

## TASMANIA RADIO ASTRONOMY

Macquarie Island

### CONTENTS OF FOLDER:

Photo of Sawyer Creek 1954

GR notes 1/5/1957

3 menus from M.S. Thala Dan - Dec.18, 20, 22 (1959)

GR's notes & diagrams – n.d.

Examination of Sawyer Island on Macquarie Island 1/6/1960

Map of Macquarie Island

Map of Tasmania

10 June 57

Foto of Sawyer Creek by Jim? Ford ~~Station~~ about 1954 from

$\frac{3}{4}$  way up corner of north side of Green Gorge. This is north  
east end of Sawyer Creek. Foto looks south west across creek.

Peak under mark in Pyramid Park. One to ~~right~~ <sup>right</sup> is in far background.

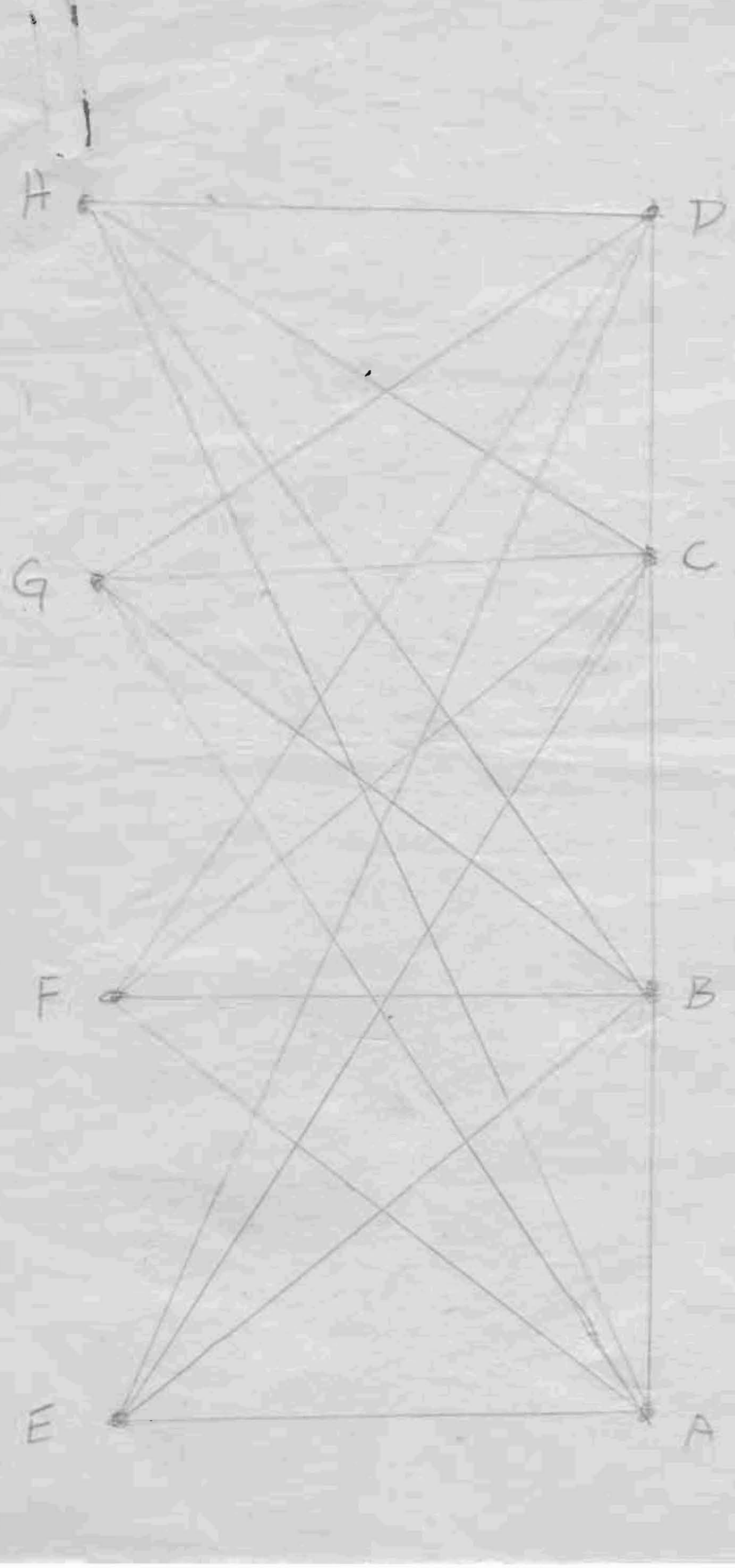
A light snow, perhaps  $\frac{1}{4}$ " cover most of ground. The creek itself  
is in a narrow gorge about 20 to 50 ft deep and less than 100 ft wide.  
A mark shows where gorge touches foto edge at night. Side of  
Sawyer creek evenly scaled. Mostly loose gravel & dirt. No large rocks.  
Need to use paste for anti-rune anchors. Easy digging.

