

Hut 33.

Wooden post. top end burnt. length 54 cms. thickness 4.1 cms.
not a central post.

Hut 39

Wooden post, top end burnt. length 22.8 cms thickness 9.7 cms.
Central post. lower end eroding, some pieces broken off.

Hut 6.

Wooden post. approx $\frac{1}{2}$ 13 cms long, 4 cms in diameter pointed
at the bottom from lateral path hole - fragile.

Midden I

Brass buckle?

Midden I

Piece of pottery shaped like a plug or door stopper.
length 1.9 cms and diameter 2 cms at the top and 1.9 cm at
the bottom. oval shape at the top with flat bottom.

Midden I

1 fragment of blue china.

Hut 40

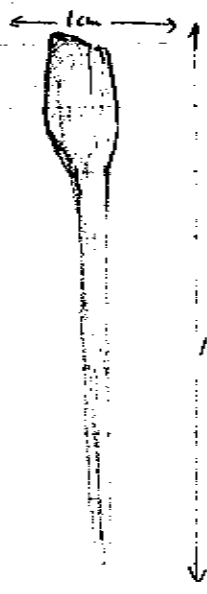
1 piece of dagga with seed impressions

Hut 40

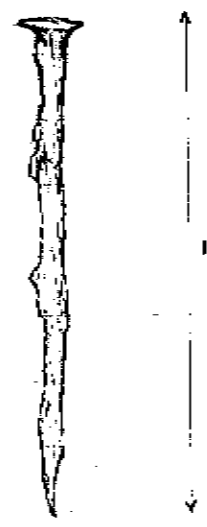
1 silver 3 penny coin. 1871 date.

Hut 35

Copper slag.

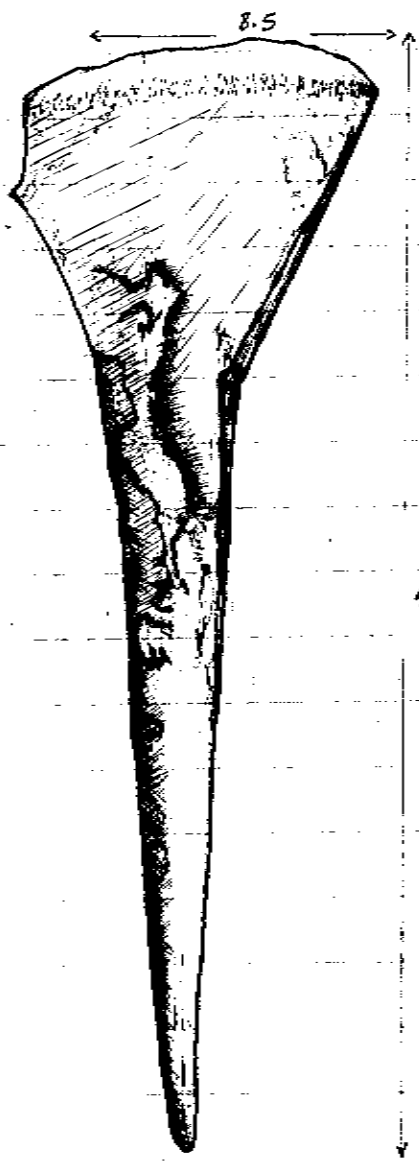


MG'74 HUT 9

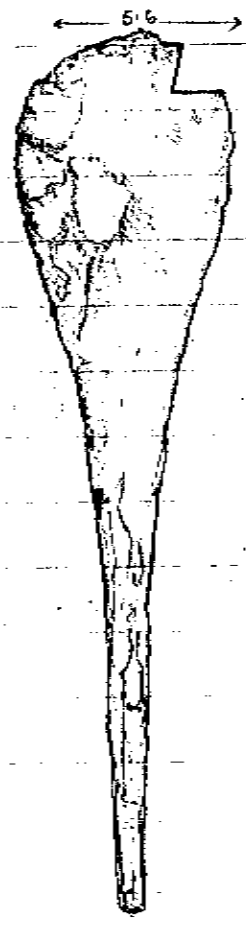


12cms

MG'74 HUT 9



MG'74 HUT 10



42.0cms.

24cm.

Iron. Broken knife blade, length 8.7cms width 2.85cms.

Hut 9.

Iron arrowpoint - with tip broken off. length 14.25cms
blade width 1.0cms.

Iron nail length 12.0cms.

Hut. 10.

Small hoe heavily eroding found on the left side
of the umpendu. length 24.0cms. blade width 5.6cms.
Iron Sample taken by W. Cronin.

Hut 9.

Washed out hoe found in the top left corner
just outside the hut floor.

GRAIN PIT.

Excavated outside the main enclosure next
to the ~~By~~ Bedge kraal. An Insignia belt buckle found
in association with a dog burial (Buckle made of brass
with leather straps.

GRAIN PIT.

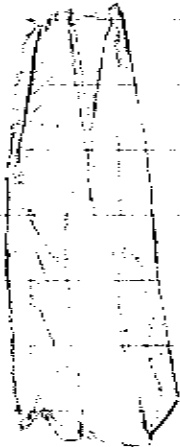
Copper bead stone mould? found approx 15cm
from the bottom of the grain pit, more central but below
the dog burial. It has two rows of small holes of 8 in
each with a small chord stick in the central hole
The mould is broken at the one end, and it is made
out of a soft stone (probably soap stone) It is approx
22.6 cms long, 6.5cms high with two parallel grooves in
each side, width 8.3 cms at one end and 7.4 cms the other.

Hut 22 + 23

5 Copper studs - nails



GRAIN PIT.
Insignia belt buckle



Hut 33.

Five! Copper bangles found at the back of the hut behind the hearth on the right hand side. four of them was exposed together and the fifth afterwards. photographs was taken of the bangles inside. all of them have a triangular cross section and one end is slightly bevelled on the inside with the other broken. the inside is flat with a diameter of 4mm. to 6mm the thickness of the bangles is between 8+9mm.

MG'74 GRAIN PIT.

2 Metal belt buckles found in association with a dog skeleton.

Midden I MG'74

1 small piece of blue china

MG'74 HUT 35.

Some pieces of copper slag.

MG'74 HUT 38.

Copper bead.

101

2

1

3

56

33

Small white
Multi Facial
Spotted (Red)

Spotted (Blue)

Ivory color

White stripes
on blue

White color
stripes faded.

Blue on
white

Broken

Seeds.

Red spiral
ring on white

16

9

2

14

1

1

16

7

MGUN GUNDOLO

Pottery Count

	Body	Rim	TOTAL
Hut 8	365	12	377
Hut 9	1661	28	1689
Hut 10	2869	213	3082
Hut 13	371	20	391
Hut 38	19	1	20
Hut 39	92	4	96
Hut 37	139	-	139
Hut 40	21	2	23
Hut 41	61	1	62
Hut 42	38	1	39
Hut 43	8	-	8
Midden II	1961	67	2028
TOTAL	7605	349	7954

MUNGDALVO

POTTERY

RIM THICKNESS

MM	Hut 10		Hut 35		Hut 8		Hut 13		MIDWEN II	
	No	%	No	%	No	%	No	%	No	%
3	8	3.9	-		3	12.0	-		-	
4	25	12.3	2	1.8	8	32.0	2	10.0	-	
5	24	11.8	12	11.1	6	24.0	2	10.0	5	11.3
6	29	14.3	27	25.0	1	4.0	4	20.0	7	15.9
7	23	11.3	13	12.0	3	12.0	5	25.0	12	27.0
8	23	11.3	8	7.4	2	8.0	3	15.0	-	
9	22	10.8	9	7.4	2	8.0	1	5.0	7	15.9
10	25	12.3	9	8.3			3	15.0	6	13.6
11	19	9.4	8	7.4					3	6.8
12	3	1.4	2	1.8					2	4.5
13			4	3.7					2	4.5
14			2	1.8						
15			8	7.4						
16			1	0.9						
17			3	2.7						
18			1	0.9						
19			-							
20										
TOTAL	202	98.8	108	99.6	25	100.	20	100.	44	99.5
MEAN.	m-20.2		m-7.2		m-3.5		m-2.8		m-5.5	

MG 74

Rim Type

Hut 35

Hut 8

mm	No	Hut 35			Hut 8			
		Round	Square	Bev.	No	Round	Square	Bev.
3	-				-			
4	2	2			11	3	1	7
5	12	5	4	2	4	2		2
6	27	25	1	1	1	1		
7	13	13			1	1		
8	8	8			5	1	4	
9	8	8			-			
10	9	9			-			
11	8	5	1		2		1	1
12	2	2			1			1
13	4	4			-			
14	0	1	1		-			
15	8	4	2	2	-			
16	1	-	-	1	-			
17	3	-	-	3	-			
18	1	-	-	1	-			
TOTAL	108 =	86	9	10	25 =	8	6	11

MG '74

Rim TYPE

mm	No	Hut 10			No	Middle II		
		Round	Square	Bev.		Round	Square	Bev.
3	6	6			-	-		
4	15	13	2	0	-	-		
5	10	8	-	2	5	2	3	
6	14	10	3	1	11	8	2	1
7	18	15	1	2	11	8	2	1
8	13	4	8	1	10	7	1	2
9	6	5	1	-	6	3	2	1
10	11	4	-	7	5	2	2	1
11	8	3	2	3	2	2	-	-
12	-				1	-	-	1
13	-				-			
14	-				-			
15	-				-			
16	-				-			
17	-				-			
18	-				-			
TOTAL	101 =	68	17	16	51	32	12	7

CATTLE BONE.

Ox.

FEMUR	L	R	Prox.	Dist	heads. frag. 3	Individuals 3.
TIBIA			1	1		
METACARPAL.		2	2	2		
PHALANX 1	2	3				
PHALANX 2	2	3				
PHALANX 3	1/4	2.				
METATARSAL		1	1	1		
SCAPULA			7	4?		
HUMERUS		1	1	1	head.	
RADIUS		1	1	2		
ACNA	1		1			
PRE-MAXILLA						
MAXILLAE	2	2				
FRONTAL						
ORBIT.				5 frag.		
TIBIA TARSAL.	1	1				
MANDIBAL.	1	2				
Pelvis				Acetabulum 2	3, frag.	
Fibula Tarsal.				2		
ULNAR CARPAL	1					
Prox. sesamoid bone	2.					
Dist. " "	2					
3rd & 5th Carpals	2.					
4th Carpals	1					
patella	2					
horn Core	6 frag.					

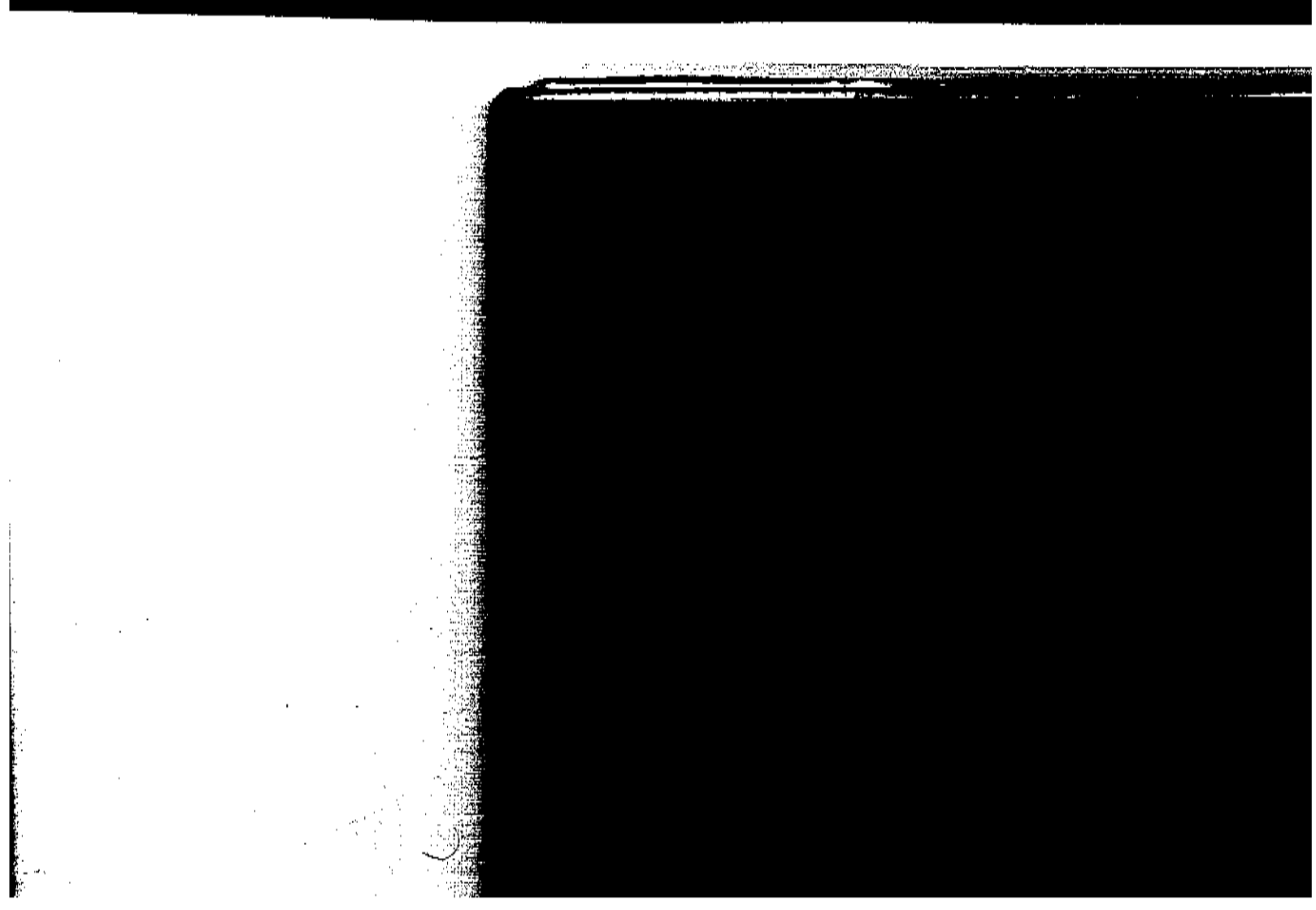
uncovers = 10.
 Pre-molars = 18
 molars = 12
 Coracoid process = 2
 lower mandible = 12 + 1R.

