

3646

Book "G"

4-679

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BOOK 3646

FIELD NOTES

OF THE SURVEY OF

Part of the Subdivision lines of

TOWNSHIP 28 NORTH, RANGE 11 WEST

Of the Gila and Salt River Base and Meridian,

In the State of Arizona

EXECUTED BY

William E. Hiester, U.S. Surveyor.

In the capacity of U. S. Surveyor, under Special Instructions dated October 12, 1916, issued by the United States Surveyor General to govern surveys included in Group No. 74, Arizona, which were approved by the Commissioner of the General Land Office, October 24, 1916, and Assignment Instructions dated August 11, 1921.

Survey commenced April 5, 1923

Survey completed April 10, 1923

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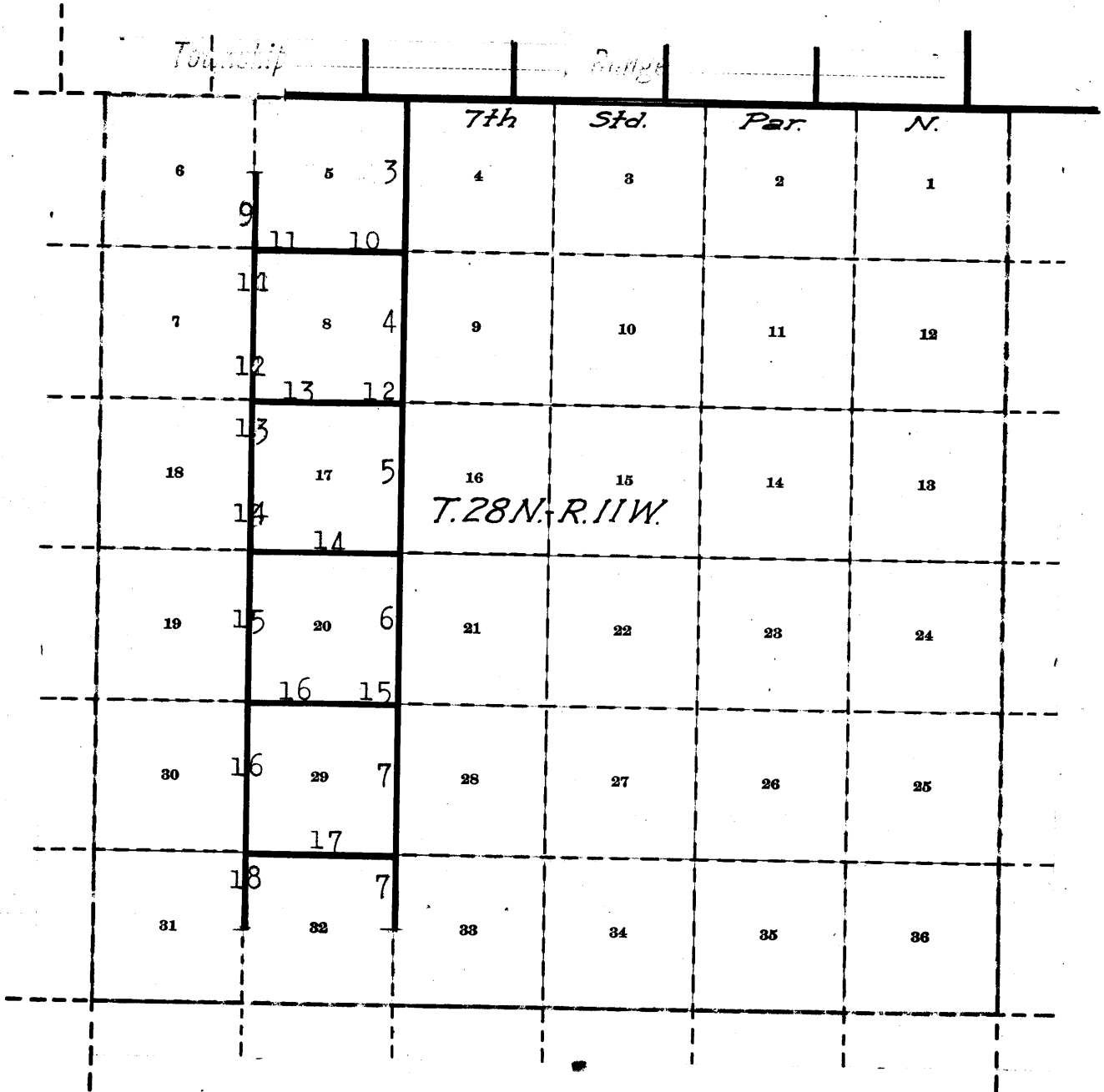
(1A)

BOOK 3646

Book "G"

Group 74 - Arizona

INDEX DIAGRAM.



