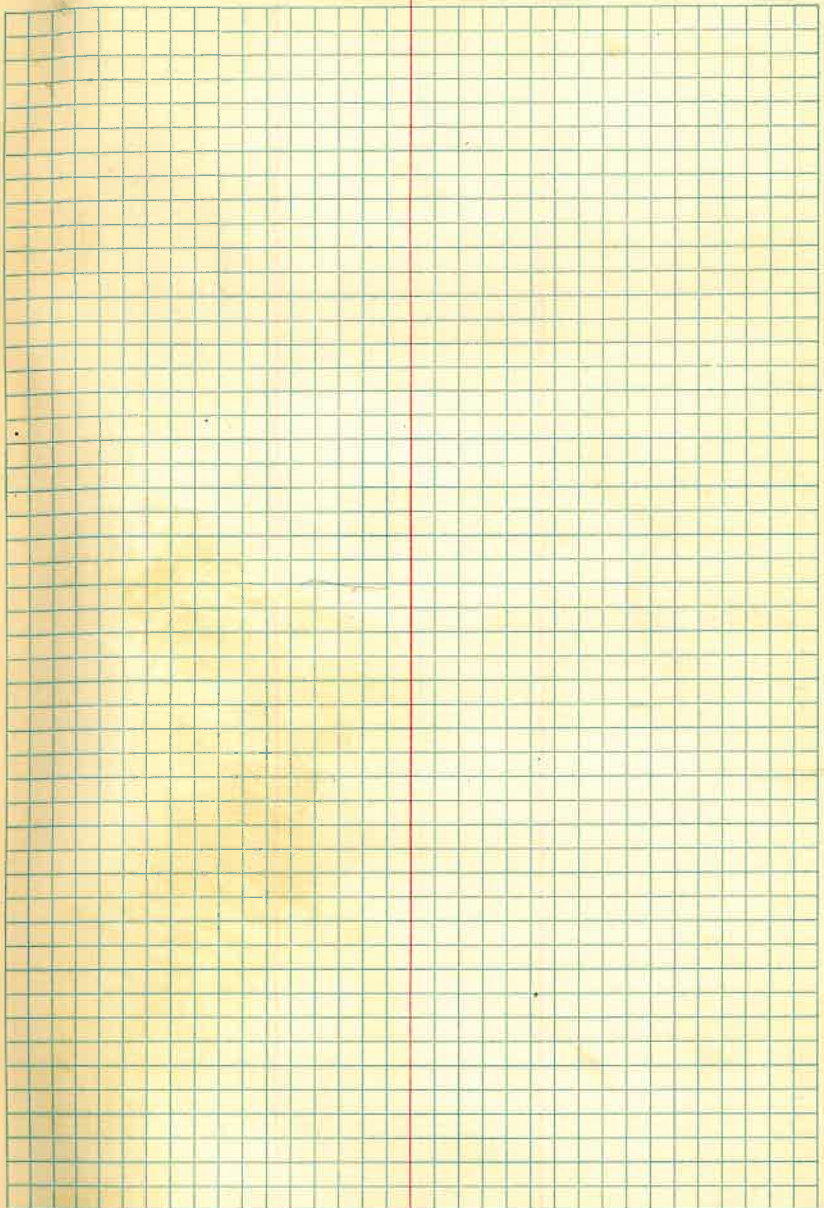


No. 2

125

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| | |
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T o AVN F.S. A3 Running North
 4+98 498 Claim line so side # 42
 T e claim line
 2+10 210
 T e 2+10 Running north
 3+90 190
 T e 3+90
 5+80 190 -4.06
 T e 5+80
 20 tape No. side # 42 693' from
 T e No side 42 693' from E. end.
 7+20 720 East
 6+93 -27 Rock pile NE cor. # 42
 9+80 980 West Rock pile for link +
 T e NW cor 40 @ NE cor 42 Running south
 0+75 75
 T e 0+75
 5+53 478 525 st. -17-20
 T e 5+53
 6+00 +47 Rock pile SE cor 42 NE " 43
 6+43 90 = 0+43 E end 43
 T 1+43
 370 station 358 North +9-20
 3+00 -14 Rock pile E @ 42 W @ 40

M.P.
 H.P.
 J.A.

693' from E end

$$\begin{array}{r} 980 \\ 807 \\ \hline 1773 \end{array}$$

$$\begin{array}{r} -17-20 = 9112 \\ 525 \\ \hline 45860 \\ 18224 \\ \hline 45560 \end{array}$$

E. End

478,3800

$$\begin{array}{r} 455 \\ 9678 \\ \hline 370 \end{array}$$

dist [see page 8]

$$\begin{array}{r} 677460 \\ 29034 \\ \hline 3580560 \end{array}$$

Te 0+43 Running South

2+53 210

Te 2+53

3+00 47 Rock pile E C 43
WC 41

3+53 100

Te 3+53

4+93 140

Te 4+93

6+00 107 Rock pile SW cor 41
SE cor 43

Te NW cor 40 Running North

3+00 300 Rock pile E C # 44

Te 3+15

4+60 145

Te 4+60

6+00 140 Rock pile NE cor 44

Mine Survey

No L

| | | | |
|---|--------|--------|----------|
| 1 | N 80 W | 18' | db |
| 2 | S 78 W | 15 1/2 | db |
| 3 | S 62 W | 16 3/4 | db Cont. |
| 4 | S 9 W | 15 1/2 | |
| 5 | S 50 E | 25 1/2 | |
| 6 | S 58 E | 35 | |
| 7 | S 66 E | 4 1/2 | |
| 8 | S 75 E | 54 | |

6/25/57
 H. B.
 W.A.

Tie 9100 (see page 5) Running West
 2+23 50 West
 -0+28 215 East -14-50
 0+00 -28 Rock pile NW cor 42
 NE cor 46

Tie 0+00 NE cor 46 Running North
 2+14 230
 214 -15-25 W end 44
 2+54 255 -6-00 South

Tie 2+54 Running South
 3+00 46 Rock Pile WE 42
 3+84 130

Tie 3+84
 6+49 265
 6+00 -49 Rock Pile $\frac{46}{47} \frac{42}{43}$

Tie 6+49 = 0+49 E end 47, Running So.
 3+09 260
 3+00 -09 Rock pile E of 47

Tie 3+09
 4+69 160

Tie 4+69
 6+00 131 Rock pile SE cor 47
 SW " 43

6/28/51

9+00 = 1+73 Running West
 on North side of 46

M.P.
H.P.
J.A.

14-50 2 7345 201
 215 173
 46725
 9345 28
 18690
 2009175

(see page 9)

15-26 = 9292
 230
 278760
 15584
 2137160

Te 2+14 Running North West
3+00 86 Rock Pile W # 44
5+37 ³⁴⁵ 323 -13-06

Te 5+37
6+00 63 Rock Pile NW cor 44

Te 2+23 Running West No side 46
7+17 ⁵⁰⁰ 494 +6-34

Te 7+17
9+53 ²⁴⁰ 236 +7-00

Te 9+53
13+53 460

Te 13+53
15+00 147 Paint

Te Point Running South
3+24 ³⁴⁰ 324 -12-30

Te 3+24
7+75 ⁴⁸⁰ 451 +4-10

Te 7+75 = 1+75 Wend # 47
6+00 -175 Rock Pile NW cor # 47

Te 1+75
3+00 125 Rock Pile W # 47

end # 44

13-06 = ⁹⁵ 340
3400
245
32510

12-30 = 9532
340
381280
28596
3240880

6-34 = .987
⁵⁰⁰
493500

7 = 985
240
37400
1970
756400

14-10 = 1.94
480
7520
376
45120

6/29/51
M.P.
H.P.
J.A.

Tie NW cor #47 Running West
 3700 300 Rock pile NE # 48
 6700 600 Rock pile NW cor # 48
 Tie NW cor 47 Running South
 6700 600 Rock pile SW cor # 47

Tie Δ Vossburg
 450 5 14-32W
 5+27 610=527 -21-25
 4+50 -77 Rock pile SW cor 49
 350' N52-30E Shaft

Tie 3708 Running North W side 51
 5458 250

Tie 5458
 12+38 680

Tie 12+38
 12+00 - Rock pile NE cor 49
 SE " 48

Tie NE cor 49 Running West
 1+66 166 Rock pile on Rim

Tie NE cor 49 Running North
 3700 300 Rock pile SW cor 50
 NW cor 51

-21-25 = .8227
 610
 85670
 51882
 527.4870

11
T @ SW cor 50 Running North
1+80 185

T @ 1+85
3+00 115 Rock pile W @ #50

T @ NW cor #51 Running East
3+00 300 Rock pile N @ #51

T @ 3+00
5+00 200

T @ 5+00 on Rim
6+00 180 Rock pile NE cor #51

To Δ VE F.S. Δ 7 Running East
2+95 295

To 2+95

5+85 290

To 5+85

6+99 114

To 6+99

0+40 41

2+08 208

To 6+99 =

3+00 259

3+10 310

To 0+51

3+00 249

3+71 320

To 6+99

3+20 320

To 3+20

6+70 350

To 6+70

7+65 95

To 7+65

11+80 415

Running South

Rock pile E 252
W 253

= 1+67 S. from Ⓞ Rock

Runn. No from Ⓞ

Rock pile $\begin{array}{r} 54 | 55 \\ \hline 52 | 53 \end{array}$

= 0+51 North from $\begin{array}{r} 54 | 55 \\ \hline 52 | 53 \end{array}$

Running North

Rock pile E 254
W 255

Rock pile on North rim

From Δ VE Running East

Runnin E between 53 + 55

7/4/51

12

Δ E 699 to $\begin{array}{r} 54 | 55 \\ \hline 52 | 53 \end{array}$

54 x 55 x

x x x

Δ 523 53 x

x

600

259

341

310

91

351

J.P.