If not claimed within 7 days, please return

to Box 647 C, Hobart

1/5/57

Neil Bruce at Macquarie will get some  
fotos of Sawyer Creek. He says it is  
about 2 mi long,  $\frac{3}{4}$  mile wide + 500 ft deep.  
Bottom is "Pie?" crust which is a hard crust  
but soft underneath.



↑ S

Bottom of Valley

Line ABCD

$14.1^\circ$  east  
from magnetic  
north

↓  
N

Point "E" is

sharp rock

pile of rocks

green moss.

loose rocks on

steep slope

False point E is red stake on meadow ridge  
14 degrees to right of true "E". False E was  
put in during a fog and placed on wrong  
ridge by mistake.

False E

590 yds uncorrected

15.1° from A.

26 Dec 59

Correction  
Yds. True  
Feet

Direction	Cosine Angle	True Range Yards	Correction Yds.	True Range Feet	Elevation Angle	Sine angle	Elev. Feet			
AB		359	-51	924	0.5°	.009	8			
AE	.974	2003	732	-46	2058	13.2°	.228	469		
AF	.960	1953	725	-47	2034	16.3°	.281	572		
AG		Not visible								
AH		Not visible								
BA		359					Negative			
BE		Not visible								
From 6 1/2 Yds West of B	{	BF	.946	1660	639	-54	1755	19.0°	.326	572
		BG	.964	2437	875	-32	2529	15.4°	.266	672
		BH	.982	3262	1080	+29	3327	11.0°	.191	636
		CA		677	-52	1875			Negative	
CB		373	-52	963			Negative			
CE		Not visible								
CF	.964	1835	685	-51	1902	15.5°	.268	510		
CG	.964	2156	788	-43	2235	15.5°	.268	600		
CH	.979	2734	945	-14	2793	18.8°	.204	570		
CD		Not visible								
DC		Not visible								
DE		Not visible								
DF	.987	2458	865	-35	2490	9.1°	.158	393		
DG	.980	2300	1825	-42	2349	11.4°	.198	464		
DH	.982	2518	885	-30	2565	10.7°	.186	477		
ADDB		Not visible								
DA		998					Negative			

	<u>Cosine</u> <u>Angle</u>	<u>True</u> <u>Height</u> <u>Feet</u>	<u>Universal</u> <u>Y<sub>10</sub></u>	<u>Correction</u> <u>Y<sub>10</sub></u>	<u>True</u> <u>Feet</u>	<u>Angle</u>	<u>Sin</u> <u>angle</u>	<u>Elev</u> <u>Feet</u>
AC		1950	700	-50	1950	1.5°	.027	53
AD		3000	1000	0	3000	3.0°	.052	156
<del>AE</del>								
BC			377	-52	975	2.5°	.044	43
BD			101					

Angle

Degrees

Angle

Degrees

BAE

79.5°

CD~~F~~

Not visible

BAF

58°

CDF

41.2°

BAG

Not visible

CDG

65.5°

BAH

Not visible

CDH

88.6°

ABE

Not visible

ABF by d/w

92.5°

Angle between

True

ABG by d/w

112.5°

ABH

~~Not visible~~

CBE

Not visible

CBF by d/w

85.2°

CBG by d/w

65.0°

CBH

53.2°

BCE

Not visible

BCF

61.8°

BCG

90°

BCH

110°

DCE

Not visible

DCF

Not visible

DCG

Not visible

DCH

Not visible



Elevation  
E above A

Average  
469 ft

F above B

B above A = 8, F above A = 572

564

F above B = 572

572

C above B = 43, F above C = 510

553

average 553 ft

D above A = 156

541

D above B = 148, F above D = 393

C above B = 43, G above B = 672

629

G above C = 600

600

average 597 ft

D above A = 156

D above C = 103

G above D = 464

567

B above A = 8

H above D

D above B = 148

H above B = 636

488

D above C = 103

H above C = 570

467

average

477 ft

H above D = 477

477

Heights of points F & G are too high. These should be brought down front slope to new places 100 feet lower and span length reduced.

(over)

All the ranges from D appear to be a few percent too short. This causes the points F, G, H from D to be out of line with points from A, B, C. By using results from A, B, C only, the distances become from drawing

$$AE = 2003 \text{ feet}$$

$$BF = 1642 \text{ feet}$$

$$CG = 2183 \text{ feet}$$

$$DH = 2606 \text{ feet}$$

The distances to west side of valley will probably be longer, making a total span of about a mile.

## Examination of Sawyer Valley on Macquarie Island

Four days, namely the 24th through 27th of December 1959 were available for this study. The bottom of the valley is covered with muskeg at north end. This coarse moss extends more or less up sides of valley and along ridges where it is only a few inches thick.

The 24th was a bright clear day with blue sky, warm sun and little wind. The bottom of the valley was examined and four stakes driven about 1000 feet apart in a line. These are to mark tentative position of down leads.

The 25th was windy with a thin sheet of clouds between 400 and 800 feet level. At this level the wind speed was about 20 m.p.h. from west. Bottom of valley was clear and near calm. Four stakes were planted at tentative positions along east ridge. Since the bottom of valley could not be seen from ridge, the position of stakes is only approximate. These stakes are to mark the east anchor points of wires across valley.

