstice June 22.

H.O.W.

June 12.

Halemaumau is still dormant. No glow was visible in the bottom of the pit either on Thursday or on Friday, June 5 or 6, and no report of glow has been made since then by any observer. The strong hissing and harsh blasts which became manifest in the middle of last week have declined in strength; on Friday evening, even, they had perceptibly diminished. Since then visitors to the pit have noticed low, breathing sounds only. Occasional avalanches have been heard. The exhalation of fumes continues without further noticeable change.

H.O.W.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

JOURNAL

WEEKLY BULLETIN

Day Thursday Date June 19, 1913.

Since the last writing there has been a slight increase of activity in Hàlemaumau. On Wednesday and Thursday of last week, June 11 and 12, the noises of eruption were increasing, low intermittent rumbling with loud hissing and sharp gas blasts, -- not so loud, however, as the noises heard in April. On Friday the 13th these noises continued and in the evening an incandescent spot was seen at or near the bottom of the pit. The noises of eruption, somewhat augmented, continued on Saturday the 14th, but by daylight no incandescence could be seen. Up to the time of writing the noises continue audible with only slight diminution in intensity. On Sunday the 15th at night a glow-hole, at the top of a small cone near the bottom of the pit, was seen clearly. A blue flame wavered above it. On Tuesday the 17th at night an incandescent place was noted a little above the bottom of the pit, under the eastern precipice. No incandescent lava has been noted in daylight and the smoke-cloud, seen from the Observatory has not been perceptibly illuminated. The bottom of the pit is badly choked with fallen blocks. No depth measure has been practicable for several weeks, owing to fumes and the absence of molten lava, but the depth cannot be far from 600 feet.

H.O.W.

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Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Sunday Date June 22, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES
6p	Postal Crack		313° C		Temp. air 16. C.

I. a. G.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Thurs Date June 26, 1913
Fri. " 27, "
Sun. " 29, "

June 26, 1913 - Alec at crater. Few slides, and faint puffing noise. Fumes not very thick. Wind NE. Visited all stations. Saw best from NW station - an overhanging cliff below and below that fumes. No glow at all.

June 27, 1913 - 11:30 to 2:30 - Alec reports heavy avalanches and small slides, the sliding particularly from NE side of bottom of pit under NE station. Fumes very strong S and SE. Best seeing NW. Fumes very strong E and NE, unbearable to breathe. The fumes appear heavier from the V. H. No noise of blowing heard.

June 29, 1913 - Same conditions as above, but faint blowing heard again and avalanching diminished.

~~T. A. J.~~

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Monday Date June 30, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									Fumes under light NE wind, appear heavy in the mornings
2									
3									11-12 a.m. - wind increasing. Prolonged
4									hissing beginning every 45 to 55 secs,
5									in middle of bottom area, heard from
6									O.R.H. Hissing lasts 20-30 seconds.
7									One avalanche at 11:40 a.m. - otherwise
8									rare light sliding. Pit clear temporarily
9									below N station. Wall below seem to
10									flare inward, talus far below where
11									it was in March - highest in the W.
12									Fuming W + S. Yellow patch high
1 p m									under W station. N bench all gone
2									(60 ft. down) except a clinging rem-
3									nant 3-4' wide under N station.
4									W remnants under Perret's cave all gone.
5									
6									
7									
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES
2pm	Postal Crack		316° C		Temp. air 21° C.

T.A.J.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

Day Tues. Date July 1, 1913
Fri. " 4 "
Mon. " 7 "
Wed. " 9 "
July 10 to 17, 1913

July 1 - (Alec's report) Strong NE wind. 10:33 a.m. Hissing lasting 13 seconds. 10:37 a.m. - Long slide SSE lasts 10 minutes. (This may have been Day's crevasse, see July 7). 10:50 - Small slide, and other small slides thereafter. Puffs lasting 10 secs. 11:15 - Another quite long slide. 11:40 - Puff lasting 15 secs. Fumes intolerable SE & S. Rainy.

July 4 - 4 p.m. Fumes very bad E. From O.R.H. occasional very deep booming sound. Two avalanches in an hour.

July 7 - 3 p.m. Rare faint blowing heard from O.R.H. One avalanche in W heard during two hours. During a clearing spell saw down-slope from S & SE. Talus under point between S & SE 200± ft. down. Day's crevasse where a portion of rim hung out between S & E, all gone. Great portion of high edge has fallen.

July 9 - 12 m to 2 p.m. Faint blowing heard from O.R.H. at 45 ± sec. intervals, occasionally louder. Fumes strong. Walked with Thurston & party Byron's Ledge, down to floor, across to Halemaumau, Hale. to S pit with caves, striated slabs & ash slope. Up S to '68 cracks, around by Uwekahuna to U.H. New looking lime in banks on either side of 1868 cracks uppermost bed, 6 inches to 2 ft. thick.

July 10 to 17 - Crater remains smoky, fumes acrid and irrespirable, noise a faint rhythmic blowing, rock slides few.

July 12 - faint blowing. July 13 - Fumes N.E. NE at sunset, doubtful.
" 16 - 11 a.m. - N. Sta. no noises. One tinkling rock slide simultaneous with blasting at Jail W.

Notes - Mauna Loa.

W. H. Shipman reports his men at Puu Oo this spring have seen smoke at Mokuaweoweo and considerable vapor from N slope.

J. Monsarrat reports earthquakes very mild at Kapapala this spring.

T. A. J.

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Massachusetts Institute of Technology

KILAUEA DAY SHEET

Hawaiian Volcano Observatory

Day Tuesday Date July 8, 1913.

t	sta	pt	hor	vert	lev	dist	elev	h. i.	

	Cramer ls	Inst.	Tests A cam. Jessar. pnap.	no	pl	scr	stop	ex	cam	
X	9 a.m.	Porch	Mauna Loa (Underexf.)	1	hand	V	F 8	1/35		gly
X	10 a.m.		Trail (underexf. not so much.)	2	"	open	"	"		
	" "	Porch	Volcano House (Fair but no detail. Muddy)	3	"	"	F 6.3	"	"	
	11 a.m.		" " (Underéf. " " "	4	"	V	6.3	"		
			Probably old plates. To prove take Wrat. Pan.							
			Volcano Houses. (Double exposure)	5		V	F 8	"		gly
	1.40 p.m		" " (Better. Underexf.	6		"	F 6.3	"		"
	2.30 p.m		Detail better & shadows clear)						JAJ	

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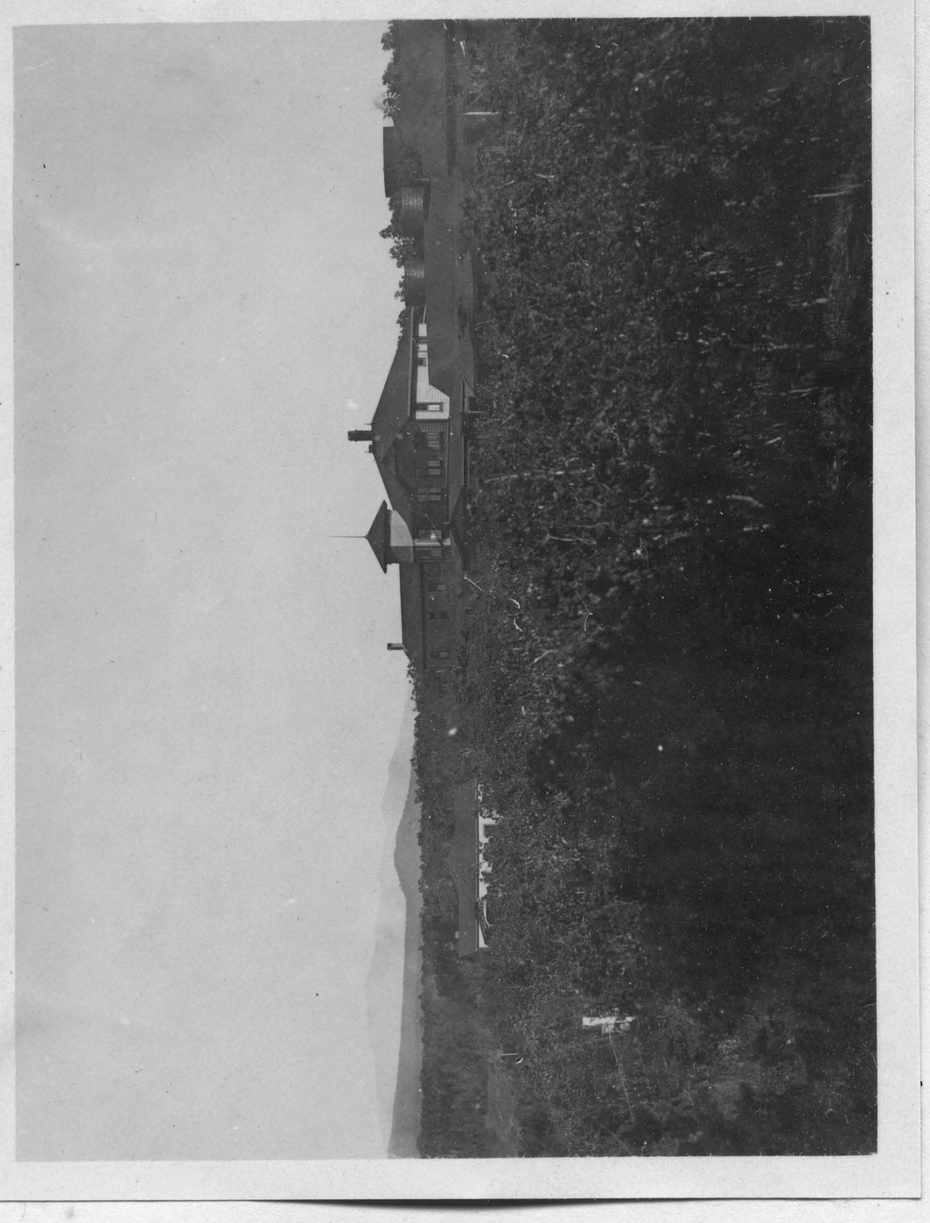
1913, July 8.