———— Lines surveyed under this group.

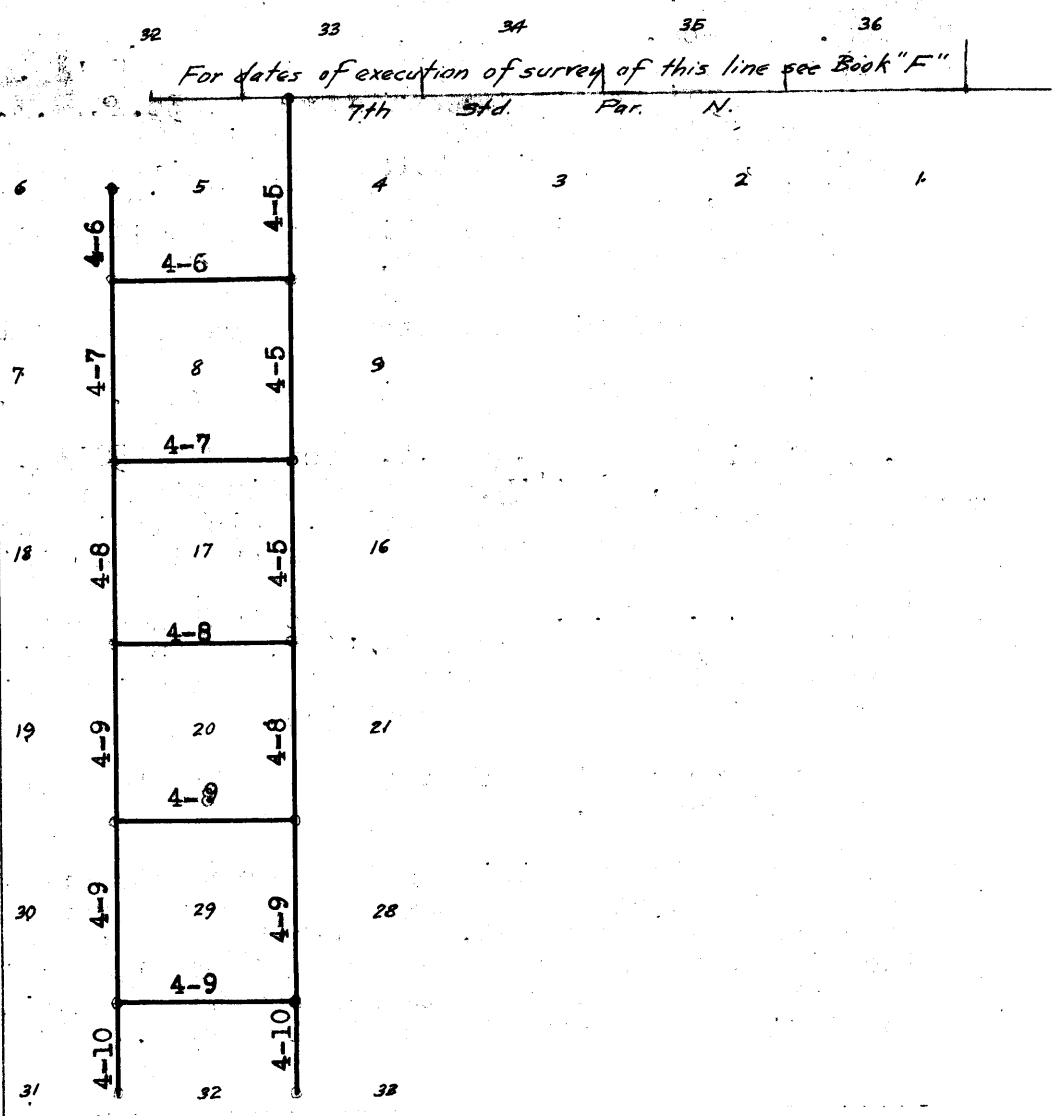
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Book "G"
 Group 74 - Arizona.
 Township 28 North, Range 11 West.