J.A.

H.P.

Rock pile on So. Rim [See page 28]

Ae 11+80
 12+30 50
 Ae 12+30
 14+00 170
 Ae 14+00
 15+00 100
 Ae 15+00 Running South
 41 Rock pile E of 53
 1+35 135
 Ae 1+35 = D+94
 3+00 206 Rock pile SE cor 53
 Ae 15+00 Running North
 1+00 100 = 1+41 from E of 53
 Ae 1+41
 3+00 155-14 Rock pile NE cor 53
 SE cor 55
 Ae NE cor 53 Running North
 2+50 250
 Ae 2+50
 3+00 50 Rock pile E of 55
 4+03 415
 403 - 9-45

13

135
 41
 94
 415
 97
 29 05
 37 35
 40 25 3

Tie Δ 5 FS Δ 3 + Δ 1
1+40 140 Running south

Tie 1+40
6+75 5-35

Tie 6+75
7+30 55

Tie 7+30
16+10 2+70

Tie 16+10 Running North
-5-40
13+42 2-58
12+18 124

Tie 12+18 Running East
2+09 209 Rock pile SE cor # 56

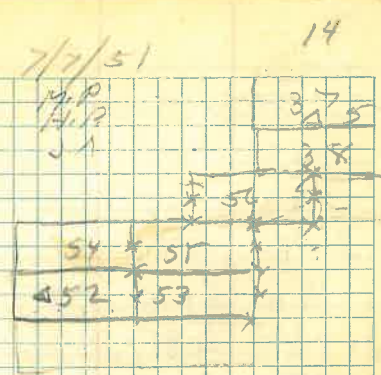
5+41 541 Running West
5+41 Rock pile NE cor 55

Tie SE cor 56 Running North
3+00 300 Rock pile E of 56
4+13 403
4+88 85

Tie 4+88
6+00 112 Rock pile NE cor 52

1300
1218
782
1374
1218
1524

700
541
159



Te NE cor 55 Running Wes

1+65 165

Te 1+65

3+15 150

Te 3+15

6+00 285

Te 6+00

7+50 150 Rock pile SW cor 56

Te SW cor 56 Running North

2+15 215

Te 2+15

3+00 85 Rock pile N of 56

Te 3+00 Running North

4+25 125 Rock pile on Rim

To Backhorn F.S. 12 Running East

1+11 111

To 111B from D.B.

45 North Rock pile on rim

To 111E = 8+11 North from SE cor. 57

6+61 150 Running South

To 6+61

4+01 260

To 4+01

0+00 401 Rock pile SE cor 57

To SE cor 57 Running East

1+45 145

To 1+45

3+00 1+55 Rock Pile ^{So 259} No 260

3+85 240

To 3+85

4+60 75

To 4+60

6+00 1+40 Rock Pile

$\frac{59}{61}$
 $\frac{60}{61}$

To $\frac{59}{61}$ / $\frac{60}{61}$ Running East

2+55 255

To 2+55

3+00 45 Rock pile ^{So 261}

12+15 960 " " on East dump



7/7/51

16

M.P.

H.P.

J.A.



To A Buck F.S A Walnut
Δ 12 1 85-57
36 257.49 = 85-56-20
62 155.39 = 85-56-30

111
3 $\overline{)257-49}$
85 $\overline{)169}$
56-20

360
 $\overline{)155-39}$ 56
 $\overline{)1515}$ 339 140
85 $\overline{)20}$
 $\overline{)20}$
0

π SE cor 57 Running West
 3734 $\begin{matrix} 380 \\ 330 \end{matrix}$ -20-26
 3700 - 34 Rock pile so & 57
 140 & 58

π SE cor 57 Running West
 5700 $\begin{matrix} 555 \\ 500 \end{matrix}$ -19-16
 6700 7100 Rock pile SW cor 57

π SO & 61
 N & 62 Running East
 6722 $\begin{matrix} 660 \\ 622 \end{matrix}$ -13-50
 6700 - 22 Rock pile SO & 61

π 12+15
 6700 675 West Rock pile 61/62
 12706 15 West Rock pile SE cor 62

π 6715 Running East from SE cor 63
 1700 $\begin{matrix} 93 \\ 85 \end{matrix}$ tapod 124-45

π 1700
 1780 80

π 1780
 3710 120 Rock pile so & 63
 6702 $\begin{matrix} 480 \\ 426 \end{matrix}$ -19-36

6706 - 6 Rock pile SE cor. 63

-20-26 = 2781
 $\begin{matrix} 380 \\ 702480 \\ 26343 \\ \hline 3338780 \end{matrix}$

-19-16 9018
 $\begin{matrix} 555 \\ 45090 \\ 45090 \\ \hline 45090 \\ 5004090 \end{matrix}$

-13-50 = 9428
 $\begin{matrix} 660 \\ 565680 \\ 56568 \\ \hline 6222480 \end{matrix}$

19-36 = 8875
 $\begin{matrix} 480 \\ 710000 \\ 35500 \\ \hline 7260000 \end{matrix}$

7/8/51
 M.P
 H.P
 J.A

Cor 24-45 = 908
 $\begin{matrix} 93 \\ 2724 \\ 8176 \\ \hline 64444 \end{matrix}$

19-20 = 87
 $\begin{matrix} 370 \\ 1290 \\ 261 \\ \hline 32350 \end{matrix}$

The SE Cor 57 Running South

2+50 250

The 2+50

8+25 575

The 8+25

8+70 45 64 P.M

The 8+70

14+28 ⁶¹⁰ 558 -17-00

The 14+28

15+00 72 Rock pile SE cor 58 SW cor 60

The SE Cor 58 Running East

0+95 95

The 0+95

1+45 50

The 1+45

1+95 50

The 1+95

2+90 95

3+00 +10 Rock Pile Sod 60

6+15 ⁴³⁰ 420 -8-30

6+00 -15 Rock pile SE Cor 60

-27-30

-17-00 = 9145
610
91450
600
195
405

54870
5578460

250 = 9764
430
297920
39056
419852

21-30 = 8604
200
1731400

Te SE cor 58 Running Wes.
2+73 ³⁰⁰ 273 +17-30

Te 2+73

3+00 +27 Rock pile SW cor 58

Te 3+90

4+85 95

Te 4+85

6+00 115 Rock pile SW cor 58

17-30 = 91
300
273.01

The Δ Buckhorn Running East

4+00 400

The 4+00

6+20 220

The 6+20

14+40 820

The 14+40

15+80 140

The 15+80

19+70 390

The 19+70

E from Δ Buckhorn

2+20 220

Running North

The 2+20

5+35 315

The 5+35

6+9 154

The 6+9

N from Buckhorn

59

West Rock Pile

NE cor 62
NW cor 63

The 0+59 Running East N end # 63

3+00 241 East Rock Pile N end 63

6+00 541 Rock Pile NE cor 63

N 689

300

W 59

59

241

131

7/10/51 21

M.R.

H.P.

J.A.



π e NW cor 63 Running North

11+60 1160

12+00 40

π 12+00 N from Buckhorn

6+00 600 Running E along N side 65

Rock pile NE cor 65

π e NE cor 65 Running South

3+00 300 Rock pile E of 65

6+40 640

6+00 -40 Rock pile SE cor 65

π e 6+40

7+20 80

π e 7+20

9+10 180 Rock pile E of #64

π e 12+00 N from Buckhorn = 6+00 W from NE cor 65

9+60 360 Running West along N side 65

π e 9+60

11+00 140

π e 11+00

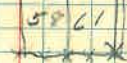
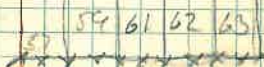
12+60 160

π e 12+60

15+00 240 Rock pile NW cor 65

π e NW cor 65

3+00 300 Rock pile W of 65



Te NW cor 65 Running West

5+40 540

Te 5+40

7+10 170 on Rim

Te 7+10

13+84 ⁸³⁵ 674 -26-02

Te 13+84

15+00 116 Rock pile NW cor 67

Te NW cor 57 Running South

1+00 100

Te 1+00

3+00 200 Rock Pile W of 67

4+79 ⁴¹⁰ 379 +12-50

Te 4+79

5+39 66

Te 5+39

6+00 ⁶¹ Rock Pile SW cor 67 NW cor 66

Te NW cor 66 Running South

1+13 ¹²⁰ 113 +13-50

Te 1+13

1+73 60

Te 1+73

3+46 ²⁰⁰ 173 -21-30

674

116

790

773

-26-02 = 8074

835

40870

24222

64592

6741790

7/11/51

M.P.

H.P.

J.A.

