D.

COMPUTATIONS FOR 1932
SURVEYOR'S NOTE
BOOK C (No.1 of 1932)
pp 1 - 58 (see E for rest
Fred P. Parr

FIELD BOOK

331 A

KEUFFEL & ESSER CO.

DRAWING MATERIALS
AND
SURVEYING INSTRUMENTS.
NEW YORK.

CHICAGO. ST. LOUIS. SAN FRANCISCO. MONTREAL.

TABLES FOR EXCAVATIONS AND EMBANKMENTS.

DISTANCES FROM CENTER OF ROADWAY FOR CROSS-SECTIONING.
ROADWAY 18 FEET WIDE. SIDE SLOPES 1 TO 1.
FOR SINGLE TRACK EXCAVATION.

"Copyright, 1895, by Keuffel & Esser Co."

	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	0
1	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9	1
2	11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	2
3	12.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	12.8	12.9	3
4	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	4
5	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	5
6	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	6
7	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	7
8	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	8
9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	9
10	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	10
11	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	11
12	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	12
13	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	13
14	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	14
15	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	15
16	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	16
17	26.0	26.1	26.2	26.3	26.4	26.5	26.6	26.7	26.8	26.9	17
18	27.0	27.1	27.2	27.3	27.4	27.5	27.6	27.7	27.8	27.9	18
19	28.0	28.1	28.2	28.3	28.4	28.5	28.6	28.7	28.8	28.9	19
20	29.0	29.1	29.2	29.3	29.4	29.5	29.6	29.7	29.8	29.9	20
21	30.0	30.1	30.2	30.3	30.4	30.5	30.6	30.7	30.8	30.9	21
22	31.0	31.1	31.2	31.3	31.4	31.5	31.6	31.7	31.8	31.9	22
23	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9	23
24	33.0	33.1	33.2	33.3	33.4	33.5	33.6	33.7	33.8	33.9	24
25	34.0	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	25
26	35.0	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	35.9	26
27	36.0	36.1	36.2	36.3	36.4	36.5	36.6	36.7	36.8	36.9	27
28	37.0	37.1	37.2	37.3	37.4	37.5	37.6	37.7	37.8	37.9	28
29	38.0	38.1	38.2	38.3	38.4	38.5	38.6	38.7	38.8	38.9	29
30	39.0	39.1	39.2	39.3	39.4	39.5	39.6	39.7	39.8	39.9	30
31	40.0	40.1	40.2	40.3	40.4	40.5	40.6	40.7	40.8	40.9	31
32	41.0	41.1	41.2	41.3	41.4	41.5	41.6	41.7	41.8	41.9	32
33	42.0	42.1	42.2	42.3	42.4	42.5	42.6	42.7	42.8	42.9	33
34	43.0	43.1	43.2	43.3	43.4	43.5	43.6	43.7	43.8	43.9	34
35	44.0	44.1	44.2	44.3	44.4	44.5	44.6	44.7	44.8	44.9	35
36	45.0	45.1	45.2	45.3	45.4	45.5	45.6	45.7	45.8	45.9	36

Calculated by Julien A. Hall, M. Am. Soc. C. E.

For Keith's Railroad Curve Tabels see end of book.

#1

COMPUTATIONS for FIELD BOOK
1932-S

Book Number 2
1932 Expedition

(2) f+c = 3 SEE page (71)

Lower Plaza

⊼ at ⊡A.	100 x rod dist	Vert Ang	comp. hor dist	comp. vert diff. elev	ELEV.
H, B	89.5	-2° 3'	89.68	-3.23	√3.57
C	32.5	-3° 49'	32.61	2.40 2.20	√2.60
⊼ at C.					54.21
Ver. A	32.5	+4° 33'	32.60	2.60	√6.62
42 - 4	28.0	+24° 25'	23.35	10.75	65.37
42 - 5	33.6	+25° 14'	27.70	12.80 -2	
42 - 6	37.0	+26°	30.20	14.75 -.54	68.83
42 - 2	31.8	-0° 15'	32.09	0.14	54.76
42 - 3	13.5	+7° 15'	13.58	1.73	√6.35
42 - 1a	22.3	+9° 52'	22.00	3.80	√8.42
42 - 2a	32.0	+5° 15'	32.03	2.85	57.57
⊼ at ⊡6	10.				
7					
8					
					√3.57
⊼ at B, H.	0° ON A.				53.45
A	89.5	+2° 3' +5° 6'	89.68	+3.23	
(Pg 11) 29	66.0	+4° 56'			
28 -	35.2	+9° 36'	34.41	+5.82	
4	48.0	+17° 12'		+13.60	
A,	104.5	+18° 15'	94.33	+31.25	84.70
11	53.5	+16° 42'			
D	46.4	+0° 3'	46.69		
E	98.	-2° 14'	98.17	-3.82	
F	40.7	- 0° 41'			

Formulas page IV/ Vol 2
B+H.

4° 33 = 3° 93'
3° 49 = 3° 49'
44

4° 33
22
4° 11

3° 49
22
3° 71 = 4° 11'

6.524
4.670
5.540
6.040
6.418
2.716
4.40
6.406

380.
30
140
5.50
2
110

380

+2° 10' - 7 +2° 3'
-1° 55' + 8 -2° 3'
15

2762
2
5.524

25.37
2
1.074

7883
2
5.766

1767
2
3.534

15.33
142
113
226
140
226

22.6 22.3
60
22.0

(3) Sta = 3

STA.	100 x Rod DIST.	VERT ANG	COMPUTED HOR. DIST	COMPUTED VERT DIFF ELEV.	ELEV.
⊼ at ⊡ C.	0°0 N	A_1			83.17
A_1	26.6	+3°12'	26.82	+1.53	
58	26.45	+1° 50'	26.72	+0.85	
59	19.9	+5° 16'	20.03	+1.82	
61	23.2	+5° 0'	23.32	+2.05	81.12
62	11.4	-0°42'	11.69	-0.14	
63	9.3	-0° 30'	9.59	-0.08	
64	7.1	-2° 10'	7.38	-0.28	
65	8.7	-2° 33'	8.98	-0.40	
67_1	23.4	-1° 50'	23.67	-0.76	
67_2	21.4	-2° 8'	21.67	-0.81	
67_3	21.2	-1° 27'	21.48	-0.545	
56	40.0	+11° 16'	38.78	+7.63	
E	35.7	+12° 35'	34.30	+7.65	
69	27.2	+11° 0'	26.5	+5.15	
70	28.2	+8° 5'	27.94	+4.05	
⊼ at ⊡ 70					87.17
C.	28.2	-8° 5'	27.93	-3.96	
69	10.9	-8° 20'	10.86	-1.62	
71	58.0	-17° 5'	53.28	-16.31	
72	156.0	-37°41'	99.0	-75.58	11.60

SEE page (66)
SEE page (14)

COORT III

2.338
1.918
1.476
1.796
4.734
4.374
4.296
7.756
6.46
5.30

87.17
75.65
11.52

2172
10.656
19.6

STA.	100 x ROD DIST	VERT ANG	COMPUTED HOR. DIST	COMPUTED VERT DIFF ELEV.	ELEV.
⊼ at BA$_1$					
B$_1$	52.0	-10°59'	50.40	-9.72	
R$_1$	53.5	-11°13'	51.46	-10.22	
D$_1$	42.0	-13°26'	39.83	-9.50	
F$_1$	24.0	-24°45'	20.01	-9.25	
E$_1$	24.9	+14°45'	23.53	+6.20	
Ev-51	26.3	+13°55'	25.34	+6.28	
58	5.2	-	5.8	✓	
60	10.0	-	10.3	✓	
53$_1$	4.0	-	4.3	✓	
pg3. 51$_1$	9.6	+10°41'	9.56	+1.81	
54	2.8	-0°	3.1	✓	
52	5.91	+4°10'	6.17	+0.45	
55	8.0	0°	8.3		
67$_1$	19.6	0°	19.9		
67$_2$	20.5	0°	20.8		
66	28.5	0°	28.8		
67$_3$	8.4	-4°30'	8.65	-0.68	
59	9.1	+4°10'	9.35	+0.67	
61	36.1	-1°0'	36.37	-0.6	
65	34.0	-2°36'	34.23	-1.53	

COURT III

216.27
180
36.27

-10.22
+2.13
16.6 ✓

4.706

219 25'
180
39 25

1.234
1.66
3.98
4.16
✓.76
1.730
1.870
7.274

(5) $f/c = .3$

STA	100 x ROD DIST	VERT. ANG.	COMPUTED HOR. DIST	COMPUTED VERT DIFF ELEV	ELEV.
Tot Δ A.					84.70
B.	52.8	-10°55'	-51.18	-10.00	74.70
C.	26.7	-3°36'	26.9	-1.60	83.17
E.	25.7	+14°39'	24.24	+5.97	90.67
D.	40.0	-13°30'	28.1	-8.22	
F.	24.5	-24°49'	20.50	-8.80	
G.	17.3	-25°3'	14.20	-6.70	
H, B	104.5	-18°12'	94.28	-31.25	53.45
Tot Δ B.					74.70
A.	53.0	+10°59'	51.37	+10.00	
D.	-	-			
I.	28.5	-13°0'	27.04	-6.30	
J.	25.5	-13°37'	24.38	-5.90	
K.	13.3	-	13.6		
L.	17.0	-	17.3		

SEE PAGE (6)

(CHR.)

TOP of ACROPOLIS
COURT II

- Not on floor level.

31.25
2.43
33.68

26.8 26.8

27.1
08

27.08
26.92

5408
4876

⑥ ft C = .32

STA.	100X ROD DIST	VERT ANG	Comp. Hor dist.	Comp. Diff Elev
⊼ at ⊡ A_2				
B_2	25.5	+34°35'	17.30	12.20
⊼ at ⊡ C_2				
B_2	6.7 Tape	0°		
D_2	16.0	-35°51'	10.85	7.70
⊼ at ⊡ X	0° ON C.			
AC	36.0	-24°37'	30.00	13.87 13.75
1050	9.6	-41°10'	5.60	4.90
1059	9.4	-47°0'	4.80	
1051	14.4	-21°45'	12.70	5.07
1052	14.30	-24°32'	12.05	5.36
1053	14.0	-22°45'	12.10	5.10
1056	12.30	-30°35'	9.38	5.52
1054	12.2	-30°35'	9.30	5.49
1057	11.4	-34°0'	8.04	5.42
1055	10.4	-44°8'	5.52	5.35
1060	15.6	-21°40'	13.75	5.47
1058.	4.0	+38°35'	2.64	2.10
⊼ at ⊡ C	0° ON X.			
AX	37.0	+25°15'	30.50	13.87 14.40-40
A 88	52.2	-1°55'	52.43	
A A	33.2	+4°14'	33.32	2.47
1061	11.7	-0°45'	11.98	.16

SEE page 70

PYRAMID #42.