DATE DIAGRAM 1923.



Indicates surveys executed by William E. Hiester, U.S. Surveyor, on dates shown thereon.

Surveys herein described were executed by William E. Hiestert, U.S. Surveyor, on dates shown on diagram in page 18 of his report, using Buff & Buff transit No. 9977. The instrument was equipped with the full vertical circle and the Smith solar attachment. Unless otherwise specified, all azimuth determinations are accomplished with the solar attachments.

I examine the adjustments of the transit and correct all errors, then to test the solar apparatus by comparing its indications resulting from solar observations made during a.m. and p.m. hours with a meridian determined from observations on Polaris proceed as follows:

April 5, 1923: At camp which is located near the $\frac{1}{4}$ sec. cor. of secs. 8 and 17, T. 28 N., R. 11 W., Gila and Salt River Base and Meridian, in latitude $35^{\circ}50'$ N., longitude $113^{\circ}30'$ west of Greenwich at 6h. 36.1m p.m., l.m.t. observe Polaris at Western elongation making four observations, two each with telescope in direct and reversed positions, the mean of the readings being $2^{\circ}30'$ to left of a prominent point on cliff about 3 miles distant which I use for a reference mark.

Azimuth of Polaris at Western elongation = $1^{\circ}21'55''$.

Bearing of reference mark is therefore N. $1^{\circ}8'$ E.

April 6, 1923: At 8h 0m a.m. app.t. I set off $35^{\circ}50'$ N. on the latitude arc, $6^{\circ}14\frac{1}{2}'$ N. on the declination arc and determine a meridian with the solar, which I find agrees with the meridian determined from observation on Polaris.

At 4h 0m p.m. app.t. with the same latitude set off on the latitude arc, I set off $6^{\circ}22'$ N. on the declination arc and determine a meridian with the solar which also agrees with the Polaris meridian.

I therefore conclude that the adjustments of the solar are satisfactory.

Unless otherwise specified all measurements are made with a 5 chain steel tape compared with a standard steel tape and found correct. The measurements are made on the slope, the slope angles determined with a clinometer and the slope measurements reduced to the horizontal equivalent for entry in the field notes.

Survey of part of Subdivision lines of T. 28 N. R. 11 W. 3

Chains.

At a point on the 7th. Standard Parallel North, 21.48 chs. E. of the Std. cor. of secs. 32 and 33, T. 29 N., R. 11 W., described in Book "F." of this group, Set an iron post, 3 ft. long, 2 ins. in diam., 14 ins. in the ground to bed rock, deposit a stone marked with a cross (x) at base of post, and raise a mound of stone around post, for closing cor. of secs. 4 and 5, T. 28 N., R. 11 W., marked on brass cap,

T29N R11W
S 33
S 5 | S 4
T28N R11W
C C
1923

No bearing trees or bearing objects available.

Thence,

S. 0° 3' E., on a true line, bet. secs. 4 and 5.

Over mountainous land in canyon, thru. scattering undergrowth.

Descend about 570 ft., over precipitous SW. slope to bottom of canyon.

Chaining is impracticable; therefore, triangulate as follows:

Set flag on the closing sec. cor.

From a point ahead on the sec. line at S. rim of canyon, measure a Base N. 88° 24' W., 9.46 chs. along rim.

From W. end of Base, the flag brs. N. 15° 49' E.

From E. end of Base, the vertical angle to flag is - 9° and to point on sec. line in bottom of canyon is - 37°.

Dist. by triangulation = 33.54 chs. S. 0° 3' E.

15.00 (Approx.) Wash. course NW. in bottom of canyon.

Ascend about 920 ft., over precipitous NE. and N. slopes.

27.00 (Approx.) New trail, brs. E. and W.

33.54 Triangulation point at rim of canyon, bearing N. 88° W. and S. 88° E. Leave canyon. Enter rolling land, scattering timber and undergrowth.

Continue line and measurement by chaining.