12+10 = 2.25

410

950

870

379.50

13-50 = 94

100

1880

94

11280

Te 1+73

3+00 - 46 Rock pile W & 66

5+04 ³⁶⁰ 331 -12-30

6+00 +96 with board Rock pile NW cor 57 SW cor 66

Te 13+84 Running East No side 67

⁶³⁰ 522 +24-16

⁵⁷⁰ 477 23-41

9+00 +7 Rock pile SW cor 68

Te 7+10 Running East

6+00 710 Rock pile S side 68

Te 6+00

3+00 301 Rock pile SE cor 68

Te SE cor 68 Running North

2+10 210

2+40 +36

Te 2+40

12+60 1020

Te 12+60

15+00 240 Rock pile NE cor 68

700
116
484
316

16-31 92

360

5520

276

33120

24-18 83

230

2790

498

52200

838

570

58160

4190

47760



68



Tc NE cor L8 Running Wes
 0+90 90 01 Rim
 6+10 ⁵⁷⁰ 520 -17-14

6+00 -100 Rock pile NW lot. 68

Tc 6+10 Running East
 2+94 ³²⁰ 716 716-32

3+00 Rock pile NE 68

Tc NE 68 Running North

0+80 80

Tc 0+80

1+95 115

Tc 1+95

3+00 105 Rock pile W 69

5+85 ⁴¹⁰ 390 -13-30

6+00 +15 Rock pile NW lot 69

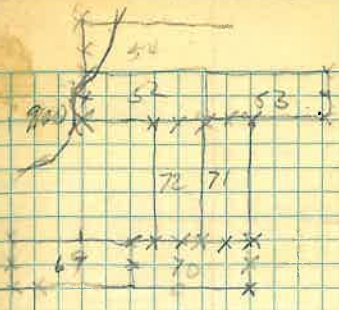
-17-14 = 9122
⁵⁷⁰
 638540
 45610
 5199540

16-26 = 92
³⁴⁰
 1940
 276
 29040

-13-30 = 95
⁴¹⁰
 950
 320
 3890

The NW cor 68 Runway East
 2+90 290
 The 2+90
 4+45 155
 The 4+45
 7+45 320 on point
 15+95 1140
 The 15+95 Small Rock pile 100
 17+45 160 +12-30
 24+40 710 -2-35
 The 24+40
 25+40 130 +28-42
 100
 The 25+40
 26+40 100
 27+00 460 Rock pile SE cor 7170

 The SE cor 70 Runway North
 0+60 60
 5+55 510 -9-45
 495
 The 5+55
 6+00 45 Rock pile NE cor 70
 3+00 -255 " " E cor 70



7-12-51

MRP
LRR
JA

700
144
955

953
 100
 52180
 953
 152935
 778
 210
 988
 6846
 69438
 28-483,768

67 4 65
 77
 3710
 970
 185
 794 70

The NE cor 70 Running West
 3+15 ³²⁵ 315 - 10-0-
 3+00 -15 Rock pile S of 71
 The 3+65
 4+60 95
 The 4+60
 5+05 45
 The 5+05
 6+00 +95 Rock pile SE cor 72
 9+30 ⁴⁹⁵ 425 SW cor 71
 -22-16
 9+00 -30 Rock pile S of 72
 13+37 ⁸⁷⁵ 832 -14-15
 12+25 ¹⁷⁰ 720 -15-18
 12+00 -25 Rock pile SW cor 72
 14+45 ⁹⁹⁰ 942 -12-45
 15+00 +55 Rock NW cor 70
 NE cor 69

The NW cor 70 Running South
 0+95 95
 The 0+95
 2+50 155
 The 2+50
 3+00 50 Rock pile E of 69
 W of 70

625
 94
 2+75
 2+25
 31.525
 22-10= 8376
 .495
 42880
 77184
 34304
 4244120
 12-45= 9513
 996
 956170
 85617
 9417870

9394
 878
 46970
 65758
 76152
 8019750

15-10= 9316
 970
 652120
 65512
 7208320

Tc 2+200 So from E of 52
91+400 -35-08
74

3+00 +6 Rock pile 52/53
72/71

Tc 52/53
72/71 Running East
1+60 160 7820

Tc 1+60
125

3+00 +15 Rock pile N of 71

6+00 440 Rock pile NE of 71

Tc - 1+60 Running West No End 72

1+90 350

Tc 1+90

3+00 110 Rock pile N of 72

6+00 410 " " NW of 72

167
10

acc page 12

acc 35-08 = 87792

91
51782
736038
7442162

160
160
440
370
80

7/13/57
410
170
540

To VE Running West
 0+56 ⁶⁵ 56 -22-20
 To 0+56 -27-07
 3+81 ¹¹⁸ 325
 9+77 ¹⁰⁴⁰ 921 -19-45
 To 9+77
 8+01 -176
 To 8+01 Running south
 0+45 45 Rock pile W of 52
 2+00 200
 To 2+00
 3+57 ¹⁷⁰ 1.57 +16
 -12
 3+45 Rock pile SW cor 52
 To 8+01 Running North = 0+45
 3+95 350
 To 3+95
 3+06 -95 Rock pile SW cor 52
 6+23 230
 To 6+25
 6+00 -25 Rock pile W of 54
 8+22 ²²⁰ 197 +19
 To 8+22
 9+00 .78 Rock pile NW cor 54

VE → $\frac{54}{52} = N 255 W 801$
 .8556 27-07 = 792
 65 410
 42780 7920
 51306 8268
 55 1140 324.7 22
 .8858 424
 1040 170
 354320 64680
 8858 924
 9212320 1570 88
 .895 224
 17900
 1750
 176900

Π e NW cor 54 Running North

2+70 270

Π e 2+70

3+65 95

Π e 3+65

6+85 320

Π e 6+85

6+80 -85 Rock pile SE cor 50

9+20 235

9+00 -20 Rock pile E φ 50

Π e W φ 52 Running West

4+10 ⁴⁴⁰
410

+15-25

Π e 4+10

6+47 ⁵⁶⁰
237

+11-20

Π e 6+47

6+10 253 Rock pile SE cor 51

Π e SE cor 51 Running West

2+27 ²⁵⁰
227

+17-30

Π e 2+27

3+00 +23 Rock pile S φ 51

Π e 3+30

250

6+00 +20 Rock pile SW cor 51

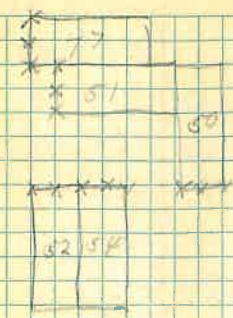
15-25 = .73
440
3720
372
40920

17-21 = .91
260
5460
182
20680

.91
250
4550
182
22730

63
975
395
4875
8775
2425
385125

| | |
|--------------|----------------------------------|
| To SW cor 51 | Running S45E |
| 3285 | 390 385 |
| 4435 | 440 440 370 |
| 3770 | 370 370 297 |
| 600 | 43 |
| | Rock pile S45E 47 |
| | Running S45E -21-35 -21-40 |
| | Rock pile SE cor 47 |



865
 440
 3460
 3660
 3706
 464
 340
 34560
 2593
 296.760

| Levels | N. 1. | M. 1. | P. 1. | D. 1. | H. 1. |
|---------|-------|--------|------------------|-------|---------|
| A.M | 1.86 | 376.86 | | | 5375.00 |
| | 7.41 | 372.14 | 12.13 | | 364.73 |
| D.D. 10 | | | 6.60 | | 365.54 |
| 8 | 0.60 | 366.24 | 6.50 | | 365.64 |
| 7 | | | 9.50 | | 356.74 |
| 6 | | | 10.54 | | 358.70 |
| T.P | 1.84 | 357.77 | 10.31 | | 355.93 |
| 5 | | | 8.18 | | 349.59 |
| 4 | 12.63 | 363.13 | 7.27 | | 350.50 |
| 3 | 12.73 | 373.60 | 2.26 | | 360.87 |
| 2 | | | 8.12 | | 365.48 |
| T.P | 5.41 | 377.29 | 1.72 | | 371.88 |
| 1 | | | 7.63 | | 369.66 |
| T.P | 4.25 | 379.72 | 1.92 | | 375.47 |
| 9 | | | 8.23 | | 371.49 |
| 01 | 3.52 | 312.20 | | | 5308.68 |
| T.P | -1.91 | 310.43 | -0.34 | | 312.54 |
| 02 | -4.78 | 306.75 | -0.90 | | 311.53 |
| | -2.10 | 304.97 | -0.32 | | 307.07 |
| T.P | -4.30 | 300.99 | 0.32 | | 305.29 |
| | -3.34 | 298.28 | 0.63 | | 301.62 |
| 08 | -1.51 | 297.20 | -0.43 | | 298.71 |
| 04 | -1.34 | 297.07 | -1.21 | | 299.41 |
| 06 | | | -1.77 | | 298.84 |
| D.H | Flood | | +5.26 | | 293.86 |

M 5375.00
 01 = 5308.68

7/17/51 32

Note No. 10 Callar to Back 6670

365.64
 6670
 298.94

| | | | |
|----|-------|--------|--------|
| 03 | -1.42 | 298.09 | 298.71 |
| 05 | | -0.90 | 297.99 |

Traverse Δ5 to ?

| | | | | |
|---|--------------------|--------------------|--------|-------------|
| | Te Δ5 | FS Δ3 | | H.I. = 65 |
| 1 | ^R 29-33 | -4-40 | 152.88 | |
| | Te 1 | BS Δ5 | | H.I. = 40 |
| 2 | ^L 54.22 | -14-30 | 135.85 | |
| | Te 2 | BS 1 | | H.I. = 39.5 |
| 3 | ^R 77.22 | -22.55 | 29.89 | |
| | Te 3 | BS 2 | | H.I. = 40.5 |
| 4 | ^L 48-10 | -6-28 | 116.14 | |
| | Te 4 | BS 3 | | H.I. = 50.5 |
| 5 | ^R 37.38 | -2-30 | 137.02 | |
| | Te 5 | BS 4 | | H.I. = 39 |
| 6 | ^R 51-06 | -0-06 | 130.88 | |
| | Te 6 | BS 5 | | H.I. = 40 |
| 7 | ^L 43.23 | +14-50 | 84.82 | H.P. 10 |
| | Te 7 | FS L | | |
| | Δ5 | ^L 17-30 | | |

Three point Δ Vossburg - Δ5 - Δ3

| | |
|----------|--------|
| Vossburg | 0-0 |
| Δ5 | 120-44 |
| Δ3 | 218-07 |
| Voss | 360-00 |