2.440

1.48

2.160

6.7
7.4

(7) Ftc = 3

STA	100X. ROD DIST.	VERT ANG.			
Stn B	0° ON LINE AB.				74.70
A.	52.5	+10° 59'	50.89	+9.70	
K.	13.3	-	13.6		
L	17.0	-	17.3		
M	21.0	-	21.3		
N	16.0	-	16.3		
O	18.4	-	18.7		
P	12.0	+5° 6'	12.2	1.09	
Q	5.5	+3° 16'	5.77	+0.33	
R	18.8	+0° 15'	19.05	+.082	
S	29.0	+2° 35'	29.24	+1.32	
T	-	-			
U	37.0	+12° 51'	35.48	+8.1	
V	61.0	+16° 6'	56.57	+16.3	
Stn R					
A	54.5	+11° 11'	52.75	+10.19	
V	68	+14° 22'	64.1	+16.20	
B	18.8	-0° 15'	19.05	-.082	
U	50.0	+9° 30'	48.93	+8.20	
T	-	-			
S	-	-			
W	42.0	-0° 38'	42.27	-0.46	
L	-	-			
K	24.0	-	24.3		
D	-	-			
O	36.7	-	37.0		
Q	29.0	+2° 16'	29.25	1.16	

COURT II

SEE SK. in other Note Book.

4.26
3.26

+1.18
+0.89
10207
+1.05

+1.18
+0.89
+0.40
18+3+7
3
+1.15

(8)

STA	100 x ROD DIST	VERT. ANG.			
At R					
B.					
1	55.1	-11° 10'	53.37	10.6	
2	2.0	-12°	2.20	.47	
△ 4	33.1	-13° 16'	-32.64	-7.42	
6	41.6	-13° 44'	39.54	9.65	
7	44.8	-13° 35'	42.61	10.30	
3	20.0	-16° 43'	18.68	5.60	
8	28.0	-15° 28'	26.30	-7.45	
9	35.5	-14° 29'	33.55	8.38	
5	32.0	-11° 5'	31.10	6.045	
△ 11	66.0	-5° 35'	65.67	-6.40	
13.	61.8	-5° 33'	61.53	-5.99	
10	55.0	-4° 14'	55.00	4.07	
At 4					66.97
△ R	34.2	+13° 14'	-32.68	+7.40	
3	20.0	+6° 6'	20.07	2.15	
8	8.0	+3° 0'	8.27	.405	
5	7.3	-0° 29'	7.58	.197	
12	21.5	-7° 52'	21.39	2.96	
sk 13	28.8	+4° 24'	28.93	2.22	
15	30.5	+1° 4'	30.76	.575	67.54
sk 14	31.7	+4° 30'	31.80	2.50	
16	31.4	-4° 46'	31.48	2.63	64.34

3.738
5.260
6.710

6.536
4.044
1.654
1.516
4.278 8.556
5.786 11.572
6.152 12.304
6.360 12.720
6.296 12.592

(9) $f/c = .3$

STA.	100 × ROD DIST	VERT ANGLE	Computed Horiz. dist	Computed Ht. above or below instrument	Ht. from Benchmark
⊼ at ⊡ 4					66.97
△ 11	44.0	+1° 20′	44.26	+1.02	67.99
13	42.7	+2° 30′	42.92	+1.88	
10	44.0	+4° 57′	43.97	+3.9	
6	–	–			
7	12.0	-12° 48′	11.7	-2.65	
H, B	47.7	-17° 12′	42.9	-13.52	53.45
ON PLAZA. A.	80.0	-6° 46′	79.18	-9.40	
17	22.5	+6° 57′	22.5	+2.72	
18	37.0	+31° 11′	28.4	+16.23	
W.	–	–			
⊼ at ⊡ 11					67.99
4.	44.0	-1° 20′	44.2	-1.02	
8	42.5	-1° 4′	42.77		
3	46.2	+1° 5′	46.48		
R	67.0	+5° 48′	66.58	+6.75	
13	35.0	+0° 35′	35.29	0.36	
14	35.8	+2° 0′	36.06		
15	32.1	–	32.4		
16	22.3	-9° 15′	22.02	-3.56	64.43
12	31.0	–	31.3		
2	22.0	–	22.3		
1	–	–			
13, 10	–	–			
19	20.8	+14° 12′	19.8	+5.07	
20	24.0	+13° 55′	22.91	+5.7	

8.856
8.584
8.794

2.34
8.58
15.836
4.50
5.68

8.84
8.554
9.296
13.366
7.058
7.212
6.48
4.404
6.26?
4.46?

√3.45
13.5-2
16.97
+
26.97
√3.94

√3.44
40
1345
2690

3.56
27
4.83
27
.56

4.27
3.93
.34

1.02
36
1.38

(10)

STA.	100x ROD DIST.	VERT. ANG.			
⊼ at ⊡ 11					
H.B	52.0	-16° 40'	48.0	14.40	53.45
W	-	-			
⊼ at ⊡ 4.					6679
18	-	-			
24	28.0	+31° 26'	20.6	+2.59	
25	32.8	+26° 15'	26.60	+13.1	
26	29.0	+25° 21'	23.15	+10.97	
27	20.0	+25° 38'	16.50	+7.90	
23	15.1	+21° 45'	13.30	+5.30	
28	30.0	-15° 00'	28.27	-7.60	
29	54.1	-8° 14'	53.26	-7.70	~~59~~ 09
⊼ at ⊡ R					
21	—	—			
23	21.7	+1° 42'	21.97	+0.65	
27	22.1	+17° 10'	20.54	+6.04	
24	20.8	+21° 0'	18.39	+7.05	
25	17.2	+24° 5'	14.59	+6.51	
26	14.0	+23° 49'	12.00	+5.27	
30	22.4	+18° 26'	20.43	+6.8	
31	25.0	+15° 0'	23.60	+6.65	
B	-	-			
32	22.5	-8° 34'	22.29	-3.35	
33	21.0	-2° 23'	21.03	-0.965	
34	22.0	+12° 0'	21.33	+4.54	
35	16.0	+16° 42'	14.97	+4.42	

4.12
5320
4630
3300
266
5.6 57
1.06 52

(11)

STA.	100X ROD DIST.	VERT. ANG.			
⊼ at ⊡ 28	0				58.92
4.	30.0	+14°55'	28.29	+7.51	
H, B	35.2	-8°57'	34.64	-5.47	53.45
A.	59.2	-2°7'	59.47	2.2	
29	33.0	+0°30'	33.28	+.08	59.20
18	55.0	+31°44'	41.00	+24.7	
24	45.7	+31°20'	33.60	+20.04	
40	48.0	+29°50'	36.35	+20.75	
39	12.0	+7°46'	12.07	+1.65	
36	13.1	+7°34'	13.18	1.71	
37	24.5	+6°6'	24.53	2.62	
38	35.5	+0°31'	35.78	.032	
41	23.6	+7°0'	23.56	.289	
42	21.9	+4°45'	22.05	1.83	
⊼ at ⊡ 29					59.20
28	33.5	-0°30'	33.78	-.27	
4	54.0	+8°15'	53.18	+7.70	
A	26.8	-4°40'	26.91	2.20	
43	49.8	-13°45'	47.35	11.58	47.82
44	21.5	-13°42'	20.58	5.02	
45	22.0	-10°45'	21.57	[illegible]	
46	18.7	-14°15'	17.85	4.52	
47	25.0	-10°44'	24.42	4.64	
48	31.0	-8°20'	30.64	4.49	
49	32.5	-7°43'	32.21	4.35	
50	38.0	-6°5'	37.87	4.04	

7.270
2.614
4.636
4.906
7.056
4.712

4.116
4.314
3.570
4.884
6.128
6.442
7.574

2.47
7.62
27.12
26.

2.23
.77
21.57

(12)

STA.	100x. ROD DIST	VERT. ANG.			
Mkt ⊡29					59.13
⊡ B, H.	66.0	-4°42' / -4°56'	65.81 / 65.85	5.4 / 5.68	53.45
Mkt ⊡4.					
11	44.0	+1°52'	44.26	1.44	
R	34.0	+13°10'	32.53	7.60	
83	11.4	0°0'	11.7	✓	
81	4.173	0°0'	4.47	✓	
81	11.4	-12°58'	11.12	2.74	
82	15.0	-9°30'	14.88	2.49	
82	3.837	0°0'	4.137	✓	
75	31.3	-4°30'	31.40	2.46	
76	34.0	-4°8'	34.12	2.46	
77	36.0	-3°35'	36.15	2.26	
84	40.5	-3°37½'	40.64	2.55	
79	34.8	-4°45'	34.86	2.90	
80	36.0	-4°21'	36.09	2.75	
85	49.85	+2°16'	50.07	1.98	
86	52.3	+2°25'	52.51	2.22	
87	38.	+30°6'	28.70	16.62	

fc = .3

8.852
6.506
2.34
8.914
2.274
2.976
8.274
6.280
6.824
7.230
8.128
6.972
7.218
10.014
10.502
5.740

using $\frac{1.67}{1.17}$ = 50.22 x 2 = 100.4 x ¼

$2\left(\frac{2.84}{1.42}\right)$ avg 52.21 = 10.442

(13)

STA.	OBS. ROD DIST.	VERT. ANG.			

(14) $f_{HC} = .3$

STA.	100x ROD DIST.	VERT. ANG.			
⊼ at □ B.					74.70
△ A.	✓	✓			
△ R.	✓	✓			
△ 73	28.0	−12°27′	26.98	−5.95 (.97)	68.73
⊼ at □ 73					68.73
△ B	28.0	+12°30′	26.98	+5.99 (.97)	74.70
△ 74	55.5	−32°30′	39.7✓	−25.30 (.3✓)	43.39
				ov =	± 2.9✓ arc
					43.39
⊼ at □ 74					
△ 73	55.5	+32°43	39.7✓	+25.40	68.73
43	39.0	+7°30′		+4.8	
43	39.0	+7°19′		4.90	48.0✓
					48.19
△ 73	✓	✓			
△ 265	17.6	−7°57′	17.56	−2.44	40.51
⊼ at □ 265					40.51
△ 74	17.6	+7°58′	17.55	+2.45	
△ 267	74.8	−13°43′	70.96 70.87	−17.30	23.62 17
△ 266	53.0	−16°50′	48.84	−14.80	25.70
⊼ at □ 267					23.17
265	75.0	+13°44′	70.96 71.05	+17.35	40.50
266	22.2	+6°23′	22.21	+2.49	26.65
268	46.5	−0°25′	46.79	−0.35	22.82
⊼ at □ 266					25.70
265	53.0	+16°54′	48.8	+14.8	40.50
269	54.0	−3°28′	54.10	−3.27 (.30)	22.43
268	69.0	−2°22′	68.27	−2.85	22.85

10.820

12 22
25.35
5.9✓
43.2✓ ✓ OR.
244
45.96 ✓ OR
1730
C3.26 ✓ OR
35
63.61 ✓ OR
98
−64.59 ✓ OR.
+31✓
61.44
58
65.02
16.4✓
81.47 − 7✓ OR
OR.