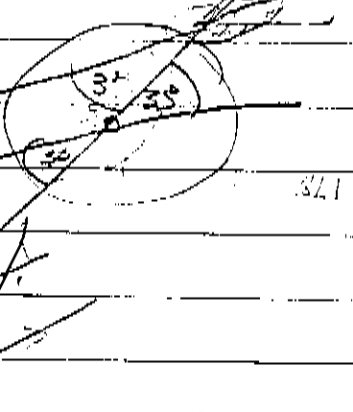
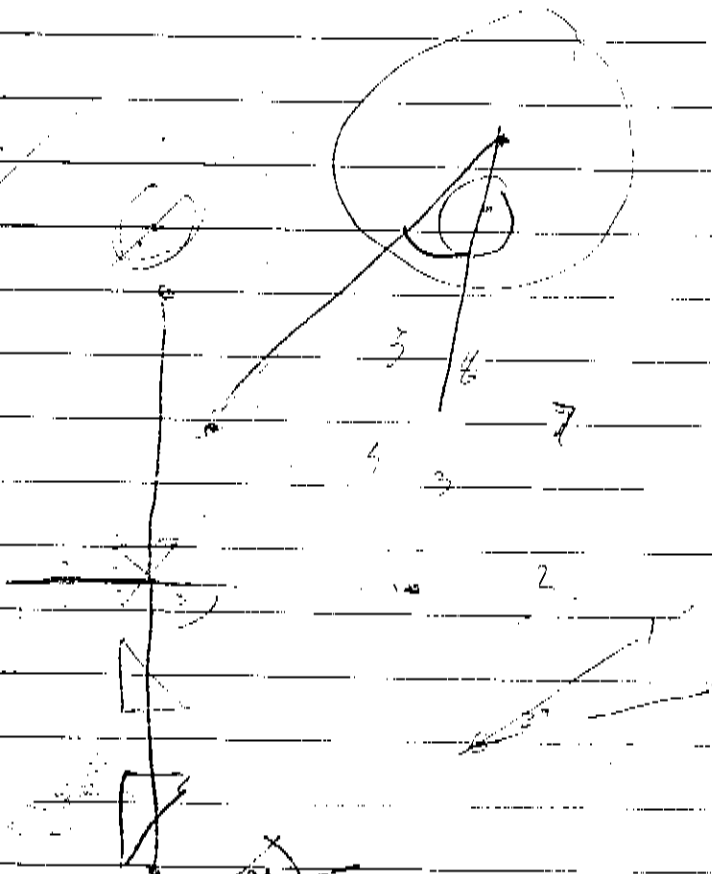
Teeth + Jaw.

MG '74 : MIDDEN II

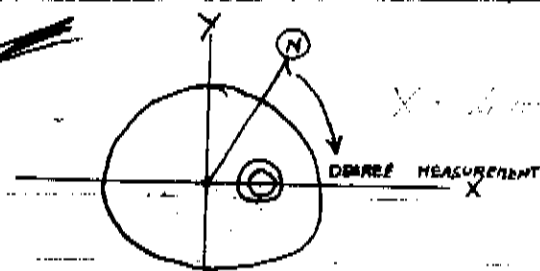
SHEED & ANTELOPE

	NO	L	R	PROX.	DIST.
OVIS PILES					
FEMUR	2			1	1
HUMERUS	2			1	1
METACARPAL	2			1	1
METATARSAL	-				
RADIUS	-				
ULNA	1			1	
TIBIA	2				2
CENTRAL TARSAL	1				
TIBIA TARSAL	7				
PHALANX 1	2				
PHALANX 2	1				
PHALANX 3	-				
PELVIS	5				
CALAMER	3				
SCAPULA	3				
HORN CORE	1				
MANDIBLE		2			
VETEBRAE	21				
INDIVIDUALS	5				
DOG.	1				





17
 23
 32
 40
 5
 14
 21
 10
 60
 30
 20



- 1 (O) ...
- 2 [X 4.5m Y 3m]
- 3 (S) ... d 1m
- 3 [X 4.2m Y 4.2m]
- 3 25° → (S) d 70cm
- 4 [X 5.2m Y 3.4m]
- 3 20° ... d ...
- 5 [X 5.02m Y 3.4m]
- (S) 33° → (S) 85cm
- 240° → (S) 85cm
- 6 [X 4.1m Y 4.2m]
- (S) 41° ...
- 7 [X ...]

distances

- ① 9,5 8,0 (115) 5,7 4,9 10,2 5,0
- ② 8,0 9,9 11,7 (117)
- ③ 9,9 9,4 (117)
- ④ 6,9 12,5 (121)
- ⑤ 6,9 9,4 8,9 (122)
- ⑥ 8,9 11,7 8,1 (122)
- ⑦ 9,7 8,1 (110)
- ⑧ 8,3 9,3 (118)
- ⑨ 9,3 6,0 11,9 7,7 (116)
- ⑩ 8,7 7,7 (120)
- ⑪ 8,7 7,7 (122)
- ⑫ 7,7 8,0
- ⑬ 8,0 7,9 8,9
- ⑭ 7,4 12,4

hwt size

mean of 26
5,06

mean of 32
6,356

range = 3,8 - 7,4

age = 40 - 97

① LAMIA

② ROYAL

-	60	(14)
(3,8)	58	(14)
-	64	(15)
(3,7)	59	(11)
-	57	(10)
(3,8)	61	(12)
(3,4)	57	(12)
-	57	(4)
-	61	(17)
-	53	(18)
(3,7)	65	(13)

mean of 11
59,27

s.d. =

mean of S = 3,68

s.d. =

range = 53 - 65

age = 3,4 - 3,8

-	75	(1)
-	50	(12)
6,0	- 97	(11)
4,55	- 71	(8)
5,0	- 72	(7)
6,7	- 93	(6)
5,7	- 80	(5)
4,85	- 72	(4)
4,65	- 68	(3)
6,5	- 84	(2)
3,8	- 47	(1)
5,65	- 68	(13)
5,3	- 50	(14)
5,4	- 40	(15)
4,65	- 54	(16)
4,6	-	(17)
4,25	- 45	(18)
4,2	- 50	(19)
4,0	- 50	(20)
4,0	-	(21)
5,9	- 77	(10)
4,0+	- 70	(9)
5,4	- 65	(22)
4,3	- 59	(23)
4,7	- 55	(24)
5,1	- 70	(25)
5,65	- 57	(26)
4,7	- 65	(28)
-	- 47	(27)
-	- 45	(29)
-	- 65	(30)
4,8	- 53	(31)
-	- 55	(32)
7,4	- 93	(33)

Reverse

Slope distances

(A - A1
14.10)

(A1 → A2 107.81) Slope distance

(A2 → A3 97.13)

(A3 → A4 107.25)

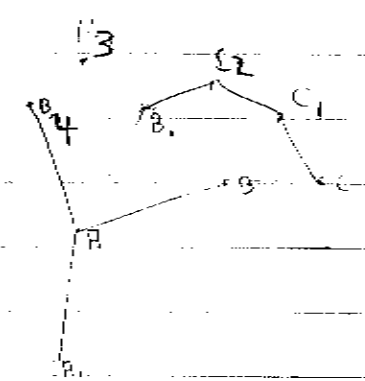
(A4 → A5 96.03)

(A5 → A6 107.22)

Place Entrance in about 100 meters
from *A6 - A6*

THINGS

N _i		○ L	○ R
A ₆	B	320° 44' 50"	192° 54' 10"
	A ₁	87° 17' 21"	299° 26' 44"
	B ₁	269° 35' 19"	121° 44' 10"
A	A ₁	119° 26' 49"	299° 26' 30"
	B ₁	244° 50' 02"	164° 49' 56"
			64° 44' 19"
A ₁	A	163° 27' 58"	8° 01' 41"
			28° 20'
	A ₂	323° 52' 07"	173° 25' 54"
		165° 24' 9"	155° 24' 13"
A ₂	A ₁	350° 11' 25"	189° 56' 56"
	A ₃	159° 00' 30"	358° 45' 18"
		168° 48' 35"	168° 47' 22"
A ₃	A ₂	294° 47' 53"	143° 22' 44"
	A ₄	123° 09' 21"	331° 44' 25"
		188° 21' 31"	188° 21' 41"
A ₄	A ₃	61° 49' 11"	217° 27' 7"
	A ₅	250° 14' 9"	45° 52' 5"
		188° 24' 58"	188° 24' 58"



open box

open box

open box

Nr		GL	OR
A ₅	A	34° 45' 23"	196° 24' 12"
	A ₆	203° 2' 10"	4° 41' 01"
<hr/>			
B ₁	A	297° 44' 50"	147° 25' 04"
	B ₂	101° 07' 50"	310° 48' 19"
B ₂	B ₁	243° 44' 55"	84° 5' 38"
	B ₃	303° 20' 15"	143° 41' 18"
B ₃	B ₂	104° 22' 15"	266° 10' 18"
	B ₄	259° 18' 30"	61° 6' 5"
B ₄	B ₃	319° 32' 38"	139° 32' 31"
	A	64° 40' 0"	244° 40' 20"

distances

$A-B_1 = 80,34$ $80,34$ slope

$B_1-C_2 =$ $71,74$ horizontal distance

$B_1-B_2 = 52,48$ slope

$B_1-B_3 = 64,57$

$B_3-B_4 = 61,59 = (34,81)$ slope

$B_4-A = 83,93$ slope

Distances

H-B ₁	= 80,34	80,34	Diagonal
B ₁ -C ₂		71,74	horizontal
B ₁ -B ₂	= 62,48		Diagonal
B ₁ -B ₃	= 64,77		
B ₁ -B ₄	= 61,39	= (30,31)	Diagonal
B ₁ -B ₅	= 83,93	= 20,57	

Point A

L = 1126

155

A B...

0° 0' 0"

~~55~~

55

B₄

102° 27' 4"

83

76

D

55

A

8° 2'

5834

15

B

81° 22'

482

10

C

82° 04'

371

68

D

83° 2'

16

18

180

165° 27'

493

10.3

181

170° 20'

541

11

182

90°

60

10

183

80°

700

0

B:1

581

~~55~~

55

55

184

80°

110

10

421

716

10.6

421

711

10.6

421

716

10.6

421

716

10.6

120

				55.1	-10		
				52.7	-10	page 27	
		35° 49'	66.4	40			
		45° 50'	67.8	76.4	+10	page 32	1.0
				73.2	+10	ground	2.0
		21° 42'	470, 49.7	23.4	-10	ground	1.0
				75.2	-10	ground	2.0
		25° 49'	107.7	16.4	+10	page 32	
				73.2	+10	ground	
		15° 24'	17.2	66.3	-10	page 27	1.0
				68.6	+10	ground	
		269° 58'	96.5	73.4	+10	page 25	2.0
			118.5	48.0	+10	ground	
		120°					
		17° 18'	20.5	61.1	+10	ground	2.0
				72.2	+10	ground	2.0

A4 A3	46° 29'	100,3	79,1	+10	peg	1,5
2 feet, 00			75,2	+10	peg	1,5
L5	304° 58'	96,1	85,6	-10	peg	0,10
		95,7	75,5	-10	peg	0,50
A5 A4	173° 04'	95,0	81,3	+10	peg	3,0
(A5) 10			78,2	+10	peg	3,5
A	341° 21'	87,8	81,3	-10	peg	2,10
			78,2	+10	peg	2,10

A-10
B-C
C-1
D-1
E-1

A-B - 87943

B-C

C-D

D-E

E-F

15

15

C, W

C, W

30

30

30

30

6

f

~~24 July~~

A₁ 27.6 3m 172

31. 40.1 3m 80.0

32. 29.2 3m 74.2 A₂

A₂ 3m 7.9 3m 05.1

33. 31.1 3m 17.1 -1,640 ✓

34. 30.2 3m 20.2 73

A₃ 31.5 3m 11.4

35. 31.8 3m 77.5 -7,613

36. 31.9 3m 4.4

A₄ 32.0 3m 1.2 -1,805

37. 32.1 3m 21.5 A₅

A₅ 32.2 3m 21.1 16

38. 32.3 3m 21.1 A₆

39. 32.4 3m 21.1 0 ✓

A
A
A
A
A
A

	b	f
A ₀	27,6	3m 17,2
	31,471	3m 99,0
		3m 24,2 A ₁
A ₁	31,471	3m 05,4
		3m 17,2 A ₂
		3m 99,0 A ₃
A ₂	31,471	3m 11,4
		3m 77,5 A ₄
		3m 17,2 A ₅
		3m 99,0 A ₆

~~1000 1025 1050~~

$A - A_1 = 7,88 \quad (7,87)$
 $A_1 - A_2 = 8,05 \quad (8,04)$
 $A_2 - A_3 = 6,66 \quad (6,69)$
 $A_3 - A_4 = 7,61 \quad (7,59)$
 $A_4 - A_5 = 6,51 \quad (6,47)$
 $A_5 - A_6 = 5,68 \quad ($

* Pe
E1

No.

A5 → A4

• E1

ENTRANCE

HUT 1

2

3

4

Lp = 1, 6

E1 → A5 SW

ENTRANCE

E1 → A5 SW
ENTRANCE

E2

* Peg
 $E1 = 0,35$ *

NO.	H.C.	DIST.	HEIGHT	CONST.	REMARKS	STAFF
A5 → A4	0° 0' 0"					
• E1	98° 0.1	55,3	24,7	-10		peg 1,00
			24,3			ground 1,40
<u>ENTRANCE</u> PHUT 1	163° 13	20,6	22,4	-10	?	1,00
2	149° 10	14,7	15,1	-10	?	1,00
3	105° 28	26,4	3,7	+10	?	3,00
4	88° 25		11,1	-10	?	1,95 2,00
Lp = 1,65						
E1 → A5 SW ENTRANCE	0° 0' 0"	55,4	26,5	+10		2,00
4	59,42	9,4	4,6	-10	?	0,3
5	110° 15	12,9	9,6	+10	?	2,00
6	124, 59	16,2	8,2	+10	?	2,20
7	126, 52	30,2	9,3	+10	?	2,20
E. peg 1,77	~~~~~					
8	130, 50	35,8	11,9	+10		2,50
9						
E2	141 11	63,5	27,1	-10	peg 200	1,70

E2 → E1

~~0° 0'~~

Dist

height

cont

1,39

E² → E1

0° 0'

57,5

0,7

+10

~~1,10~~

9

21° 29'

18,5
~~9,5~~

9,9

+20

2,6

± 4
10 → 9

0,7

-10

0,1

10

120° ~~16~~

11,1

2,7

+10

1,1

11

146° 52

12,8

6,9

+10

1,1

12

320° 8

11,8

12,7

-10

1,1

± 12 baseable percent.

13

355° 34

17,5

1,8

+10

1,7

14

352° 51

~~23,8~~
23,2

4,8

+10

2,0

E2

L_{peg} = 1,28

		Dist	height	cont
E2 → E1	0° 0'			
E2 → E1	0° 0'	57,5	0,7	+10
9	21° 29'	12,5 9,1	9,9	+20
	100° 9'		0,7	-10
10	120° 16'	11,1	2,7	+10
11	146° 52'	12,8	6,9	+10
12	320° 8'	11,8	12,7	-10
	127°			
13	355° 34'	17,5	1,8	+10
14	352° 51'	22,8 23,2	4,8	+10
E2				
L peg =	1,28			

1,39
~~1,30~~

2,60

0,12

1,00

1,7

1,00

1,7

2,00

TRAVELER A. S. ...

A1 A

263° 49' 5" 21' 17' 55"

C2

267° 41' 15" 22' 21' 45" 28' 32' 15"

250° 4' 50" 25' 4' 57"

1) Vanya bird

is big size ~ 0.5 x 0.5 m

clean white feathers like white

CS-100

2) ... bird is female

size

3) Flaps ... brown bird

size

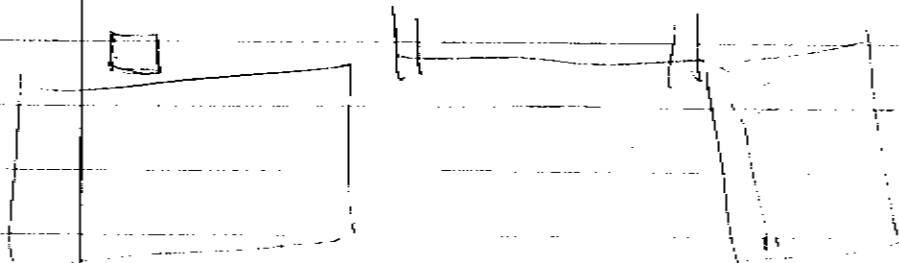


Est

copy

order of ? section row at rear of ingesta

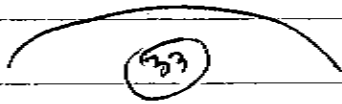
181, 182 gap 184 180 49 46 41 45 48 50 51 52 53 slight gap
54 55a-55b gap 56⁵ 56b 57 58 59 long gap 60



hut 33 - rear post holes behind hut!

	n-s	e-w
①	n = 30	19
②	o = 31	20
	p = 15	14
③	q = 20	30

depths 25-30 cm



hut 47

hut 48

hut 49

hut 50

hut

47

48

49

48

48

49

49

49

50

50

t?