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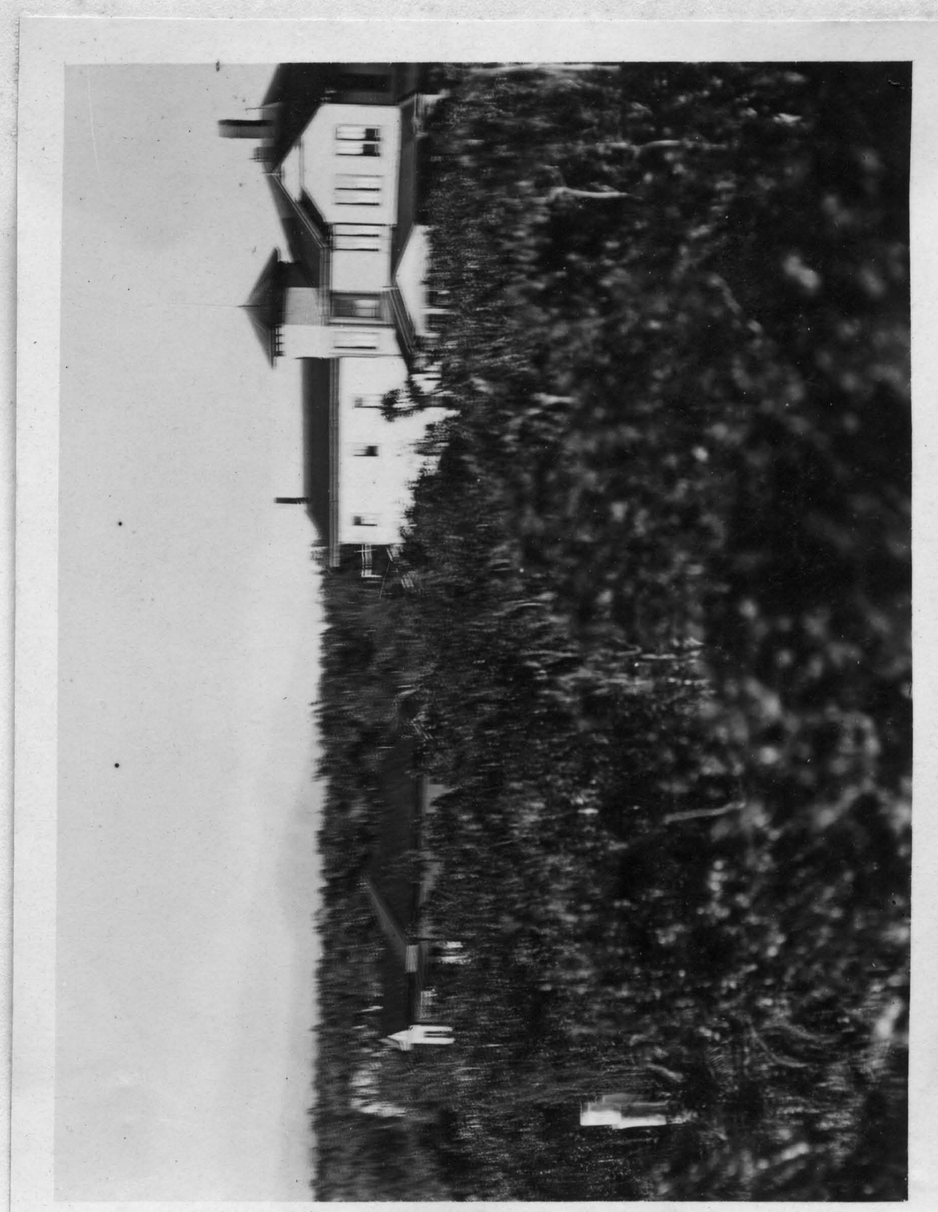
6



5



7

Jag

'71

Massachusetts Institute of Technology

KILAUEA DAY SHEET

Hawaiian Volcano Observatory

Day Wednesday Date July 9, 1913

t	sta	pt	hor	vert	lev	dist	elev	h. i.

			no	pl	scr	stop	ex	cam
	Byron Ledge	Mauna Kea	1	Ham. Instl extra rapid	V	F. 6.3	1/20"	A
	" "	Tree mould '68 flow	2	" "	"			"
	" "	Party in motion	3	" "	"		to	"
X	" "	" on floor	4	" "	"	to		"
X		1868 crack in slope	5	" "	"		1/10	"
		Stalactites in Hot Cave	6	" "	"		15	"
		" " " "	7	" "	"	F. 11.5	25	"
X								

Taf

172

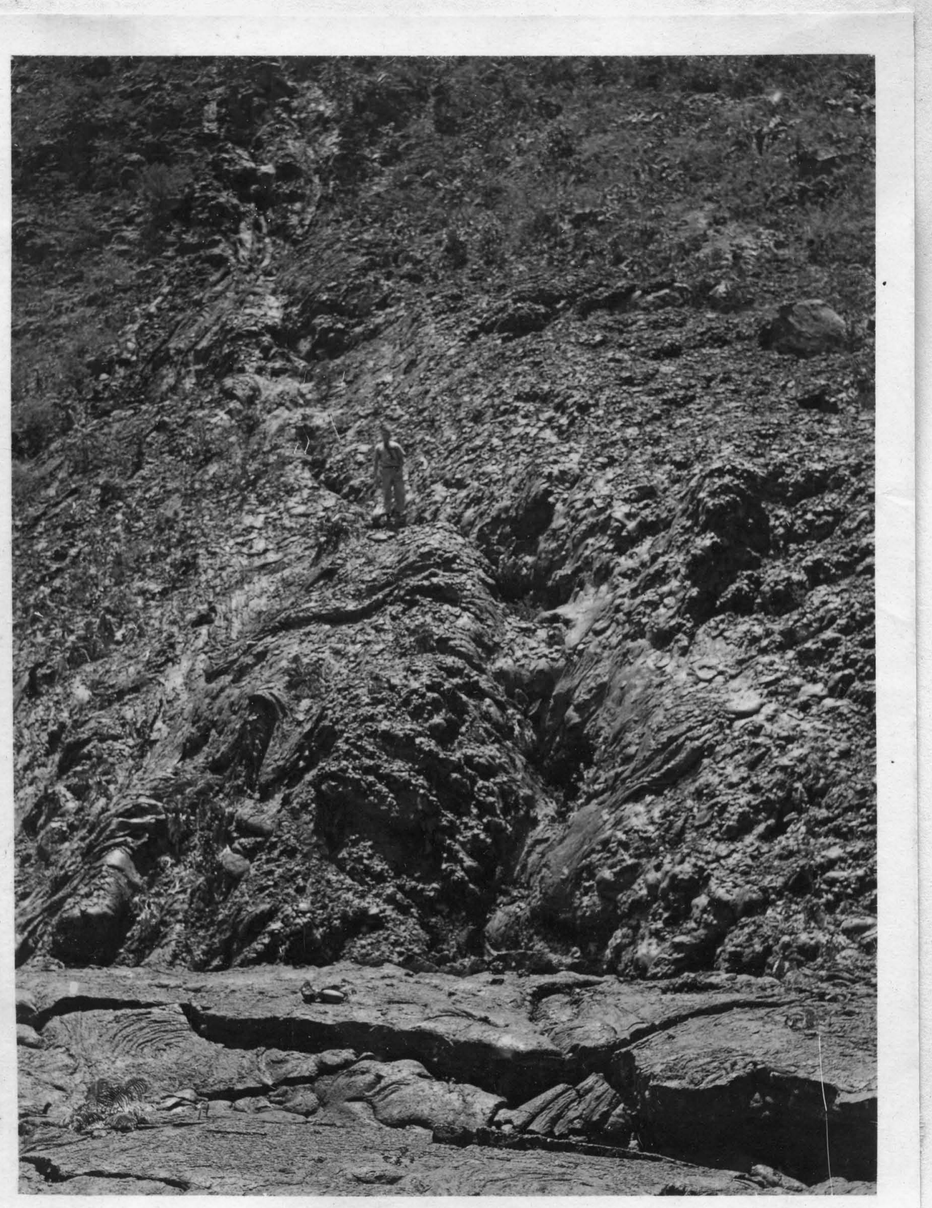
1913, July 9



#1



#2



#5



#6

Jag.

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Wed. Date July 16, 1913.

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									11 a.m. N sta. no noise. One tinkling rock slide simultaneous with blasting at Jail W.
2									
3									
4									One puff heard by long waiting.
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

t	cam	pl	no	~~lens~~ lt	stop	ex	scr	dev	Views of rim stations LOC to station.
11a	A	Ham. inst.	1	Tess	F22	1/2	V		I.H. from N
	"	"	2	W.a	32	1	"		" " "
	"	"	3	"	"	1	"		NE from N
to	"	"	4	Tess	22	1/2	"		" " "
	"	"	5	"	"	"	"		NW from I.H. Very good
	"	"	6	W.a.	32	1	"		" " " " " "
	"	W.P.	7	"	"	1	"		N " "
	"	W.P.	8	Tess	22	1/2	"		" " "
12	"	W.P.	9	W.a.	32	1	"		W from W of N sta. into pit. Very good

Levelled camera.

Tess to Tessar + Wide Angle (Ross)

t	loc	ther	temp	wea	NOTES

T. A. J.

1913, July 16.



#1



#2



#3



#4



#5

J.A.G.

1/5

1913, July 16



#6



#9

J. A. G.



#7



#8

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

Day Fri. Date July 18, 1913
Sun. " 20, "
Wed. " 23, "

July 18 - Alex reports
11:30 a.m. slide heard lasting 4 min.
11.45 a.m. " " " " "
Blowing puffs faintly heard lasting respectively 8 s., 9 s. and 13 s.

July 20 - Noises a little stronger. Very little sliding.

July 23 - 11 a.m. Pronounced blowing heard from SE + S. A prolonged and loud hiss from the bottom every 60 to 70 secs. lasting 5 or 10 secs. Fumes appear less. Open view S part of pit. Wind NE. Fumes mostly around an inner steeper pit apparently. The 1912 lower ledge from S sta (lion's head in previous photo) all gone. Fumes less acrid to breathing.
4:30 p.m. Same hisses, same interval of 60 to 70 secs, but louder. Rhythmic puff-puff 0.4 2 sec. intervals like freight engine on a grade. Occasional deep rumbling. Almost continuous blowing heard from N, difficult to separate the supposed O.F. intervals. Timed the intervals of deep grumbling and found no regularity: 20 s., 30 s., 90 s., 35 s. Occasional light rock slides.

T.A.J.

'17

KILAUEA DAY SHEET

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Thursday Date July 24, 1913

t	sta	pt	hor	vert	lev	dist	elev	h. i.

			no	~~pl~~ lens	scr	stop	ex	cam
11 a.m.	SE	S station (sun)	1	Tessar	V	F 22	1/2	
	~~SE~~	S station (half sun)	2	W.A.	V	F 32	1	
								~~7.0.9.~~

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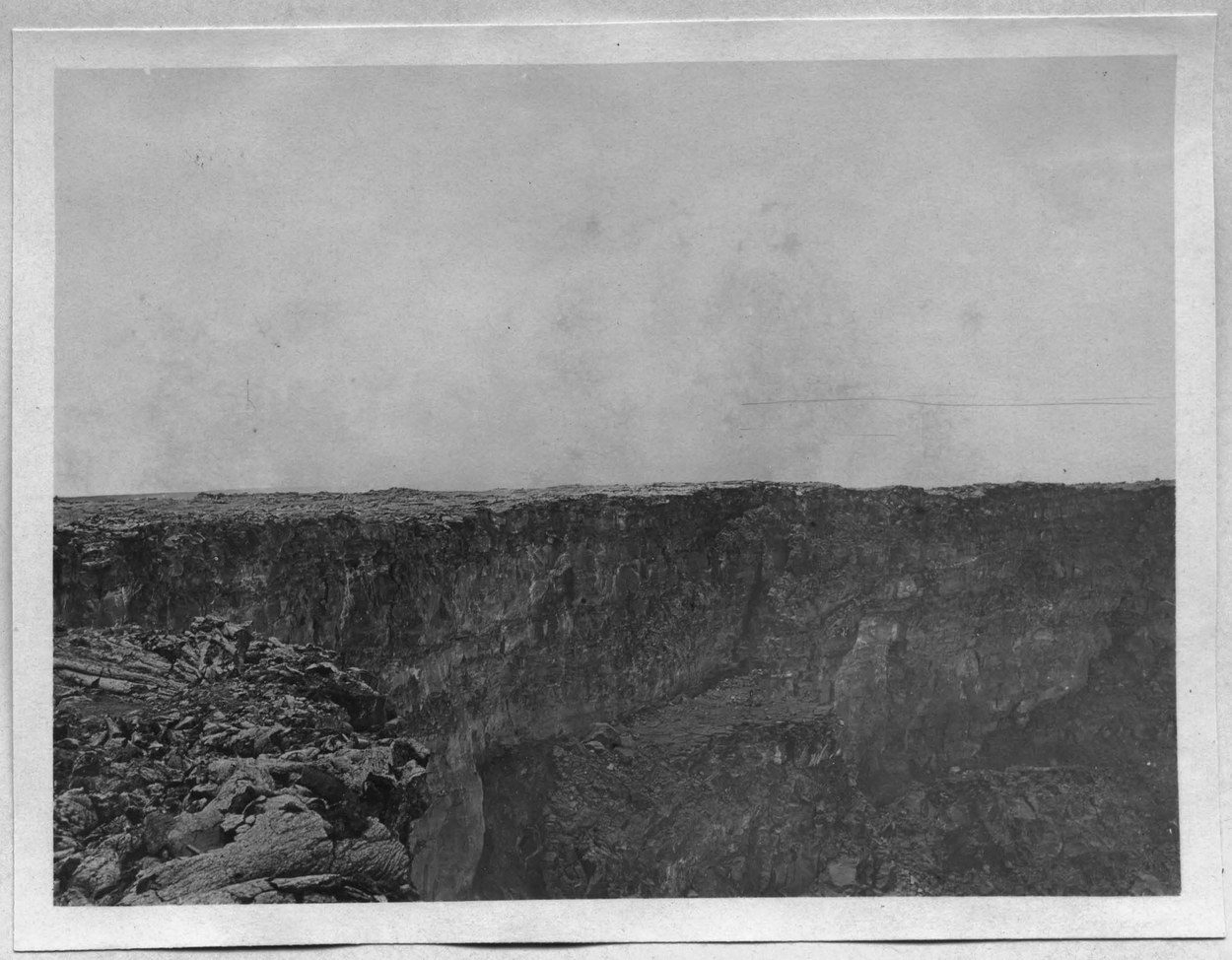
1913, July 24.