Due Rope 11.) 4849
Elev of pt 43 = 47.62
$\frac{\text{Diff}}{2}$ = 44 − 44
48.0✓ arc

4849

Also Dist. 44 to D74 = 43.39
44
42.95

(1.5) $f_K = .3$

STA.	100X ROD INTERVALS	VERT ANG			
⊼ at ⊡269		0°0N 266			22.43
266	54.0	+3°34'	54.09	3.38	
281	52.0	+1°33'	52.25		
276	49.0	+23°53'	41.25	18.20	
274	42.0	+28°25'	32.70	17.68	
275	60.0	+27°22'	47.55	24.55	
272	20.0	+18°15'	18.30	6.05	
271	11.0	+17°15'	10.33	3.15	
270	7.0	+9°15'	7.11	1.13	
⊼ at ⊡268		0°0N 267			22.82
267	46.5	+0°24'	46.75	+.35	23.17
282	75.0	-0°45'	-75.29	-0.97 (0.985)	21.84
283	78.0	+1°20'	78.27		
284	46.0	+4°5'	46.06	3.30	
⊼ at ⊡282		0°0N 268			21.84
268	75.0	+0°46'	+75.26	+1.00 (0.985)	22.82
285	135.5	+1°20'	+135.5	+3.16	25.00
281	55.0	+1°57'	55.23		
⊼ at ⊡285		0°0N 282			25.00
282	135.5	-1°20'	-135.5	-3.16	21.84
286	54.2	-3°55'	-54.25	-3.68	21.30
288	39.2	+0°4'	39.49		
287	34.0	+0°2'	34.29		
290	42.1	+0°15'	42.39		
289	38.0	"	38.30		
296	36.6	+1°56'	36.86	1.24	

10.818
10.450
8.250 3.640
6.540
9.510
3.660
2.066
1.422

9.358
15.058
15.654
9.212

15.052
27.100
11.046

27.100
19.850
7.898
6.858
8.478
7.660

7.392

6.55
3.12
61.80

+64
3.32
60.70

6.55
3.12
65.35

44.62

f/c = .3

16 100' STA	OBS. ROD DIST	VERT ANG.			
⊼ at ⊡285					
291	12.4	+1° 30'	12.67		
292	13.8	"	14.1		
293	9.0	+0° 45'	9.29		
294	6.4	"	6.70		
⊼ at ⊡286					21.30
285	54.2	+3°55'	54.25	+3.68	25.00
72	138.0	-4° 10'	137.52	-10.02	11.28
297	45.6	-2° 0'	45.35	-1.60	
298	36.0	-10°50'	34.92	-6.14	
299	37.5	-2° 5'	37.75	-1.34	
300	50.0	-22° 0"	43.30	17.45	+3.95

2.534
2.82
1.858
1.340

10.854
27.504
9.070
6.984
7.550
8.660

2207
1143
10.64

65.35
1.62
66.90

65.35
1.14
71.49

65.31
1.34
66.70

65.35
16.45
81.80

(18) fac = .3

STA.	100 x ROD DIST.	VERT ANG.			
⊼ at △ 112					
90	58.4	+5°56'	58.07	+6.02	43.12
113	46.4	+0°16'		+0.21	37.45
27	50.2	+12°30'	48.14	+10.31	
M	79.0	+12°50'	77.78	17.30	
E	87.6	+8°20'	84.25		
E, 3, 8	19.2	-0°52'	19.50	0.63	
⊼ at ⊡ 113					37.45
90	104.0	+3°10'	103.98	+6.08	43.27
112	"	"			
27	48.0	+13°8'	45.82	+10.30	
⊼ at ⊡ 27					47.73
113	47.6	-13°8'	45.83	-10.28	37.45
112	50.0	-12°30'	47.94	-10.31	
27, d	9.2	+1°50'	9.48	0.31	48.04
27, e	11.0	+5°53'	11.18	1.14	48.87
27-b	8.4	+16°0'	8.04	2.30	50.03
27-f	21.0	+20°40'	18.60	7.00	54.73
27-h	17.8	+20°38'	15.88	5.96	53.69
27, G	"	"			
27-a	24.0	+31°37'	17.70	10.81	58.54
27, c	8.0	+18°30'	17.50	1.50	49.23

5.70
36.98
42.68

37.19

9.16 c

scale 1 cm = 2 Meter.

4.74
5.59
4.02
9.30
7.94
-8.85
= 8.7

(19)

DIST	100 x. ROD DIST	VERT. ANG.			
					54.60
Tot ⊟ C	0° ON A				54.21
△ A	33.0	+4°33'	33.09	+2.10	56.50
△ 88	52.3	-1°43'	52.54	-1.56	52.65
89	29.7	-0°44'	30.04	-0.385	
Tot ⊟ 88	0° ON C				
△ C	52.2	+1°58'	52.42	+1.80	
△ 90	73.8	-7°24'	72.86	+9.42	
96	29.2	-3°50'	29.36	1.92	
98	104.5	-3°40'	104.37	6.12	
97	22.0	-2°40'	22.25	1.04	
102	30.0	-5°0'	30.07	2.63	
99	40.0	-3°20'	40.16	2.34	
100	46.5	-2°35'	46.70	2.10	
106	23.0	+3°0'	23.25	1.22	
104	14.0	+4°5'	14.22	1.04	
105	16.0	+10°0'	15.81	2.88	
107	14.0	-2°30'	14.27	.63	
108	16.4	-1°45'	16.67	.51	
109	13.0	-3°0'	13.26	.69	
91	16.3	+2°0'	16.58	.58	
92	18.0	+2°15'	18.27	.73	
93	33.1	-0°30'	33.29	.28	
94	44.0	-3°0'	44.18	2.31	

RED INDICATES ELEVATIONS USED when there is a Difference in 1932 & 1933 Surveys. These are averaged and taken up as follows.

1932 Elev of △ 88 = 52.65
1933 " " △ 88 = 5330 checked in from △ 2250 See map
AVERAGE = 52.97 - USE

△ 2290	= 59.62	— use	59.35
△ 2250	= 54.44	— use	54.25
△ 2192	= 53.73	— "	53.53
△ 2015	= 72.23	— "	72.12
△ C	= 54.21	— "	54.60
△ A	= 56.55	— "	56.80
△ HB	= 53.95	— "	53.50
△ 90	= 43.12	— "	43.30
△ 113	= 37.45	— "	37.60

3.654
6.658
8.836

(19)

DIST	100 x. RDO DIST	VERT. ANG.			
					56.62
At ⊟ C	0° ON A.				54.21
△ A	33.0	+ 4°33'	33.09	+ 2.10 (2.25)	56.50 (56.80)
△ 88	52.3	- 1°43'	52.54	- 1.56	52.65 (52.92)
89	29.7	- 0° 44'	30.04	- 0.385	
At ⊟ 88	0° ON C				
△ C	52.2	+ 1°58'	52.42	+ 1.80	
△ 90	73.8	- 7°24'	72.86 (73.12)	+ 9.42	
96	29.2	- 3°50'	29.36	1.92	
98	104.5	- 3° 40'	104.37	6.12	
97	22.0	- 2°40'	22.25	1.04	
102	30.0	- 5°0'	30.07	2.63	
99	40.0	- 3°20'	40.16	2.34	
100	46.5	- 2°35'	46.70	2.10	
106	23.0	+ 3°0'	23.25	1.22	
104	14.0	+ 4°5'	14.22	1.04	
105	16.0	+ 10°0'	15.81	2.88	
107	14.0	- 2°30'	14.27	.63	
108	16.4	- 1°45'	16.67	.51	
109	13.0	- 3°0'	13.26	.69	
91	16.3	+ 2°0'	16.58	.58	
92	18.0	+ 2°15'	18.27	.73	
93	33.1	- 0°30'	33.29	.28	
94	44.0	- 3°0'	44.18	2.31	

or. Re page (73)

5.872
20.874
4.450
6.014
8.032
9.340
4.570
2.844
3.162
2.854
3.334
2.672
3.316
3.654
6.658
8.836

54.62
2.00
56.62
33.68
90.20
3.2
7804°
27060
288.640

90.20
65.35
24.85

fig 2

(20) STA.	100 x ROD DIST	VERT. ANG			
Δ at □90	00 ON 88				43.12
88	74.5	+7°28'	73.59	+ 9.60	52.65
95	23.2	+8° 4'	23.04	3.26	
110	22.0	-2°20'	22.26	.90	
113	104.0	-3°10'	103.98	-6.08	
112	58.1	-5°50'	57.8	-5.9	
114	68.0	+12°0'	65.35	13.90	
88	69.0	+7°27'	68.14	8.28	
122	30.0	-5°30'	30.02	2.90	
124	42.5	-5°45'	42.37	4.26	
126	46.2	-4°0'	46.25	3.24	
116	54.0	-5°10'	53.86	4.96	
117	47.3	-4°55'	47.15	4.06	
115	62.0	-4°10'	61.97	4.53	
119	30.0	-6°25'	29.92	3.36	
118	32.4	-7°28'	32.17	4.20	
125	30.0	-5°55	29.98	3.10	
127	21.7	-7°32'	21.62	2.85	
121	24.4	-5°35'	24.46	2.40	
120	20.0	-6°8'	20.07	2.16	
123	30.0	-20°13'	26.60	9.98	
Δ at □95	00 ON 90				
90	23.0	-7°56'	22.85	3.18	43.12.
103	22.0	+3°10'	22.23	1.23	
102	33.9	+2°55'	34.117	1.17	

4.608
4.452
20.796
11.56
13.070
13.628
6.004
8.474
9.250
10.772
9.430
12.394
5.984
6.434
5.996
4.324
4.892
4.014
5.320
4.570
4.446
6.8234

43.27
3.22
46.49

43.27
13.90
57.17

ftc

(21)

STA	100ft. ROD INTERVALS	VERT. ANG.			
⊼ at ⊡ 95					
111	20.0	- 3° 0'	20.24	1.06	
129	21.0	+ 0° 30'	21.29	.185	
128	16.1	- 0° 30'	16.39	.143	
139	32.6	+ 15° 5'	30.68	8.25	
135	36.0	+ 12° 48'	34.52	7.85	
137	33.6	+ 17° 32'	30.83		
136	28.5	+ 18° 10'	26.00	8.50	
138	32.2	+ 16° 40'	29.83	8.18	
130	32.0	+ 12° 10'	30.86	6.13	
94	35.5	+ 8° 6'	35.09	5.00	
132	14.6	+ 1° 15'	14.86	.29	
134	6.6	+ 4° 45'	6.85	.47	
133	12.0	+ 3° 45'	11.26	.80	
⊼ at ⊡ 113		0° on 90			3745
90	104.0	+ 3° 10'	103.99	+ 5.76	43.12
112	46.0	- 0° 16'	46.39	- 0.215	
139	19.0	- 3° 35'	19.22	1.20	
144	44.8	+ 0° 7'	45.09	.082	
140	18.8	- 0° 5'	19.09	.026	
? 142	45.0	+ 3° 0'	45.18	2.37	
141	33.0	+ 2° 16'	33.26	1.32	
143	34.0	+ 3° 50'	34.15	2.29	
149	62.0	+ 14° 57'	58.16	15.45	