Ascend gradually over W. slope, to

40.00 Set an iron post, 3 ft. long, 1 in. in diam., 12 ins. in the ground to bed rock, supported in a mound of stone, for 1/4 sec. cor., marked on brass cap,

1/4
S 5 | S 4
1923

from which,

A pinyon, 8 ins. in diam., brs. S. 56 1/2° E., 87 lks. dist., marked 1/4 S 4 BT.

A pinyon, 6 ins. in diam., brs. S. 23 1/2° W., 120 lks. dist., marked 1/4 S 5 BT.

Descend 64 ft., over SW. slope.

57.00 Wash, 30 lks. wide, course W. Enter mountainous land.

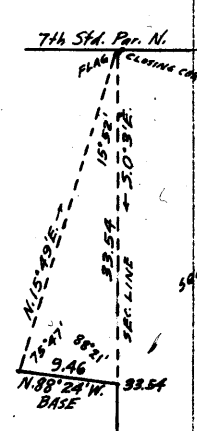
Ascend 236 ft., over NW. slope.

68.00 Spur, slopes W. Enter rolling land.

Descend 27 ft., over SW. slope.

75.65 Ascend 30 ft., over W. slope, to

80.00 Set an iron post, 3 ft. long, 2 ins. in diam., 6 ins. in the ground to bed rock, supported in a mound of stone, for cor. of secs. 4, 5, 8 and 9, marked on brass cap,



BOOK 3646

4 Survey of part of Subdivision lines of T. 28 N., R. 11 W.
Chains.

| | |
|------|------|
| T28N | R11W |
| S 5 | S 4 |
| S 8 | S 9 |
| 1923 | |

from which,

A pinyon, 12 ins. in diam., brs. N. $30\frac{1}{2}^{\circ}$ E., 344 lks.

dist., marked T28N R11W S4 BT.

A pinyon, 14 ins. in diam., brs. S. $44\frac{1}{2}^{\circ}$ E., 420 lks.

dist., marked T28N R11W S9 BT.

A pinyon, 14 ins. in diam., brs. S. $35\frac{1}{2}^{\circ}$ W., 136 lks.

dist., marked T28N R11W S8 BT.

A pinyon, 14 ins. in diam., brs. N. 54° W., 310 lks.

dist., marked T28N R11W S5 BT.

Land, mountainous and rolling.

Soil, rocky, 4th rate.

Timber, cedar and pinyon.

Undergrowth, black brush.

S. $0^{\circ}3'$ E., bet. secs. 8 and 9.

Over rolling land, thru. scattering timber and undergrowth.

Ascend 80 ft., over W. and NW. slopes.

12.50 Point of spur, slopes W.

Descend 60 ft., over SW. slope.

22.00 Wash, 30 lks. wide, course W.

Ascend 95 ft., over N. slope, to

40.00 Set an iron post, 3 ft. long, 1 in. in diam., 6 ins. in
the ground to bed rock, supported in a mound of stone,
for $\frac{1}{4}$ sec. cor., marked on brass cap,

| | |
|-----|-----|
| S 8 | S 9 |
|-----|-----|

1923

from which,

A pinyon, 12 ins. in diam., brs. S. 10° E., 185

lks. dist., marked $\frac{1}{4}$ S 9 BT.

A pinyon, 6 ins. in diam., brs. S. $29\frac{1}{2}^{\circ}$ W., 77

lks. dist., marked $\frac{1}{4}$ S 8 BT.

Continue over rolling land, thru. scattering timber and
undergrowth.

Ascend 20 ft., over N. slope, to

49.30 Enter mountainous land.

Ascend 67 ft., over N. slope, to

52.65 Spur, slopes W.

Descend 113 ft., over S. slope, to

57.35 Enter rolling land.

Descend 25 ft., over SW. slope.

69.05 Wash, 20 lks. wide, course W.

Ascend 45 ft., over NW. slope.

77.50 Descend 25 ft., over S. slope, to

80.00 Set an iron post, 3 ft. long, 2 ins. in diam., 12 ins. in
the ground to bed rock, supported in a mound of stone,
for cor. of secs. 8, 9, 16 and 17, marked on brass cap,

| | |
|------|------|
| T28N | R11W |
| S 8 | S 9 |
| S17 | S16 |
| 1923 | |

from which,

A pinyon, 10 ins. in diam., brs. N. $14\frac{1}{2}^{\circ}$ E., 60

lks. dist., marked T28N R11W S9 BT.