Hut Record

e-w

hut 47 hd 3,8 s-s 3,9

19

20

47-46 6,75

14

47-48 5,7

30

o ans

hut 48 hd 3,5 s-s 3,5

48-49 5,6

48-43 30,8

hut 49 hd 3,65 s-s 3,5

49-50 5,7

49-42 30,5

hut 50 hd 3,25 + (45a park) s-s 4,05

50-51 5,25 50-41 29,5

hub 187 hd = 5,8 ind poeh 4,7 Can inner edge
s-s = 5,7 (4,2 inner edge of f/w) of poeh/midbreak

187-188 7,0 m

hub 188 $\frac{1}{2}$ s-s = 2,8 m

188-189 6,6 m

hub 189 $\frac{1}{2}$ s-s = 2,95
hd =

189-190 6,15

hub 190 hd = 14,3 s-s = 14,3 m

portside
⑥ 6

②

①

main



1
hwt 187 hd = 5,8 incl porch 4,7 from inner edge
s-s = 5,7 (4,2 inner edge of porch/wall)

187-188 7,0 m

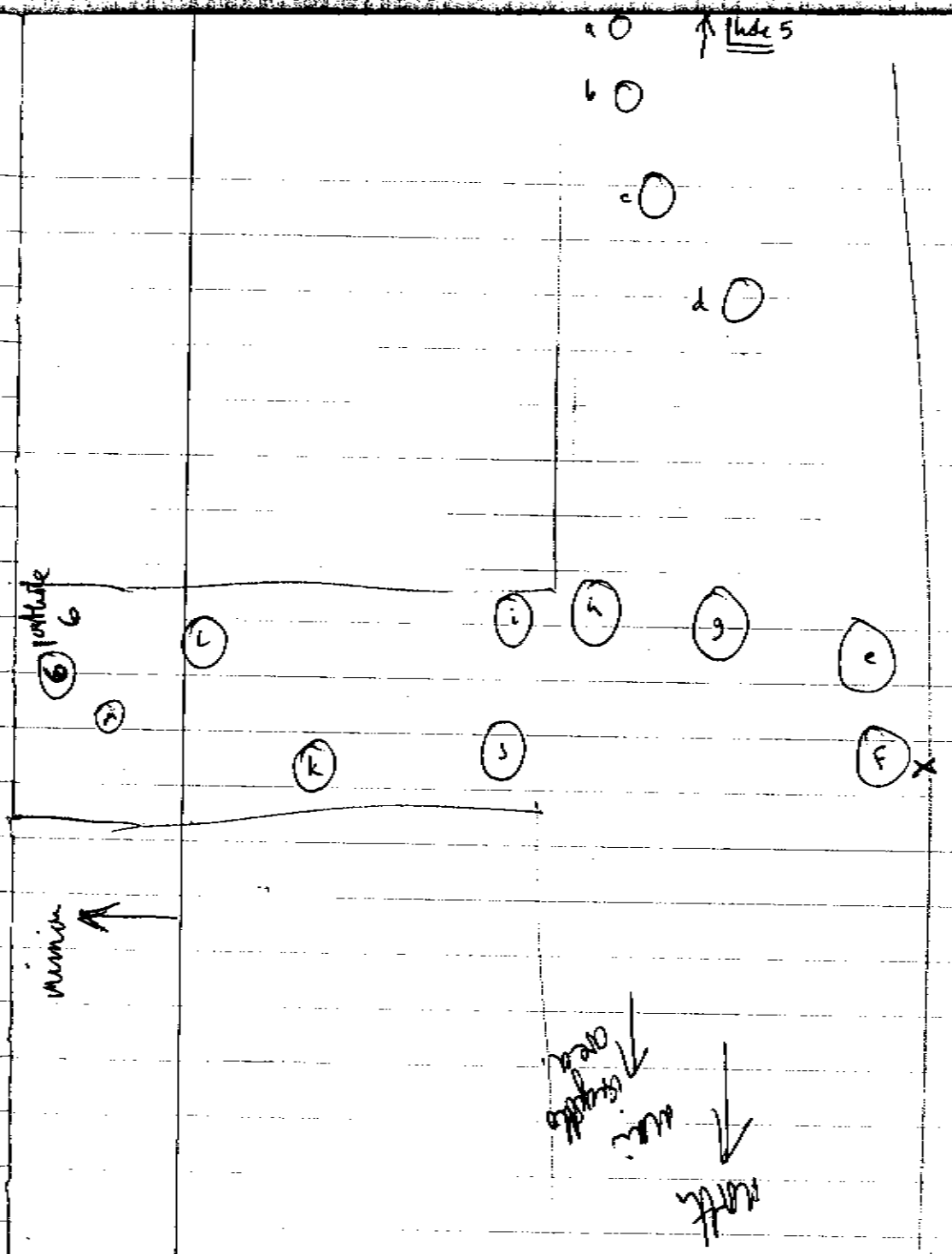
hwt 188 $\frac{1}{2}$ s-s = 2,8 m

188-189 6,6 m

hwt 189 $\frac{1}{2}$ s-s = 2,95
hd =

189-190 6,15

hwt 190 hd = 4,3 s-s = 4,3 m



posthole 6 - f = 6,13

posthole 5 - f = 9,06

f-a 7,55

5-a 1,48

b 6,39

b 2,65

c 5,36

c 3,65

d 4,70

d 4,30

e 0,35

e 8,72

f-g 0,90

6-g 5,35

h 1,53

h 4,85

i 2,10

i 4,15

j 1,90

j 4,20

k 3,55

k 2,57

l 4,65

l 1,55

m 5,45

m 0,65

15-20 cm deep.

in case

	n-s	e-w		n-s	e-w		n-s	e-w
a	15	17	g	22	18	*	13	14
b	20	20	h	20	20	*	15	13
c	14	18	i	27	26	1	14	15
d	20	20	j	27	28	2	19	17
e	30	35	k	25	19	4	22	25
f	28	19	l	20	21	5	20	23
						6	23	14



from Point A to

i =

Point X

from Point X to

i = 157, from Po

to CH 33

CH 39

from X, to C

set to 0, i =

from point X,

that 2, CH

post hole to left of

(looking from X)

1 CH

edge of mounds,

7 left edge mP

right end,

6, CH

post hole near

5, CH

3rd post hole fr

to mounds

** Readings by J&P, ∴ add 10cms to stadia readings



		Horizontal		Vertical		Stadia		
		<	<	T	M	B	100	
9,06	from Point A to							
1,48	i =							
2,65	Point X	33° 57' 40"	270°	339,1	320,6	308,2	30,9	
3,65	from Point X to point A,		270°					
4,30	i = 157, from Point X							
8,72	to CH 33	256° 47' 25"	270°	121,7	112,7	103,7	18,0	
15	CH 39	174°	"	72,6	67,5	62,5	10,1	
85	from X, to CH 39 is							
15	set to 0, i = 121,5							
20	from point X, to:							
57	that 2, CH	216° 27' 10"	270°	311	358,7	340,3		
55	post hole to left of hearth	215° 9' 5"	"	345,4	332,8	320,1	25,3	
1,65	(looking from X)		"					
	1 CH	199° 56' 30"	"	533,0	320,5	308,1	24,9	
	edge of mpunda, towards X	201° 53' 40"	"	312,0	300,5	289,5	22,5	
13	7 left edge mPundu	195° 4'	"	231,1	224,5	217,8	13,3	
15	right end, "	210° 46'	"	236,0	228,8	221,8	14,2	
14	6, CH	229° 73' 10"	"	268,9	260,8	252,7	16,2	
19	post hole nearest mPundu	237° 21'	"	244,5	237,5	230,5	14,0	
22	5, CH	247° 17' 55"	"	290,9	279,5	268,2	22,7	
20	3rd post hole from hearth	252° 25'	"	276,1	265,2	254,2	21,9	
23	to mPundu							

a-s	e-w
13	14
15	13
14	15
19	17
22	25
20	23
23	14

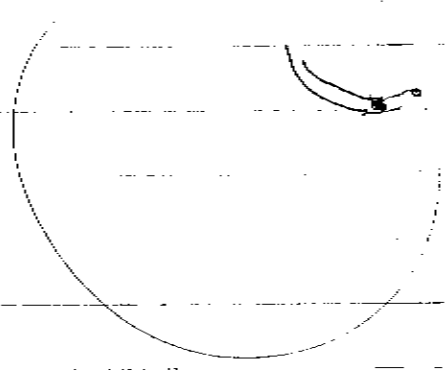
4, CH	256° 0' 20"	270°	321,0	306,9	292,8	28,2	
left side mPundu (looking fr X)	258° 54' 50"	"	291,5	278,7	266,0	25,5	
3 hearth rim	235° 12' 30"	"	-	356,5	342,0	29,0	14,5
left side mPundu	236° 50'	"	360,7	347,0	333,5	27,2	27,2
8, CH	280° 6'	"	170,3	159,5	148,7	21,6	
posthole next mPundu	284° 26'	"	180,7	170,2	160,0	20,7	
10, CH	294° 4' 20"	"	152,3	139,0	125,5	26,8	
left side mPundu	300° 46' 30"	"	128,2	115,4	102,6	25,6	
11, CH	299° 42' 25"	"	178,9	161,1	143,2	35,7	
central rear posthole	303° 40' 50"	"	(160,2)	144,0	137,5	?)	
9 CH third posthole from entrance, going clockwise	300° 55' 45"	"	172,9	154,2	135,5	37,4	
9, CH	281° 4'	"	224,5	209,0	193,8	34,7	
lefthand side mPundu	281° 5' 30"	"	207,7	193,2	178,9	28,8	
12 CH	287° 21' 5"	"	218,2	200,5	182,9	35,3	
13 CH	294° 0' 50"	"	219,0	198,2	177,1	41,9	
Point A	53° 3' 45"	273° 29'	122,3	106,7	89,1	31,2	

216 21

125
290

292,8	28,2
266,0	25,5
342,0	29,0
333,5	27,2
145,7	21,6
160,0	20,7
125,5	26,8
102,6	25,6
143,2	35,7
137,5	?
135,5	37,4
193,8	34,7
175,9	28,8
182,9	35,3
177,1	47,9
189,1	31,2

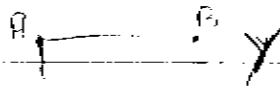
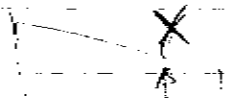
14,5
27,2



1600 24 x A 2400 2500 4000 4000

				ΔH			
				pts-pts	pts-gtic gtic-pts	pts-gtic	
29	H	106	32 32 ✓	114,00	-7,88*	-7,91	113,73
32	H ₁	165	24 11 ✓	109,84	-8,05*	-7,92 ✓	109,54
25	H ₂	168	11 28 ✓	97,13	-6,66*	-6,68 ✓	96,96
27	H ₃	187	21 36 ✓	100,95	-7,61*	-7,63	100,66
29	H ₄	180	24 38 ✓	96,03	-6,51*	-6,61 ✓	95,81
39	H ₅	271	59 58 ✓	55,50	-2,13	-2,13 ✓	55,47
25	F ₁	141	10 35 ✓	58,49	-0,672*	-0,642 ✓	58,49
22	F ₂	150	01 52 ✓	81,80	+1,680*	+1,590 ✓	81,78
31	F ₃	162	57 42 ✓	45,77	+2,159*	+2,139 ✓	45,72
33	E	145	11 2 ✓	70,60	+1,620*	+1,460 ✓	70,58
49	E ₁	155	55 26 ✓	87,31	+4,732*	+4,792 ✓	87,20
43	G	169	29 15 ✓	54,87	+4,04	+4,29 ✓	54,72
18	F	179	10 ?	87,12	+7,24	+7,73 ✓	86,83
29	E	168	28 ?	81,25	+2,04	+1,89 ✓	80,85
44	D	147	10 ✓	43,75	+4,20	+4,19 ✓	43,55
45	C	196	23 ?	50,66	+3,944	+4,094 ✓	50,50
330	B	154	40 21 ✓	89,43	+1,400	+1,400	89,43
2692 542 415				-0,04	-0,04		
2700 8'55"							
2700 30 00							

230 30 20



$\frac{A}{0,5}$
 $\frac{B}{4 \cdot 89,42} \quad 89,42 / 0$

pesado

0,25 H

0,32 H

0,25 H

0,27 H

0,29 H

0,39 H

0,25 E

0,22 E

0,31 E

0,33 E

0,49 E

0,43 G

0,18 F

0,23 E

0,44 D

0,45 C

0,30 B

14/1/74

1000000

A5 - A4 138° 59' 2" 319° 13' 27"

E1 226° 59' 15" 57° 13' 10"

98 0 13 97 ⁵⁹/₈ 43

E3 E2

E4

'62

A5 55: - i. pen

E1 Top of wooden peg

E3 - E4

E1 - A5 273° 20' 25" 142° 37' 38"

E2 54° 33' 03" 283° 48' 10"
141 10 38 101 10 32

E1 - E2 Both Top of wooden peg
58,49

E2 - E1 222° 40' 40" 275° 28' 31"

E3 287° 32' 44" 440° 20' 12"

154 52 4 16" 51 1

E2 - E3 Both Top of wooden peg
51,80

E3 E2 151° 41' 17"

↻ 105° 47' 22"

1' E4 314° 39' 10"

302° 49' 50"

162° 57' 53"

162° 57' 32"

E3^o - E4 45, 77

leveling

D-C	3,847
D	3,847
	0,308
	1,828
C	1,152

with Tech

4,21

4,20

BA

C'

C

D-C

C' B

A'

T2

BA $0^{\circ} 0' 13''$ $204^{\circ} 37' 50''$

C' $93^{\circ} 15' 27''$ $297^{\circ} 53' 45''$

C $205^{\circ} 09' 55''$ $49^{\circ} 47' 25''$

B?C $205^{\circ} 9' 42''$ $205^{\circ} 9' 35''$
 $154^{\circ} 52' 18''$

C' B $243^{\circ} 59' 30''$ $89^{\circ} 37' 35''$

C² $70^{\circ} 38' 800'$ $276^{\circ} 17' 59''$

$186^{\circ} 38' 34''$ $186^{\circ} 40' 24''$

1,208 10,30

1,222

1,230 10,70

Cross Section CH 118, CH 117

2,787 1,70

2,725

2,776 2,10

2,780

2,746

2,672

2,723

2,698 3,10

2,682

2,684

2,656

2,642

2,623 4,10

2,598

2,583

2,568 4,70

2,364 6,0

2,363

2,353

2,326

2,218

2,288 7.00

2,294

2,230

2,240

2,270

2,237 8.00

2,213

2,196

2,180

2,170

2,168 9.00

0,747

0,687

0,785

0,785

0,785

0,802 3,40

0,808 3,60

1,122 7,50

1,127

1,142

1,142 8,10

1,138 8,30

1,103 8,70

1,188

1,190 9,10

1,118 9,30

1,188

1,185

1,187

1,205 10,10

2,761	
2,779	4.60
2,761	
2,723	20.00
2,804	20.20
2,813	
2,818	20.60

Crane Solutions CH III CH 15

0,685	20 emg
0,695	
0,698	
0,707	
0,712	1.00
0,715	1.20
0,722	1.40
0,732	
0,708	
0,695	
0,747	