4.048
4.258
3.378
6.136
7.904
6166
5200
5.966
6.1730
7.018
2.992
1.390
2.252

20.798
9.278
3.844
9.018
3.818
9.036
6.652
6830
11.632

2.00
1.895
.105 x 2 = .210 x 100 = 21. + 3 =
21.3

ftc

(22)

STA.	100X ROD INTERVALS	VERT ANG.			
⊼ at □113					37.45
148	65.2	+17°10'	19.50	17.10 / ~~18.40~~	
147	69.0	+18°38'	62.55	21.42 / ~~21.00~~	
145	70.0	+15°42'	65.125	16.32 / ~~18.35~~	
150	54.5	+14°5'	51.56	12.90	
151	64.0	+16°10'	59.32	17.20 ✓	
154	68.	+17°34'	62.08	17.63 / 19.65	
153	70.0	+17°38'	63.85	17.88 / 20.03	
155	65.0	+16°10'	60.23	17.30 / ~~17.50~~	
152	60.0	+15°49'	55.725	15.80 ✓	
90	104.0	+3° 11'	103.98	+5.80	
△156	75.6	+2°19'	75.77	+3.05	40.50
△157	86.2	+8°34'	84.54	+12.75	50.20
⊼ at □157		0°ow 113			50.20
113	86.3	-8°35'	84.68	-12.75	37.45
158	51.0	-3°24'	51.12	-3.05	47.20
161	62.2	+1°35'	62.47	+1.72	
159	66.1	-0°13'	66.39	-0.25	
160	93.6	-2°57'	102.53	-5.29	45.30
⊼ at □158					47.20
157	51.0	+3°25'	51.11	+3.05	50.20
162	26.0	+0°30'	26.35	+0.22	
164	17.4	+1°53'	17.68	.58	
165	17.4	-2°10'	17.675	.67	
166	10.0	+3°20'	10.26	.60	

RED INDICATES ELEVATIONS USED when there is a difference in 1932 & 1933 Survey. These are arranged and taken up as follows

1932 Elev of △156 = 40.50 METERS
1933 " " " " = 41.17
from △2355 - See map.
average = 40.83 - use

△2355	= 70.80 -	use	70.60
△2293	= 69.19 -	"	69.09
△2291	= 56.54 -	"	56.40
△605	= 39.97 -	"	40.15
△606	= 37.53 -	"	37.65
△113	= 37.45 -	"	37.60
△90	= 43.12 -	"	43.30
△157	= 50.20 -	"	50.25

10,222
5.270
3.536
3.53350
2.052

(22)

STA.	100X ROD INTERVALS	VERT ANG.			
⊼ at ⊡ 113					37.45
148	65.2	+17°10'	59.50	17.10 / ~~+18.40~~	
147	69.0	+18°38'	62.55	21.42 / ~~21.00~~	
145	70.0	+15°42'	65.125	16.32 / ~~18.35~~	
150	54.5	+14°5'	51.56	12.90	
151	64.0	+16°10'	59.32	17.20	
154	68.	+17°34'	62.08	19.63 / 19.65	
153	70.0	+17°38'	63.85	17.88 / ~~20.03~~	
155	65.0	+16°10'	60.23	17.30 / ~~17.50~~	
152	60.0	+15°49'	55.725	15.80	
90	104.0	+3° 11'	103.98	+5.80	
△ 156	75.6	+2°19'	75.77	+3.05	40.50
△ 157	86.2	+8°34'	84.54	+12.75	50.20
⊼ at ⊡ 157		0° on 113			50.20
113	86.3	-8°35'	84.68	-12.75	37.45
158	51.0	-3°24'	51.12	-3.05	47.20
161	62.2	+1° 35'	62.47	+1.72	
159	66.1	-0°13'	66.39	-0.25	
160	93.6	-2°57'	10[illegible]	-5.29	45.30
⊼ at ⊡ 158					47.20
157	51.0	+3°25'	51.11	+3.05	50.20
162	26.0	+0°30'	26.35	+0.22	
164	17.4	+1°53'	17.68	.58	
165	17.4	-2°10'	17.675	.67	
166	10.0	+3°20'	10.26	.60	

11.900
12.510
13.025 0
10.312
11.864
12.406
12.770
12.046
11.1450
20.796
15.154
16.908

16.936
10.224
12.494
13.278
20.566

10.222
5.270
3.536
3.53 50
2.052

11.986

20.03
2.15
17.88

6.3 / 10.8 / 60.23

60.3 / 4.48 / 55.42

6.30 / 6.30 / 3.

12.6

270
142
2.30

1840
0830
17.10

(23)

STATION	100x ROD DIST	VERT. ANG.	COMP. HOR DIST	Comp. diff. in elev	Elev.
At A 158					47.20
163	18.0	+3°18'	18.24	1.05	
168	24.4	+1° 8'	24.68	.48	
169	19.0	-4°30'	19.18	1.50	
171	15.8	-1°15'	16.07	.35	
170	12.0	-2°10'	12.14	.427	
173	9.8	+3°47'	10.05	.66	
172	14.2	-4°35'	14.41	1.10	
199	30.0	+14°43'	28.32	7.43	
198	27.0	+12°26'	26.04	5.75	
197	27.4	+11°24'	26.62	5.40	
196	25.4	-13°44'	24.27	5.87	
188	20.8	-2°32'	21.05	.93	
189	23.4	-2°55'	23.63	1.17	
191	28.0	-1°42'	28.27	.84	
192	25.9	-3°40'	26.09	1.68	
193	29.5	-3°26'	29.68	1.78	
194	24.8	-3°28'	25.01	1.52	
185	26.0	-3°50'	26.18	1.85	
184	26.2	-3°40'	26.38	1.69	
186	17.4	-3°54'	17.62	1.20	
187	19.0	-3°26'	19.23	1.15	
176	20.0	-3°15'	20.23	1.156	
201	14.2	-2°50'	14.47	.72	
202	14.2	-2°0'	14.475	.51	
167	12.6	+0°10'	12.89	.04	

3.648
4.936
3.836
3.214
2.428
2.010
2.882
5.664
5.208
5.324
4.854
4.210
4.726
5.654
5.218
5.936
5.002
5.236
5.276
3.524
3.846
4.046
2.894
2.895 0
2.578

1.40

1249 1296

2498 2592

(24)

STATION	OBS. ROD DIST	VERT ANG	comp. Hor. dist.	comp Diff. Vert Elev.	
℄ at △158					47.20
182	29.0	+2°36′	29.24	1.28	
204	31.0	+3°15′	31.20	1.81	
206	35.0	+4°0′	35.13	2.45	
205	37.0	+3°10′	37.18	2.06	
207	41.0	-2°0′	41.25	1.44	
181	38.0	-1°55′	38.257	1.28	
180	34.0	-3°45′	34.15	2.25	
208	24.0	-3°50′	24.19	1.62	
179	24.0	-2°25′	24.257	1.02	
209	38.8	-4°5′	38.91	-2.77	44.44
210	2.7	″	3.00		
211	3.2	″	3.50		
174	″	″	″		
175	″	″	″		
℄ at △209					44.44
157	68.0	+5°0′	67.82	+5.82	50.20
158	38.8	+4°0′	38.91	+2.73	47.20
212	56.4	-12°55′	53.83	-12.30	32.08
213	37.8	-2°40′	38.02	1.77	42.37
220	24.2	-21°0′	21.38	8.04	
221	25.0	-15°35′	23.48	6.51	
217	30.4	-19°30′	28.58	9.65	
216	31.0	-17°10′	28.57	8.16	
218	35.0	-17°10′	34.24	9.95	
219	45.0	-11°30′	43.50	8.17	

5.848
6.240
7.026
7.436
8.250
7.6514
6.830
4.836
4.8514
7.782
.160
.70

13.564
7.782
10.766
7.604
4.276
4.696
5.716
5.714
6.848
8.670

(25) ƒ/C = .3

STATION	100X OBS. ROD DIST.	VERTICAL ANGLE				
⊼ at ⊡209					44.44	
214	6.0	-17°	5.76	1.76		1.152
215	11.0	-9°30'	10.99	1.84		2.198
⊼ at ⊡212					32.08	
209	56.4	+13°45'	53.82 46.18	+12.41 +0.57	44.44	10.764
223	46.0	+0°53'	46.29	+0.64	32.64	9.236
222	29.0	+9°40'	28.47	+4.85	36.86	5.694
219	26.4	+9° 5'	26.03	4.16	3	5.206
224	3.5	+12°30'	3.62	.80		.724
225	3.7	+7°30'	3.97	.52		.794
226	6.0	+7° 0'	6.21	.76		1.242
227	17.0	+5°10'	17.16	1.55		3.432
227.	18.3	+4°45'	18.47	1.53		3.694
241	17.6	+3°30'	17.84	1.10		3.568
243	19.3	+2°35'	19.56	.876		3.912
242	24.0	+4° 15'	24.17	1.90		4.934
231	24.0	+8° 0'	23.83	3.35		4.766
232	28.7	+11°25'	27.86	5.62		5572
244	21.2	-4° 0'	21.40	1.50		4.280
~~243~~ 234	3.0	0° 0'	3.3	00		.66
239	10.0	+15°35'	9.56	2.65		1.912
238	8.0	+17° 5'	7.56	2.33		1.512
237	9.0	+13° 0'	8.83	2.04		1.766
235	8.0	+8° 0'	8.14	1.14		1.628
236	10.6	+3° 0'	10.87	.57		2.174

f+c=.3

(26) 100×

STATION	OBS. ROD DIST	VERT ANG.				
下山口222					36.86	
212	29.0	-9°30'	28.5	-4.78	32.08	5.60
250	33.8	-7°33'	33.51	-4.44	32.83	6.702
252	14.6	+2°40'	14.87	.64		2.974
258	23.0	+18°24'	21.05	6.97		4.210
253	19.0	+22°15'	16.50	6.75		3.100
254	16.0	+30°10'	12.00	7.00		2.400
259	20.0	+21°35'	17.55	6.82		3.510
260	22.1	+17°35'	20.26	6.45		4.052
261	37.6	+17°20'	34.55	10.40		6.910
255	12.8	+30°20'	9.70	5.70		1.940
256	11.2	+28°38'	8.85	4.82		1.770
240a	14.0	-9°0'	13.95	1.97		2.790
246	18.8	-14°30'	17.90	4.63		3.580
242	″	″	″	″		″
241a	10.0	-15°5'	9.60	2.58		1.920
249	30.4	-10°7'	29.75	5.32		5.950
248	27.0	-12°20'	26.06	5.70		5.212
266	31.7	-9°20'	31.16	5.10		6.132
265	30.0	-9°21'	29.50	4.85		5.900
248a	23.4	-10°30'	22.92	4.25		4.584
257	21.0	+1°20'	21.27	.45		4.254
247	17.5	-18°5'	16.10	5.25		3.220
247a	11.0	-22°25'	9.68	3.98		1.936
245	16.0	-9°30'	15.85	2.65		3.170
267	40.0	-11°20'	38.74	7.75		7.748