#1



#2

J. a. g.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Thurs. Date July 24, 1913.
Fri, " 25, "

July 24.

10 to 12 a.m. Same hissing, rumbling and pulsating exhausts. Avalanching heavier and more continuous, lasting 5 minutes and more at times, especially west. Fumes appear thin as yesterday. In the afternoon, from H.V.O., the fumes appear denser.

July 25.

10 to 12 a.m. Last night continuous avalanches were reported and no glow.
To-day fumes rising straight with little wind. E side the fumes insupportable and acrid. About 11 a.m. reached B.R.H. at a rare time when whole bottom was clear. A great funnel with inner talus continually sliding, no hole visible in middle but fumes from talus on periphery. One place high W with plastered lava around fumarole deserted by talus which has slipped lower. Bank walls very low. Saw all the ring of talus slide together with a great roar into the bottom at one time, lasting a minute and throwing up brown dust. Grumbling like pounding lava heard, almost continuous, after 11 a.m. At 10:30 a.m. from E heard occasional faint blowing. At 9:15 a.m. from H.V.O. saw small slide with brown dust on talus S of black talus cone W side of Kilauea crater opposite Halemaumau and S of Uwekahuna. After 11 a.m. fumes closed in and obscured pit.

T.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Sat. Date July 26, 1913.
Sun " 27 "

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m								8 a.m	Occasional rock slides. From N hardly any sound heard other than sliding. Faint breathing rare. Talus S of Uwekahuna working and throwing up yellow dust. Bright day. No wind. Views from SE and S.
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

t	cam	temp pt	no	lt	stop	ex	scr	dev	LOC
8 a.m		W.A.	1		F32	1/2			SE to SW
		"	2		"	"			SE to E
		"	3		"	"			S to SE
		"	4		F22	"			S to SW
		"	5		F32	"			S channel down to bench
×	10:30a	Jessen			F11	1	×		postal rf/r.
×		W.A			F32	1/2			Crater from road.

t	loc	ther	temp	wea	NOTES
10:30a	Postal Crack		31.3°C	air (sun) 20°	

Sun. July 27, 1913 - Talus S of Uwekahuna working and throwing up yellow dust as on the 26th. At 11:45 a strong slide noted there.

T.A.J.

181

1913, July



#1



#2



#3



#4



#5

T.A.G.

1 8 2

Massachusetts Institute of Technology

Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Tues Date July 29, 1913.

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									3.20 p.m. Fumes thinner. Rumble slight, some O.F. periods.
2									4:30 p.m. Same hisses - same interval
3									60 to 70 sec. - louder. Puffs 0.42 sec
4									rhythm. Occasional deep rumbling
5									note. Almost continuous blowing.
6									Difficult to separate the O.F. intervals
7									Timed the deep grumble and found
8									no regularity - 20, 30, 90, 35 sec.
9									etc.
10									Occasional light rock slides W & N & W
11									Puffing sounds like a freight engine
12									on a steep grade with occasional
1 p m									slip making long exhausts.
2									Rumble is like lava in a cavern.
3									At night there was a glow chimney
4									in O.F. position. Fumes breathable
5									SW.
6									
7									
8									
9									
10									
11									
12									

t	cam	pl	no	~~lens~~ tt	stop	ex	scr	dev	LOC
3:30p	A	W.P.	1	Tessar	F16	1			W station to E station.
	"	"	2	"	"	"			" " " N "
	"	"	3	"	"	"			W " " NW "
	"	"	4	"	"	"			W " " SW "
	"	"	5	"	"	"			Moon, Taylor + Thayer reading therm. postal pit
	"	"	6	"	"	"			New slide Uwekahuna cliff
	"	"	7	W.A.	F32	3			" " " "
	"	"	8	"	"	"			Ash bed base Uwekahuna cliff.
	"	"	9	"	"	"			Dribolet cone

t	loc	ther	temp	wea	NOTES
3:20p	Postal Crack		313 C		
6p.	" "		313 C		

July 31, 1913 - Thursday - Blowing sounds and a few slides reported. Fumes dense.

T. A. J.

1913, July 29.

#4



#3



#2



#1



1913, July 29.

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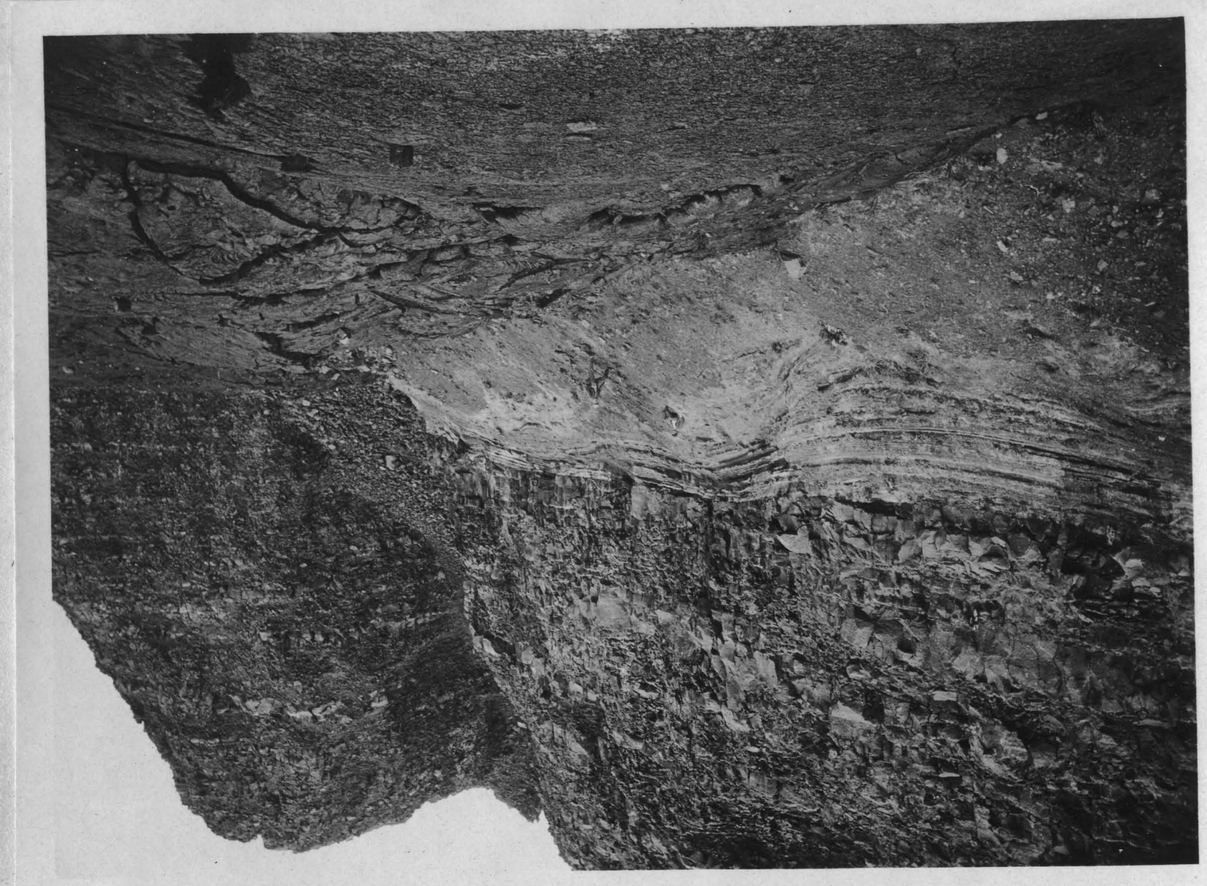
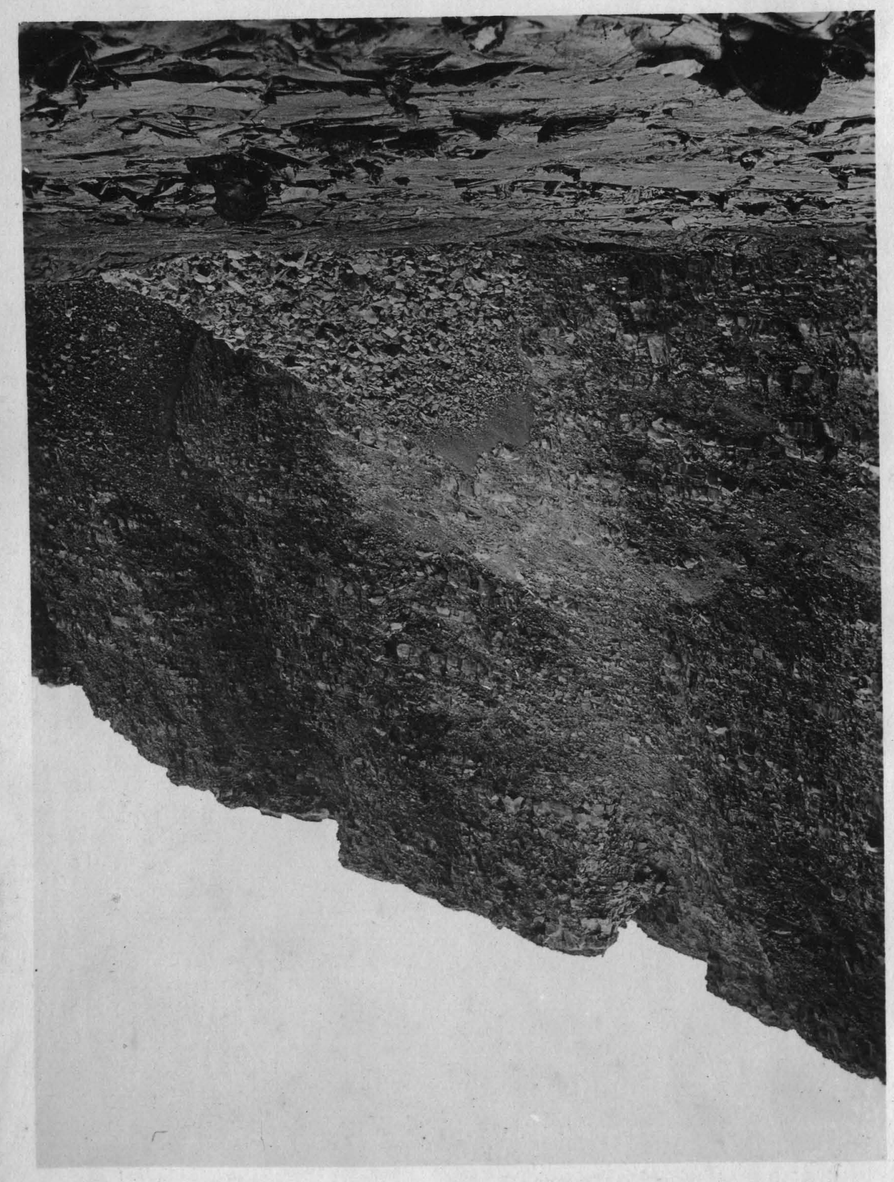
#8



#7



#6



#5



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1913, July 29.