2,223

13,00

2,234

~~13,00~~

2,250

2,258

13,00

2,272

2,282

14,00

2,286

2,233

2,340

2, ~~338~~
~~338~~

2,243

15,00

2,300

15,20

2,326

2,328

15,60

2,645

18,20

2,660

2,678

2,694

2,708

19,00

2,695

Case 220000 CH 115, 110, CH 118

F 3,730 ~~373~~

+ 0,916

1,043

0,20,

1,057

- 4,646

1,057

1,078

1,090

1,100

1,10

1,113

1,132

1,148

1,173

1,182

2,10

1,185

1,148

1,154

1,176

1,183

3,00

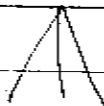
1,192

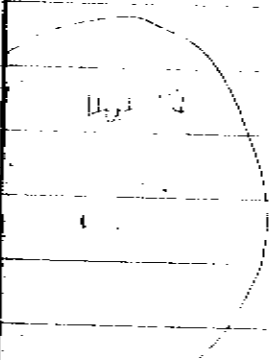
1,213

3,40

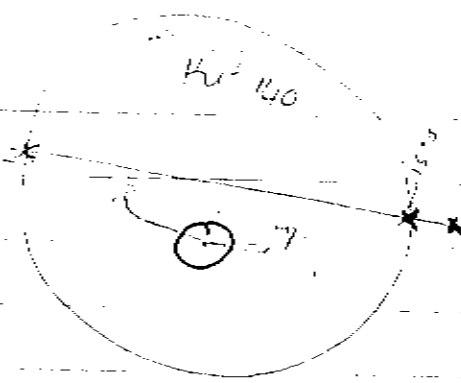
2,000

12,80





Hut 117 24
7,15



2, 28

Hut 118



19/6

planned to be there

CH
9,30

hw III

hw 115

CH
8,95

2,15

hw

CH

①

Leveling

B - C

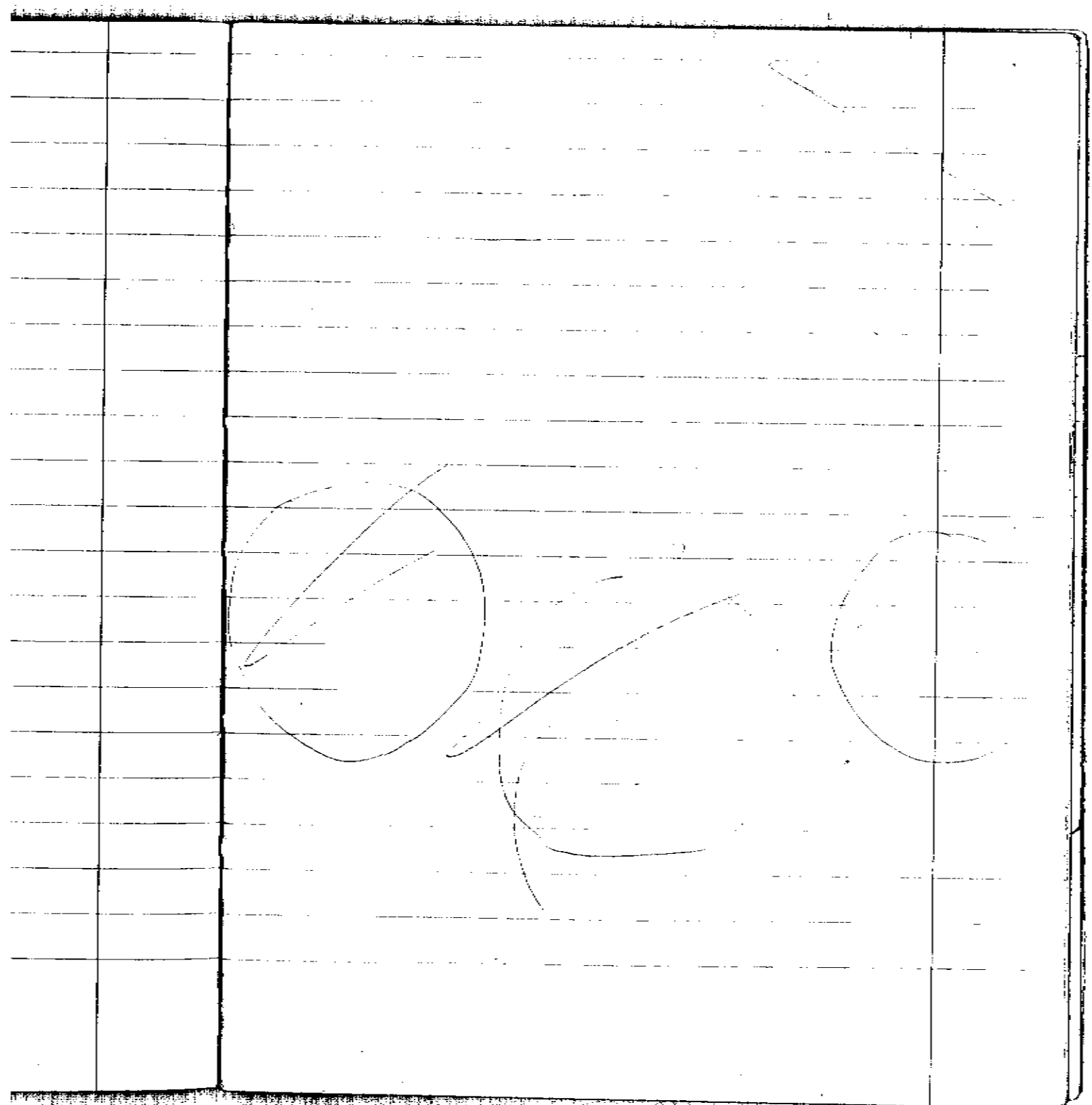
B 0,170

3,457

0,808

C 1,615

-4,094



105 Staff Height

Ar d d. e.

12,4
16,9

6
84

28,75
3,65

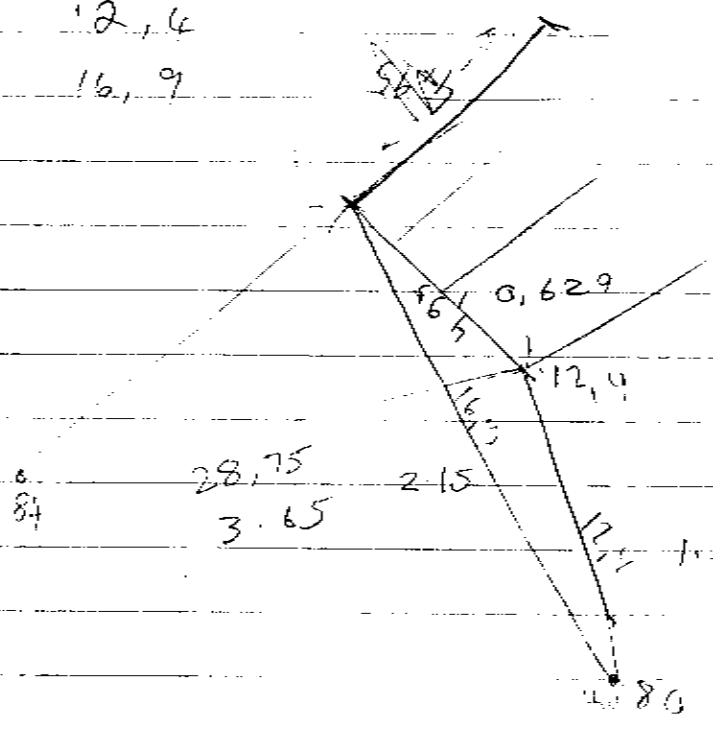
86,5 0,629

16,5 12,4

2,15

17,5 1,57

1080



isi danga - sample per second

isi thambajay - sample porch (where the dog lives)

insika - supporter; porch.

NB IH C. Dist. Cont. Δ H Rem. ab. St. or

B-C

100

2,286 4.10

2,278 4.30

2,263 4.50

2,265 4.20

2,233 5.10

~~No~~

A 1

33

34

4

4

4

4

4

4

9

13

12

~~2,386~~

~~2,383~~

~~2,322 3.10~~

~~2,346~~

~~2,346~~

~~2,348~~

~~2,334~~

~~2,222 3.10~~

~~2,317~~

~~2,318~~

~~2,305~~

~~2,306~~

~~2,302 4.10~~

~~2,287~~

~~2,278~~

~~2,265~~

~~2,273 4.90~~

Handwritten header text, possibly "Permanence of..."

2,376 30

2,374 50

2,373 70

2,360 90

2,388 110

2,276 130

2,370 150

2,323 170

2,365 190

2,377 210

2,350 230

2,347 250

2,333 270

2,324 290

2,312 310

2,307 330

2,305 350

2,302 370

2,300 390

2,273

2,380 12,70

H. 33 - Perimeteral Solutions

2,232

20 ans

2,228

2,223

2,233

2,233

2,233

2,223

2,198

2,176

2,212

2

2,188

2,200

~~2,218~~

2,398

2,196

2,193

3,00

2,184

2,178

2,172

2,163

2,274 4.20

2,138

2,134

2,123

2,109

2,103

2,095

2,061

~~Unit 30~~ ~~11.10~~ ~~submerged section~~ ~~and CH +~~ ~~centre~~

2,376 30 2,375

2,372 2,376

2,368 2,370

2,376 2,386

2,384 11.10

2,370

2,370

CH +
Centre

2,340

2,343

2,345

2,349

2,348

2,353

2,353

2,355

2,371 10.30

2,376

2,350

2,340

2,352

2,352

2,354

2,347

2,348

2,351

2,358

2,362

2,168

2,222

2,182

2,203

2,240

2,236

2,237

2,232

2,333

2,235

2,227

2,226

2,217

2,210

2,208

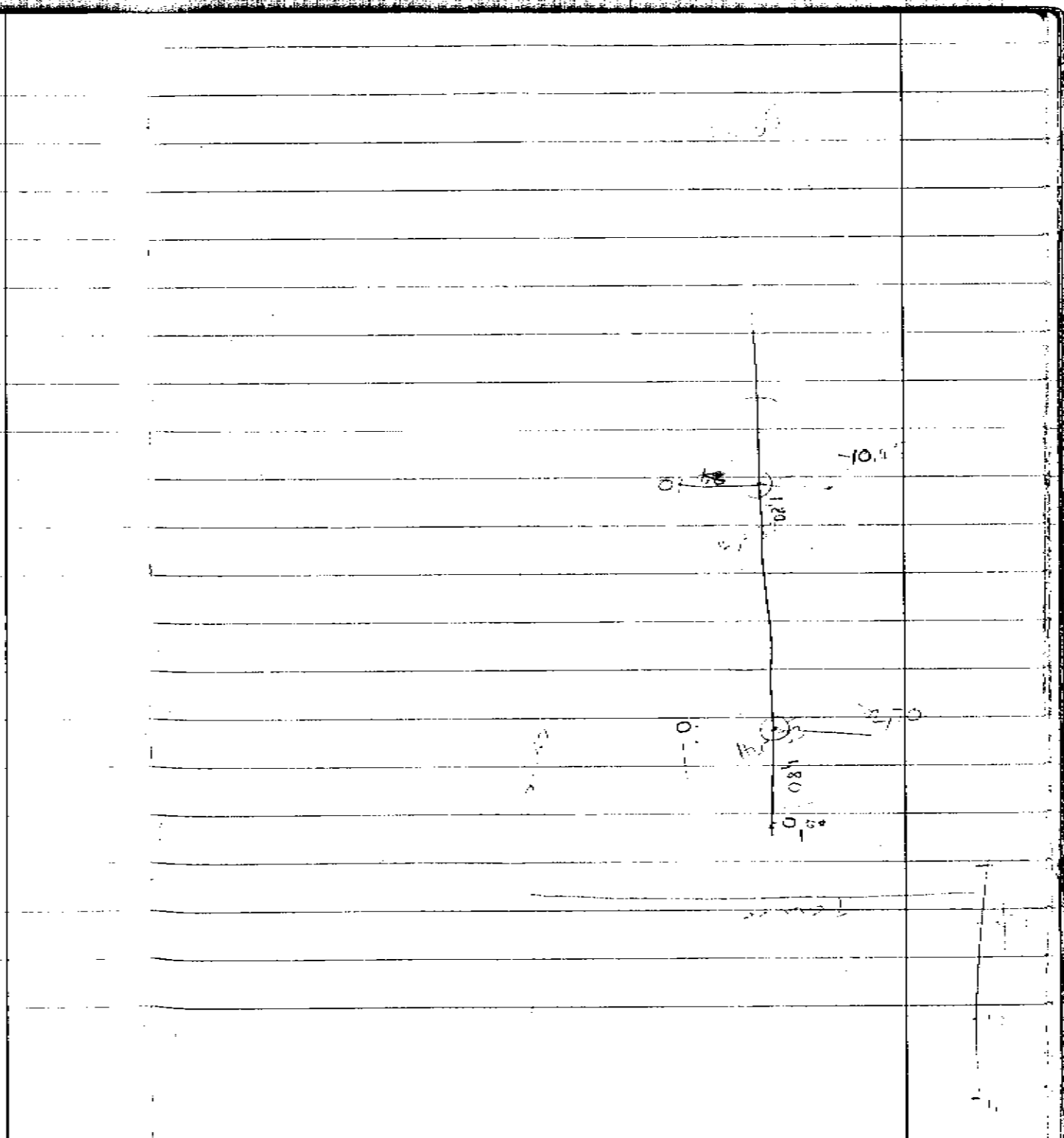
2,198 5,501

2,343 7,900

2,346

2,342

2,215



Balance of Aug 31 3,8

Plus 0,630

~~3,170~~

Minus

3,814

Plus 0,630

Balance of Aug 31 33,34

2,183 10 cns

2,206

2,213

2,216

2,220

2,223

2,226

2,229

2,231

2,234

2,238

2,237

HUT ②

2,484

2,479

2,470

2,468

2,464

2,465

2,465

2,462

2,456

2,459

2,461

2,457

2,467 6,10

2,467

2,460

2,465

2,453

2,474 7,10

Depth section through HUT (2)

Area 4492

2,432 10 ms

2,422

2,418

2,442

2,433

2,437

2,446

2,450

2,456

2,456

2,448

2,452

2,456

2,462

2,463

2,470

2,478

2,482

2,050

2,148

2,150

2,150

2,150

2,155

2,156

2,160

2,160

2,170

2,165 2,180

1,883

1,883

1,890

1,898

1,906

1,910

1,920 21.30

2,058 23.20

2,072

2,078

2,086

2,098

2,106

2,112

2,117

2,125

2,136

2,148

2,185

2,126

1,786

1,793

1,793

1,808

1,818

1,832

1,835

1,838

1,837

1,850

1,804

1,756

1,871

1,854

1,767

1,822

1,882

1,880

1,885

1,888

1,576

1,578

1,705

1,721

1,718

1,695

1,583

1,623

1,630

1,627

1,625

1,614

1,618

1,607

1,604

1,584

1,556 12.30

1,736 15.50

1,762

1,770

1,360

1,373

1,388

1,362

1,316

Überschied

1,363

1,376

1,386 470

1,505 6,60

1,536

1,542

1,549

1,556

1,566

1,572

1,584

1,591

1,598

1,603

1,613

2,562

2,571

2,590

2,615 70

~~8 CH 7, 6~~

7, CH 6, 5, CH 4

1,350 30, cms

1,358

1,313 70 cms Unimolecular

1,312 "

1,356 "

1,362

1,366

1,366

1,375

1,373

1,377

1,373

2, 378 30

2, 382 10

2, 391

2, 401

2, 410

2, 423

2, 446

2, 453 10

2, 473 10

2, 467 10

2, 410 29, 30

2, 625

2, 350

2, 642

2, 492 30, 10

2, 122

2, 555

2, 542 30, 70

2, 545

2, 553

1,562

1,564

1,568 18.0

1,576

1,584

1,578

1,577

1,588 18.0

1,592

1,593

1,600 19.70

2,285 25.50

2,290

2,290

2,302 18.0

2,329 30

2,330 18.0

2,343

2,354

2,370

✓ 0,36

CH 25

(42)

✓ 0,365

4,30

✓ 0,365

✓ 0,365

✓ 0,365

✓ 0,374

✓ 0,394

~~all figures below 1000~~

1,402

15,30

1,420

1,436

1,450

1,467

1,470

16,30

1,490

1,513

1,536

1,538

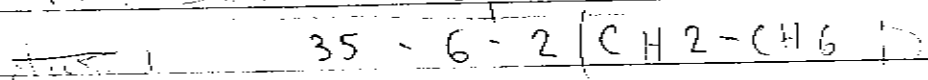
1,550

1,559

17,30

170

... .. a) ...