3222
7.75
24.47

(27) f.c. = 3

STATION	100x OBS. ROD DIST	VERT. ANG.				
⊼ at △222					36.86	
268	18.0	+ 4°30'	18.18	1.50		3.636
269	18.5	+ 4°45'	18.665	1.63		3.7330
270	20.0	+ 2°30'	20.26	.88		4.052
273	12.0	+ 6°0'	12.166	1.28		2.432
272	12.6	+ 6°0'	12.16	1.34		2.432
271	11.6	+ 3°0'	11.87	.62		2.374
274	8.4	+ 6°35'	8.59	.98		1.718
233	11.0	+ 0°35'	11.29	.31		2.258
⊼ at △250		0°00' = 222			32.83	
△222	33.6	+ 7°33'	33°47' 33.32	+ 4.42	36.86	6.680
△447	43.5	+ 13°5'	41.56	+ 9.65		8.312
△671	72.2	- 6°50'	71.68	- 8.54	24.29	14.336
681	37.8	- 7°45'	37.42	5.10		7.484
672	30.0	- 13°0'	28.78	6.12		5.756
680	17.2	- 16°25'	16.10	4.70		3220
264	16.4	- 14°5'	15.72	3.95		3.144
675	10.96	- 8°0'	11.04	1.55		2.208
676	6.5	- 9°35'	6.61	1.13		1.322
677	t 5.05	✓	5.05	✓		1.010
677a	t 4.95	✓	4.95	✓		.995
678	6.60	- 13°25'	6.53	1.56		1.306
679	12.0	- 11°30'	11.81	2.30		2.362
267	18.0	- 15°0'	17.08	4.56		3.416
673	20.0	- 11°0'	19.56	3.80		3.912
672	23.8	- 7°35'	23.69	3.15		4.738

32.22
V.10
27.12

32.22
8.54
23.67

(28) H.I. = .3

STA.	100X. ROD DIST	VERT. ANG.			
⊼ at 250					32.83
674	30.0	-6°45'	29.895	3.41	
263c	22.0	+8°50'	21,777	3.37	
457w	44.2	+21°30'	38.50	15.20	
⊼ at △671		0°0 on 250			24.29
△ 250	72.2	+6°50'	71.68	+8.54	32.83
△ 397	44.4	+21°33'	39.75	+15.15	
△ 682	40.0	-2°5'	40.24	-1.43	22.88
683	19.6	+12°10'	19.08	4.10	
685	24.3	+11°50'	23.66	4.95	
505	39.0	+15°35'	36.46	10.60	
688	28.0	+16°35'	26.00	7.75	
690	32.2	+18°50'	29.40	9.90	
687	56.1	+26°45'	45.00	22.15	
689	22.2	+15°0'	20.99	5.62	
686	10.0	+5°30'	10.20	.97N	
684	13.3	+0°35'	13.585	.375	
⊼ at ⊟682					22.88
△ 671	40.0	+2°3'	40.25	+1.41	
△ 691	41.5	+7°35'	4073	+5.42	
△ 548	55.4	+7°6'	54.95	+6.84	
692	34.2	+13°30'	32.62	7.81N	
693	25.3	+14°10'	23.95	6.03	
694	22.0	+1°40'	22.28	.65	
695	58.0	-4°40'	57.92	4.74	

59.790
4.3554
7.700

14.336
7.950
8.048
3.816
4.732
7.292
5.200
5.980
9.000
4.198
2040
271.70

8050
8146
10975
6524
4790
4456
11.584

32.50
3.20
29.40

23.67
1.42
22.25

Du Page 42

(29) ftc = .3

STA.	100x OBS. ROD DIST	VERT. ANG	comp ht. Dist			
⊼ at △157					50,20	
301	9.0	-7°43'	9.13	1.21		1.826
302	5.6	-5°24'	5.85	.54		1.190
303	5.2	-5°10'	5.45	.504		1.090
304	22.7	-7°0'	22.66	2.78		4.532
305	23.0	-12°30'	22.21	4.90		4.442
306	20.8	-8°10'	20.67	2.90		4.134
307	8.0	-25°37'	6.75	3.24		1.350
308	3.8	-15°35'	3.80	1.01		.760
309	23.0	-7°15'	22.93	2.90		4.586
310	22.0	-6°45'	21.99	2.60		4.398
311	41.0	-3°55'	41.13	2.47		8.226
312	42.0	-3°50'	42.10	2.95		8420
313	55.8	-4°0'	55.83	3.90		11.166
	✓	✓				
315	44.7	-3°25'	44.84	2.67		8.968
⊼ at △160					45.30	20.568
△ 157	93.6	+2°55'	10[illegible]	[illegible]	50,20	10.400
△ 318	52.2	-5°57'	52.00	-5.[illegible]		8.220
△ 319	41.0	+3°57'	41.10	+2.72		2.424
320	12.0	-6°25'	12.12	-0.138		5.958
321	30.3	-8°45'	29.79	4.60		
314	50.0	+2°10'	50,23	1.90		10.046
316	26.8	+3°25'	27.01	1.61		5.402
317	28.0	+3°10'	28.21	1.56		5.642

(30) Inc = .3

STA.	100× OBS. ROD DIST	VERT. ANG.			
⊼ at △160					45.30
△157	93.6	+2°55'	98.66	+4.77	
△319	41.0	+3°57'	41.10	+2.82	
△318	52.1	-5°56'	51.75	-5.38	40.00
△564	25.4	-4°26'	25.75	-1.99	
△565	35.8	-2°28'	36.03	-1.52	
⊼ at △565					
△160	35.8	+2°20'	36.04	+1.48	45.30
△564	42.0	-0°39'	42.28	-0.486	
566	17.3	-0°55'	17.58	.28	
577	19.7	+0°47'	19.98	.275	
573	21.6	-0°52'	21.88	.33	
574	23.8	-0°51'	24.08	.35	
575	25.05	+7°30'	24.91	3.27	
576	26.2	+7°15'	26.08	3.31	
567	16.0	-0°30'	16.28	.14	
578	15.8	+1°38'	16.07	.42	
572	16.0	+6°5'	16.02	1.71	
571	20.0	+6°15'	19.90	2.20	
570	17.8	+4°0'	18.01	1.26	
569	17.2	-0°42'	17.48	.215	
568	16.0	-1°24'	16.275	.40	
582	14.4	+2°33'	14.27	.61	
317	19.8	+8°32'	19.66	2.95	
581	9.3	+3°55'	9.55	.66	
580	9.2	-0°55'	9.48	.15	
584	13.5	-3°0'	13.76	.74	

98.66

18.732

8.220

10.350

5.150

7.206

36.11

7.208

8.456

3.516

3.996

4.376

4.816

4.982

5.216

3.256

3.214

3.204

3.980

3.602

3.496

3.2550

2854

3.932

1.910

1.896

2.752

4+67
192
42.75

(31) f16=.3

100x

STA.	OBS. ROD DIST	VERT ANG				
⊼ at 565						
585	20.9	-1°30'	21.18			
586	23.0	-1°0'	23.28			
579	6.12	✓	6.12			
⊼ at △ r64						
△ 160	25.4	+4°5'	25.56	+1.84	45.30	
△ 565	41.8	+0°30'	42.08	+0.37		
△ 587	33.2	+0°18'	33.49	+0.175		
592	8.0	-0°10'	8.29			
593	7.6	-0°20'	7.89			
567	26.0	+0°30'	26.88			
566	26.65	+0°15'	26.94			
602	16.4	+0°20'	16.69			
594	9.1	+5°8'	9.24	.80		
598	14.9	+14°10'	14.28	3.60		
597	15.8	+6°25'	15.90			
595	12.5	+0°5'	12.79			
588	8.5	-1°5'	8.775			
603	7.7	+1°55'	7.985			
589	16.0	✓	16.30			
590	16.0	✓	16.30			
591	18.12	✓	18.48			
601	18.2	✓	18.50			
596	13.8	✓	14.10			
599	14.9	+11°45'	14.47	3.02		
600	18.0	+10°5'	17.74	3.15		
604	10.1	+5°30'	10.30	.99		

4.236
4.656
1.224

5.112
8.416
6.698
1.658
1.578
5.376
5.388
3.338
1.848
2.856
3.180
2.558
1.7550
1.5970
3.260
3.260
3.696
3.700
2.820
2.894
3.548
2.060

37
48
85
42.

4208
4228
36
4218

(32) ff = 3

STATION	100 x OBS. ROD INT.	VERT ANG			
⊼ at A161		-			51.92
A 157	62.2	-1°35'	62.47	-1.72	50.20
A 159	34.6	-2°25'	34.84	-1.47	
329	10.0	+4°10'	10.24	.74	
368	20.0	+4°20'	20.18	1.52	
330	18.2	+4°17'	18.40	1.36	
332	25.5	+1°14'	25.78	.55	
333 ✓	26.2	+3°30'	26.40	1.62	
331	20.4	+3°45'	20.69	+1.35	
334	7.0	+12°25'	6.95	1.52	
335	11.6	+6°55'	11.72	1.42	
340	5.4	+1°14'	5.67		
339	6.4	-12°5'	6.40	1.37	
325	26.2	+27°15'	20.90	10.80	
326	32.5	+27°43'	25.678	13.43	
327	30.5	+25°40'	25.00	12.05	
341	3.9	+5°25'	4.16	.40	
342	7.4	+1°40'	7.685		
373	9.0	+4°15'	9.25	.62	
372	7.6	+5°20'	7.83	.62	
374	15.0	+1°40'	15.28		
371	14.4	+2°45'	14.666	.62	
344	19.4	-0°55'	19.68		
343	16.4	-2°25'	16.67	.62	
366	18.6	-1°30'	18.88		

12.494 ✓
6.968 ✓
2.048
4.036
3.680
5.156
5.280
4.138
1.390
2.344
1.134
1.280
4.180
5.1350
5.000
.832
1.5370
1.850
1.566
3.056
2.9332
3.936
3.334
3.776

(33)

STATION	OBS. ROD INT	VERT ANG		
⊼ at Δ161				
365	28.0	-0°30'	28.29	
356	31.5	"	31.80	
358	27.5	+0°10'	27.795	
376	25.2	-2°31'	25.45	1.10
357	29.0	"	29.30	
359	24.4	+0°30'	24.69	
370	13.0	-5°13'	13.19	1.20
369	8.4	-8°0'	8.52	1.26
375	11.6	-7°35'	11.72	-1.56
377	26.4	+1°10'	26.68	
346	28.0	-2°25'	28.25	1.20
345	28.6	-2°25'	28.85	1.21
348	12.8	+0°35'	13.09	
347	15.0	+0°28'	15.29	
378	9.4	+0°15'	9.69	
⊼ at Δ159				
161	35.0	+5°45'	34.95	
157	66.1	+0°13'	66.39	
379	10.0	-4°45'	10.24	
380	16.1	-2°10'	16.37	.62
381	18.0	-3°0'	18.25	.95
382	29.5	-1°30'	29.78	
354	14.0	+1°20'	14.285	
355	18.0	+2°0'	18.28	