#9

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Friday Date Aug. 1, 1913 to
Wednesday, Aug 6, " . .

Aug. 1, 1913. - H O Wood reports rumbling like thunder. Fumes dense. Rock fall at Uwekahuna - new slide about 6 p.m. Sharp N tilting during night.

* Aug 2, 1913. - Two rock falls at Uwekahuna early in the morning
Aug 3, " - No noise at all at pit. Few avalanches. (Mc Clure)
Aug. 4, " - Blowing and rumbling sounds heard. (Lycurgus)
Aug. 5, " - 1 to 3 p.m. Noises of blowing almost continuous from O.R.H. Fumes very unbreathable but appear thin from a distance. Thunderous reverberation accompanies blowing. Blowing has no particular period but seems to accompany the fluctuations of the thunder sound. When the latter waxes, louder blowing. General character like freight engine.
Temperature Postal Rift - 4 p.m. — 313°.

Aug. 6, 1913 - 3 p.m. Noise is less. Sounds of thud and rumble. Rare breathing noises, rather faint but occasionally louder. No avalanches for ten minutes. These were heard from N (O.R.H.) only. Fumes irrespirable E & N. Rumble nearly continuous but not loud. NE wind.
4. 20 p.m. O.F. intervals:
Intervals:- 40 - 20 - 45 - 25 - 20 - 32 - 48 - 35 - 45 - 35 - 48 sec.
Lasts :- 5" 5 - 10 - 5 - 5" 15 - 5" "
5 p.m. - During temporary eddy the high W fumarole was seen to be fuming strongly, showing sulphur stains

T.A.J.

* Aug. 2 - Exploration lava tube Twin Crater.
Ladder was placed at entrance tube and a large party including L.A. Thurston and family, T.A.J., H.A.W., and others explored the tube to its end. Pacing made the length from entrance to opening in forest 484 feet and from there to the inner end of cavern 1400 feet. At the end the roof sloped down to meet the floor. In the inner portion there were many small driblet spires in floor two feet high and two or more inches across and many slender stalactites pendent from the roof and walls.

T.A.J.

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Massachusetts Institute of Technology

Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Saturday Date August 2, 1913

t	sta	pt	hor	vert	lev	dist	elev	h. i.	

188

1913, Aug. 2.



#1



#2



#3

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

Day Sun. Date Aug. 10, 1913
Mon. " 11, "
Tues. " 12, "
Thurs, " 14, "
Sat. " 16, "

Aug. 10 - 11.45 a.m. No noises heard from N rim except weak working of talus W. Fumes look thin but are irrespirable. Some view, usual funnel S.

Aug. 11 - 10 a.m. No noise. No sliding heard. Fumes strong but look thin. High wind.

Aug. 12 - 4 p.m. No noise. Fumes not quite so irrespirable. One or two rocks sliding.

Aug. 14 - 11 a.m. Four fumaroles, S, SS + E, visible around bottom area from SE station. From the SE ones fumes are rising vigorously and are white. From O.R.H. fumes very bad to breathe; no noises from bottom; very slight surface sliding of talus W heard once in the course of 20 minutes. High N wind.

Aug. 15 - Hard Kona storm. 2+ inches rain.

Aug. 16 - 2 p.m. Wind S. Fumes dense over 1894 shelf NE. Fumes SE, S, SW + W. From W one rumble and some talus slipping heard. Fumes irrespirable. Heard a long continued blast, either a general talus slide or a puff. Views partial from O.R.H. Not many fumaroles N side. Fumes perhaps a little more respirable.

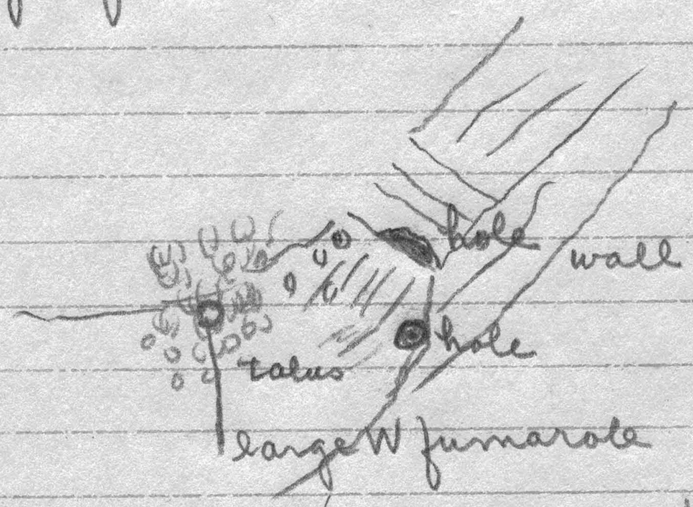
T.A.J.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sun. Date Aug. 17, 1913

10 a.m. Light S wind with driggle. From O.R.H. hear a sharp crackling, single snaps, from time to time; at first thought to be single rocks falling. Cleared and saw whole bottom. Sit marked fumerole patches, one W most active and largest. From this came the snapping noise, apparently rocks cracking under the great heat; like the cracking of a lamp chimney.

Heard two slides, NE & W. Under W station and just above the talus there are two rock caverns revealed by the breaking away of the lower walls, which are new. The southernmost of these is a cave in the wall opening downwards about 45°. The other is a crater-let with vertical tube downward 10 ± ft. in diameter. These are in the same general region as Perret's cavern and the one under the W station, but much lower down.



In the bottom of the pit two of the fumaroles yield fumes much more bluish than the others. The bottom area appears even flatter than when last seen, and no lower. It is the sliding away of the lowermost talus which has revealed the W caves.

On the N wall at the bottom the vertical cliff gives place to an insloping rock face of much flatter angle. At the joint between the two is an active fumarole from a fissure in the wall. This is where active fuming undermined the N shelf earlier in the year, but now the source of fume is seen to be from the wall itself, all the talus having slipped lower. Still farther down on this side among the talus there are one or two ledges which suggest an inner rock wall.

Noises are occasional rumbling and rare breathing sounds. Fumes much more tolerable to breathe.

T.A.J.

WEEKLY BULLETINS INSERTED FOR THE PERIOD

AUGUST 17 - 28, 1913,

during absence of T. A. JAGGAR in Honolulu.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

JOURNAL

WEEKLY BULLETIN

Day Thursday Date August 21, 1913.

At Kilauea the past week has been uneventful. There has been no marked change in the activity of Halemaumau, there have been no earthquakes, and nothing unusual or noteworthy has been observed in the registration of microseismic motion, or of volcanic vibrations.

In the early forenoon of Friday, August 15, a strong S to SW wind set in which blew, with diminishing energy, until late Sunday evening, August 17, During the first day of its duration this wind brought heavy rain, the precipitation amounting to more than two inches in twenty-four hours. Associated with this storm there were immediate, sharp southward tilting of the rock surface at the Observatory, of unusually large amount, with less marked but still considerable westward tilting. This response is considered to be due to sudden and unusual loading with rainfall of the adjacent S and SW region.

At Halemaumau at 2 p.m. on Saturday, Aug. 16, the wind was S sweeping dense fumes over the 1894 shelf at the NE. Fumes were rising in the SE, S, SW and W. Here they were sharp and irrespirable. At the W one rumble and some slipping of talus was heard. One long, continuous blast was heard, due either to a general talus slide or to a puff. Partial views from the O.R.H. showed that there were not many fumaroles working on the N side. At this point the fumes were perhaps a little more respirable.

At about 10 a.m. on Sunday, Aug. 17, there was a light S wind and drizzling rain at the edge of the pit, and at the O.R.H. there was heard from time to time a sharp crackling -- or single snapping sounds -- at first thought to be due to single rocks falling. However, with a favorable wind change the fumes cleared from the whole pit of Halemaumau affording a splendid view of the entire bottom. There were six marked fumarole places, one at the W being most active and largest. From this place came the snapping sound -- now thought to be due to rocks cracking under great heat, like the cracking of a lamp chimney. Two talus slides were heard, one at the NE and one at the W. Under the W station and just above the talus there are two rock caverns revealed by the breaking away of the lower walls, which are new. The southernmost of these is a cave in the wall, opening downwards at about 45°. The other is a craterlet with a vertical tube about ten feet in diameter, extending downwards. These are in the same general region with Perret's cavern and the one under the W station, but much lower down. In the bottom of the pit two of the fumaroles yield fumes much more bluish than the others. The bottom area appears even flatter than when last seen previously, and no lower. It is the sliding away of the lowermost talus which has revealed the W caves. On the N wall at its bottom the vertical cliff gives place to an insloping rock face of much flatter angle. At the joint between the two is an active fumarole at a fissure in the wall. This is where active fuming undermined the N shelf earlier in the year, but now the source of the fumes is seen to be from the wall itself, all the talus having slipped lower. Amongst the talus material still farther down on the side there are one or two ledges which suggest an inner rock wall. Occasional rumbling noises and rare breathing sounds were heard. With the resumption of the trade wind, nothing could be seen or heard on Monday or Tuesday, August 18 and 19.

H.O.W.

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Massachusetts Institute of Technology

JOURNAL

Hawaiian Volcano Observatory

WEEKLY BULLETIN

Day Thursday Date August 28, 1913.

Conditions at Kilauea remain without change. During the past week fresh NE trade winds have blown steadily, so maintaining almost continually a swirl of fumes in the Halemaumau pit. No view into the depths has been afforded to the writer and, so far as can be learned, only one party of visitors has been more fortunate. This party reported that the caves leading into the W wall were visible but that no view of the very bottom was obtained. No sounds of eruption have been heard by any.

H.O.W.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

Day Mon. Date Sept. 1, 1913
Tues. " 2, "
Thurs. " 4, "
Fri. " 5 "
Sat " 6 "
Sun. " 7 "
Mon. " 8 "
Wed. " 10 "
Fri. " 12 "
to Sun. " 21 "

Aug. 31 - No blowing.
Sept 1 - Blowing noises.
" 2 - Went to lava tube and crater with Major Cheatham. Halemaumau at 11:30 a.m. Wind S. View from O.R.H. Same as last. Two holes W. Fumaroles strong below. Strong blowing noise every 40 seconds. Very little sliding. Thunder storm 2 hrs. in afternoon.
" 4 - 10 a.m. Same as Sept. 2. Blowing noise, much smoke, NNE wind.
" 5 - Blowing noise inaudible 6 sta. One slide.
" 6 - Blow heard from 6 station weakly. (Also noon + p.m.)
" 7 - Some blowing.
" 8 - Blowing moderate and rhythmic (40 sec.) from O.R.H. at 9 a.m. Few stones moving on W slide. Some thud or faint rumble. Fumes acrid but moderate in volume. No seeing N or E. NE trade.
" 10 - Strong blasts, one lasting 20 sec.
" 12 - No noise whatever of blowing. Some avalanching. Fumes dense. Sinking again.
" 13 - Continuous hiss.
" 15 - Hiss continuous and louder. Some puffing.
" 16 - Hissing long and loud - heard from E.
" 17 - Hissing moderate and periodic.
" 18 - Hisses harsh and loud. Intervals 25 sec. Occasional very loud blasts.
" 19 - J.W. Breen reports loud blowing, blasts 20 sec. long, followed for 20 to 25 sec. by lighter puffing.
20 - Same in evening but louder.
21 - Blowing continues.

T.A.J.

9:30 a.m. J.W. Green throughout the day (10 a.m. to 4:10 p.m.) observed magnetic declination fluctuation at his station B northeast of Halemaumau and near rim of pit, every few minutes, and found a normal diurnal curve. Simultaneously T.A. Jaggar recorded duration and interval of puffs of vapor heard in crater and hourly made readings at Postal Rift of mercurial high pressure thermometer which was left with its bulb in the rift. The results show no gradual fluctuation in the puffing, no fluctuation in the temperature curve and no correspondence with magnetic declination.

Crater Observations.