1000
2000

1,491

0,10

0,11

0,13

0,15

0,16,2

0,17 150 cm

0,18,9

0,20,8

0,21,2

0,23,3

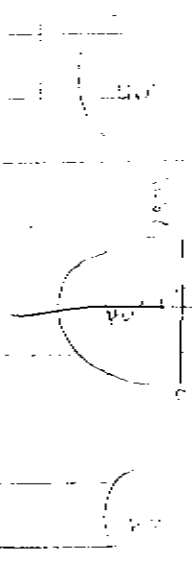
0,25,4 2,50

0,28 2,90

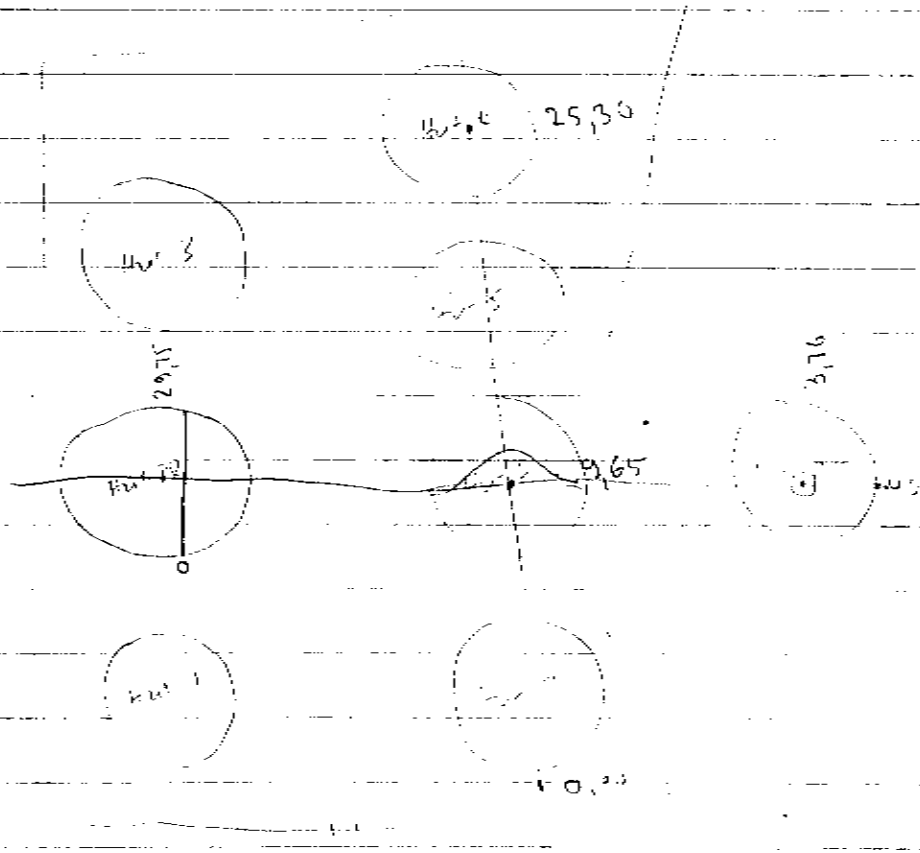
0,367

0,37

0,38 350



D



Leveling

B ₃	3,935	3. f +		
B ₂	0,670	av. 1	3,501	B ₃ -B ₁
B ₁		top peg		per

B ₂	0,072		top peg	} 3,743
B ₁		3,815	i: p	

B ₂	0,318		top peg	} 3,712	per
B ₁	0,670		ground		
B ₁		4,032	top peg		per

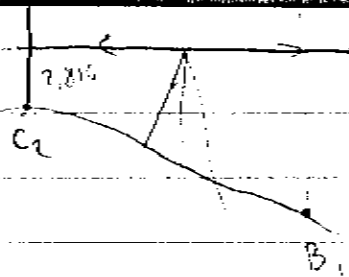
~~EC 2,140~~

C ₁	2,140		}	5
C ₂	0,637			1,403

C ₂	2,810		}	1,697
C ₁	1,113			

$B_3 - B_2$

per $B_2 = 27$



3,743

per $B_3 = 0,35$

3,712

per $B_4 = 0,22$

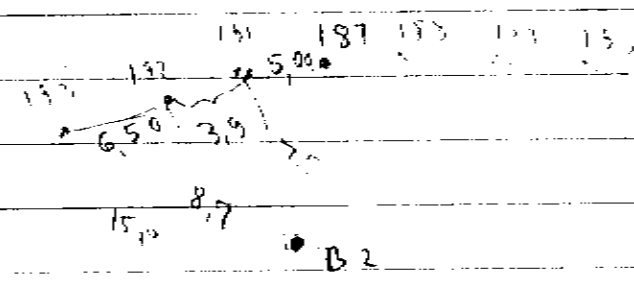
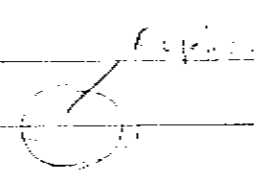
5

1,403

1,697

2.0 m
 2.0
 3.0 m
 4.0 cm
 1.0 m
 2.0 m

Ht of mast
 1.54 = I gross
 1.26 = I peg
 28 cm ht of peg



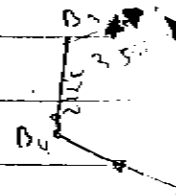
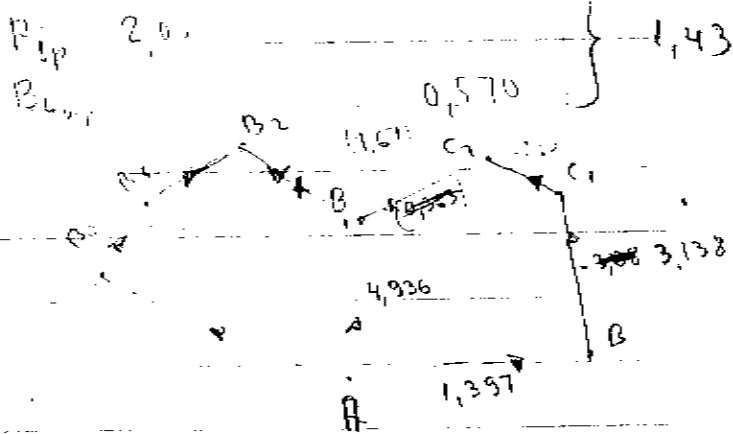
Height

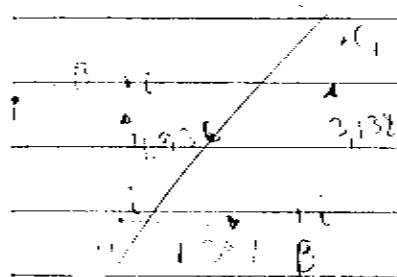
B2	1028, 46	1138, 30
187	1030, 02	1143, 68

Levelling Δ4

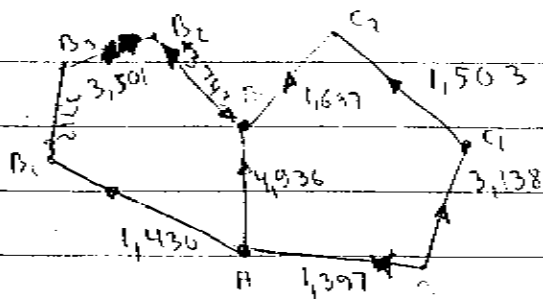
H _{ip} 1,512			
B _{ip} 3,068	2,909	1,397	A-B
E _{wp}	-0,070	-3,138	C-B

H _p 3,862			
	0,283	4,936	
B _{ip} 2,013	0,656		





Level $B_1 - C_2$ $B_1 - B_2$
 $C_2 - C_1$ $B_2 - B_3$
 height of P_{15} $C_2 - E_1$ $B_3 - B_4$
 B_2, B_3, B_4
 Height of B_1, B_2, C_1, C_2



3,501	1,820
3,712	4,936
1,430	3,713
<u>8,643</u>	<u>8,679</u>

4,936
 + 3,41
 5,333

1,503
 3,138
 1,641
 5,333

1.62

1.19

G

HC

D

F 0° 0

547

49

383

1.00

134 187° 33

511

44

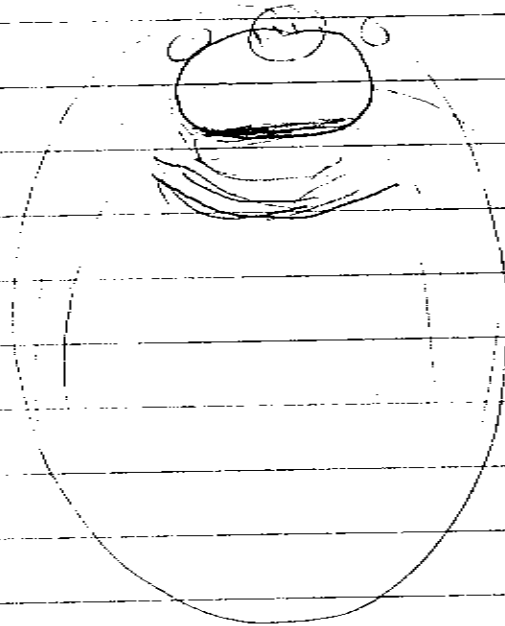
316

?

1.53

1,00

1,55

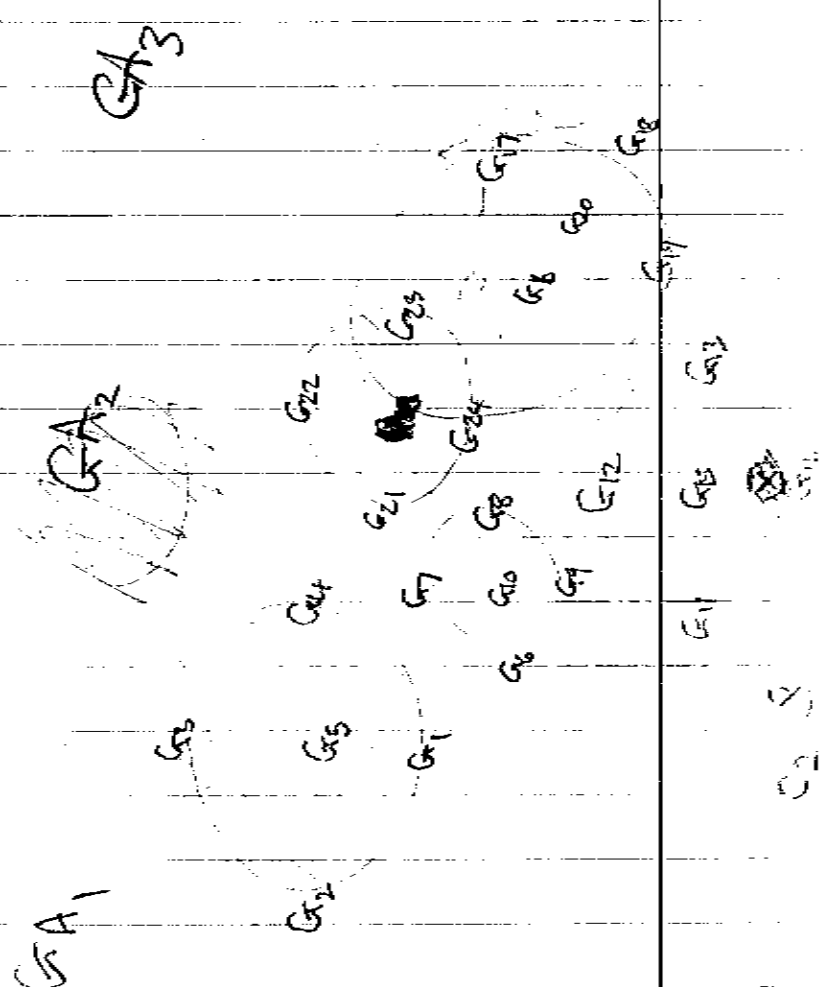


meters	SII	now standing on D wooden peg				i peg = 1,11 i ground = 1,50	
		HC	DIST	CON	ΔH		
1,0		Iron peg. 0° 0'	43,7	+10	36,3		1,0
1,0		171 318° 51'	15,1	+10	2,9	??	1,0
1,0		168 272° 21'	19,6	-10	0,6	?	2,0
1,0		169 256° 38'	6,6	-10	7,3	?	1,2
1,0		170 294° 42'	5,9	-10	3,7	?? loose floor	1,0
		158 217° 45'	49,5	-10	55,4	?	1,0
1,1	*	133 209° 5'	69,5	-10	58,8	?	3,0
1,0		E 217° 50'	80,7	-20	43,6	wooden peg	0,5
1,0							
		now standing on F wooden peg				i peg = 1,41 i ground = 1,62	
3 =	1,36						
and =	1,3						
ground	0,80	E 0° 0'	86,6	+10	69,5	wooden peg	0,6
peg	0,50	120 24° 1'	28,3	+10	17,6	?	2,0
IRON PEG	1,0	124 42° 36'	11,9	-10	4,2	CH	1,0
		148					
		186 26° 14'	14,8	+10	2,3	?	1,20
1,59		G 180° 50'	54,8	-10	44,6	wooden peg	1,0
			54,8	-10	41,0		0,9
	0,70						
	2,1						
?	2,5						

$i_{peg} =$	1,21
$i_{ground} =$	1,57

GRAVITATION

Hc	
B ₁	0° 0'
C ₁	278° 5'



G ₁	181° 45'
G ₂	180° 00'
G ₃	172° 15'
G ₄	178° 00'
G ₅	172° 20'
G ₆	168° 00'
G ₇	160° 00'
G ₈	150° 00'
G ₉	184° 00'
G ₁₀	156° 00'
G ₁₁	201° 20'
G ₁₂	217° 20'
G ₁₃	229° 00'
G ₁₄	211° 00'
G ₁₅	220° 00'
G ₁₆	216° 20'
G ₁₇	221° 00'
G ₁₈	225° 20'
G ₁₉	221° 45'