5.658
6.360
5.590
5.090
5.860
4.938
2.638
1.704
2.344
5.336
5.650
5.770
2.618
3.058
1.938

6.990
13.278
2.048
3.274
3.650
5.956
2.857
3.656

(34)

STATION	OBS. ROD DIST	VERT ANG.			
At 159					
157	66.1	+0°14'	66.39	+0.25	
161	35.0	+5°49'	34.94	+3.6	
353	29.0	″	29.30		
365	27.6	+1°35'	27.875		
352	30.0	+1°15'	30.275		
361	7.6	+11°0'	7.613	1.48	
360	″	″	″	″	
392	14.0	-29°30'	10,80	6.10	
393	18.8	-21°45'	16.45	6.11	
390	21.8	-23°0'	18.75	7.97	
393	16.6	-28°0'	13.20	7.00	
394	18.5	-27°35'	14.80	7.70	
389	23.2	-26°30'	18.80	9.40	
388	25.0	-17°50'	22.93	7.35	
387	26.5	-16°55'	24.53	7.47	
384	29.0	-12°45'	27.84	6.30	
396	36.4	-10°45'	35.42	6.70	
383, 395	40.0	-10°10'	39.04	7.00	
385	28.0	-12°25'	26.99	6.10	
386	24.0	-14°22'	22.80	5.86	
362	18.4	+0°45'	18.68	.24	
At Δ319					
160	40.4	-3°16'	40.56	-2.32	45.30
860	28.0	-1°21'	28.28	-0.67	
				1.38	
				2.05	

13.278 —
6.988 —
5.860
5.5750
6.0550
1.5226
″
2.160
3.290
3.750
2.640
2.960
3.760
4.586
4.906
5.568
7.084
7.808
5.398
4.560
3.736
″
8.112
5.656

(357)

STATION	OBS. ROD DIST.	VERT ANG			
T at A 319					
864	8.0	+1°0'	8.29		
863	8.2	+12°45'	7.89	1.83	
861	10.0	+0°20'	10.29		
859	16.2	✓	16.50	✓	
858	✓	✓	✓	✓	
855	27.0	-5°25'	27.06	2.56	
855-a	28.6	-9°0'	28.20	4.50	
328-b	31.6	+32°0'	22.95	14.25	
327-a	38.0	+32°0'	27.50	17.20	
328-a	30.0	+34°20'	20.70	14.18	
328	30.0	+35°50'	20.00	14.40	
T at A 860					
160	48.0	-2°50'	48.18	-2.38	45.30
319	28.0	+1°26'	28.28	+0.71	
867	13.0	+6°0'	13.25	1.38	
869	12.0	+9°0'	12.00	1.90	
351	8.4	+1°22'	8.685	.22	
350	7.8	+3°15'	8.07	.46	
870	11.4	+10°20'	11.32	2.04	
872	12.6	+7°47'	12.66	1.72	
873	15.0	+9°35'	14.865	2.51	
871	12.2	+2°55'	12.266	.63	
337	18.0	+3°10'	18.25	1.05	

1.658
1.578
2.058
3.300
✓
5.412
5.640
4.590
5.500
4.140
4.000
✓
9.636
5.656
2650
2400
1.7370
1.614
2.264
2.532
2.9730
2.4532
3.650

(36)

STATION	OBS ROD DIST	VERT ANG			
⊼ at △318					40.00
△160	52.1	+5°48'	51.86	+5.30 +5.28	45.30
△322	70.2	+1°35'	70.46	+1.97 +1.72	
△323	61.5	+1°37'	61.75	+1.74 +1.72	
407	36.2	+21°0'	31.80	12.20	
406	34.0	+23°0'	29.03	12.30	
408	37.0	+23°7'	31.50	13.45	
405	30.6	+23°0'	26.20	11.15	
△160	52.1	+5°47'	51.87	+5.30 +5.25	45.30
△322	70.2	+1°35'	70.46	+1.97	
△323	61.4	+1°37'	61.65	+1.74	
△421	52.0	-1°42'	52.27	-1.55	38.45
420	38.0	+17°30'	34.85	11.00	
411	19.6	+8°17'	18.89	2.84	
422	19.0	+6°30'	19.05	2.17	
403	18.2	+4°55'	18.36	1.58	
404	15.6	+10°0'	15.42	2.71	
400	18.4	+0°15'	18.69		
399	6.0	+0°40'	6.285		
398	8.0	+8°5'	8.14	1.25	
410	10.2	+9°57'	10.18	1.60	
410a	8.0	-0°25'	8.29		
423	7.2	+3°48'	7.46	.495	
424	5.8	+5°50'	6.03	.67	
425	4.5	-0°55'	4.785		

10,372
14.092
12.350
6.360
5.806
6.300
5.240
10.374
14.092
12.330
10.454
6.970
3.778
3.810
3.672
3.084
3.738
1.2570
1.628
2.036
1.658
1.492
1.206
.9570

35.23
30.87

(37)

STATION	OBS. ROD DIST	VERT. ANG			
⊼ at 318					40.00
426	13.6	+1° 40'	13.888		
427	15.0	+2° 30'	15.271	.66	
430	24.0	+11° 20'	23.36	4.70	
429	19.0	+5° 48'	19.10	1.97	
428	17.8	+2° 18'	18.07	.73	
432	28.0	+3° 15'	28.21	1.60	
433	27.4	+3° 10'	27.615	1.53	
434	26.4	+2° 0'	26.67	.94	
435	28.0	+2° 30'	28.245	1.24	
437	38.0	+0° 15'	38.29	.124	
436	40.0	+1° 32'	40.28	1.04	
438	43.6	+1° 30'	43.88	1.06	
439	44.0	+2° 55'	44.18	2.25	
431	41.4	+7° 50'	40.93	5.40	
437a	27.0	+0° 31'	27.29	.25	
⊼ at △322					
△318	70.2	-2° 5'	70.40	-2.55 +42 -313	
△323	59.0	-0° 20'	59.29	-0.34 542	
△448	39.6	-4° 20'	39.69	-3.10	
△397	17.2	-8° 20'	17.13	-2.50	
△447	30.8	+1° 0'	31.05	+054	
441	30.1	-2° 50'	30.33	1.50	
440	33.8	-2° 50'	34.02	1.68	
437	41.6	-1° 25'	41.878	1.04	

2.7776			
3.0542			
4.672			
3.826			
3.614			
5.642			
5.5230			
5.334			
5.6490			
7.658			
8.056			
8.776			
8.836			
8.186			
5.158			
14.080	35.20	35.225	
11.858			
7.938			
3.426			
6.210			
6.066			
6.804			
8.3756			

STATION	OBS. ROD DIST	VERT ANG			
At A322					
451	43.0	+3° 5'	43.17	2.31	
446	44.0	+5°20'	43.92	4.10	
442	39.0	+3° 5'	39.19	2.12	
445	40.8	+5°25'	40.74	3.77	
443	38.0	+4°20'	38.08	2.90	
459	23.6	+19°0'	21.54	7.35	
460	20.0	+18°30'	18.31	6.10	
460a	15.6	+17°35'	14.45	4.60	
469	24.4	+15°0'	23.04	6.20	
460,b	13.0	+14°15'	12.50	3.17	
461	10.4	+10°30'	10.35	9.60	
461a	7.2	+3°50'	7.467	.50	
462	6.4	-0°50'	6.68	.10	
464	6.7	-9°0'	6.84	1.04	
470	4.9	"	5.20	"	
471	6.2	-11°0'	6.264	1.21	
472	5.45	-9°26'	5.60	.92	
476	11.4	-0°30'	11.285		
475	13.3	-4°25'	13.52	1.02	
474	13.95	-8°0'	13.98	1.98	
At A447					42.60
△322	30.8	-0°48'	31.06	-0.44	42.15
△250	43.0	-13°35'	40.92	-9.70	32.83
490	20.6	-3°12'	20.836	1.15	

8.634
8.784
7.838
8.148
7.616
4.308
3.662
2.890
4608
2.500
2.070
1.4934
1.336
1.368
1.040
1.2528
1.120
2.2570
2.704
2.796

6.212 ✓
8184 ✓
4.1662

(39)

STATION	OBS ROD DIST	VERT ANG			
π at Δ 447					41.92
488	23.8	+0°40'	24.09		
486	23.0	+5°5'	23.18	1.17	
484	19.4	+5°42'	19.50	1.98	
491	20.4	+11°18'	19.91	3.97	
485	23.0	+9°23'	22.95	2.13	
487	25.8	+6°10'	25.91	1.71	
444	9.0	-11°35'	8.93	1.82	
490-a	12.0	-25°30'	10.00	4.77	
261	52.0	+2°8'	52.23	1.97	
261-a	″	″	″	″	
254	45.3	+1°45'	45.28		
263-b	22.4	″	22.70		
263	24.0	-1°30'	24.285		
258	26.4	+2°25'	26.65	1.12	
262	26.6	+2°35'	26.845	1.20	
263 a	25.0	+0°45'	25.29		
263 c	24.4	-17°47'	24.47	7.30	
458	16.8	+24°0'	14.22	6.36	
457 a	14.8	+24°40'	13.35	5.95	
457	13.4	+25°10'	12.10	5.65	
456	10.8	+29°56'	8.32	4.80	
455	4.6	+13°30'	4.63	1.11	
453	2.70	″	3.00	″	

4.818
4.636
3.900
3.982
4.590
5.182
1.786
2.000
10.446
″
9.056
4.540
4.8570
5.330
5.3690
5.158
4.894
2.844
2.670
2.420
1.664
.926
.600

40

STATION	OBS. ROD DIST	VERT. ANG				
⊼ at △447						
477-b	16.0	-10°25'	15.78	2.90		3.156
477	10.4	-13°55'	10.11	2.45		2.022
477-a	9.4	-14°0'	9.13	2.27		1.826
478-a	8.2	-13°20'	8.05	1.95		1.610
478	6.8	-9°20'	6.91	1.14		1.382
479	4.45	-12°0'	4.55	.97		.910
480	6.1	-26°30'	5.21	2.55		1.042
⊼ at △322					42.42	
△318	70.2	-2°5'	69.77	-2.55	40.00	13.954
△323	59.0	-0°20'	59.29	-0.345	41.65	11.858
△448	39.6	-4°20'	39.68	-3.00	39.13	7.936
△447	30.8	+1°0'	31.08	+0.54		6.216
504	5.2	-7°35'	5.41	.74		1.082
503	7.2	-12°15'	7.16	1.55		1.432
501	10.0	-5°42'	10.20	1.02		2.040
502	16.0	-6°45'	16.07	1.90		3.214
500	15.0	-4°16'	15.22	1.145		3.044
499	18.0	+0°20'	18.29			3.658
495	19.6	+12°40'	18.94	4.25		3.788
496	18.0	+16°20'	18.16	5.40		3.632
498	16.0	+12°30'	15.56	3.45		3.112
497	13.6	v	16.90	v		3.380
494	11.8	+18°	10.94	3.55		2.188
493	13.8	+21°	12.30	6.10		2.460
493a	16.4	+22°15'	14.35	5.85		2.870