7/17/51

3/4 PIPE

| No #7 | | E.S. 15 | | H.I. = 45 |
|-------|------|-------------------------|-------|-----------|
| Rd 1 | 215' | R ⁺ 58-30 | -4-02 | |
| Rd 2 | 315 | R ⁺ 49-00 | -4-30 | |
| Rd 3 | 310 | R ⁺ 29-40 | -4-50 | |
| Is/db | 330 | L 9-40 | -8-25 | |
| db | 335 | L 5-38 | -6-15 | |
| " | 360 | L 32-20 | -5-02 | |
| Is | 490 | L 24-45 | +0-17 | |
| db | 420 | L 15-33 | -0-12 | |
| " | 420 | L 8-04 | -0-05 | |
| " | 430 | L 2-20 | +0-40 | |
| " | 500 | R 9-46 | +1-24 | |
| " | 440 | R 24-20 | +2-35 | |
| " | 390 | R 30-52 | +1-30 | |
| " | 370 | R 43-16 | +0-45 | |
| " | 360 | R 51-55 | +0-15 | |
| " | 360 | R 62-22 | +0-20 | |

| No 6 | | B.S. 5 | | H.I. = 38 |
|---------|----|-------------------------|--------|-----------|
| dump | 65 | R ⁺ 15-15 | -10-30 | |
| portal | 65 | L 0-30 | -5-12 | R = 9.8 |
| slip | 55 | R 0-12 | -4-30 | |
| cont. ? | 40 | L 42-10 | +12-40 | |
| " " | 60 | L 73-00 | +19-00 | |

7/18/57 85

M.P.
H.P.
V.A.

| No 5 | | FS 4 | | H.I. = 3.9 | |
|-------|----|------|-------|------------|-----|
| Holes | 33 | 6 | 25-15 | 0-0 | 6.8 |
| " | 45 | 8 | 91-52 | 0-0 | 4.0 |

| No 2 | | BS 1 | | H.I. = 3.8 | |
|------|-----|------|-------|------------|--|
| 6 | 245 | 3 | 2-20 | -6-15 | |
| " | 240 | " | 58-05 | -6-43 | |
| " | 245 | " | 73-12 | -9-40 | |
| " | 285 | " | 81-15 | -9-55 | |
| " | 315 | " | 80-50 | -7-35 | |
| " | 380 | " | 85-50 | -7-00 | |

8 = 191.05

| | |
|-----|--------|
| 9 = | 180.51 |
| 10 | 176.22 |
| 11 | 174.54 |

13.4.181 Page 32

Levels to A5

| | | | | |
|--------|--------|-------|--------|------|
| 1.71 | 178.33 | 10.7 | 176.62 | #10 |
| 0.84 | 175.26 | 3.94 | 174.42 | |
| 0.31 | 162.81 | 12.76 | 162.50 | |
| 3.63 | 154.93 | 11.57 | 151.30 | |
| 5.30 | 160.05 | 0.18 | 154.75 | |
| 2.90 | 159.80 | 3.15 | 156.90 | |
| 12.02 | 160.18 | 11.64 | 148.16 | |
| 11.96 | 168.08 | 4.06 | 156.12 | |
| 12.00 | 179.74 | 0.30 | 167.78 | |
| 12.79 | 192.09 | 0.48 | 179.30 | |
| 12.78 | 204.60 | 0.27 | 191.82 | |
| 12.97 | 216.65 | 0.92 | 203.68 | |
| 12.60 | 229.12 | 0.13 | 216.52 | |
| 13.01 | 241.28 | 0.85 | 228.27 | |
| 13.09 | 253.81 | 0.52 | 240.72 | |
| 13.16 | 266.83 | 0.14 | 253.67 | |
| 13.01 | 279.58 | 0.31 | 266.52 | |
| 11.47 | 290.43 | 0.62 | 278.96 | T.P. |
| | | 4.57 | 285.86 | B.M. |
| 11.13 | 301.03 | 0.53 | 289.90 | |
| 12.67 | 313.18 | 0.52 | 300.51 | |
| 5.92 | 317.23 | 1.87 | 311.31 | |
| A5 | | 2.70 | 314.53 | A5 |
| 195.32 | | 57.41 | | |
| 57.41 | | | | |
| 137.91 | | | | |

314.53

176.62

37.91

37

7/18/51

Exp. T.
Hip. P.

Rock No. of Road in Saddle

| | | | | |
|-------|--------|-------|--------|------|
| 0.79 | 279.75 | | 278.96 | TIP |
| | | 12.60 | 267.15 | |
| 0.24 | 269.06 | 11.93 | 267.82 | 3 |
| 1.99 | 260.81 | 9.24 | 258.82 | 4 |
| | | 4.21 | 256.60 | 5 |
| 11.32 | 271.94 | 0.19 | 260.62 | TIP |
| 11.72 | 283.41 | 0.25 | 271.69 | |
| 5.82 | 287.88 | 1.35 | 282.02 | |
| 12.64 | 297.35 | 3.17 | 284.71 | B.M. |
| 2.44 | 297.48 | 2.31 | 295.04 | |
| | | 12.44 | 285.04 | #7 |

The Mill | B.S. A. Vossberg
 House | Station | 1-20 -6-27 82 -152
 1343

Rock 15' West of Road in saddle

Iron pipe star #2 EX.

Traverse Road #5 to Junction

| | | | | |
|-----|--------|----------|-------|-------------|
| | Te 7 | B.S. Δ 5 | | H.I. = 4.5 |
| 1 | 185 | L 83-30 | -0-00 | H.I. = 2.5 |
| | Te 1 | B.S. 7 | | H.I. = 4.9 |
| | 115 | R 94-12 | +3-00 | |
| | Te 2 | B.S. 1 | | H.I. = 4.75 |
| 3 | 240 | L 2-54 | -5-12 | |
| | Te 3 | B.S. 2 | | H.I. = 4.7 |
| R | 65 | L 102-00 | 0-0 | 8.5 |
| | 180 | L 94-36 | -2-34 | 12.0 |
| | 315 | L 73-30 | -5-40 | |
| | 340 | R 20-25 | -9-25 | |
| | 440 | R 29-00 | -5-45 | |
| | 500 | R 47-33 | -3-45 | |
| # 4 | 640 | R 40-20 | -1-00 | |
| | Te # 4 | B.S. # 3 | | H.I. = 4.6 |
| # 5 | 275 | L 56-24 | +5-25 | 7.0 |
| | Te # 5 | B.S. # 4 | | H.I. = 4.9 |
| # 6 | 375 | R 41-26 | +1-36 | |
| | Te # 6 | B.S. # 5 | | H.I. = 5.1 |
| # 7 | 325 | L 23-47 | +1-48 | |
| | Te # 7 | B.S. # 6 | | H.I. = 4.8 |
| # 8 | 255 | L 38-15 | -0-08 | |
| | Te # 8 | B.S. # 7 | | H.I. = 4.7 |
| # 9 | 390 | L 14-24 | +1-53 | |

| | | |
|--------------|---------------|------------|
| π e # 9 | BS # 8 | H.I. = 5° |
| # 10 330 | L 10-24 +2-42 | |
| π e # 10 | BS # 9 | H.I. = 4.9 |
| # 11 195 | R 23-22 +4-32 | |
| π e # 11 | BS # 10 | H.I. = 4.9 |
| # 12 500 | L 29-55 -2-50 | |
| π e # 12 | BS # 11 | H.I. = 5.1 |
| # 13 175 | L 6-30 0-0 | BS |

Good Junction

7/21/51

M.P.
H.P.
J.A.

| | | | | |
|-------------------------|----------|--------|--------|-------------|
| Traverse to Channel #1 | | | | |
| T.C. B | B.S. AM | | | H.I. = 4.5 |
| C-1 | R 23-13 | 47.70 | -3-04 | |
| T.C. C-1 | B.S. B | | | H.I. = 4.5 |
| C-2 | L 47-14 | 134.98 | -2-25 | |
| T.C. C-2 | B.S. C1 | | | H.I. = 4.1 |
| C-3 | R 52-28 | 41.82 | -4-25 | |
| T.C. C-3 | B.S. C-2 | | | H.I. = 4.5 |
| C-4 | L 11-27 | 57.64 | -11-35 | |
| T.C. C-4 | B.S. C-3 | | | H.I. = 4.4 |
| C-5 | L 24-31 | 60.02 | -18-00 | |
| T.C. C-5 | B.S. C-4 | | | H.I. = 4.3 |
| C-6 | R 26-24 | 56.42 | -14-46 | |
| C-7 | R 29-45 | 99.68 | -11-22 | |
| T.C. C-7 | B.S. C-5 | | | H.I. = 4.2 |
| Channel #1 Low Fibre | L 5-40 | 20.0 | 0-0 | Rod 11.0 |

| | | | | |
|--------------|----------|-----------------------|-------|----------|
| T.C. C-7 | F.S. C-5 | | | |
| Iron Pipe | R 3-44 | On center top of pipe | | |
| B | 6.59 | 365.45 | | 358.86 |
| C-2 | 3.54 | 363.21 | 5.78 | 359.67 |
| C-3 | | | 2.74 | 360.47 ✓ |
| C-4 | 0.33 | 353.73 | 9.81 | 353.40 ✓ |
| T.P | 0.51 | 343.17 | 11.07 | 342.66 |
| Iron Pipe | | | 6.93 | 336.24 |
| T.P | 0.90 | 331.77 | 12.30 | 330.97 |
| C-7 | | | 7.85 | 323.92 |