A pinyon, 12 ins. in diam., brs. S. $68\frac{1}{2}^{\circ}$ E., 120

lks. dist., marked T28N R11W S16 BT.

A pinyon, 10 ins. in diam., brs. S. 55° W., 74

lks. dist., marked T28N R11W S17 BT.

A cedar, 4 ins. in diam., brs. N. 34° W., 114

lks. dist., marked BT.

Land, rolling and mountainous.

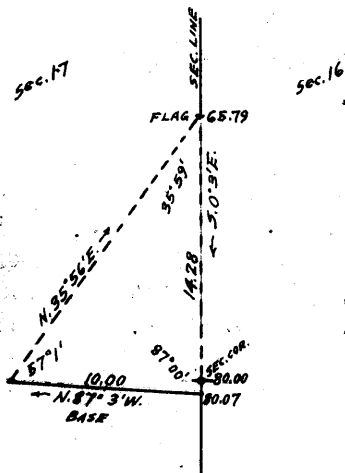
Chains.

Soil, rocky, 4th rate.
 Timber, cedar and pinyon.
 Undergrowth, black brush.

S. 0° 3' E., bet. secs. 16 and 17.
 Over rolling land, thru. scattering timber and undergrowth.
 Descend 135 ft., over S. slope, to
 14.35 Enter mountainous land.
 Descend 75 ft., over S. slope, to
 19.20 Enter gently rolling land.
 Descend gradually, over S. slope, to
 30.40 Rim of canyon, brs. E. and W.
 Enter mountainous land. Leave timber.
 Descend 190 ft., over steep S. slope, to
 40.00 Bottom of canyon, course SW.
 Set an iron post, 3 ft. long, 1 in. in diam., 10 ins. in
 the ground to bed rock, deposit a stone marked with
 a cross (x) at base of post, and raise a mound of
 stone around post, for $\frac{1}{4}$ sec. cor., marked on brass
 cap,

$\frac{1}{4}$
 S17 | S16
 1923

No bearing trees or bearing objects available.
 Ascend 215 ft., over NW. slope.
 51.00 Point of spur, slopes W. Leave canyon.
 Descend 170 ft., over SW. slope.
 61.50 Bottom of gulch, course SW.
 Ascend 100 ft., over steep NW. slope, to
 64.80 Point of spur, slopes W.
 Descend gradually over SW. slope, to
 65.79 Top of cliffs, bearing NW and SE., facing SW. Precipitous descent beyond this point prevents chaining; therefore, triangulate as follows:



Set flag at this point.
 From point ahead on sec. line,
 measure a Base N. 87° 3' W.,
 10.00 chs.
 From W. end of Base, the flag
 brs. N. 35° 56' E.
 From E. end of Base, the ver-
 tical angle to flag is
 + 20°.

Dist. on sec. line = 65.79 chs. S. 0° 3' E.
 Dist. triangulated = 14.28 chs. S. 0° 3' E.
 Total distance = 80.07 chs. S. 0° 3' E.
 Dist. by return
 measurement = 0.07 chs. N. 0° 3' W.
 80.00 chs. S. 0° 3' E.
 to sec. cor.

80.00 Descent from 65.79 ch. station to sec. cor. is 345 ft.
 Set an iron post, 3 ft. long, 2 ins. in diam., 14 ins. in
 the ground to bed rock, supported in a mound of stone
 for cor. of secs. 16, 17, 20 and 21, marked on brass cap,

BOOK 3646

6 Survey of part of Subdivision lines of T.28 N., R. 11 W.

chains.

| | |
|------|------|
| T28N | R11W |
| S17 | S16 |
| S20 | S21 |

1923

from which,

- A pinyon, 8 ins. in diam., brs. N. $80\frac{1}{2}^{\circ}$ E., 236
lks. dist., marked T28N R11W S16 BT.
- A pinyon, 8 ins. in diam., brs. S. $64\frac{1}{2}^{\circ}$ E., 176
lks. dist., marked T28N R11W S21 BT.
- A pinyon, 12 ins. in diam., brs. S. $9\frac{1}{2}^{\circ}$ W., 180
lks. dist., marked T28N R11W S20 BT.
- A pinyon, 6 ins. in diam., brs. N. $49\frac{1}{2}^{\circ}$ W., 79
lks. dist., marked T28N R11W S17 BT.