Conditions.- Wind light, variable with calms mostly SE. Temperature of air 10:30 a.m. in sunshine 25° C. 5 p.m. 20° C.

The Pit:- Fumes flowing thickly over the edge, first on the S then on the N. Loud puffing sounds from the crater, each main puff lasting from 20 to 40 seconds followed by intervals of quiet or of subordinate puffing. The white vapor of the puffing appeared to be below the N fumarole. At 1:15 p.m. a light eddy of easterly wind revealed bottom and N inner slope to observer at North Rest House. Fumaroles were seen N and W as before; also two western holes. There was drainage wash under the western holes. The puffing noise seemed to come from a place in the extreme bottom where brown fume was purling. On the W rocks were heard moving. A very hot looking bee-hive cone had been built around the N fumarole. At 3 p.m. a clear view was obtained of the boulder bottom region which was quiet. When puffing began white vapor appeared.

Special Observations.

Temperatures of Postal Rift. Thermometer inserted in Rift at 9:30 a.m. Times here given Hawaiian Standard. The procedure was to return to the rift for thermometer reading once an hour, the remainder of the time being occupied with notes of duration and intervals of the puffing in the crater. Temperature of air given above.

Temperature Rift.		
	10:30 a.m.	323° C
	11:20 a.m.	322° C
	12:00 m.	323° C
	2:00 p.m.	323° C
	3:00 p.m.	323° C
	4:00 p.m.	323° C

T.A.J.

Special Observations (continued)

Measurements, duration and interval of puffs.

Abbreviations:-

int = interval, meaning time of quiet or slight puffing.
dur. = duration of prolonged blowing
cres. = crescendo or puffing noise increasing to a maximum and then dying away.
dim = diminuendo, a loud puff dying rapidly.
pfs = puffs during otherwise quiet intervals.

The following table shows duration and intervals of main puffs, from three to seven readings being made every ten minutes approximately from 10:06 a.m. to 12 m. and from 1:10 p.m. to 4:10 p.m. Readings in seconds.

Time	Sta	dur	int	dur	int	dur	int	dur	int	dur	int	dur	int	dur	int	av'g dur	av'g int	Remarks.
10:06a	O.R.H.	40	2	25	20	40	2	30	15	40	2	40	2			35.8	7.1	
10:17a	"	30	pfs 15	30 pfs	2	30	10	35	5	30	5	25	5			30.0	7.0	Wind SE. Fumes.
10:45a	S	30cres	10	20cres	10	30cres	5	35cres	25	30cres	10					29.0	12.0	
10:50a	"	15	5	15	5	15	5	20	30	35	10	40. 20	15 17			22.8	12.4	Rock tinkle.
11:00a	"	30	20	50cres	20	40	15	20	5							35.0	15.0	Rock fall.
11:25a	"	40	10	50	20	25	10	20	5	45	12					36.0	11.4	Fresh E wind.
11:30a	"	30dim	10	40dim	2	40	28	30dim	2	40dim	2	30dim	35			35.0	13.1	Rock fall.
11:40a	"	55dim	28	27dim	7	30dim	2	25dim	15	35dim	5	10dim 20dim	10 35			37.4	14.5	
11:50a	"	30	10	20	5	20	2	20	7	20	30					22.0	10.8	
12:04p	"	20	20	30	20	30	20	40	10							30.0	17.5	Light SE wind. Ahe rock fall.
1:10p	O.R.H.	35	15	35	10	35	20	40	20							36.2	16.2	Single blocks fall W.
1:20p	"	75	20	25	10	30	5	30	10							40.0	11.2	Rock fall E.
1:30p	"	35	5	25	15	30	15	25	5							28.7	10.0	
1:40p	"	40	50	40	2	30	10	40	5							37.5	16.7	
1:50p	"	20	20	43	20	45	10	25	15							33.2	16.2	
2:03p	"	30	20	25	5	30	20	35	5	25	15					29.0	13.0	
2:10p	"	20	30	20	20	30	15	40	2	50	20					32.0	15.4	
2:20p	"	25	10	15	5	20	10	25	25	35	10	30	5			25.0	10.8	
2:30p	"	30	50	25	15	25	15	45	35	30	25	60	40			35.8	30.0	
2:40p	"	25	10	30	15	25	45	30	20	25	10					27.0	20.0	
2:50p	"	40	40	20	10	30	20	30	5	20	10					28.0	17.0	
3:03p	"	25	15	25	5	40	30	35	25							31.2	18.7	
3:10p	"	35	25	50	15	35	15	45	15	40	2	25	5			38.3	12.8	More noisy
3:20p	"	45	25	20	5	60	10	35	10	50	10					42.0	12.0	Noisy W slide
3:30p	"	50	15	20	10	45	15	30	5	30	25					35.0	14.0	
3:40p	"	30	15	75	20	20	5	40	20	20	10	30	5			35.8	12.5	Slide E, ruts bottom?
3:50p	"	15	5	25	7	25	20	55	10	25	30					29.0	14.4	
4:08p	"	35	25	20	5											31.0	15.0	
4:10p	"	30	20	40	25	30	5											
										General Average -						32.4	14.1	

T.A.J.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Tues. Date Sept. 23, 1913.
to Fri. " 26, "

Sept. 23 - Same character blowing but less loud. Partial views NW side under SE wind at 4.30 p.m.

Sept. 24 - 4. 30 p.m. Good clearing of NW under light variable winds (SE wind most of day), see a glowing beehive cone S of N fumarole about lowest part of bottom. Strong curling activity in the border fumaroles but the vapors are white and quickly dissipated. Fume mild to breathe. View from O.R.H. Hissing continuous and very loud. Apparent source of hissing is the beehive glow cone - where an interior blast of burning gas probably maintains the incandescence. Some appearance of lava splash around the cone. The cone is approximately in the O.F. position.

Sept. 25 - 3:45 p.m. No wind. Rainy. From O.R.H. hissing continuous though lighter than yesterday. Heard one very light slide, one rumble, one crackle. All faint. No good seeing. Volcano marking time and falling a little. One short stop in hiss - immediately resumed.

Sept. 26 - 5 p.m. Light continuous hissing. No view.

I. O. F.

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Massachusetts Institute of Technology

Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Sat. Date Sept. 27, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									4:30 p.m. From E only the louder hisses heard. From O.T.R.H. hissing fainter than yesterday & fluctuating. Wind NE. Slight opening of W diff. No rock slides.
2									
3									
4									
5									
6									
7									4.54 p.m.
8									70-0 70-0 70-0 25-0 75-0
9									Intervals of louder blowing. Hardly
10									any differdice however.
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	dev	LOC

t	loc	ther	temp	wea	NOTES
5.10p	Postal Rft		320°C	Tair 21°	Fall of 3° since Sept. 22.

J. A. F.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Mon. Date Sept. 29, 1913.

Sept. 29.
4 p.m. - Wind NE. Fumes over E edge. Noise of puffing E. At O.R.H. noise of puffs loud after 60 seconds. First 40 sec. louder rhythmic puffs 1 to 2 sec. interval - last 20 sec softer, then a renewed loud puffing. No continuous hiss. All puffs fairly loud at times. Fumes fill pit.

Sept. 30. Sharp hissing ni puffs reported in morning. (Lycurgus)

Oct. 1 - Same hissing as yesterday. Loud hisses occasionally. At 8 p.m. flaring pekn from V.H. At crater wind WNW. No view N or NW. Fumes more breathable occasionally over SE. From E & SE glow flares. At SE, 11 p.m., saw E glowing crack in bottom whence came every 30 to 40 sec. and more often, very loud muffled blasts with thudding quality and complete quiet in the intervals. Blasts various and irregular, loudest yet heard. Crack sputtered sparks and lava splash and changed to an oven shape ejecting lava sideways. Some flames.

T.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Thurs. Date Oct. 2, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									3 p.m. Puffs.
2									Duration Interval
3									15 35
4									5 15
5									10 40 very loud
6									10 20
7									15 10
8									15 35 very loud
9									15 35
10									Complete quiet between.
11									Wind SW. Fumes dense E + SE. Res-
12									pirable however, Partial view
1 p m									NW. Small rock slide at 3:30.
2									Noise more hiss and less thud
3									than last night. Fresh Pele's hair
4									NW - of interesting variety. Three
5									inch clumps part downy, part
6									hairy. Roar of the gas blasts in the
7									pit plainly heard at the fumarole
8									zone of the Postal Rift to leeward.
9									Pele's hair found here also.
10									4:30 p.m. Rock slide S. Waited 30 min.
11									NW - no view. Fumes smell unusual -
12									HCl? Noise clogged & sputtering as

t	cam	pl	no	lt	stop	ex	scr	dev	LOC
									through with lava at 4:30.

t	loc	ther	temp	wea	NOTES
4p	Postal Rift		320° C	T. air 20°	T. A. G.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Sat. Date Oct 4, 1913
Sun. " 5, "

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									Oct. 4 - Continuous blowing. (Hycanga) Some faint glow last night and to-night.
2									
3									
4									
5									Oct. 5 - 10 a.m. Views of S6 amphitheatre. Fumarole below. Continuous slope of talus. NE Trade wind. Noise heard from S6 + O.T.H. is of coughing and occasional longer hissing. Sudden coughs like an exhaust pipe. Sounds as though coming through pasty lava. No seeing
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

t	cam	pl	no	lt	stop	ex	scr	~~dens~~ dev	LOC
Oct 5:-									
10a.	A	WP	1		11.3	1	5x		SE to S. West half of S bench gone.
	"	WP	2		45	1/3		W.A.	NE ward to drivlet cones from in front Tech. Sta
	"	"	3		"	"		"	Near view of 1 H looking S6.
	"	"	4		22	20		"	Interior seismograph room T.S.
	"	"	5		"	10		"	Interior bedroom T.S. (Plate destroyed. Duplicate negative from print on 5x7 plate)

t	loc	ther	temp	wea	NOTES
					T.A.J.



#1



#2



#5 (From original plate)



#4

F. A. G.

1913, Oct. 5.

202

1913, Oct. 5.



#3

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Wed. Date October 9, 1913
Thurs. " 10, "
Fri. " 11, "

Oct. 9 - Puffs every 20 seconds.

Oct. 10 - 9 a.m. Light S wind. From SW station. Audible isolated sharp puffs preceded by rumble as of lava in a cave about every 20 to 25 seconds. Sometimes double and triple puffs. Silence between. A little sliding.

Intervals 16 Sometimes gas escapes in short irregular
28 puffs for 40 to 60 seconds and then comes
20 a strong puff. Not regular.
15
15 - 3 then short puffs for 40 sec. Then strong.

From O.R.H. looking down. Talus with fumaroles appears to have slipped lower. Two big fumaroles N besides the one on the wall. Much fume under the cavern and crater let W, which last now appears high on the wall over the fuming talus.
Considerable sliding going on. Resounding thuds of lava in cavern and occasional explosive blasts.
Fumes respirable.
Later Green saw cone with sparks.
Landslide at noon.

Oct. 11. Green reports similar noise. No seeings.

T.A.J.

WEEKLY BULLETINS INSERTED FOR THE PERIOD

OCTOBER 12 - 23, 1913,

During absence of T. A. JAGGAR in Honolulu.

JOURNAL — Massachusetts Institute of Technology
Hawaiian Volcano Observatory

WEEKLY BULLETIN — Day Thursday Date October 16, 1913.

The volcano continues in minor eruptive phase. Frequent irregular explosive noises have been heard throughout the past week, varying from puffing sounds to sharp explosions accompanied by rumbling like deep distant thunder, waxing and waning but, on the whole, increasing in volume and energy. Intervals between noises have varied from 20 seconds to over a minute, and these have been distributed without order. Sliding of talus on the small scale has been heard during the week but it is thought to denote readjustments among the blocks rather than pronounced movement of the magma column. Great volumes of fumes continue to be given off. To measure these is next to impossible but the writer considers their volume now greater than some weeks ago, -- and increasing. Views into the pit, particularly to its very bottom, are consequently rare and fortuitous. The gases appear to be rushing from the bottom fumaroles on the N and W as though under considerable pressure. This was especially noted on Wednesday, October 15.