Iron Pipe

Traverse at No 2

| | | | | |
|------|---------|-----------|--------|-------------|
| | Tc 7 | B.S. Δ5 | | |
| # 8 | 28-20 | 66.97 | | |
| | Tc 8 | B.S. 7 | | H.I. = 4.5 |
| # 9 | 42-35 | 87.41 | -0.05 | 0.20 Rod |
| # 7 | | | | 1.05 Rod |
| | Tc #9 | B.S. #8 | | H.I. = 4.3 |
| # 10 | RD. 21 | 100.05 | -11.27 | |
| | Tc # 10 | B.S. #9 | | H.I. = 4.3 |
| # 11 | 30-30 | 65.73 | -10.02 | |
| | Tc # 11 | B.S. # 10 | | H.I. = 4.3 |
| # 12 | 25-19 | 151.42 | -7.32 | |
| | Tc # 12 | B.S. = 11 | | H.I. = 4.3 |
| # 13 | 28-06 | 119.11 | -4.47 | |
| | Tc # 13 | B.S. 12 | | H.I. = |
| # 14 | 25-43 | 93.25 | -1.30 | |

| | | | | |
|-------|--------|-------|--------|-----|
| 11.05 | 296.09 | | 285.04 | 47. |
| | | 4.5 | 291.59 | #5 |
| | | 0.20 | 295.89 | #9 |
| 1.45 | 284.61 | 12.93 | 283.16 | TR |
| 2.60 | 278.89 | 8.32 | 276.29 | #10 |
| 0.55 | 272.41 | 7.03 | 271.86 | #11 |
| 1.30 | 262.55 | 11.16 | 261.25 | TR |
| 2.61 | 258.91 | 6.35 | 256.20 | #12 |
| 3.06 | 253.59 | 8.28 | 250.53 | #13 |
| | | 5.15 | 248.40 | #14 |

Mine Survey

T O L

| | | | |
|---|------|------|-----|
| 1 | S75W | 75 | 7.2 |
| 2 | S62W | 16.5 | 7.4 |
| 3 | S8W | 15 | 6.8 |
| A | S6E | 18 | 8.1 |

To A

| | | | |
|---|------|------|-----|
| 1 | N57W | 4 | |
| 2 | S49N | 9.5 | |
| 3 | S18N | 9 | |
| 4 | S43E | 4 | |
| 5 | S73E | 14.5 | 6.2 |
| 6 | N87E | 16.5 | 6.2 |

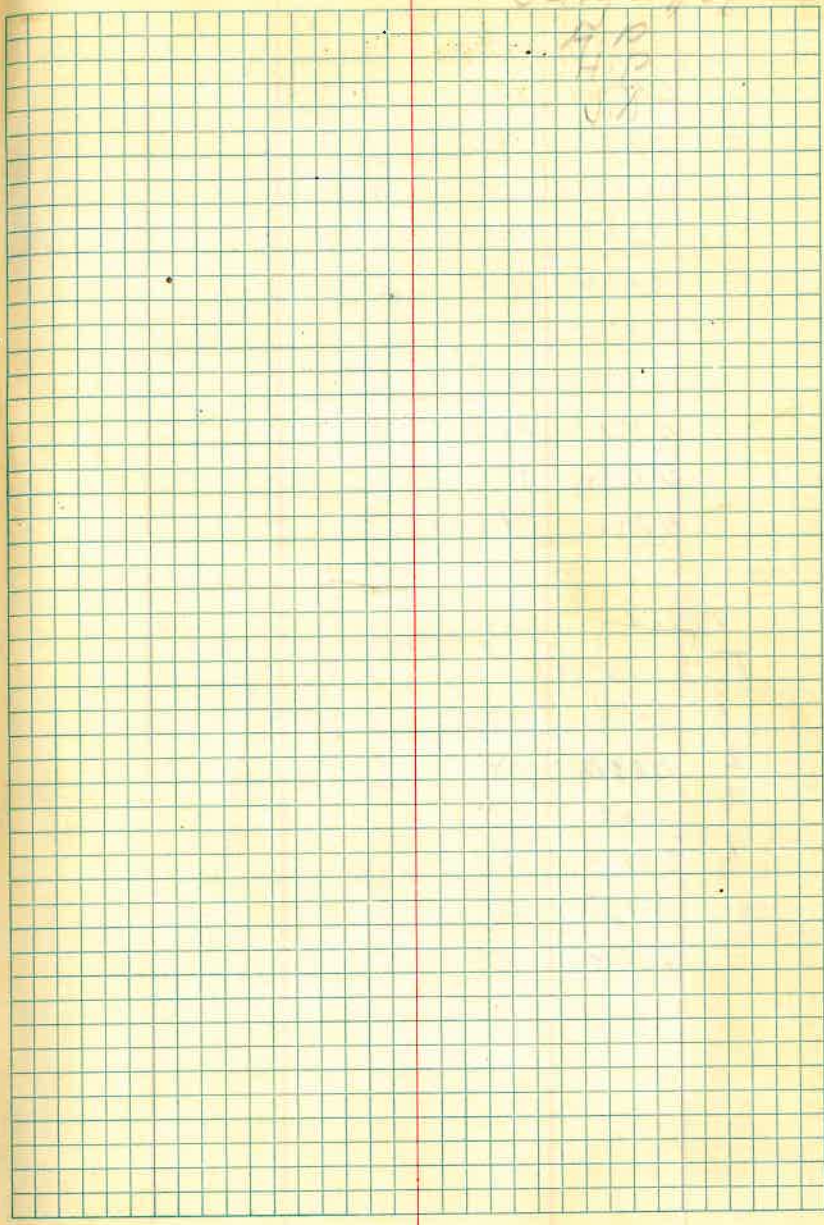
B N83E 33.5

To B SOW 6.7

| | | | |
|---|------|-----|-----|
| 1 | S78W | 14 | |
| 2 | S48W | 14 | |
| 3 | SOW | 8.5 | 6.5 |
| 4 | S52E | 12 | 6.4 |
| 5 | S76E | 23 | 7.1 |
| 6 | S79E | 39 | 6.9 |

July 24, 51⁴⁴

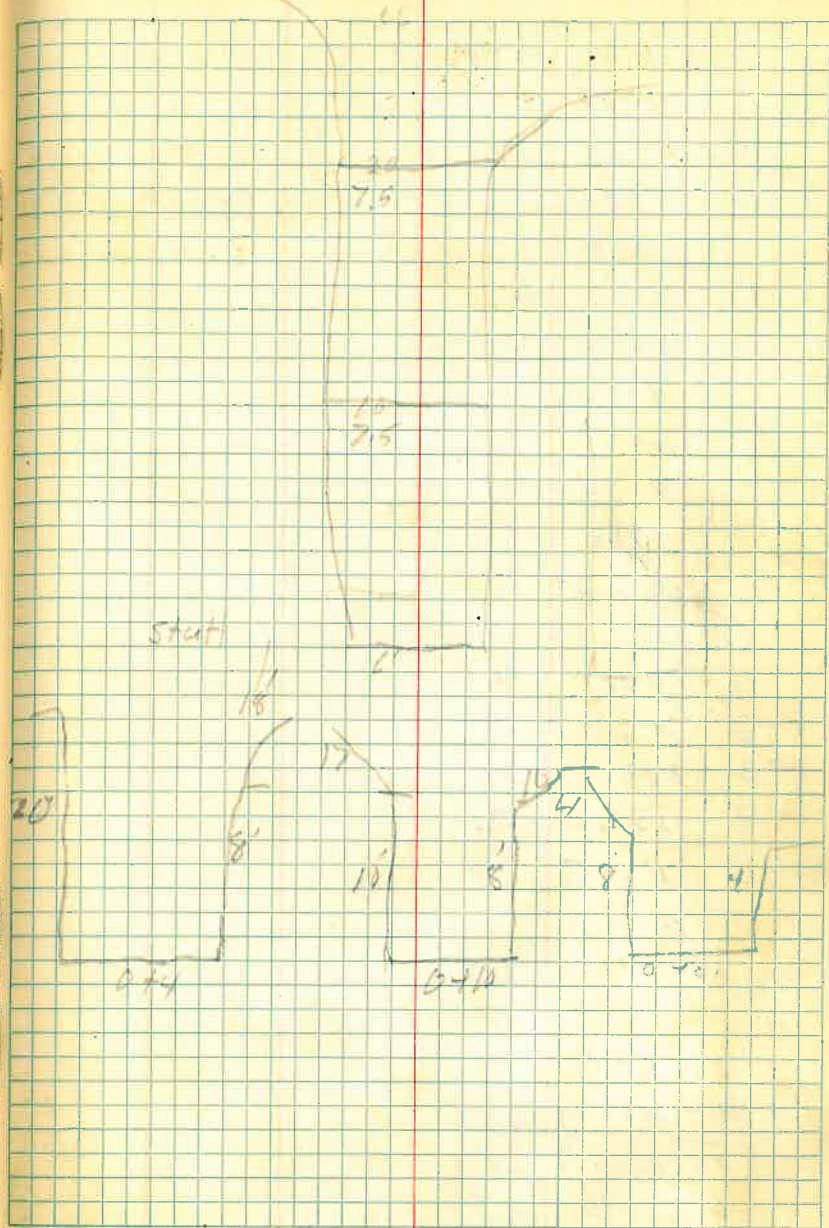
M.P.
H.P.
J.P.



| T | Dir | Dist | Mag |
|----|--------|------|-----|
| 1 | S52W | 17 | 6.5 |
| 2 | S48.1W | 11.5 | 6.0 |
| 3 | S1W | 7.5 | |
| 4 | S62E | 15 | 6.2 |
| 5 | N43E | 7.5 | 6.9 |
| 6 | N43E | 10.5 | 7.2 |
| 7 | N12E | 11 | |
| 8 | N4W | 16.5 | 6.7 |
| 9 | N10W | 26.5 | 7.3 |
| 10 | N23W | 37 | 6.2 |
| 11 | N25W | 37.5 | |

No. 2 Mine

| T | Dir | Dist | Mag |
|-------------|------|------|-----|
| T to Portal | | | |
| 1 | S4E | 15.5 | 6.8 |
| 2 | S23E | 18 | 6.6 |
| 3 | S36E | 17.5 | |
| 4 | S37E | 11.5 | |
| | N72E | 3.5 | 5.4 |
| | S90W | 3 | |



No 2 South

T.A. #14

A N31W 29.5

T.A.