The 26th was clear with bright sun and blue sky. The stakes in bottom of valley were pulled up and placed in a new line to east of creek where the muskeg is dry and not boggy. The relative position of all the stakes in bottom of valley and along east ridge were then measured. The reference used is magnetic north. Distance, elevation angle and azimuth angle were determined by means of a range finder and surveying compass.

The 27th was a day of low fog and drizzle. It was a day of rest from previous exertions.

The markers are painted with Fire-Orange luminous paint secured from Brown & Company. This colour is very good for visibility under adverse conditions. No markers were placed on west ridge because of insufficient time. However, two finished and four unassembled markers are placed in a pile at east edge of valley, at north end, near the trail to south end of island. A few sample observations of conspicuous rocks on west ridge were made from bottom of valley. The ranges were on order of 1000 yards. Consequently the total length of spans across valley will be on order of a mile. On the basis of this rather cursory examination in limited time, it is clear that Sawyer Valley is a suitable and feasible place to make a long wave measuring station for cosmic static.

Before any installation is undertaken, a lot more survey work and planning are necessary. Markers for anchors along the west ridge are needed. All the markers must be resurveyed and moved to revised positions. The final correct positions can be arrived at only by successive approximations. The process is rather like playing checkers over a mile square area. This is because of the complexity of the terrain where a move of one marker to a better position may place other markers in a poorer position. While markers may be placed or moved about somewhat in a fog, only clear days are useful for survey measurement. Thus delays may be encountered while waiting for a suitable clear day. After each survey the data must be worked up and plotted before anything is moved. After final positions of all markers are decided, each position must have considerable pick and shovel work performed. This is necessary to find out what kind of an anchor is needed. Momentary loads up to three tons and fixed loads of one ton must be sustained without the anchors creeping or slipping. Circumstances in the bottom of the valley may not be as bad as they appear. At places along the creek, large boulder formations may be seen only two or three feet below the surface of muskeg. Probably solid foundations may be secured with a relatively small amount of excavation.

The above detailed survey will most likely require a month or more by two men. They may be housed at the small hut on the beach at Green Gorge. This hut was only intended as an overnight stop on the way to south end of island. Consequently the living conditions will need to be expanded and improved. The present kerosene stove is five years old, has some leaks and has served its purpose well. It should be replaced by a new double burner stove using butane or propane gas. The gas stove will not throw off the soot of a kerosene stove and thus be of assistance in keeping the interior of hut clean. Over the years, the interior of hut is badly covered with soot from stove and lanterns. It should be cleaned and painted a light cream colour for visibility. The petrol lamps are about worn out and are inherently dangerous. Furthermore, the design is such that a dark shadow is cast right under the lantern where light is needed most. These should be replaced by two or three gas lights at suitable places. The old radio is being replaced by a new one operated by dry batteries. Thus the old accumulators, lights, gas engine and petrol drums may be dispensed with entirely.

The climate is mild but very damp. This makes the environment uncomfortable. A typical condition is 40° F and 95% humidity. By the application of dry heat inside the hut

the temperature may be raised to 70°F and the humidity will drop to only about 40%, which is a very comfortable environment. To accomplish this will require a small gas heater with a stack. It is important to expell the products of combustion outside the hut because every gallon of liquid fuel burned will produce about a gallon and a half of water vapour. If this water vapour is allowed to remain in the hut, the relative humidity will remain high and the environment will be just as uncomfortable as ever. For the same reason, a ventilation hood should be provided over the cook stove. When the vented heater is operating, air will be lost up the stack. Consequently the interior of hut will be at slightly below outside atmospheric pressure. Make up air will flow in through cracks around the door, windows, etc., and provide adequate ventilation. One type of suitable heater consists of a vertical drum with burner at bottom and stack connection at top. The interior of drum has a lot of tubes about an inch diameter placed at a 45° angle from lower left to upper right. The gasses from burner flow over outside of tubes, losing most of their heat before passing up the stack. The room air flows in bottom of tubes, is heated and passes out top of tubes back into room. Once the hut is thoroughly warmed up the burner may be operated at a very low flame. Modern outside sanitary facilities should be provided along with a suitable assortment of tubs, etc. for washing personnel and clothes. A variety of new cooking utensils would be desirable. A half dozen tanks of propane should be ample for two men for three months.

The present trail from beach up into valley passes through the seal wallow which is inconvenient and very dirty. An alternate route is available up a bank behind the hut. This is a steep and slippery climb through long grass at present. Material should be brought in to provide a suitable stairs which may be installed on the slope by a bit of pick and shovel work.

The present seal population has reached the saturation level. These animals are a nuisance in that they bump into equipment, must be continually stepped over and around. Furthermore they are filthy. Their habitat bears considerable resemblance to a pig pen. I recommend that the sealers be invited to come and clean the creatures out near where people live and work, namely North Camp, Green Gorge and Hurd Point. There will still be more than sufficient animals for the biologists around the rest of the island.

*Grote Reber*

Grote Reber

6th January, 1960.