		GRAIN	PITS	STANDING	C ₂	WOODEN	PEG	STATE
		AC	DIST	CON	ΔH	REMARKS		
peg =	1,21							
ground =	1,57							
		B ₁	0° 0'	7,7	+10	22,6	iron peg	1,8
		C ₁	278° 57'	33,5	-10	16,1	wooden peg = 0,27	1,0
		G ₁	169° 39'	11,8	-20	10,9		0,1
		G ₂	164° 17'	14,4	-20	10,8		0,1
		G ₃	175° 16'	15,7	-10	15,6		1,0
		G ₄	178° 32'	13,9	-20	12,4		0,1
		G ₅	172° 8'	14,4	-20	13,2		0,1
		G ₆	165° 21'	10,3	-20	11,5		0,2
		G ₇	181° 20'	11,2	-20	10,3		0,4
		G ₈	183° 57'	10,2	-20	7,8		0,9
		G ₉	184° 12'	9,2	-20	7,4		0,9
		G ₁₀	186° 10'	10,3	-20	7,8		1,0
		G ₁₁	203° 23'	7,8	-20	7,4		1,0
		G ₁₂	217° 37'	9,1	-20	8,4		0,8
		G ₁₃	229° 14'	7,3	-20	7,0		1,0
		G ₁₄	231° 11'	7,1	-20	7,7		1,0
		G ₁₅	220° 12'	8,2	-20	7,1		1,0
		G ₁₆	216° 21'	12,2	-20	11,9		0,5
		G ₁₇	221° 41'	12,7	-10	17,1		1,0
		G ₁₈	225° 2'	12,0	-10	11,7		0,5
		G ₁₉	221° 45'	11,1	-20	8,2		1,0

now standing on B5

$$i = 1,40$$

staff height

	HC	Dist	Cor.	ΔH	remarks	
B4	0° 0'	27,6	+10	26,8		0,40
M ₁₀	41° 17'	8,8	+10	5,5		1,0m
M ₄	99° 55'	9,2	-10	7,4		1,0m
M ₁₂	152° 01'	9,1	-10	4,8		1,7m
M ₁₃	186° 12'	10,5				
M ₁₄	237° 35'	15,3	-10	1,2		1,9
M ₁₅	266° 29'	19,3	+10	0,3		1,0
M ₁₆	7° 30'	12,4	+10	4,2		0,9
M ₁₇	337° 12'	12,3	+20	9,3		1,60
M ₁₈	92° 42'	5,8	+10	0,2		1,1m
M ₁₉	234° 8'	8,2	-10	2,7		1,1m

now standing on C1 western peg.

C2

B

Self kept

2m

no height

EW BW SW

98 15

M12

2m

EW

BS

1m

1m

EW

1m

M17 SW TW

2m

2m

EW TW

3m 40

1m

EW

0.0000000000

1m

BS

0.0000

1m

EW

1m

W

0

1

10

	Standing on HC	B ₄ Dist	Con	ΔH	Staff height
pointing to A	0° 0'	84,0	-10	5,9	2m
directly to B ₃	254° 52'				2m
132	8° 20'	26,1	-10	7,3	2m
M ₁	1° 45'	4,7	-50	2,7	1m
M ₂	210°	8,7	-10	10,4	1m
M ₃	267° 34'	6,0	-20	5,4	1m
M ₄	189° 10'	24,0	-10	7,9	2m
M ₅	169° 57'	16,5	-10	3,7	2m
M ₆	151° 15'	14,2	+10	2,6	3m 40'
M ₇	196° 45'	9,2	-10	8,6	1m
M ₈	115° 17'	7,0	-20	11,0	1m
B ₅	118° 34'	27,5	-10	33,6	1m
M ₉	103° 45'	23,2	-10	28,4	1m

$i = 1,20$



132

Staff List

270

11 10 17 17 17

170

16

15

14

120

100

Quota 140 + 126

1,00

1,00

1,00

0,50

1

1

1,00

Station	Angle	Dist	Cor	Δ H	Notes	...
E - D		80.7	+10	84.2 74.0		77.5
167	185°14'	22.2	-10	26.5	S	1.0
168	208°17'	54.2	+10	20.5	40	2.0
169	197°22'	39.5		37.6		
170	201°37'	43.7	-10	34.7	PP	2.10
171	165°09'	40.2	-10	40.7	C.H.	4.0
172	188°50'	45.0	-10	40.0	C.H.	2.0
173		30.0		33.1		
174		40.0		33.0		
175		40.0		33.0		
176		40.0		33.0		
177		40.0		33.0		
178		40.0		33.0		
179	182°32'	53.7	+10	49.0	C.H.	2.0
F	191°32'					1.0
F - E		84.8	+10	79.0		77.0
180		40.0	+10	39.0	C.H.	1.5
181		30.0	+10	29.0	P	1.0
182		40.0	+10	39.0	P	1.0
183		40.0	+10	39.0	P	1.0
184		40.0	+10	39.0	P	1.0
185		40.0	+10	39.0	P	1.0
186		40.0	+10	39.0	P	1.0
187		40.0	+10	39.0	P	1.0
188		40.0	+10	39.0	P	1.0
189		40.0	+10	39.0	P	1.0
190		40.0	+10	39.0	P	1.0
191		40.0	+10	39.0	P	1.0
192		40.0	+10	39.0	P	1.0
193		40.0	+10	39.0	P	1.0
194		40.0	+10	39.0	P	1.0
195		40.0	+10	39.0	P	1.0
196		40.0	+10	39.0	P	1.0
197		40.0	+10	39.0	P	1.0
198		40.0	+10	39.0	P	1.0
199		40.0	+10	39.0	P	1.0
200		40.0	+10	39.0	P	1.0

1.5							
1		Lp23	1,20		7,90		
2		Lground	= 3,59				
			F-P		P-E		
			1,20		1,45		
			- 8,02		- 7,91		
			- 1,60		- 1,09		
3,10			- 7,82		+ 7,26		
1,3							
2							
1,2							
1,70							

2
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 38
 39
 40

Rawapens

Stag Height

CH

3,10

1,20

?

3,6

~~3~~ 1,80

No	HC	Dist	Const	ΔH	Remarks	Surf Height
E-D	000	80,6	± 10	78,0		1,0
E-D			+100	38,9		
166	357°26'	62,6	+10	73,9	?	3,0
123	10°4'	25,6	+10	16,8	?	1,0
105	8°14'	19,4	+10	12,2	?	1,0
151	330°59'	9,3	-10	0,3	?	50 cm
106	22°35'	9,8	+10	2,1	?	1,0
157	32°55'	16,8	+10	13,5	?	2,10
160	223°15'	11,6 12,6	-10	10,6	?	1,0
107	217°35'	22,2	-10	25,5	?	1,10
102	150°00'	9,3	-10	12,2	?	1,0
130	98°57'	11,8	-10	10,6	?	1,20
109	170°02'	20,6	-10	25,0		1,20
143°	135°57'	34,4	-10	16,9	?	1,30
104	172°10'	32,8	-10	31,4	?	1,50
112	175°57'	39,5	-10	22,5	C.H.	3,40
113	181°43'	44,0	-10	28,0	?	3,20
114	185°57'	47,1	-10	29,9	C.H.	3,10
115	187°52'	49,6	-10	24,2	C.H.	3,0
111	188°57'	63,1	-10	22,6	C.H.	3,0

Revascular

500 mg

C-14

60 mg
1,000

1,11

2,93

4

1,11

1,11

- 8,53

8,53

- 7,42

8,6

1,11

2,53

7,42

8,6

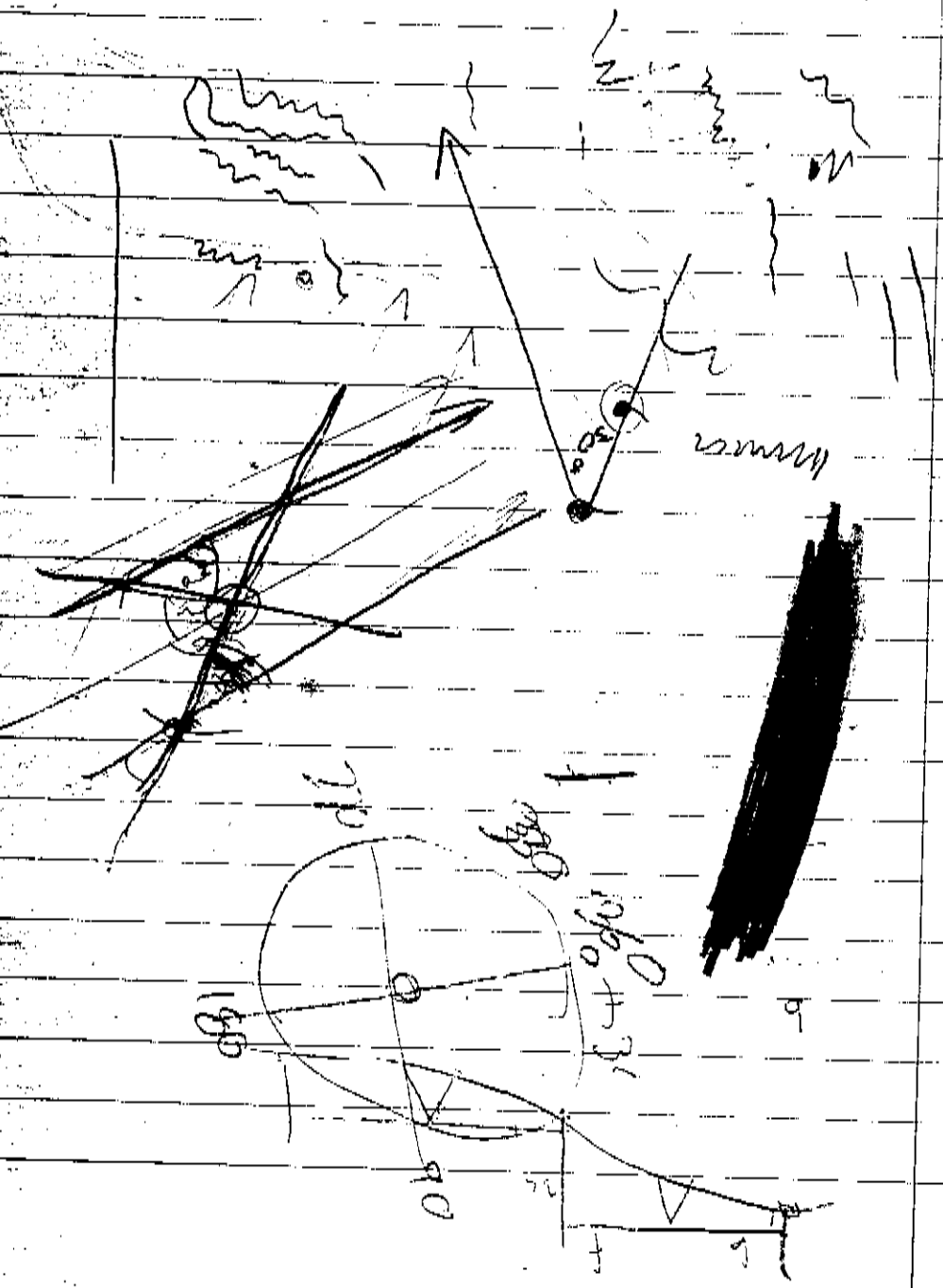
Sta.	Dir	Dist	Comp	ΔH	Remarks	Notes
104	215° 15'	17.2	-10	7.8		
102	235° 15'	25.7 33.8	-10	35.1	??	10
103	261° 28'	22.9	-10	8.8	?	20
* 101	225° 15'	18.7	+10	12.9	C-	10
105	115° 13'	37.0	-20	5.2	?	10

E

Row number	Height (meters)
	50
??	1,10
?	2,0
C.	1,0
?	1,0?

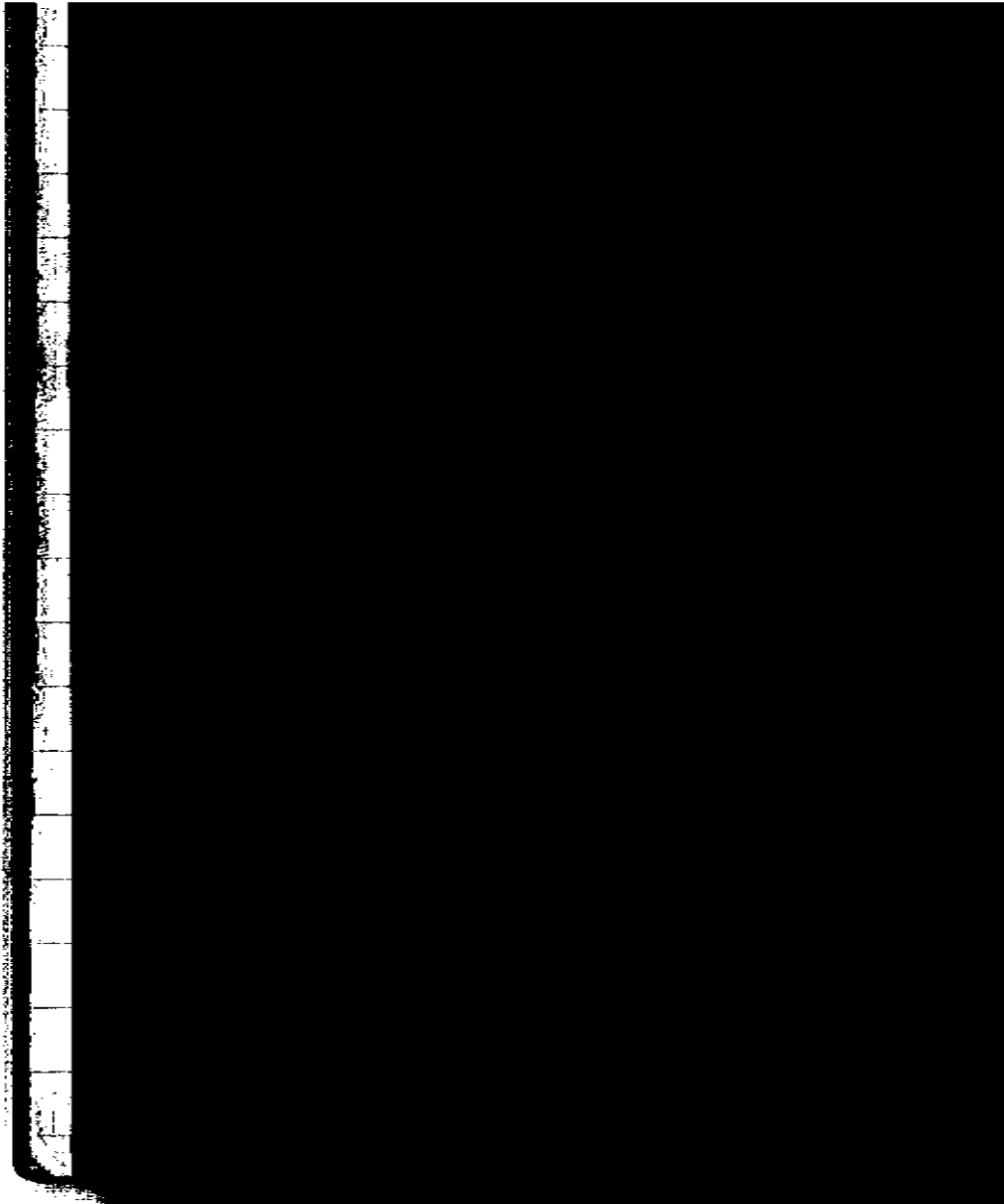
D	C	HC.	Distance	cont	height Δ'	Remarks	Notes
		300 300	43,5	+10	34,0		30
74	X	355° 00'	32,8	+10	2,...	C.H.	30
77	X	300° 00'	26,3	+10	30,5	C.H.	30
86	X	351° 00'	38,0	...	2	C.H.	30
92	X	221° 20'	37,6	+10	35, x	...	30
93		221° 20'	17,2	+10	3,7	?	30
131	X	355° 30'	17,2	+10	1,7	C.H.	10
							10
		201° 00'	10,0	+10	2,1	C.H.	10
		231° 30'	9,1	+10	2,8	C.H.	10
		8° 00'	12,3	+10	8,3	?	10
		10° 15'			12,8	C.H.	10
		45° 00'		+10	3,0	C.H.	10
		201° 30'	12,2	+10	7,8	?	10
		213° 00'		-20	8,2	C.H.	10
		243° 13'	35,8	-20	15,8	?	50
		236° 16'	21,5	-20	13,1	?	10
103		217° 20'	22,7	-20	15,8	C.H.	10
102		235° 10'	1,3	-10	1,0	?	10
F		30° 50'	80,8	-10	85,3		1
			80,8	-20	42,6		20