B N58E 30

Portal

1 N7E 2.5

2 N16E 11

3 N32E 21.5

4 N44E 16.5

5 N47E 9.5

6 N73E 4.5

} db

7 S28E 4.0

C N37E 18.

T.C

1 N70E 12.5

2 N72E 19

3 N80E 20

4 S32E 2

D N80E 18

T.D

1 N40E 8.5

2 N40E 18

3 N51E 18

4 N56E 23

5 N64E 28

6 N69E 8.5

db

E N62E 25

$\pi_e E$

| | | | |
|---|------|----|-----|
| 1 | N23E | 12 | |
| 2 | N25E | 25 | |
| 3 | N34E | 21 | Gob |

| | | | |
|---|------|---|-----|
| 5 | S72E | 4 | Gob |
|---|------|---|-----|

| | | | |
|---|------|------|--|
| F | N30E | 23.5 | |
|---|------|------|--|

 $\pi_e E$

| | | | |
|---|------|----|--|
| 1 | N55E | 10 | |
|---|------|----|--|

| | | | |
|---|------|----|--|
| 2 | N71E | 15 | |
|---|------|----|--|

| | | | |
|---|------|----|----|
| 3 | S82E | 14 | db |
|---|------|----|----|

| | | | |
|---|------|---|-----|
| 4 | N85E | 8 | Gob |
|---|------|---|-----|

 $\pi_e \#9$

H.I. = 47

| | | | |
|------|----------------------|-------|-------|
| # 10 | ⁵¹⁰ 99 | N74.5 | 11-38 |
|------|----------------------|-------|-------|

| | | | | |
|------|--------|--|--------|----|
| 0.78 | 296.67 | | 295.89 | #9 |
|------|--------|--|--------|----|

| | | | | |
|------|--------|-------|--------|--|
| 3.45 | 287.81 | 12.26 | 284.41 | |
|------|--------|-------|--------|--|

| | | | | |
|--|--|------|--------|-----|
| | | 7.38 | 280.93 | #10 |
|--|--|------|--------|-----|

Triangulation #11 - Cherry

T & A 12 F.S. A 11
 Ach 1 41-47
 60 250-39 = 41-46-30
 61 141-16-30 = 41-46-25 +05

F.S. A Cherry
 Mill 1 31-13
 60 187-20 = 31-13-20
 61 144-2 = 31-13-30 0

T & Mill F.S. A 12
 Mill 1 50-01
 60 300-00
 61 240-02 = 50-00-10 +10

T & A Mill F.S. A 11
 Ach 1 55-50
 60 34-56 = 55-49-20 -
 61 67-49 = 55-49-05 +10

T & A Mill F.S. A 12
 Ach 1 55-50
 61 334-57 = 55-49-30
 60 309-53 = 55-49-25

250-39
 41 249
 41-46-30
 360 0000
 141-16-30
 12 1501
 45 556
 12 72
 9 72
 4
 197-20
 31-13
 13
 134-36
 5 286
 49
 224
 134-17
 55 297
 47 150
 30
 55-49-20
 350 595
 12 409 48
 60 113
 60 104
 10
 31-13
 14-42
 320
 344 162 300
 36 12
 374 12
 12 31
 1
 50-00
 240-00
 380
 12 600
 21 49-05
 5
 12 69-44
 60 580
 9 589
 24
 109
 109
 1

T c A11 F.S. A Cherry
 Δ Mill 1 4-48
 60 28-53 = 4-48-50
 61 57-46 = 4-48-50 +10"

F.S. A Mill
 Δ 12 1 57-60
 60 34-57 = 56-59-80
 61 323-53 = 56-59-25 +25"

F.S. A Cherry
 Δ 12 1 61-48
 60 18-49 = 61-48-10
 61 21-39 = 61-48-15 +25"

F.S. A Mill
 Δ Quassburg 30-17 99
 Δ Walnut 39-11
 Δ Amherst 63-57

| | | | |
|--------|-------|-------|----------|
| 240 | | | 41 48 50 |
| 28-53 | | | 56-59 80 |
| 270 | | | 61 48 50 |
| 48 | | | |
| 341-59 | | | 4-48-50 |
| 60-59 | 80 | | 56-59 80 |
| 56 | | 57-80 | 61 48-15 |
| 323-53 | | | |
| 360 | 660 | | |
| 1083 | 53 | 300 | |
| 50 | 113 | 24 | |
| 53 | 60 | | |
| 92 | 113 | | |
| 11 | 104 | | |
| | 5 | | |
| 10-49 | | | |
| 360 | 2-10 | | |
| 370 | 289 | | |
| 61 | | | |
| 61 | 48-10 | | |
| 21-39 | 48-15 | | |
| 720 | 540 | 180 | |
| 941 | 574 | 12 | |
| 15 | 72 | 7 | |
| 21 | 99 | | |
| 12 | 92 | | |
| 9 | 0 | | |

π e 03

No 1. Mine

| | | | |
|---|------|-----|-----|
| 1 | N23W | 9.5 | 6 |
| 2 | N4E | 8.5 | 6 |
| 3 | N61E | 9.5 | 6.7 |
| 4 | N90E | 19 | 7.7 |
| 5 | S60E | 42 | 7.3 |

π e 06 S5E 17.2

A S50 19.2

π e A

| | | |
|---|------|------|
| 1 | S17W | 8 |
| 2 | S17W | 14.5 |
| 3 | S32W | 13.5 |
| 4 | S52W | 9.5 |
| B | S87E | 56.8 |

π e B

| | | |
|---|------|--------|
| 1 | S84W | 7 |
| 2 | S15W | H=7. 6 |
| 3 | S18E | 8.5 |
| 4 | N70E | 11.5 |
| C | N74E | 8 |

π e C

| | | |
|---|------|------|
| 1 | N43E | 17.5 |
| 2 | N33E | 18 |

Flug 8 1951 51

14.10
14.10
JA

No 2 Mine

Tie 1

2 S3E 31'

Tie 2

1 N9W

1 S32E 19.5 H = 6.7

2 S23E 19.5

3 S19E 25.5 Face

4 S1E 25

Aug 8, 1951

52

1 = Nail in cap at Portal
2 = " Wedge in drift

H.P.
H.P.
J.P.

Location 1/4 cor. + Camp
 The A Mill FS. & Cherry
 M.S. 1 90-31 RT
 2 181-52
 4 2-04
 1380 - 1344 - 6-18

The M.S. FS A Mill
 1/4 cor 116-25 690' -0-42

| Shed | 95 | 121-15 | S23W |
|--------------|-----|--------|---------|
| COOK Shr. | 85 | 99-10 | S1W |
| Cabin | 190 | 91-25 | S7E |
| Comm. | 108 | 69-00 | S29-20E |
| cabin | 240 | 50-15 | S48E |
| Mill | 130 | 17-45 | N74E |

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8/11/51

54

~~988~~
~~7340~~
~~59280~~
~~2967~~
~~988~~
 1343.680

55
Brunton Survey #12 Mine

Pearce

Bob Sorenson

12-27-53

| | | | |
|---|----|------|------|
| A | 1 | N85E | 3.5 |
| | 2 | N6E | 6.5 |
| | 3 | N23W | 9 |
| | 4 | N42W | 8.5 |
| | 5 | N51W | 4 |
| | 6 | S78W | 3 |
| | 7 | S17E | 5 |
| | 8 | S33W | 9 |
| | B | S54W | 13 |
| B | 9 | S35W | 11 |
| | 10 | S56W | 10.5 |
| | 11 | S87W | 10 |
| | 12 | S79W | 17.5 |
| | 13 | N6W | 17 |
| | 14 | N55W | 7 |
| | 15 | N5W | 4 |
| | C | S56W | 22.5 |
| C | 16 | N90E | 9.5 |
| | 17 | S30W | 2 |
| | 18 | S45W | 6 |
| | 19 | N75W | 6 |
| | 20 | N66W | 10.5 |
| | 21 | N46W | 18 |
| | 22 | N41W | 7.5 |
| | 23 | N39E | 4 |

E side Raise #1
Short Total 1/2" between 3+4

1/11 + 1/2"
1/11 from Raise to 8

E side Raise #2

4/11 1+2 fiber 10 to 11

1/11 Short 11 to 12

SPOTS Short 13 to 14

dk 14 back # 20

22-23 2/11 1+2
10 to 23 3/11 1+2 fibre

| | | | |
|---|----|------|------|
| C | D | N50W | 13' |
| D | | | |
| | 24 | N33W | 19 |
| | 25 | N20W | 24 |
| | 26 | N13W | 20.5 |
| | 27 | N0W | 5.5 |
| | B | N16W | 21.5 |
| E | F | N84W | 27 |
| F | 28 | S65E | 12 |
| | 29 | S13E | 0 |
| | 30 | N60E | 4 |
| | 31 | N26E | 9.5 |
| | 32 | N3W | 18 |

db - 250 S60W

Strike N46W dip $7\frac{1}{2}^{\circ}$ SW

Spot over 26 304 feet long
average 141. short fibre

31 short + long 24 to 28 so side

db in back of D

Drift approx 25' duck/gabbel

10' W E db in back

spots $\frac{1}{2}$ in back 31-32

Transit traverse No 2

Time to check coordinates

12-30-53

Pearce

Olivas

| Sta | Pt | H _A | V _A | Slope | Dist | Dist |
|-----|------|----------------|----------------|-------|-------|-------|
| A5 | A | 325-55 | -8°-18 | | 54.76 | 53.59 |
| A | A5 | | | | | |
| | B | 186-16 | -28-00 | | 95.58 | 84.37 |
| B | A | | | | | |
| | C | 321-53 | | | | 20-60 |
| C | A' | 232-22 | | | | 10-00 |
| | Face | 177-10 | | | | 35-0 |