41.92
.44
42.36

(41)

STATION	100x ROD DIST	VERT ANG			Elev.
⊼ at △322					42.15
492	16.20	+20°40'	14.45	5.47	
519	14.8	-9°21'	14.70	2.43	
506	17.8	-7°5'	17.825	2.22	
⊼ at △448					39.15
△322	39.8	+4°20'	39.77	+3.02	42.15
△323	37.8	+5°24'	37.76	+3.55	
△449	45.3	-3°18'	45.35	-2.60	36.59
△450	33.0	-4°45'	33.07	-2.75	36.38
525	19.4	+0°48'	19.68	.275	
524	20.0	+2°0'	20.276		
523	23.4	+2°0'	23.67		
522	22.8	+3°0'	23.04	1.21	
521	17.6	+6°45'	17.88	.27	
520	15.7	-5°30'	15.85	1.52	
509	35.0	-9°12'	34.40	5.58	
505	30.8	-8°30'	30.42	4.55	
507	12.8	-3°40'	13.05	.83	
508	13.7	+0°20'	13.99		
510	14.2	+3°49'	14.435	1.01	
512	6.0	+3°18'	6.28	.36	
511	7.2	-1°25'	7.49	.18	
513	7.2	-5°20'	7.44	.61	
514	9.6	-8°10'	9.71	1.35	
527	15.0	-6°5'	15.13	1.62	
526	16.6	-1°45'	16.885	.515	

2890
2940
3,5650

7.954
7.552
9.070
6.614
3.936
4.0552
4.734
4.608
3.576
3.170
6.880
6.084
2.610
2.798
2.8870
1.256
1.498
1.488
1.941
3.026
3.377°

3898
N78
3340

STATION	OBS. ROD DIST	VERT ANG.			
⊼ at △448					39.13
537	32.0	+15°0′	30.15	8.10	
538	30.6	+13°58′	29.10	7.21	
543	34.2	+15°45′	31.95	9.00	
540	38.2	+14°51′	35.98	9.55	
541	39.4	+14°59′	37.05	9.90	
545	38.1	+16°0′	35.48	10.20	
540-a	40.4	+14°20′	38.20	9.75	
536	36.4	+13°14′	34.78	8.20	
516	8.0	-7°0′	8.18	1.00	
515	9.0	+2°0′	9.29	.32	
517	9.6	+1°55′	9.89	.33	
518	13.0	+10°0′	12.90	2.27	
517-N	✓	✓	✓	✓	✓
546	9.0	-12°0′	8.90	1.95	
⊼ at 450					36.38
△448	33.0	+4°45′	33.07	+2.75	39.13
△449	22.8	+0°31′	23.08	+0.22	36.59
△547	68.0	-4°32′	67.87	-5.40	30.98
△548	56.0	-6°45′	55.53	-6.6	29.68
553	17.0	-8°20′	16.94	2.47	
555	18.4	-6°35′	18.4√	2.12	
556	20.0	-7°0′	20.00	2.4√	
554	15.2	-5°20′	15.33	1.43	
552	17.0	-3°10′	17.2√	.95	

6.030
5.820
6.390
7.196
7.410
7.096
7.640
6.956
1.636
1.858
1.978
2.580

1.780

6.614
4.616
13.574
11.106
3.398
3.6910
4.000
3.066
3.450

See page 28 for 548 to 682

(43)

STATION	OBS ROD DIST	VERT ANG			
⊼ at △450					36.38
551	6.2	-9°55'	6.2307	1.10.	
532	4.8	+2°0'	5.09	.18	
531a	± 3.35	✓	3.35	✓	
531	6.8	+20°0'	6.28	2.28	
533	12.0	+18°0'	11.13	3.60	
535	14.1	+14°35'	13.51	3.50	
530	14.4	+12°5'	14.06	3.07	
529	12.0	+5°14'	12.20	1.12	
539	26.2	+27°0'	21.05	10.75	
542	27.9	+26°21'	22.60	11.20	
561	28.0	-9°22'	27.55	4.55	
559	28.0	-7°55'	27.76	3.95	
560	26.2	-7°13'	26.08	3.30	
563	38.0	-8°4'	37.55	5.30	
562	39.6	-6°37'	39.37	4.55	
558	36.6	-6°6'	36.74	3.90	
557	41.1	-2°14'	41.34	1.61	
⊼ at △548					29.68
△450	56.2	+6°52'	55.7	+6.67	36.39
△547	46.8	+1°40'	47.05	+1.30 1.37	
△682	55.4	-7°0'	54.97	-6.9	
698	60.6	-9°15'	59.33	9.65	
699	22.6	-13°50'	21.59	5.30	
700	25.0	-10°0'	24.54	4.32	

11.246
1.018
.670
1.256
2.226
2.702
2.812
2.440
4.210
4.520
5.510
5.552
5.216
7.510
7.874
7.348
8.268

11.140
9.510
10.994
11.866
4.318
4.908

36.24
4.15
31.69

38.3
.75
37.55

STATION	OBS. ROD DIST	VERT. ANG			
⊼ at △548					29,68
702	15.2	-11° 0′	14.94	2.90	
703	20.0	-7°30′	19.95	2.63	
701	✓	✓	✓	✓	✓
706	16.0	+1°30′	16.28	.42	
704	19.2	+1°15′	19.48	.42	
705	18.0	+5°20′	18.14	1.70	
707	20.0	+6° 0′	20.08	2.12	
708	22.4	+4°0′	22.59	1.58	
709	15.4	+3°30′	15.64	.96	
710	16.0	+6° 0′	16.12	1.19	
712	14.2	+2°30′	14.47	.63	
711	18.0	+2°15′	18.27	.72	
713	15.8	+1° 0′	16.09	.20	
715	3.40	✓	3,70	✓	
⊼ at △547					30,98
△450	68.4	+4°30′	68.27	+5.35	
△548	46.8	-1°30′	47.06	-1.22 (1.30)	
716	25.6	+3°45′	25.79	+1.70	32, 68
718	14.0	+15°30′	13.28	3.60	
717	9.8	+4°30′	10.04	.79	
722	14.0	+7°30′	14.05	1.85	
721	17.4	+11°	17.06	3.30	
719	18.2	+11°35′	17.76	3.64	
720	20.4	+13°5′	19.64	4.56	

2.988
3.990
✓
3.2570
3.896
3.628
4.016
4.518
3.128
3.224
2.894
3.654
1.218
.740

13.654
9.412
5.158
2.656
2.008
2.810
3.412
3.552
3.928

STATION	OBS ROD DIST	VERT ANG			
⊼ at Δ547					30,98
725	23.2	+19°10'	21,00	7.50	
727	23,2	+19°5'	20.93	7.49	
724	22.6	+19°30'	20.85	7.40	
723	14.4	+3°15'	14.75	.84	
728	8.6	+4°30'	8.845	.70	
741	38.0	-22.45	33.60	13,60	
729	+3.65	✓	3,65	✓	
730a	+4.10	✓	4.10	✓	
730	+3.95	✓	3.95	✓	
733	8.6	-1°0'	8.89		
734	11.0	+1°32'	11.28		
732	11.2	-1°40'	11.49		
743	14,0	-1°40'	14.29		
742	16.0	-2°0'	16.28		
736	13.6	-7°35'	13.66	1.82	
737	18.3	-6°30'	18.36	2.10	
737a	19.6	-8°30'	19.465	3.01	
738	22.4	-5°	22.54	1.98	
714	28.0	-2°35'	28.24	1.18	
740	28.0	-8°20'	27.70	4.05	
741	51.0	-10°0'	49.76	8.16	

4.200
4.186
4.190
2.950
1.7690
6.720
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1.778
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2.298
2.858
3.256
2.732
3.672
3.6930
4.508
5.648
5.540
5.952

30 90
13 60
17,30

STATION	OBS. ROD DIST	VERT ANG				
⊼ at Δ449					36.59	
448	45.3	+3°5'	45.50	+2.48		9.100
450	22.8	-0°29'	23.08	-0.197	36.38	4.616
549	36.6	-0°45'	36.85	-0.483		7.370
744	66.4	+0°20'	66.69	+0.376	36.97	13.338
550	45.6	+2°35'	45.81	+1.72 +2.26 +.46		9.162
745	14.0	+19°20'	13.20	4.50		2.640
746	8.2	+0°45'	8.49			1.698
⊼ at 549						
449	37.0	+1°0'	37.26	+0.65	36.59	7.752
744	44.4	+1°16'	44.65	+0.99		8.930
748	13.6	+11°30'	13.35	2.72		2.670
752	14.4	+16°0'	13.58	3.90		2.716
750	10.3	+9°0'	10.34	1.64		2.068
750a	8.6	+7°35'	8.75	1.16		1.750
726	7.7	+1°20'	7.985			1.5970
751	19.0	+7°30'	18.97	2.50		3.794
720	15.6	+1°0'	15.88			3.176
747	6.5	+2°40'	6.78	.26		1.356
719	17.4	-1°50'	17.68			3.536
718a	24.	+0°30'	24.29			4.858
719a	18.	+0°30'	18.29			3.658
⊼ at 550					38.29	
449	45.6	-2°35'	45.81	+1.61 +2.07 +.46	36.59	9.162
744	33.0	-2°25'	33.24	-1.26 -1.91 +.16	36.97	6.648

STATION	OBS. ROD DIST	VERT ANG			
At A550					38.75
△ 753	49.8	-1°50'	50.05	-1.60	36.65
△ 754	26.2	-5°30'	26.25	-2.52	
772	34.2	+7°35'	33.90	1.51	
771	21.0	+7°	20.85	2.61	
770	16.8	+0°25'	17.09		
769	12.4	"	12.70		
768	13.8	+0°20'	14.09		
746	33.0	-2°0'	33.28	.82	
745	34.0	+3°40'	34.15		
762	11.0	-2°50'	11.27	.56	
767	19.0	-4°30'	19.18	1.50	
764	18.4	-3°56'	18.61	1.28	
765	17.7	-5°15'	17.85	1.64	
766	18.6	-10°-	18.33	3.23	
773	13.0	-9°10'	12.96	2.10	
763	9.2	-6°25'	9.38	1.06	
774	6.0	-9°15'	6.14	1.00	
758	4.0	-6°30'	4.24	.485	
757	6.37	"	6.37		
756a	21.0	-10°45'	20.56	3.90	
756	20.3	-9°15'	20.06	3.30	
755	19.6	-8°15'	19.49	2.83	

10.010
7.250
6.780
4.170
3.418
2.540
2.818
6.656
6.830
2.254
3.836
3.722
3.570
3.666
2.592
1.876
1.228
.848
1.274
4.112
4.012
3.898

STATION	OBS. ROD DIST	VERT ANG			
⊼ at Δ 744					36.97
449	?- 66.6	-0°13'	66.87	-0.25	36.45
550	33.0	+2°12'	33.25	+1.28	38.25
549	44.3	-1°9'	44.55	-0.87 (9.3)	35.13
775	68.0	-6°38'	67.38	-7.70 (7.83)	29.12
⊼ at Δ 775					29.12
744	68.0	+6°39'	67.38	+7.71 (7.85)	
776	43.0	-11°46	41.65 (42.02)	-9.30	
⊼ at 776					19.79
775	43.8	+11°44'	42.39 (42.02)	+9.42 (8.82)	20.20
SACRIFICIAL ROCK	38.0	-15°10'	35.67	-9.90	
777	89.6	-1°30	85.40	-19.70	+ 1.50
778	~	~	~	~	

777 is about 1 or 2 meters above Low water so Count 0 datum 1.50 below 777

There is also a slight variation in the H.I which would effect some of these elevations, Something like 0.20. accuracy to that degree is not sought for in this Survey for the General Contour Lines.