Row	Result	Stiff Length	
		50	
	C.H.	1,0	1,55
	C.H.	1,0	1,11
	C.H.	1,0	
	C.H.	1,0	
	?	1,0	
	C.H.	1,0	
	C.H.	1,0	
	?	1,0	
	C.H.	1,0	
	?	1,0	
	C.H.	1,0	
	?	1,0	
	C.H.	1,0	
	?	1,0	
		1	



Mensuren





43	4,45	0,50	1	7,1 ; 11,0	1,60	2
44	4,0	0,52	1	8,7 ; 8,5	1,30	
45	4,0		1	8,7 ; 11,3		
26		0,45		7,7 ; 7,2		
27		0,43		7,2 ; 6,8		
25		0,65		6,2 ; 7,7		
24		0,55		6,2 ; 7,5		
22				9,0 ; 8,5		
72				17,3 ; 8,5		
21				8,5 ; 9,0		
61				9,0 ; 6,5		
62				6,5 ; 5,6		
70				5,6 ; 7,8		
19				8,2 ; 11,2		
29				9,7 ; 7,5		
30				7,5 ; 6,5		
32				8,9 ; 10,0		
18				11,2 ; 8,2		
17				8,2 ; 7,2		
16				7,2 ; 11,5		
15				7,2 ; 12,5		
68				11,8 ; 7,5		
67				7,5 ; 6,9		
66				6,9 ; 10,4		
65				9,0 ; 11,0		
64				9,0 ; 8,0		
63				8,0 ; 10,5		
70				7,8 ; 5,7		
62				5,7 ; 6,6		
69				7,8 ; 6,6		

ISIGODLO
(back section)

47	4,12	0,46	1	7,2; 5,5	1,45	1	
48	3,80	0,55	1	5,5; 6,0	1,30	1	
49	3,70	0,55	1	6,0; 5,5	1,10		
50	4,20	0,53	1	5,5; 5,0	1,20	1	
182				4,5; 17,5			
181				17,5; 7,5			
180				7,5; 5,5			
69				5,5; 6,0			
46				6,0; 7,2			
51				5,0; 5,5			
52				5,5; 5,2			
53				5,2; 7,4			
54				7,4; 3,8			
55a				3,8; 3,0			
55b				3,0; 6,1			
56a				8,1; 3,0			
57				3,0; 5,8			
58				5,8; 8,5			
59				8,5; 19,5			
60				19,5; 10,1			
73				7,9; 10,1			
74				11,8; 11,0			
71				11,2; 11,8			
<hr/>							
BHEJE	187	4,60	0,60	3	8,0; 7,0	0,80	2
	188	5,3	0,70	3	7,0; 7,0	2,20	
	189	5,8	0,63	3	7,0; 5,0	1,60	
	190	4,35	0,55	3	5,0;	1,40	

WARRIOR
HUTS

114		0,60	1	4,5; 6,2	
140	3,8	0,58	1	4,8; 6,2	1,35
115		0,64	1	5,9; 5,8	1,59
111	3,7	0,59	1	3,5; 3,8	1,56
110		0,57	1	5,0; 6,5	1,47
112	3,8	0,61	1	6,5; 7,0	1,50
142	3,4	0,57	1	6,0; 6,9	1,45
141		0,57	1	10,5; 6,0	
117		0,61	1	4,9; 6,0	1,40
119		0,53	1	6,0; 5,7	
118	3,7	0,65	1	4,8; 4,9	1,30
222		0,55	1	5,3; 6,1	
?		0,65			
?		0,56			
?		0,55			
?		0,60			
?		0,61			
?		0,60			
?		0,49			
?		0,55			
?		0,56			
?		0,54			
?		0,63			
152				5,1; 6,0	
153				6,0; 6,6	
145				6,3; 5,1	
126				5,0; 6,3	
146				4,7; 5,4	
125				5,4; 6,6	
123				6,1; 6,7	

186				6,1 ; 6,1		
147				5,3 ; 6,1		
155				5,6 ; 10,9		
121				6,3 ; 5,5		
149				5,5 ; 5,5		
150				5,5 ; 5,5		
151				6,9 ; 5,5		
122				5,5 ; 6,9		
154				6,9 ; 6,3		
116				6,3 ; 5,1		
156				5,9 ; 8,1		
185				3,5 ; 2,5		
157				3,8 ; 7,2		
143				5,9 ; 4,1		
144				6,9 ; 4,1		
184				7,5 ; 7,5		
161				7,5 ; 9,2		

ULUNDI

1	8,15	1,22				
2	5,6	0,75				
3	6,45					
4	6,10					
5	6,15					
6	4,85	0,55				
7		0,34				
8		0,46				
9	FLOOR	ONLY				
10	8,20					
11	3,70					
12	5,50	0,58				
13	FLOOR	ONLY				
14	5,57	0,55				
15	4,10	0,51				

16	3,60	0,20				
17		0,65				

NOTE: a/ The posthole count and the centre hearth to hut edge measurements have been based on the hut floor reconstructions (see Pg).

b/ The 'accessory' count is the sum of different furniture types occurring on each floor. Therefore: single or multiple potholes = 1; single or multiple umbundus = 1; racking postholes = 1 and the 3 types of entrances each =1.

MEAN AND STANDARD DEVIATION READINGS FOR DIMENSIONAL MEASUREMENTS

Hut Diameters
(max. readings)

Isigodlo n= 35
and x= 5,10
Bheje s= 1,04

Warriors n= 5
x= 3,68
s= 0,16

Ulundi n= 12
x= 5,66
s= 1,51

Inner Hearth Diameters

Isigodlo n= 39
and x= 0,62
Bheje s= 0,14

Warriors n= 23
x= 0,58
s= 0,04

Ulundi n= 10
x= 0,58
s= 0,27

Hearth to Hut size
Relationship
(hearth diam/ hut diam.)

Isigodlo n= 33
and x= 0,13
Bheje s= 0,02

Warriors n= 5
x= 0,16
s= 0,01

Total n= 38
 x= 0,13
 s= 0,02

Ulundi n= 7
 x= 0,11
 s= 0,03

Inter-Hut Distances
(C.H. to C.H.)

Isigodlo n= 112
(front section) x= 8,21
 s= 1,80

Isigodlo n= 46
(back section) x= 7,6
 s= 4,09

Warriors n= 70
 x= 5,92
 s= 1,42

Location of Hearth
(hut diam./C.H. to hut
edge)

Isigodlo n= 40
Bheje x= 3,12
and s= 0,64
Warriors

Ulundi n= 4
 x= 2,77
 s= 0,16

<u>No. of Postholes to Hut</u>	<u>Isigodlo,</u>	n= 40
<u>Diameter, Relationship</u>	<u>Bheje</u>	x= 0,48
(no. postholes/hut diam.)	and	s= 0,31
	<u>Warriors</u>	