Three point Location W2

19. Pacific

1-4-54

T c W-2
 Vosb to VE
 1 47-10
 6 283.00
 12 205.59.0 = 47-09.55
 VE to W 47-10-00
 1 128.03
 6 48-12 = 128-02
 12 96-26 = 128-02-10
 128-02-15
 W to Vosb
 1 184-47
 6 28.45 = 184-47.50
 12 57.82 = 184-47-40
 184-47-45
 W to Cherry
 1 51-23
 3 154-11
 6 308-23 = 51-23-50
 Cherry to Vosb
 1 133-22
 3 40-10 = 133-23-20
 6 80-22 = 133-23-40

47-10
 $\frac{6}{283.00}$

360 47-09.55
 $\frac{54.41}{205.59}$

$\frac{220}{47-12}$
 $\frac{1760}{128}$
 $\frac{1440}{96-26}$
 $\frac{1536}{32}$
 $\frac{144}{24}$
 $\frac{96}{72}$
 $\frac{1080}{28.45}$
 $\frac{1108.45}{2160}$
 $\frac{57.82}{221732}$
 $\frac{12}{108}$
 $\frac{96}{57}$
 $\frac{48}{19}$
 $\frac{360}{40-10}$
 $\frac{5400}{133-23-20}$
 $\frac{133-23-40}{51-22-50}$
 $\frac{154-46-30}{720}$
 $\frac{80-22}{133-23-20}$
 $\frac{133-23-40}{51-22-50}$
 $\frac{154-46-30}{43}$

12 54.41
 48 119
 84 102
 84 19
 128 128-02-10
 758.18
 184.47
 128-03
 47-10
 360.00
 184-47-50
 47-10
 128-02-10
 184-47-50
 500.00.00
 184-47-40
 47-09-55
 128-02-10
 184-47-40
 359.59.45
 308-23-20
 51-23
 133-23-20
 133-23-40
 51-22-50
 154-46-30

$\frac{302}{50} \frac{153}{173}$
 360
 352-17
1812 257 300
 118 - 42 - 50

720 118 - 43 - 20
342 -10 1080
 1062 370 344-40 520
360 30 1424 48
 1422 10 12 40
12 22 36
24 12 4
102 108
96 96
6

360 56 - 27 - 05 190.49
 245-47 50.29 -
12/605 347 118.42.30
60 24 360.00.30
 109
 104
 1

1580 319 59.40
 64-49 - 47-50 170-47.30
1144-47 2160
 190 287 127-52-4
 24 12 2287 32
 47 14 108 580
 42 144 872
 1

Three-point Location
 Buckhorn South
 1-7-54
 M. Pearce

Tc BHS

$\Delta 11$ to $\Delta 12$

1 118-42-30

6 352-17 = 118-42-50

12 344-40 = 118-43-20

$\Delta 12$ to NO 2

1 50-29-00

6 302-53-00 = 50-29-50

12 245-47-00 = 50-29-05

NO. 2 to $\Delta 11$

1 190-49-00

6 67-47-00 190-47-50

12 129-32-00 190-47-30

190-47-30

50-29-05

118-43-20

359-59-55

Angles at # 14

1-11-54

Pearce

T. No 14
 No 13 to BHS
 1 51-13
 6 307-21 = 51-13-30
 12 254-43 = 51-13-55

BHS to No 12
 1 75-30
 6 93-03 75-30-30
 12 106-08 = 75-30-40

No 12 to No 2
 1 120-50
 6 4-57 = 120-49-30
 12 9-53 = 120-49-25

No 2 to No 13
 1 112-26
 6 314-36 = 112-26-20
 12 269-09 = 112-26-45

51-13-5

63

360
 254-43
 114 47
 120
 14 167
 11 16
 2 47
 36

720
 106-08
 11906 368
 54 36
 20 8
 6 120

12749-53
 1 1
 360 49
 314-36 593
 112 46
 112 113
 112 112

1090
 269-09
 112 112
 112 26-26
 1090 112
 269-09 49
 112 309
 112 210
 112 112
 29

(307-21)
 51-13-5 307
 360
 93-03
 11453-03
 75 110 51-13
 30 25 30
 120 50
 112 26
 1120-50
 359 59
 120 1297
 49-30

51-13-50
 75-30-30
 30 120-49-30
 112-26-20
 359 59 50

51-13-55
 75-30-40
 120-49-25
 112 26-45
 359 59 45

540
 112
 112

$$\begin{array}{r} \sqrt{260-19} \\ 43- \end{array}$$

$$\begin{array}{r} \sqrt{139} \\ 28- \end{array}$$

$$\begin{array}{r} 360 \\ 178-32 \end{array}$$

$$\begin{array}{r} \sqrt{538-82} \\ 89 \end{array}$$

$$\begin{array}{r} \sqrt{272} \\ 45-20 \\ 1 \\ 227 \\ \hline 1567 \end{array}$$

$$\begin{array}{r} 1060 \\ 281-08 \\ \hline \sqrt{1364-08} \\ 286 \end{array}$$

$$\begin{array}{r} \sqrt{390-54} \\ 97- \end{array}$$

$$\begin{array}{r} \sqrt{99-01} \\ 23-12 \\ 36- \end{array}$$

43 - 23 - 05

$$\begin{array}{r} 160-27 \\ 860 \end{array}$$

$$\begin{array}{r} \sqrt{520} \\ 48 \\ 40 \\ 36 \\ 4 \end{array}$$

$$\begin{array}{r} \sqrt{316} \\ 20 \end{array}$$

$$\begin{array}{r} 720 \\ 357-04 \end{array}$$

$$\begin{array}{r} \sqrt{1077} \\ 91 \\ 117 \\ 158 \\ 7 \end{array}$$

$$\begin{array}{r} 277-60 \\ 24 \\ 37 \\ 36 \\ 1 \end{array}$$

$$89-45-20$$

$$\begin{array}{r} 2520 \\ 202-16 \end{array}$$

$$\begin{array}{r} \sqrt{2722} \\ 24 \\ 32 \\ 24 \\ 82 \\ 76 \\ 70 \end{array}$$

$$\begin{array}{r} \sqrt{195-28} \\ 97-40 \end{array}$$

Angles at Ben Stogo. 1

1-14-54

Practice

T @ Ben Stago 1

BHS to A12

1 43-24

6 260-19 = 43-23-10

12 160-37 = 43-23-05

A12 to BL2

1 89-45

6 178-32 = 89-45-20

12 357-04 = 89-45-20

BL2 to BHS

1 226-52

6 281-08 = 226-51-20

12 202-16 = 226-51-40

BL2 to Ben Stago

1 97-45

2 195-28

4 30-54 = 97-43-80

BHS to 13

1 23-33

2 47-02 23-31

4 94-01 = 23-30-15

43-24
89 45
226-52

340-01

43-23-10
89 45 20
226-51 10

359 59-40

43-23-05
89 45 20
226-51-40

360-00-05

150
261-29
43-209-20
34

43-34-40

162-56
360 360
13 422 46
42 86
42 56
38 48
8

32-13
365 133
392 22-10
63

64-28 65-22 362
720 1040
12 728 13 268
72 24
64 28
68 24
4 4
6 1506 22-40
251 12

66
Angles @ Ben Stago 2.

1-14-54

H. Pearce

T e Ben Stoga 2
 BHS to 12
 1 43-35
 6 261-29 = 43-34-50
 12 162-56 = 43-34-40
 43-34-45
 A2 to BL 2
 1 65-22
 6 32-13 = 65-22-10
 12 64-28 = 65-22-20
 65-22-25
 BL 2 to BHS
 1 251-02
 6 66-16 = 251-02-40
 12 132-32 = 251-02-40
 251-02-50
 BHS 0-0
 A 12 43-35
 13 71-22
 BSI 121-16

| | | |
|-----------------|-----------------|-----------------|
| 43-35 | 43-34-50 | 43-34-40 |
| 65-22 | 65-22-10 | 65-22-20 |
| 251-02 | 251-02-40 | 251-02-40 |
| <hr/> 359-59 | <hr/> 059-59-40 | <hr/> 359-59-40 |
| 43-34-45 | | |
| 65-22-25 | | |
| 251-02-50 | | |
| <hr/> 360-00-00 | | |

| | | | | | |
|------------------------------|---------------------------|----------------|----------------------------|---------------------------|--|
| $\frac{1120}{30} = 37.33$ | $\frac{49}{12} = 4.08$ | $28 - 10 = 18$ | $\frac{365}{12} = 30.42$ | $\frac{28}{12} = 2.33$ | |
| $\frac{169}{49} = 3.45$ | $\frac{12}{65} = 0.18$ | | $\frac{299}{360} = 0.83$ | $\frac{28}{60} = 0.47$ | |
| $\frac{380}{61329} = 0.0062$ | $\frac{37}{337} = 0.11$ | | $\frac{659}{10} = 65.9$ | $\frac{60}{18} = 3.33$ | |
| $\frac{54}{56} = 0.96$ | | | $\frac{45}{11} = 4.09$ | $\frac{72}{2} = 36$ | |
| $\frac{271}{1674} = 0.16$ | $\frac{380}{1470} = 0.26$ | | $\frac{275}{550} = 0.5$ | $\frac{278}{3500} = 0.08$ | |
| $\frac{207}{1440} = 0.14$ | $\frac{80}{100} = 0.8$ | | $\frac{360}{3240} = 0.11$ | $\frac{274}{34} = 8.06$ | |
| $\frac{167}{274} = 0.61$ | $\frac{38}{35} = 1.09$ | | $\frac{59}{59} = 1$ | $\frac{60}{60} = 1$ | |
| | | | $\frac{3794}{24} = 158.08$ | $\frac{360}{419} = 0.86$ | |
| | | | $\frac{89}{84} = 1.06$ | $\frac{36}{59} = 0.61$ | |
| | | | $\frac{54}{48} = 1.125$ | $\frac{146}{6} = 24.33$ | |