13.374
6.650
8.910
13.476

13.476
8.404

8.404
7.034
17.080

a point 1.50 meters below. Point 777 taken as 0 for elevations - being Low Water at sacrificial Rock. (1932)

Also the height (H.I) of instrument is not deducted from these elevations. This does not effect them because the arbitrary low water changes with each little rain in the season.

(49) FYC=.3

STATION	100X OBS. ROD DIST	VERT ANG	HOR. DIST	VERT Diff ELEV	ELEV.
Mat A753		0°0W 550			36.80
550	50.0	+1°45'	50.26	+1.54	38.28
780	49.0	-17°30'	44.95	-13.85	21.60
1231	12.4	-14°10'	11.78	3.00	
1226	9.0	-9°	9.07	1.34	
1224	10.6	-1°30'	10.89		
1225-a	13.6	+2°30'	13.87	.61	
1225-b	14.2	-4°10'	14.42	1.05	
1225-c	18.0	+0°15'	18.295		
1229	20.0	+0°40'	20.29		
1225	17.0	+1°15'	17.285		
1222	20.0	-17°0'	18.58	5.70	
1228	18.8	+0°35'	19.09		
1220	26.0	+8°0'	25.79	3.64	
1221	35.0	+6°30'	34.85	3.97	
1230	+3.15		3.15		

10.052
8.990
2.356
1.814
2.178
2.7748
2.884
3.6590
4.058
3.4570
3.716
3.818
5.158
6.970
.630

1.63
1.39
27.5

STATION	OBS. ROD DIST	VERT. ANG			

STATION	OBS. ROD DIST	VERT ANG			

STATION	OBS. ROD DIST	VERT. ANG				
⊼ at Δ 421		0° on 318				
318	52.0	+1°42'	52.28	+1.525	40.00	10.456
849	11.0	+5°35'	11.19	+1.10		2.238
848	14.2	+11°10'	13.96	1.75		2.792
851	26.0	+2°35'	26.25	1.20		5.250
852	30.0	+5°0'	30.07	2.63		6.014
853	36.0	+23°40'	30.45	13.35		6.090
850	16.6	+9°45'	16.42	2.72		3.284
854	52.6	-17°25"	48.43	15.10		9.686
855	35.0	+12°0'	33.77	+7.20		6.754
858	37.8	+15°45'	35.30	9.95		7.060
857	40.4	+16°0'	37.60	10.80		7.520
856	57.0	+11°30'	55.0✓	11.20		11.004

(53)

STATION	OBS. ROD DIST	VERT ANG.			

STATION	OBS. ROD DIST	VERT ANG			
⊼ at A156					40.50
113	45.6	-2°17'	+5.79	-3.04	37.45
605	50.4	-0°38'	50.68	-0.56	39.97
607	42.6	+1°15'	42.88		
608	48.0	+4°35'	47.99	3.85	
609	11.0	+9°15'	11.01	1.80	
611	16.2	+12°35'	15.72	3.50	
610	13.85	+9°53'	13.73	2.40	
200	34.80	+0°25'	35.08	.28	
199	34.0	+2°50'	34.22	1.68	
198	35.0	+4°30'	35.09	2.76	
612	30.9	+0°15'	31.19	.13	
197	42.0	0°0'	42.30		
⊼ at 605					39.97
156	50.2	+0°45'	50.48	+0.78	40.80
606	44.0	-3°10'	44.15	-2.45	37.53
621	9.73	+0°25'	10.02		
629	t 3.12		3.12		
628	t 2.93		2.93		
630	t 4.93		4.93		
631	t 6.05		6.05		
613	16.3	0°49'	16.59		
632	16.3	+3°4'	16.55	.95	
614	19.36	+2°45'	19.61	.94	
616	19.6	+5°10'	19.54	1.78	

13.158
10.136
8.576
9.598
2.202
3.144
2.746
7.0170
6.844
7.018
6.229
8.460

10.096
8.830
2.004
.624
.586
.986
1.210
3.318
3.310
3.922
3.908

STATION	OBS. ROD DIST	VERT ANG				
					39.97	
Tat A605						
625	16.4	+6°18'	16.50	1.82		3.300
615	18.3	+14°	17.52	4.37		3.504
627	10.00	+26°40'	8.25	4.15		1.650
617	35.3	+9°30'	34.63	5.80		6.926
618	12.44	+22°14'	10.90	4.45		2.180
619	10.4	+20°20'	9.40	3.49		1.880
621a	10.0	0°0'	10.30	✓		2.060
622	9.8	+8°10'	9.90	1.42		1.980
620	12.6	+3°24'	12.85	.76		2.570
					37.53	
Tat A606						
605	44.0	+3°10'	44.16	+2.44	39.97	8.832
223	55.69	-5°1'	55.56	-4.89	32.23	11.112
639	19.3	-7°35'	19.26	2.56		3.852
639a	16.6	-6°	16.72	1.75		3.354
641	11.5	-5°10'	11.70	1.03		2.340
640	9.8	-3°50'	10.05	.67		2.010
638	±6.09		6.09	✓		1.218
637	±3.78		3.78	✓		.756
636	14.7	+1°10'	14.985			2.9970
635	19.8	+6°10'	19.87	2.15		3.974
634	20.2	+6°40'	20.23	2.36		4.046
633	24.0	+5°20'	24.09	2.25		4.818
647	29.0	+3°26'	29.20	1.74		5.840
646	26.0	+5°25'	26.07	2.46		5.214
645	27.0	+5°10'	27.08	2.45		5.516

(56)

STATION	OBS. ROD DIST	VERT ANG			
⊼ at 606					37.53
648	18.5	-0°31'	18.79		
649	12.3	-7°0'	12.42	1.51	
650	17.0	-10°50'	16.65	-3.20	
642	12.2	+3°10'	12.46	.627	
643	24.0	+17°10'	22.20	6.82	
⊼ at 223					32.64
606	55.69	+5°1'	55.56	+4.89	37.53
212	45.8	-0°41'	46.18 / 46.08	-0.59 / -0.54	1.64
243	26.4	-0°50'	26.685		
655	26.8	+7°15'	26.67	3.40	
654	23.6	+8°30'	23.42	3.50	
652	33.5	+9°30'	32.08	5.24	
651	34.2	+9°0'	33.56	5.32	
670	31.4	+6°0'	31.36	3.29	
230	21.2	+5°20'	21.31	2.00	
653	28.2	+6°	28.19	2.96	
659	17.2	+4°28'	17.40	1.34	
229	13.8	+0°45'	14.09		
657	16.0	+6°20'	16.10	1.78	
228a	14.0	+3°0'	14.26	.75	
228	11.0	" "	11.30		
656	18.0	-5°0'	18.16	1.585	

3.758
2.484
3.330
2.492
4.440

11.112
9.236
5.337 0
5.334
4.684
6.416
6.712
6.272
4.2630
5.638
3.480
2.818
3.220
2.852
2.260
3.632

21.5
16.5
37.3.1.5

STATION	OBS. ROD DIST	VERT ANG		
T at A 691				
682	40.50	-8°13'	39.98	-5.77
696	29.20	+6°12'	29.15	+3.16
T at 696				
691	29.1	-6°3'	29.08	-3.10
697	44.50	+1°15'	44.78	+0.97
T at 697				
696	44.60	-1°8'		-0.88 +9
697a	13.40	+5°50'	13.56	+1.35
T at 697a				
697	13.40	-5°40'	13.56	-1.32
1200	11.4	-6°10'	11.565	1.25
1207	10.8	-5°	11.015	.96
1208	20.3	-4°50'	20.45	1.72
1209	20.6	-4°45'	20.76	1.72
1210	26.4	-6°25'	26.37	3.07
1215	33.6	-6°30'	33.48	3.80
1214	37.0	-4°45'	37.05	
1211	33.2	-4°15'	33.32	2.46
1212	28.2	-3°45'	28.38	1.85
1213	31.8	-3°15'	32.00	1.82
1216	28.0	-2°50'	28.23	1.40
1218	31.0	-2°40'	31.23	1.45
1217	25.0	-2°30'	25.25	1.10
1204	22.2	-2°0'	22.45	.785

3978
29.15
45.80
40
15493
2
30.986

2.712
2.3130
2.2030
4.090
4.152
5.274
6.696
7.410
6.664
5.676
6.400
5.646
6.246
5.050
4.490

41.1
29.15
13.00
3.00
31
11765

41.1
29.15
45.00
3
31
14926
2
29.852

4471
2.
8.942

(58)

STATION	OBS. ROD DIST	VERT ANG			
⊼ at A697-a					
1203	18.6	-1°50'	18.88		3.776
1201	20.4	-1°25'	20.68		4.136
1202	22.4	-1°30'	22.68		4.536
1205	±4.87	″	4.87		.974
1206	6.4	-4°	6.67	.46	1.334
1219	14.6	-3°40'	14.84	.95	2.968

SEE OTHER BOOK. - (59) to (80)

KEITH'S RAILROAD CURVE TABLES.

Published by KEUFFEL & ESSER CO., New York.

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HOW TO USE KEITH'S TABLES.

EXAMPLE.

Wanted a Curve with an Ext. of about 12 ft. Angle of Intersection or I. P.=23° 20′ to the R. at Station 542+72.

Ext. in Tab. IV opposite 23° 20′=120.87
120.87÷12=10.07. Say a 10° Curve.

Tan. in Tab. IV opp. 23° 20′=1183.1
1183.1÷10=118.31.

Tab. V. correction for A. 23° 20′ for a 10° Cur.=0.16
118.31+0.16=118.47=corrected Tangent.

(If corrected Ext. is required find in same way)
Ang. 23° 20′=23.33°÷10=2.3333=L. C.

2° 19½′=def. for sta.	542	I. P.=sta.	542+72
4° 49½′= " " "	+50	Tan.=	1.18.47
7° 19½′= " " "	543	B. C.=sta.	541+53.53
9° 49½′= " " "	+50	L. C.=	2.33.33
11° 40′= " " "	543+	E. C.=sta.	543+86.86
	86.86		

100—53.53=46.47×3′(def. for 1 ft. of 10° Cur.)=139.41′=
2° 19½″=def. for sta. 542.

Def. for 50 ft.=2° 30′ for a 10° Curve.

Def. for 36.86 ft.=1° 50½′ for a 10° Curve

(These tables are published in Field Books of KEUFFEL & ESSER Co., New York, N. Y.)