Mean Diameter and Standard Deviation of Huts with:-

I Posthole	n= 21
	x= 4,17
	s= 0,46

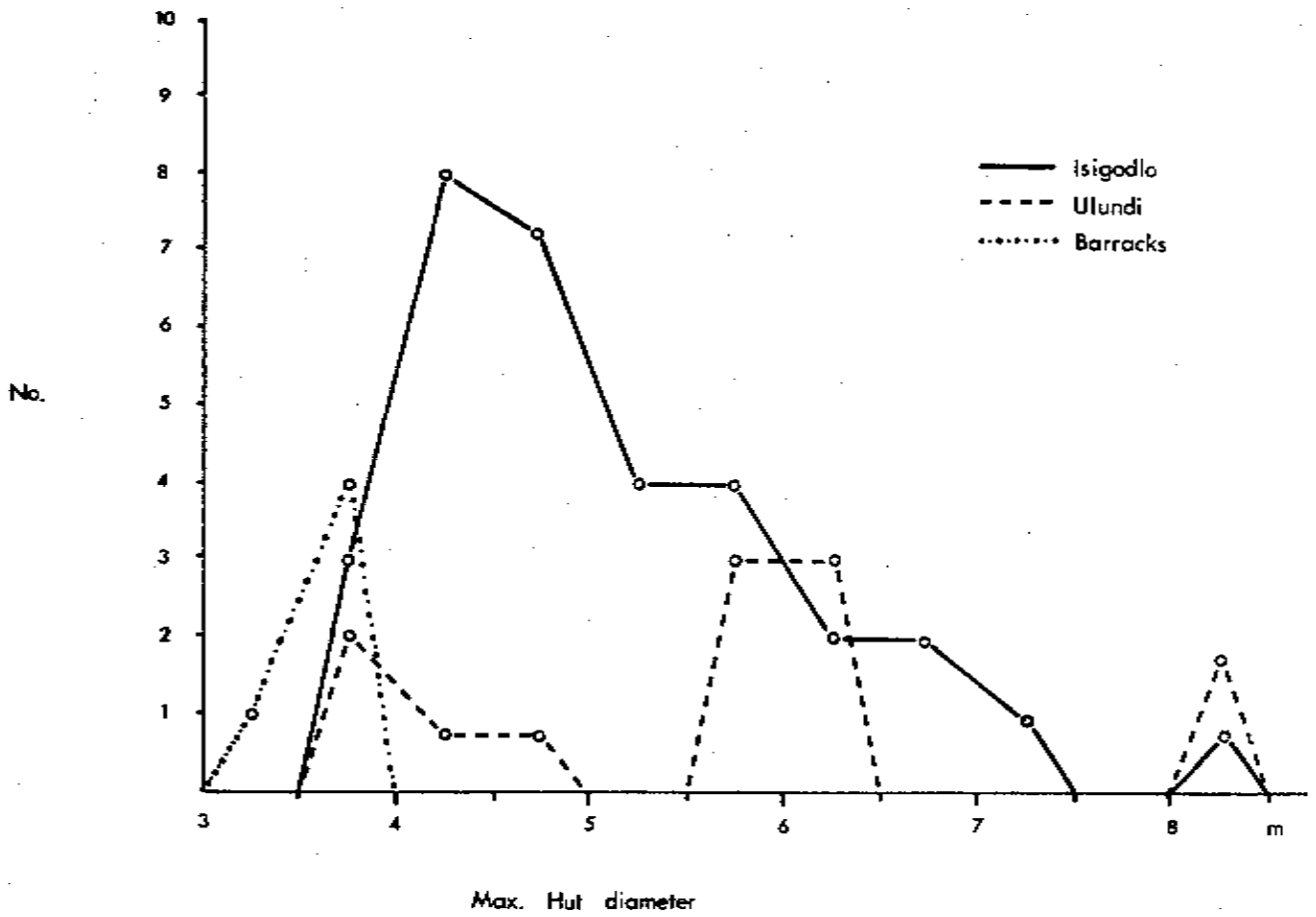
3 Postholes	n= 11
	x= 5,24
	s= 0,55

5 Postholes	n= 3
	x= 6,20
	s= 0,91

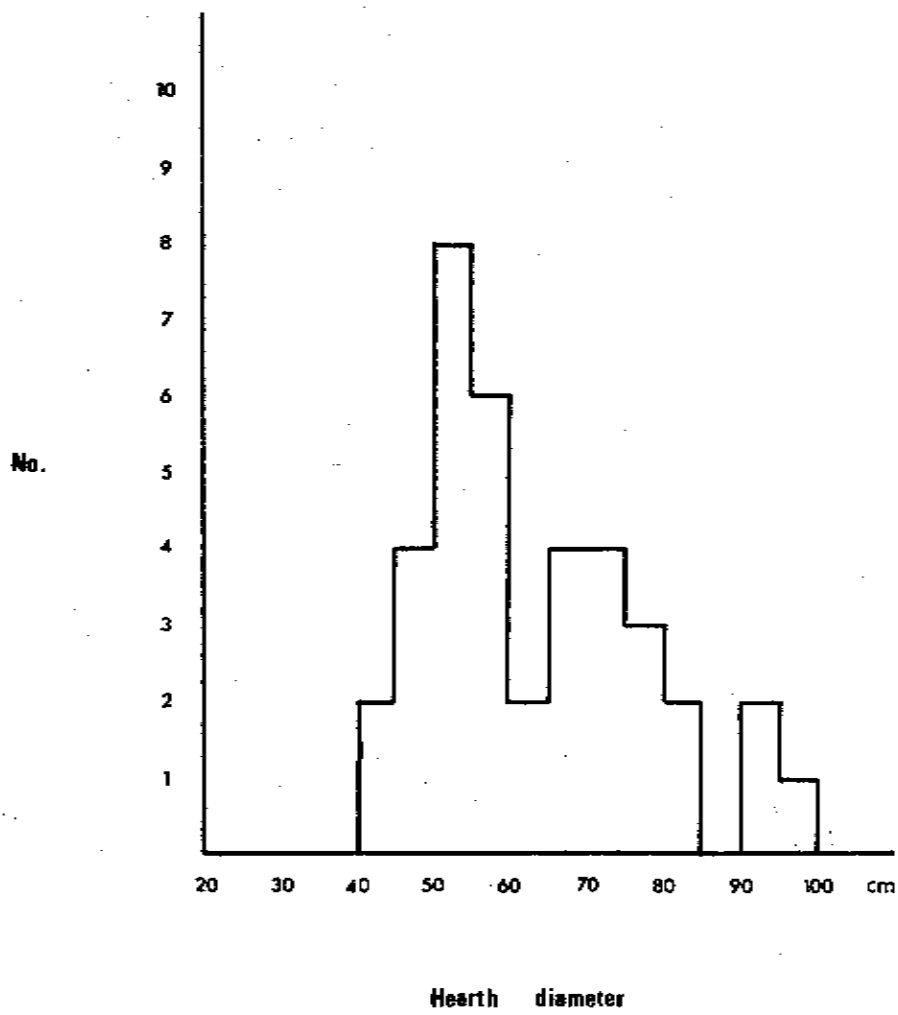
7 Postholes	n= 2
	x= 6,30
	s= 0,14

9 Postholes	n= 2
	x= 7,35
	s= 0,92

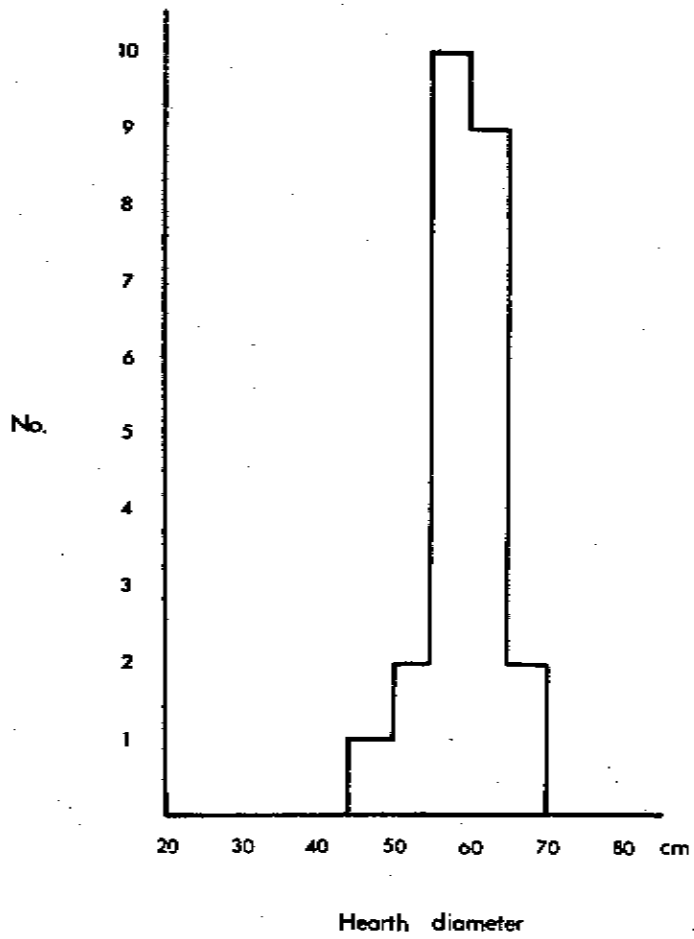
Hut size



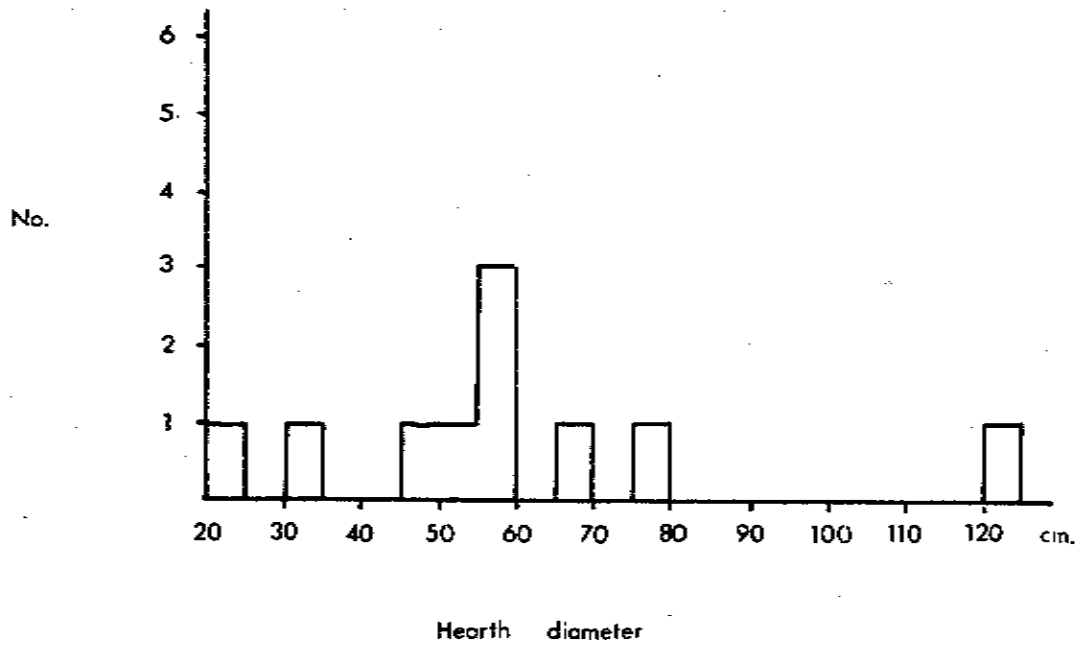
Isigodlo : hearth size



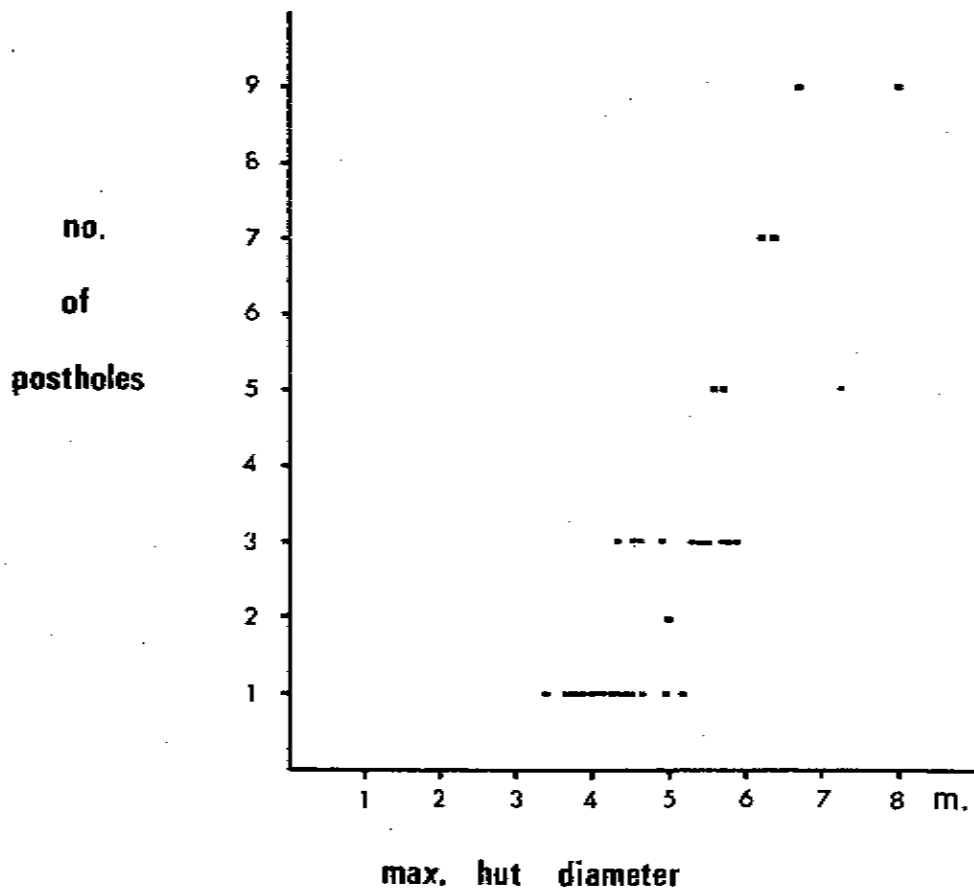
Barracks : hearth size



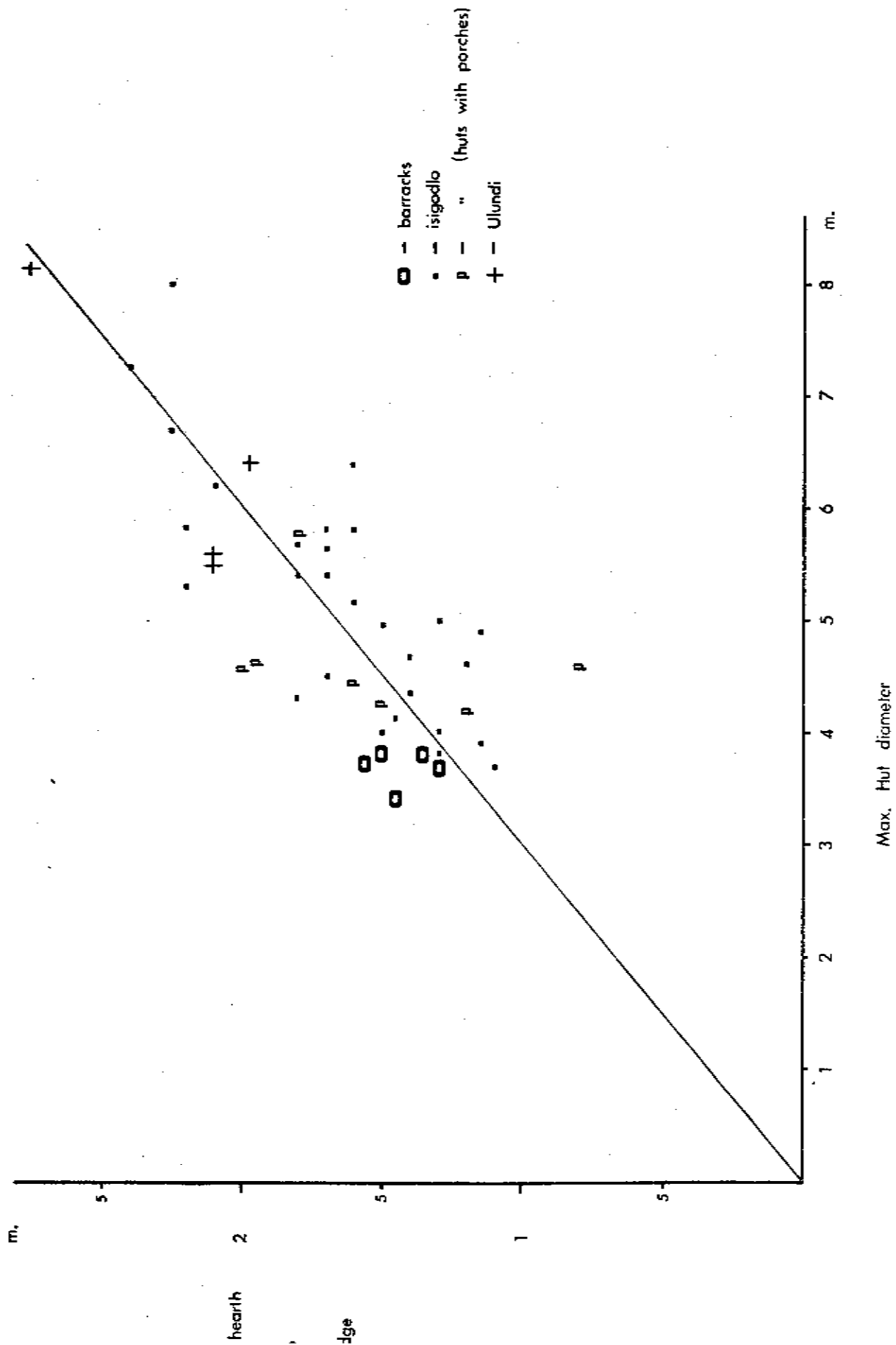
Ulundi: hearth size



Posthole no. - Hut size



Hearth position



An Index of Hut change through the Isigodlo

For the purposes of gauging tendencies in the change of hut form through the isigodlo, six hut rows have been identified on the basis of easily observable alignments (see diagram , overpage) in the isigodlo complex. The index figures were calculated as follows:- the sum, for each hut, of furniture attribute frequency (defined under (b), Pg) + posthole number + max. hut diameter + mean inter-hut distance. The mean index figure (or attribute no.) for each hut row is given below.

Row 1	n = 3
	x = 17,55
	s = 3,82
Row 2	n = 4
	x = 20,51
	s = 4,35
Row 3	n = 8
	x = 19,72
	s = 3,57
Row 4	n = 6
	x = 16,93
	s = 2,87
Row 5	n = 6
	x = 16,87
	s = 3,61

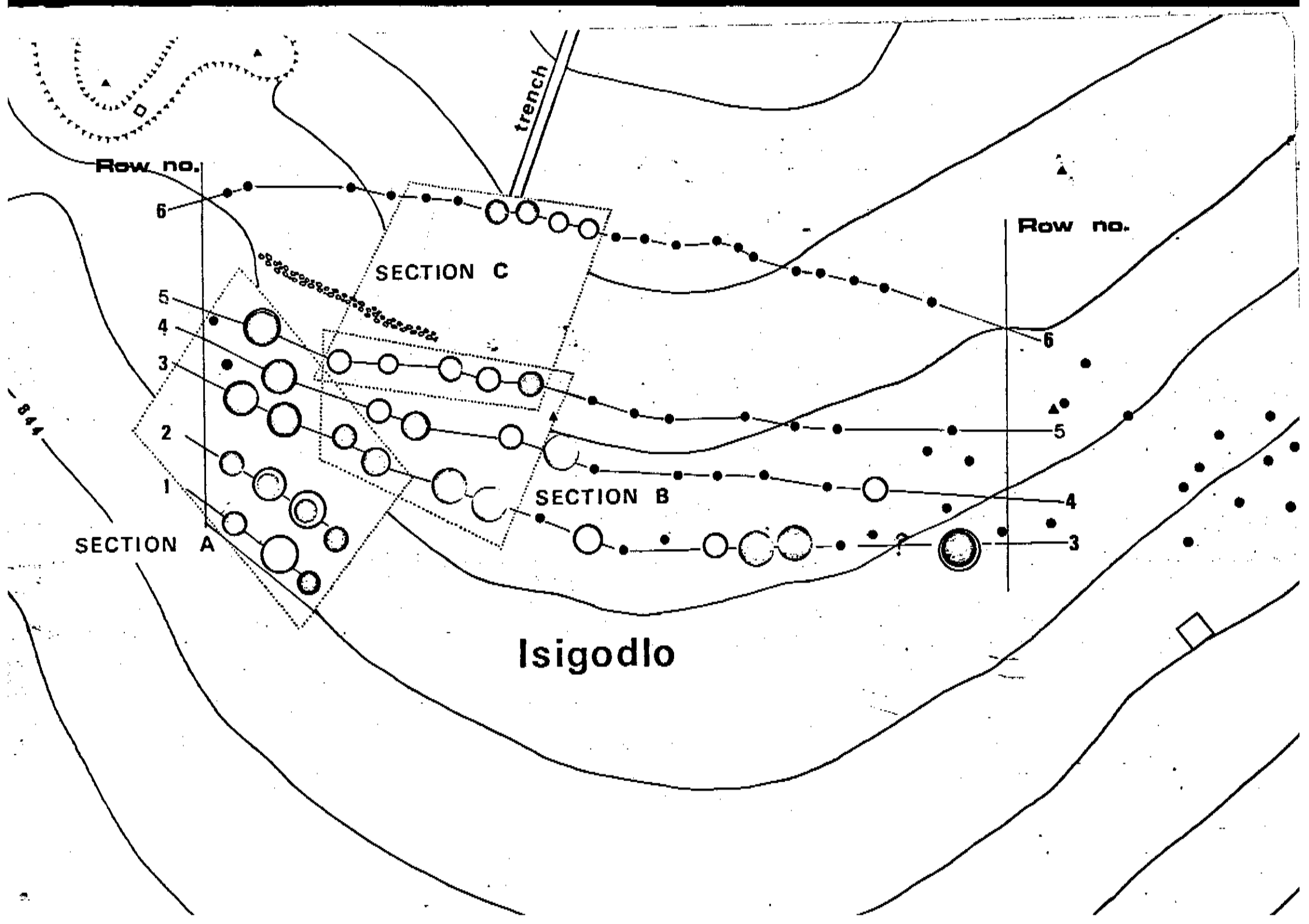
Row 6

$n = 4$

$x = 12,00$

$s = 0,79$

(These index figures are illustrated in diagram Pg)



Index of change through Isigodlo