68

Angles at Ben Stage 3

1-14-54

Pearce

Te Ben Stage 3

BHS to A12
 1 30-28
 6 182-49 = 30-28-10
 12 5-36 = 30-28-00

30-28-00

A2 to B12

1 54-56
 6 329-37 = 54-56-10
 12 299-18 = 54-56-30

54-56-40

B12 to BHS

1 274-34
 6 207-30 = 274-35
 12 54-59 = 274-34-55

274-35-15

A12 0-0

B13 35-11

B51 67-37

B52 74-11

| 30-28 | 30-28-10 | 30-28-00 |
|--------|-----------|-----------|
| 54-56 | 54-56-10 | 54-56-30 |
| 274-34 | 274-35 | 274-34-55 |
| 359-38 | 359-59-40 | 359-59-25 |

Angles at BL # 1

70

1-19-54

Peoria

Te # 1
 # 2 to 14
 1 58-45
 6 352-27 = 58-44-30
 12 344-53 = 58-44-25

2 to Ben Stage
 1 38-45
 6 232-30 = 38-45
 12 104-59 = 38-44-55

Ben Stage to Ben Stage 1
 1 3-00
 6 17.55 = 2-59-10
 12 35-50 = 2-59-20

352-27

58 267

44

232-30

38-45

2

35-50

24

11

600

710

48

110

108

17-55

2

345

59

344-53 58 71

360

107 704

60

104

96

8

104-49

360

12 504

36

108

96

8

480

53 1/300

57 3/4

48

53

48

5

38-40

49

480

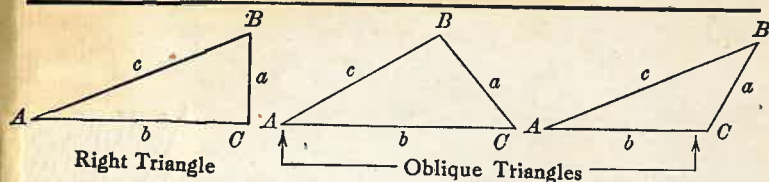
52 9/10

58

48

| | | | | | |
|---|---|-----|---|----|---|
| | x | | x | | |
| | x | 44 | x | 45 | |
| | x | | x | | |
| | x | 46 | x | 40 | x |
| x | x | | x | | x |
| x | x | 47 | x | 41 | x |
| x | x | | x | | x |
| x | x | 50 | x | | x |
| x | x | | x | | x |
| x | x | 51 | x | | x |
| x | x | | x | | x |
| x | x | 52 | x | | x |
| x | x | | x | | x |
| x | x | 53 | x | | x |
| x | x | | x | | x |
| x | x | 54 | x | | x |
| x | x | | x | | x |
| x | x | 55 | x | | x |
| x | x | | x | | x |
| x | x | 56 | x | | x |
| x | x | | x | | x |
| x | x | 57 | x | | x |
| x | x | | x | | x |
| x | x | 58 | x | | x |
| x | x | | x | | x |
| x | x | 59 | x | | x |
| x | x | | x | | x |
| x | x | 60 | x | | x |
| x | x | | x | | x |
| x | x | 61 | x | | x |
| x | x | | x | | x |
| x | x | 62 | x | | x |
| x | x | | x | | x |
| x | x | 63 | x | | x |
| x | x | | x | | x |
| x | x | 64 | x | | x |
| x | x | | x | | x |
| x | x | 65 | x | | x |
| x | x | | x | | x |
| x | x | 66 | x | | x |
| x | x | | x | | x |
| x | x | 67 | x | | x |
| x | x | | x | | x |
| x | x | 68 | x | | x |
| x | x | | x | | x |
| x | x | 69 | x | | x |
| x | x | | x | | x |
| x | x | 70 | x | | x |
| x | x | | x | | x |
| x | x | 71 | x | | x |
| x | x | | x | | x |
| x | x | 72 | x | | x |
| x | x | | x | | x |
| x | x | 73 | x | | x |
| x | x | | x | | x |
| x | x | 74 | x | | x |
| x | x | | x | | x |
| x | x | 75 | x | | x |
| x | x | | x | | x |
| x | x | 76 | x | | x |
| x | x | | x | | x |
| x | x | 77 | x | | x |
| x | x | | x | | x |
| x | x | 78 | x | | x |
| x | x | | x | | x |
| x | x | 79 | x | | x |
| x | x | | x | | x |
| x | x | 80 | x | | x |
| x | x | | x | | x |
| x | x | 81 | x | | x |
| x | x | | x | | x |
| x | x | 82 | x | | x |
| x | x | | x | | x |
| x | x | 83 | x | | x |
| x | x | | x | | x |
| x | x | 84 | x | | x |
| x | x | | x | | x |
| x | x | 85 | x | | x |
| x | x | | x | | x |
| x | x | 86 | x | | x |
| x | x | | x | | x |
| x | x | 87 | x | | x |
| x | x | | x | | x |
| x | x | 88 | x | | x |
| x | x | | x | | x |
| x | x | 89 | x | | x |
| x | x | | x | | x |
| x | x | 90 | x | | x |
| x | x | | x | | x |
| x | x | 91 | x | | x |
| x | x | | x | | x |
| x | x | 92 | x | | x |
| x | x | | x | | x |
| x | x | 93 | x | | x |
| x | x | | x | | x |
| x | x | 94 | x | | x |
| x | x | | x | | x |
| x | x | 95 | x | | x |
| x | x | | x | | x |
| x | x | 96 | x | | x |
| x | x | | x | | x |
| x | x | 97 | x | | x |
| x | x | | x | | x |
| x | x | 98 | x | | x |
| x | x | | x | | x |
| x | x | 99 | x | | x |
| x | x | | x | | x |
| x | x | 100 | x | | x |

TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\text{cosec} = \frac{c}{a}$

| Given | Required | Formulas |
|-------|----------|--|
| a, b | A, B, c | $\tan A = \frac{a}{b} = \cot B$, $c = \sqrt{a^2 + b^2} = a \sqrt{1 + \frac{b^2}{a^2}}$ |
| a, c | A, B, b | $\sin A = \frac{a}{c} = \cos B$, $b = \sqrt{(c+a)(c-a)} = c \sqrt{1 - \frac{a^2}{c^2}}$ |
| A, a | B, b, c | $B = 90^\circ - A$, $b = a \cot A$, $c = \frac{a}{\sin A}$ |
| A, b | B, a, c | $B = 90^\circ - A$, $a = b \tan A$, $c = \frac{b}{\cos A}$ |
| A, c | B, a, b | $B = 90^\circ - A$, $a = c \sin A$, $b = c \cos A$ |

Solution of Oblique Triangles

| Given | Required | Formulas |
|------------|----------|--|
| A, B, a | b, c, C | $b = \frac{a \sin B}{\sin A}$, $C = 180^\circ - (A + B)$, $c = \frac{a \sin C}{\sin A}$ |
| A, a, b | B, c, C | $\sin B = \frac{b \sin A}{a}$, $C = 180^\circ - (A + B)$, $c = \frac{a \sin C}{\sin A}$ |
| a, b, C | A, B, c | $A + B = 180^\circ - C$, $\tan \frac{1}{2}(A - B) = \frac{(a - b) \tan \frac{1}{2}(A + B)}{a + b}$, $c = \frac{a \sin C}{\sin A}$ |
| a, b, c | A, B, C | $s = \frac{a + b + c}{2}$, $\sin \frac{1}{2}A = \sqrt{\frac{(s - b)(s - c)}{bc}}$, $\sin \frac{1}{2}B = \sqrt{\frac{(s - a)(s - c)}{ac}}$, $C = 180^\circ - (A + B)$ |
| a, b, c | Area | $s = \frac{a + b + c}{2}$, $\text{area} = \sqrt{s(s - a)(s - b)(s - c)}$ |
| A, b, c | Area | $\text{area} = \frac{b c \sin A}{2}$ |
| A, B, C, a | Area | $\text{area} = \frac{a^2 \sin B \sin C}{2 \sin A}$ |

REDUCTION TO HORIZONTAL

Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = $5^\circ 10'$. From Table, Page IX. $\cos 5^\circ 10' = .9959$. Horizontal distance = $319.4 \times .9959 = 318.09$ ft. Horizontal distance also = Slope distance minus slope distance times (1 - cosine of vertical angle). With the same figures as in the preceding example, the following result is obtained. $\text{Cosine } 5^\circ 10' = .9959$, $1 - .9959 = .0041$. $319.4 \times .0041 = 1.31$. $319.4 - 1.31 = 318.09$ ft. When the rise is known, the horizontal distance is approximately: - the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft., slope distance = 302.6 ft. Horizontal distance = $302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.