Late in the afternoon on Friday, October 10, Mr. J. W. Green obtained a good view of the bottom of the pit when, for about twenty minutes, the bottom region was kept free of fumes. A small area of incandescent lava was visible and at irregular intervals when especially hard blowing took place a jet of molten spray was shot out of this orifice to a height of a few feet, at a slight angle from the vertical.

The ordinary activity described above continued, with fluctuations, until just before noon on Wednesday, October 15, when it was noticed that the explosive noises were becoming distinctly sharper; at about 2:30 p.m. an unusually loud and energetic explosive sound was heard after which these sounds were accompanied by a swashing noise like that of a much disturbed heavy fluid. After hard blasts the patter of falling lumps, presumably from lava jets, was heard. Mr. Green mentions also a sound resembling that of rock snapping from heat. After nightfall at long intervals brilliant flarings were seen from the Volcano House, despite a bright moonlight illumination of the fume cloud.

H.O.W.

Massachusetts Institute of Technology

JOURNAL

Hawaiian Volcano Observatory

WEEKLY BULLETIN

Day Thursday Date October 23,1913.

The activity of Kilauea in October, 1913, has been similar to that of October, 1912, in that the month started with a revival, followed by sluggish phases and occasional withdrawals of the lava, as though a contest were in progress between a rising lava column and a subsiding tumble of debris which tends to choke and chill the hot fluid beneath. The past week has been an illustration of this, in that the fumes have been dense, the glow repressed and the noises less, everything pointing to a suppression of the rising column by the great quantity of talus fragments which must needs be taken into solution by the magma before its seemingly limited supply of hot gases can sufficiently assert their power to make a vigorous lava lake.

Throughout the week there have been sounds as of the swashing of a heavy liquid. This noise had a tendency to increase and decrease every few seconds, accompanied at short intervals by spattering sounds such as are made by the falling of lumps of molten lava. At longer and quite irregular intervals, a minute more or less, sharp blowing noises have been heard, followed usually by much of the spatter sound.

In the evenings of October 18, 19 and 20, Saturday, Sunday and Monday. particularly the 19th, there was visible from the Observatory (and the Volcano House) a dim but steady glow on the fume cloud with brilliant flaring at considerable irregular intervals.

On the morning of October 20 D. Lycurgus reported a view of the bottom which disclosed a well-marked cone with an orifice at the apex some ten feet in diameter, out of which lava jets spurted at fairly long intervals.

Oct. 23 at 4 p.m. the weather was rainy and foggy and little could be seen. A puff, not at all loud, could be heard from the E and N stations about once a minute, sometimes repeated two or three times at intervals of ten seconds, with some sound of splash. The fumes were strong and disagreeable to breathe.

Mr. J. W. Green continues his magnetic work and is now engaged in establishing magnetic stations on the rim of the greater crater of Kilauea. He has found that owing to its content of magnetic minerals the Kilauea basalt is itself variously magnetic in small specimens, a fact which promises to greatly complicate the use of the magnetic needle in this region.

T.A.J.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Fri. Date Oct. 24, 1913

Glow at 3 a.m.
With J.W. Greene to repeat declination tests SW + W stations.
8:45 a.m. SW. Moderately loud puffing every 50 sec. Calm weather. Occasional intermediate puffs. Sometimes ratchet noise. No splash.
9:05 a.m. - Hear faint rhythmic "freight engine" puffings.
9:25 " " - Small west rock slide.
9:35 " " - Small slide south.
Good views from SW of fumaroles but not of center.
At W sta. & SW Greene tests polarity of pieces of lava. 4" piece polar and attracts magnet of magnetometer (magnet suspended by silk fibre). Other end rock repels. 10" piece still more. 3" compressed mass decomposed Pele's hair faintly magnetic. Blocks of lava discolored and decomposed by solfataric action all faintly magnetic. All show polarity. Moving a pile of large stones which was under magnet away several feet changes position magnet several minutes.
Glow seen 10 - 12 p.m. Steady and flare — from H.V.O.

T.A.J.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sat. Date Oct. 25, 1913

12:30 a.m. (Just after midnight.) Still night with light S breeze and fog; fumes very disagreeable at U.H. Awakened by difficulty of breathing. Writer imagined was awakened by an earthquake.
At 12:49+ a.m. very strong earthquake shock, lasts 4-5 sec and overturns one bottle, a flat one, to the S, on wash-stand. General awakening of sleepers, Sycungus comes over to cottage, followed shortly by Wood with a lantern, from H.V.O.
The earthquake precipitated rock-slips in Kilauea Iki direction first, then Uwekahuna direction, roar of falling stones general in crater.
Green reported hearing noise of earthquake before noise of rock falls, earthquake noise receding to the SW.
Fuller called up from Hilo to say they had a very strong shock.
The two Bosch Tromometers and Omori Heavy Tromometer dismantled. Omori Ordinary seismograph wrote a good record. Omori Trom. broken pivot of writing pen and of counterpoise? NS Bosch broken cardan spring and both Bosch elements, dismantled; silk fibres at contact with pens. No preliminary shock, hence nearly epifocal? Pendulum clock stopped 12:49:45 (?) Leak of water in concrete N side of seismograph cellar. Started Ordinary seismograph and clock.
With Alex and Wood started in auto to Halemaumau. Foggy road. Wind light NE when we reached crater. Some glow, which had been bright and steady 10-12 p.m. previous evening. View down from O.R.H. 3-4 a.m. A cavity spouting lava with chiefly a splashing noise at 40-50 sec intervals, and large splashes falling on the rocks with thuds. Continuously open and showing a seething pool within, sub-rectangular with cracks extending from the four corners, as though made at the intersection of two main fissures. Apparently 10 to 12 feet long and 5-6 feet wide, with walls 3 or + feet thick. The spurting was oblique northward the pool appeared about in the O.F. position, as compared with last spring. The flaring on the fume cloud was made by the spurts, but the fumes were continuously illumined.
There was no conspicuous change in the E, NE or N rim from the earthquake. There was little rock sliding. Bright moonlight. At Tech. Sta. a stadia rod had fallen into the middle of the room from S frame timber + carried a lantern + a coffee-pot with it. A bottle had fallen on the table. At O.R.H. the E wall of loose stones had tumbled southward at the entrance. On the road to crater near Twin Craters a S facing cliff had dropped two or three big stones into the roadway. At about 2:30 a.m. the talus was still sliding in Kilauea Iki as we drove past.
At 10 a.m. the results of the earthquake seen are:- (1) Kilauea Iki from N landing: two E scars have fresh falls from their S borders and N wall shows two rock falls at least. Brown earth. (2) Uwekahuna cliff shows fresh gray rock talus particularly NE corner. (3) Byron's ledge shows one fresh brown scar toward the N, on side of Kilauea. (4) Four small crevices in the hard earth of path back of U.H. about the line of the large steam crack and near the group of large

(Continued)

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

Day Sat. Date Oct. 25, 1913, contd.

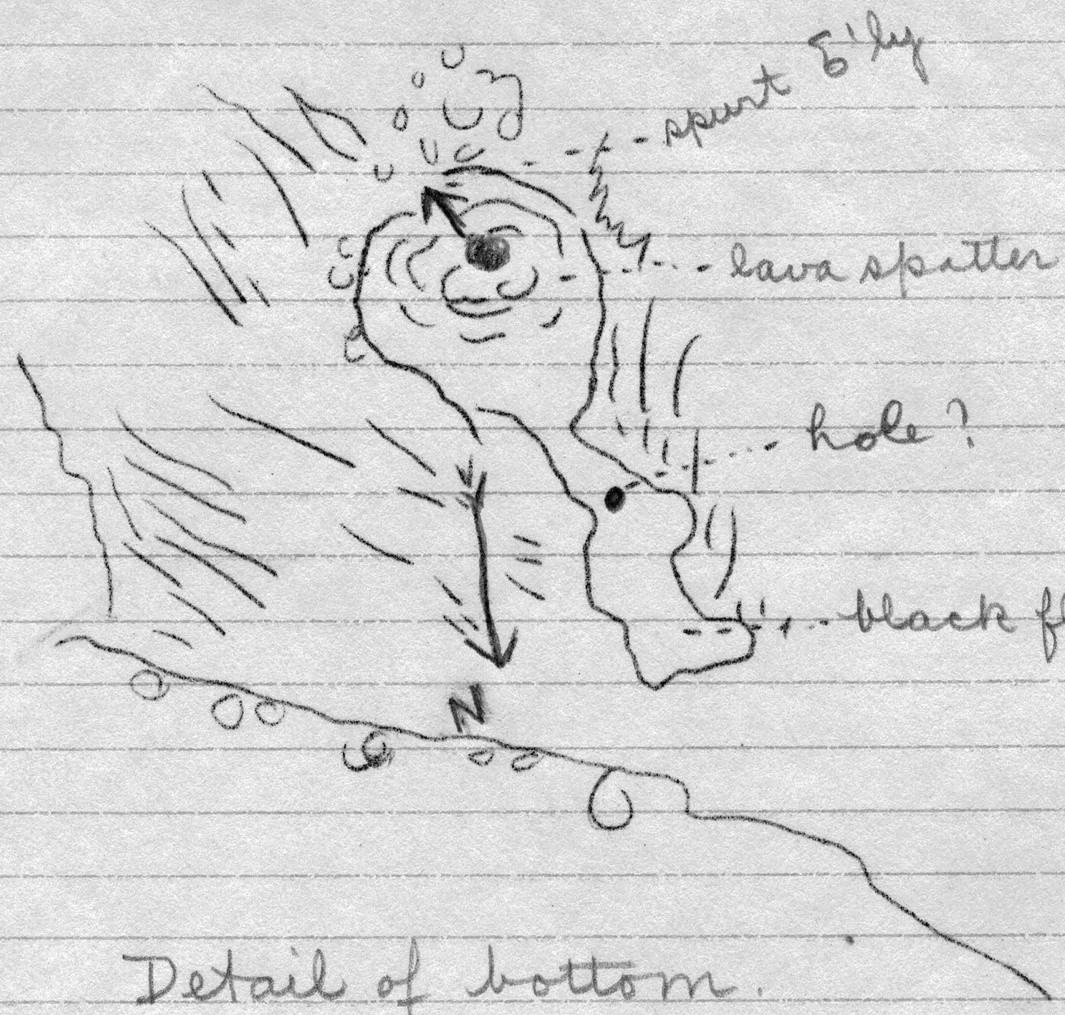
water tanks. Direction in line of cliff and cracks, maximum gaping of crevices 1/2 inch. All of them in a distance of 15 feet. No others found along stable paths, or along a section from the sulphur banks southward out on lower bench. (5) West of trail leading from U. H. to Halemaumau, where pane reaches lava floor, several fresh brown slides.

Fog

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sun. Date Oct. 26, 1913

3:40 p.m.



Detail of bottom.

Htale 5'
Ht 15'
Diam. cone 20 ft
length flows 100'.

Fumaroles very active and hot W. Lower ones sulphurous with blue fumes. Fumaroles W and N at least 100 feet above the lava at top of talueses. Salmon red bank N. Blue fumes back of it. Axis from cone to lava flow about the line from S6 to N4 sta. Spurts 50 sec. intervals.

T. A. J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Thurs. Date Oct. 30, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev
1 a m								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
1 p m								
2								
3								
4								
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7								
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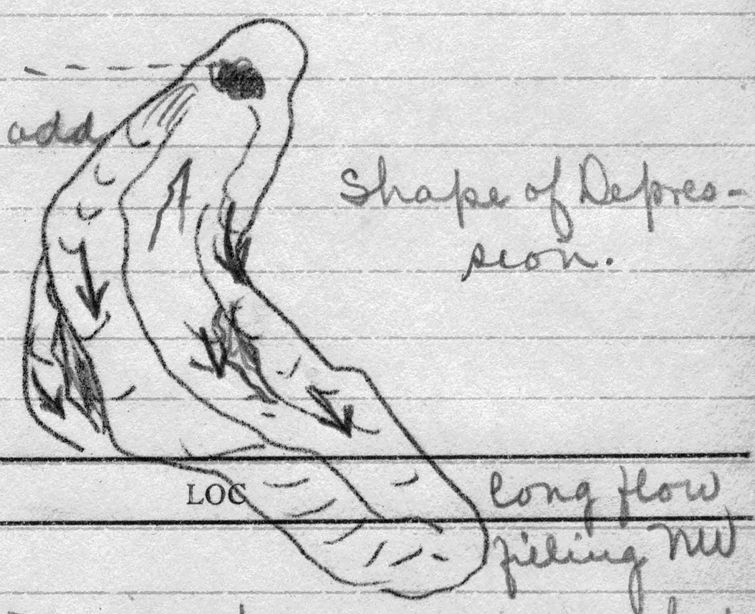
9								
10								
11								
12								

NOTES

10:30 a.m. - Moderate NE wind. Fumes & Hear blow. at O.R.H. lava cone heard sputting vigorously 15 to 40 sec. Thuds of falling lava spray Noise audible back from edge. Fumes disagreeable.

10:45 a.m. Continuous rock sliding low down, and a rumble as of lava in cavern (I.H.)

11:10 a.m. View of cone with three lava streams flowing NW as well as spouts from summit. Flows continuous like artesian well. The noise as of sliding is really the noise of lava flows. Fumaroles from talus heaps W, NW & N.



11:30 O.R.H. - Noise of snapping of hot rocks like musketry, from SW side (hottest fumaroles ?) as well as noise of streaming lava.

9 to 10 p.m. Large pool made by flows. Crackling sputter over drowned cone. Welling up cracks. Cherry red & glowing rim. Glow in SE & SW fumaroles.

t	cam	pl	no	lt	stop	ex	scr	dev

t	loc	ther	temp	wea
11.20a	Postal Refr		319°	T. air 23°C

T.a.g.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sat. Date Nov 1, 1913.
to Wed. " 6, "

Nov. 1 -
11:30 a.m. Light NE wind. Fumes SE. Noise from E sluggish belching as of viscous lava confined & periodic rocket blasts OF period. Period very irregular. 42 - 100 - 35 - 25 - 10 secs - periods of O.F. from O.R.H. 12 noon. Thudding lava under crust. Glimpse shows pool black, the puffing from E end. Fumaroles sluggish with thin fumes. Flow SW one very active. Faint crackling, very light - sounds like small stones sliding. Black crust seen.
Alec at crater all night. No view on account of fumes.

Nov. 2 -
Bright flare once or twice in evening. Nearly dark otherwise.

Nov. 3 -
Walked down by trail and back in afternoon. Four or five new slides on Byron's ledge. One fresh block falleh near base Waldron's ledge. Broad new notch, landslip, W of where trail reaches lava, and nearly under U.H.
At crater mild puffing and no seeing.

Nov. 4 -
9:30 a.m. At crater & SE mild puffing, louder than yesterday. Strong NE wind. No seeing.
6 p.m. Glimpse of spouting cracks, two of them E & W ends of area. Slight glow after dark.

Nov. 6.
10:45 a.m. Light NE wind. Fumes appear light. From O.R.H. noise quite different. Spatter of heavy falls on rocks. Crackle of a running lava flow. Grumble from W and blowing mixed with splash E. Sounds like an open pot E and a flow. No seeing.

T.A.J.

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Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Fri. Date Nov. 8, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									11.25 a.m. Floor crusted brownish in color. Strong blowing from 2 blow-holes which splash lava at E end. Noise of flow - source not evident. Pool large and with brownish stained festoons over it like a stained lava flow. Some cracking and glow at edges. Blowing is incessant with variations. Fumes thin. Humidity very low.
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
1 p m									
2									
3									
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6									
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8									
9									
10									
11									
12									

t	cam	~~pl~~ lens	no	lt	stop	ex	scr	dev	LOC
X 11.25a	A	WA			F32	½			From NW. Floor. 2 vents E end - partially clear.

T.a.g.

t	loc	ther	temp	wea	NOTES

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Sun, Date Nov. 9, 1913
Mon. " 10, " +
Wed, Thurs, & Fri. " 12, 13, 14, 1913

Nov. 9 - No seeing.

Nov. 10 - Rain. No glow in night tho plainly visible. Moonlight.

Nov. 12 - 3 p.m. Partial view through steamy fumes from the N.W. showed all conditions to be similar to Nov. 8, one glowing crack at the E end of the floor was faintly seen, and stones were heard sliding from the W and N walls. The noises of blowing had decreased and once in three or four minutes a louder blast came from the region of O.F.

Nov. 13 - 12 noon. The noises were the same with some rock sliding, but nothing could be seen. Excessive volumes of fumes continue to be given off from fumaroles all around the talus ring within the pit, and the talus is slowly sliding inward and retarding the progress of the rising lava column. It is still impossible to get any observations of depth with instruments, owing to the incessant veil of fumes.

Nov. 14 - 3 p.m. Strong NE wind. Drizzle. Faint puff & rumble. No seeing. Fumes.

T.A.J.

WEEKLY BULLETIN INSERTED FOR THE PERIOD

NOVEMBER 15 - DECEMBER 21, 1913,

during absence of T. A. JAGGAR in Honolulu.

(Organization meetings Hawaiian Volcano Research Association.)

JOURNAL — Massachusetts Institute of Technology
Hawaiian Volcano Observatory

WEEKLY BULLETIN — Day Thursday Date November 20, 1913.

A quiet period in the present state of activity at Kilauea accompanied continued heavy rain from the time of the preceding report, Nov. 13, to the afternoon and evening of Tues., Nov. 18. Heavy winds from the NE brought much fog and mist with frequent heavy showers, many of which were of prolonged duration, thus setting up conditions of swirling fumes and steam under which it is practically impossible to see the lower portion of the Halemaumau pit, even in brief glimpses. During this stormy interval no views were obtained. However, throughout this time the fume cloud was not perceptibly illuminated, not even by flaring. It was conspicuously dark on Monday evening, November 17.

On Tuesday afternoon, Nov. 18, one instantaneous glimpse of a small area at the bottom of the pit showed spots of glowing lava. The blowing noise of escaping gas was moderately loud and practically continuous, though the usual irregular variations in the volume of sound, supposed to follow the irregular action of O.F., were heard. Also at intervals was heard the spatter sound made by the falling of lumps of molten lava after vigorous fountain action. Throughout the evening and night of Nov. 18-19 the fume cloud was continuously illuminated by the molten lava rising and flowing in the bottom of the pit, with frequent brilliant flarings at the usual irregular intervals of O.F. However, the wind and rain made seeing impossible from all sides of the pit.

This activity continued on Nov. 19 when, in the afternoon, a view of the bottom disclosed two fountain places where at intervals the molten lava welled over the banks onto the surrounding floor. Steady glow, with occasional flaring was seen throughout the evening and night.

A view early on Thursday morning, Nov. 20, showed a pool at the bottom of the pit in which the molten lava was surging vigorously. Later in the forenoon the lake crust was breaking up, particularly along the edges, and the bottom of the pit was filling at a comparatively rapid rate. The noise of escaping gas was much louder than on Tuesday.

H.O.W.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

JOURNAL
WEEKLY BULLETIN

Day Thursday Date November 27, 1913.

At the time of writing the last report a marked increase of activity was just beginning in Halemaumau. This increase continued throughout Thursday afternoon and evening, Nov. 20. In the evening of this day quiet air made it possible to observe the surface action from the station at the O.R.H. for comparatively long intervals. Elsewhere swirling fumes interfered. The steady action in the O.F. pool resembled that of a boiling spring -- the magma rising steadily and flowing rapidly away under the crust in several, varying directions, occasionally overflowing onto the neighboring crust for a few minutes. During this time the lava was rising steadily, lifting and at times cracking the thick black crust which covered most of the lava lake. Now and then a miniature flow would well out through one of these cracks. In a general way this system of cracks was permanently maintained and the glowing lava could be seen through them all along their course.

Even on Thurs., Nov. 20, conditions were not favorable for the routine work which is carried on when the fumes will permit. Consequently the depth to the lake surface, and its dimensions were not measured; but the bottom area has definitely risen above recent previous marks by a considerable amount; and the lake area was of moderate size, probably not less than 100 feet in the E-W direction by 60 feet in the N-S direction.

At frequent intervals fountain action disturbed the steady flowing in the O.F. pool, sending spasmodic momentary flows and down the small, low, south and east slopes of the spatter cone which enclosed the boiling place. At the NW this cone was higher and of peaked configuration. Throughout the evening and night of Nov. 20 the fume cloud was brightly lighted and brilliant flares were seen frequently.

This was the crisis of this eruptive stage. On Friday, Nov. 21, no view could be obtained on account of the wind. In the evening and night the illumination of the fumes was steady, but low, and flaring was less conspicuous. Since then strong winds have made seeing altogether out of the question. But diminished illumination of the fume cloud -- sometimes almost to the vanishing point -- has indicated clearly a cessation of the marked rising and overflowing. Hissing and swashing sounds, with the sounds of falling spatter, have been heard whenever the pit has been visited, but they have not been so loud as previously.

H.O.W.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

JOURNAL

WEEKLY BULLETIN

Day Thursday Date December 4, 1913.

The quiet stage in the activity in Halemaumau has continued without observed change, since the last writing. At the bottom of the pit there is a level area of black lava -- the thickly frozen surface of the magma lake -- probably somewhat larger in dimensions than the values given last week. However, it has not enlarged in the mean time, merely better views have been obtained of it, enabling better judged estimates to be made. It is judged to be in the neighborhood of 200 feet long, E and W, and about 150 feet wide, N and S. It is wider near the E end than near the W, an irregular polygon with curving sides. Several jagged peaks of low altitude rise around the place of O.F., the remnants of its collapsed cone. At the O.F. place, and at a point on the S shore of the lake area near its W end, are groups of small glowing orifices, two or three in each instance, out of which gas is discharged noisily. No fountain action, or flowing, has been observed. The fume cloud is dark at night. The fumes continue to issue in abundance from fumaroles all about the lake border. Despite the quiescent state at present the evidence of activity is much greater than two months ago.

H.O.W.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

WEEKLY BULLETIN

Day Thursday Date December 11, 1913.

Kilauea still remains in a semi-dormant stage. In general the conditions described in the previous report persist. Good views, for brief intervals, were obtained on both Thursday and Friday, Dec. 4 and 5, but nothing noteworthy was then observed.

On Saturday afternoon, Dec. 6, during several intervals of from ten seconds to two or three minutes duration, large parts of the bottom area were visible from the N and NW parts of the rim of Halemaumau. Glowing spots were seen at the O.F. place and on the S margin of the lake area near its western extremity. At this time there was no visible boiling, flowing or spouting of molten lava. The fumaroles in the talus at the SW were unusually productive, yielding copious quantities of both snow-white and thin, blue fumes. At this time a fumarole was discovered almost directly under the N station, less than 200 feet below the rim, the fumes issuing directly out of the precipitous rock wall, nearly 300 feet above the next highest fuming place. This fumarole had been noticed, but not reported, about a week earlier than this by the old guide, Alex. Lancaster. As yet only a small amount of vapor, blue in color, is coming from this place. In the evening and night intermittent illumination of the fume cloud could be observed though there was bright moonlight. One or two of the flarings were very brilliant.

At sundown on Sat., Dec. 6, the steam jets on the NE slope of Mauna Loa were visible for more than half an hour -- being conspicuous for the first time in many weeks. The amount of vapor visibly issuing from them was as great as, probably greater than, has been observed hitherto.

Good views into the pit were obtained on Sun., Dec.7, but no new manifestations were observed. Save for one or two isolated flarings, which could barely be seen, there was no illumination of the fumes at night.

On Dec. 8 no view of the bottom could be obtained but there was sound of falling spatter from the molten lumps after fountain discharges. The noise of eruption appeared slightly increased.

On Dec. 9 there was no seeing, owing to a strong and gusty NE wind.

On Dec. 10 a swerving SW breeze made it impossible to see into the pit, but noises of swashing and of the falling of lumps of molten lava were heard, chiefly in the vicinity of the O.F. place.

On the morning of Dec. 11 brief but clear glimpses of portions of the bottom disclosed nothing new, except that the O.F. place was surrounded by fresh spatter lumps; and that a blowing cone under the S station near the edge of the lake area was also surrounded by fresh spatter fragments. Gas was rushing noisily from this orifice, from that at the SW and from O.F.

H.O.W.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

JOURNAL

WEEKLY BULLETIN

Day Thursday Date December 18, 1913.

Conditions at Halemaumau remain practically without change. The weather during the past week has not been favorable for observing; owing to steady winds only quick glimpses of the bottom region have been obtained.

On Fri., Dec. 12, a brief glimpse was obtained in the afternoon; glowing spots were observable in the places heretofore noted. At irregular intervals slides were occurring in the talus. One of these was seen to run down into a deep, smoking hole about 100 feet above the bottom of the pit at a point a little to the S of the W end of the pit. No illumination of the smoke cloud was observed during the evening or night.

On Sat., Dec. 13, nothing was noted except the continued visibility of the glowing blow-holes and snorting sounds of eruption. No illumination was observed at night.

On Sun., Dec. 14, the deep, smoking hole seen on Friday was choked with talus. The bottom could not be seen. The usual sounds of eruption were heard. At intervals slight sliding took place in the talus. At night a faint illumination of the fume cloud could be seen before moonrise, with occasional flaring.

On Mon., Dec. 15, nothing was observed except a continued, faint illumination before moonrise.

On Tues., Dec. 16, at about 10:30 a.m. a considerable slide took place under the W station lasting for some 60 seconds. Numerous smaller slides were noted during the day. The sounds of blowing, rumbling and snorting continued undiminished. By day the bottom could not be seen. At night the glowing spots were visible and the fume cloud was faintly illumined.

Wed., Dec. 17, a moderately high wind prevailed and no visit was made to the pit. The faint illumination at night continued.

H.O.W.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

WEEKLY BULLETIN

Day Thursday Date December 25, 1913.

The Christmas season of the winter solstice brings no revival of activity in Kilauea as yet. The gradual rise of the lava of Halemaumau in October and November reached a stationary level at some time early in this month and the movement since, if there has been any, has been a sinking rather than a rising. Until this week the fumes have been too dense for measurement: an approximate measure of depth last Monday, Dec. 22, shows that the present level of the bottom crust is about where it was last April.

Sat., Dec. 20, 1913, with fair weather and NE wind, the fumes appeared relatively light and the pit quiet. There was no seeing but from the N edge faint puffs could be heard with the usual irregular intervals of from half a minute to a minute. Some rock sliding from the N side of the pit could be heard. Time of the observations, 10:30 a.m.

On Dec. 21, at 5 p.m., conditions were much the same but the fumes were very dense. No slides were heard, and in this respect the present week has been quieter than last week. At about 3 p.m., however, a pronounced rock slide was reported by one party. At night, three glow spots in the floor could be distinguished. A faint steady glow could be seen ffom the Observatory, which brightened toward midnight.

Dec. 22, at 10:30 a.m., good views of the bottom and the ring of fumaroles were obtained from the S and SE stations. Occasional sliding noises and puffs were heard, and heavy rock slides occurred about 11:10 a.m. The sliding could not be seen through the fumes, but it sounded as though it were mostly from the W. Approximate measurements with alidade and plane-table were made from the S and SE stations, determining the depth of the pit to a fuming hole at the S border of the floor to be 568 feet, and the depth to a fumarole on the S margin of the talus ring, almost under the S station, 394 feet. This would make the height of the rocky cliff under the eastern A-frame near the automobile terminus about 400 feet. The wind was very light and from the E, causing the fumes to rise in a column on the N and NW walls, sometimes overriding the N edge and burying the stations there in smoke clouds.

Dec. 23 and 24 the glow seen from the Observatory was very faint at night. At 3 p.m. Dec. 24 the W wall was seen, and faint puffing was heard, but no slides.

Today Dec. 25 at 11:30 a.m. the wind was light from the SW, and from the SW station puffs could be heard, recorded at intervals as follows:- 65, 90, 27, 30, 17, 60, etc. seconds. One rock slide was heard at 11:40 a.m. From the NW station the floor and western fumaroles could be seen. Large fuming patches in the talus were seen W and N of the bottom area, a high one in the rock wall N, and dimly the lava floor of the bottom could be made out, apparently overrid-

den by talus. The two holes in the W wall now appear about halfway up.

The Director returned to the Observatory from Honolulu arriving Dec. 18. A meeting of the Hawaiian Volcano Research Association at the Library of Hawaii Dec. 11 adopted a constitution providing for members and patrons, the former paying five dollars per annum, the latter subscribing larger amounts. Charter members and patrons will include all those who join the association before Feb. 1, 1914. The Board of Directors for 1914 is constituted as follows:- W. R. Castle, President Honolulu Gas Co.; C. H. Cooke, President Bank of Hawaii; A. F. Judd, President Bishop Museum; J. A. Kennedy, President Inter-Island Steam Navigation Co.; A. Lewis, Jr., Vice-president and manager Bank of Hawaii; R. W. Shingle, President Henry Waterhouse Trust Co., Ltd.; L.A. Thurston, Vice-president and general manager Hilo Railroad Co.

At a meeting of the Board of Directors Dec. 12, 1913, the following officers were elected;- Clarence H. Cooke, President; Lorrin A. Thurston, 1st Vice-president; Albert F. Judd, 2nd Vice-president; Robert W. Shingle, Treasurer; Howard M. Ballou, Secretary. The Henry Waterhouse Trust Co., Ltd., was appointed trustee of the Association. Committees of membership, finance and publication were appointed.

Persons wishing to join the Association may do so by applying to the Secretary, Professor Howard M. Ballou, College of Hawaii, Honolulu, who will also furnish copies of the Constitution of the Association, and of the Director's address of Dec. 11, 1913.

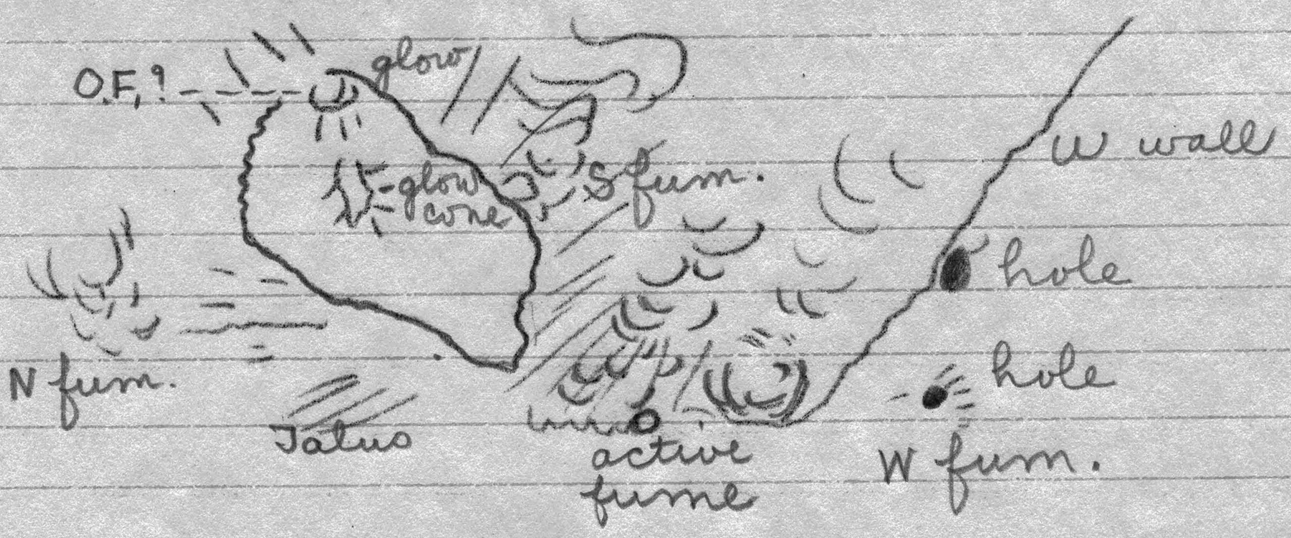
T.A.J.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Mon. Date Dec. 22, 1913
Fri. " 26, "

Dec. 22.-
10:30 a.m. Good view SE station. Rim heavy fumaroles E + S. Inner part glimpses appear caved in. Sliding occasional. Occasional puffs. Light E wind. Occasional fumes at Tech. Sta.
11:10 a.m. Heavy rock slides.
Alidade measure from SE + S:-
To S fumarole - approximate depth 394 feet.
To fuming hole S border floor 568 "

Dec. 26-
10 a.m. Light southerly wind. One good view from O.R.H.



Glowing lava seen in westernmost built-up cone on the floor. Blue fume rising from it. Very active peripheral fumaroles, the S one on edge of floor itself, the N + W ones higher. Talus flat. Noises more active than yesterday, once heard.
Spatter fall on rocks, and some splashing noise coupled with blowing. One rock slip.
Went with Mr. C. O. Smith who plans resistance tests of prisms of lava with Terrometer, invented by Fred H. Brown. A resistance meter; Ohmmeter for measuring the resistance of the earth, mineral and water content.

T.A.J.

Massachusetts Institute of Technology
Hawaiian Volcano Observatory

KILAUEA DAY SHEET

Day Sat. Date Dec. 27, 1913

t	sta	h. i.	pt	lev	vert	dif	dist	elev	NOTES
1 a m									Very light southerly wind. No seeing E of SE. Puff heard SE. W of N wall occasionally clear from NW. Puffs quite loud and irregular, Loud puffs interval 1 to 3 minutes. faint soft, and sometimes prolonged intermediate ones. The loud puffs sometimes come in groups. No spatter fall heard. See small fumarole high on 1894 bench wall NE. Slight slides NE of W. Several views of bottom of pit; same as yesterday. Fumes not bad to breathe leeward side of crater.
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t	cam	~~lens~~ pl	no	lt	stop	ex	scr	dev	LOC
X	11.30a	WA	1			1/2			Looking down W fumaroles.
		Tessar	2			1/25"			" " " " from NW.
X		"	3			"			" " N "

t	loc	ther	temp	wea	NOTES
1	Postal Rifr		315°	T. air 17°	Wind SE.

T.a.g.

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1913, Dec. 27.



#2

J.a.g.

JOURNAL

Massachusetts Institute of Technology
Hawaiian Volcano Observatory
Day Mon. Date Dec. 29, 1913
Tues. " 30, 1913

Dec. 29 -
5:30 p.m. Still and foggy. Fume column rising almost vertical, along S wall. Puffs as usual. One, however, accompanied and followed by fall of spatter and what sounds like a flow. Rock sliding heard W, E & S. The noise as of flow is like the rock sliding with a kind of hiss. Probably was not a flow as saw no glow at all. Fumes both N & E. No view of bottom. At least five strong rocks slides in course of an hour. Sounds as though subsidence were going on. Puffs rare and weak. Small rocks moving most of the time. For four or five days fumes from crater at U. H. S winds.

Dec. 30. - 8 p.m.
Three glow spots. Note the high W N W fumarole at top of talus is glowing. Also the SW one at margin lake and S.F. Considerable light from these holes when cloud rises. Puffs as usual. O. R. H. point of view. Only one seeing.

T.A.J.