Land, rolling and mountainous.

Soil, rocky, 4th rate.

Timber, cedar and pinyon.

Undergrowth, black brush, cactus, catclaw and yucca.

S. $0^{\circ}3'$ E., bet. secs. 20 and 21.

Over rolling land, thru. very scattering timber and scattering undergrowth.

Descend 40 ft., over SW. slope, to

19.20 Top of cliffs, bearing NW. and SE., forming left rim of canyon.

Enter mountainous land in canyon.

Descend 364 ft., over steep SW. slope, to

37.80 Wash, 20 lks. wide, course SE. in bottom of canyon.

Ascend 185 ft., over steep NE. slope, to

40.00 Set an iron post, 3 ft. long, 1 in. in diam., 14 ins. in the ground to bed rock, deposit a stone, marked with a cross (x) at base of post, and raise a mound of stone around post for $\frac{1}{4}$ sec. cor., marked on brass cap,

| | |
|-----|-----|
| S20 | S21 |
|-----|-----|

1923

No bearing trees or bearing objects available.

Continue over mountainous land.

Ascend 300 ft., over E. slope, to

75.00 Draw, course NE. from W.

Ascend 96 ft., over NE. slope, to

80.00 Set an iron post, 3 ft. long, 2 ins. in diam., 8 ins. in the ground to bed rock, deposit a stone marked with a cross (x) at base of post, with mound of stone around post for cor. of secs. 20, 21, 28 and 29, marked on brass cap,

| | |
|------|------|
| T28N | R11W |
| S20 | S21 |
| S29 | S28 |

1923

No bearing trees or bearing objects available.

Land, rolling and mountainous.

Soil, rocky, 4th rate.

Timber, cedar and pinyon.

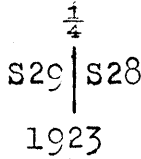
Undergrowth, black brush.

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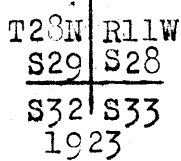
Survey of part of Subdivision lines of T. 28 N. R. 11 W. 7

Chains.

- S. 0° 3' E., bet. secs. 28 and 29.
- Over mountainous land, thru. very scattering timber and scattering undergrowth.
- Ascend 350 ft., over steep NE. slope, to
- 19.00 Top of steep ascent, brs. NW and SE. Thence across nearly level top of spur, sloping SE.
- 22.70 Leave top of spur.
- Descend 200 ft., over steep S. slope.
- 30.00 Draw, course SW. Enter rolling land.
- Descend gradually over W. slope, to
- 40.00 Set an iron post, 3 ft. long, 1 in. in diam., 16 ins. in the ground to bed rock, deposit a stone, marked with a cross (x) at base of post, and raise a mound of stone around post, for $\frac{1}{4}$ sec. cor., marked on brass cap,

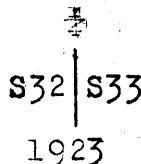


- No bearing trees or bearing objects available.
- Continue over rolling land, thru. very scattering timber and undergrowth.
- Descend 80 ft., over W. slope, to
- 68.40 Ascend 70 ft., over NW. slope, to
- 75.00 Thence over W. slope, ascending gradually to
- 80.00 Set an iron post, 3 ft. long, 2 ins. in diam., 26 ins. in the ground for cor. of secs. 28, 29, 32 and 33, marked on brass cap,



No bearing trees or bearing objects available.
 Raise a mound of stone, 4 ft. base, 3 ft. high, W. of cor.
 Land, mountainous and rolling.
 Soil, rocky, 4th rate.
 Timber, cedar and pinyon.
 Undergrowth, black brush, cactus and yucca.

- S. 0° 3' E., bet. secs. 32 and 33.
- Over rolling land, thru. scattering undergrowth.
- Ascend gradually over W. slope, to
- 8.30 Enter mountainous land.
- Ascend 30 ft., over NW. slope.
- 10.40 Descend 65 ft., over SW. slope.
- 18.00 Ascend 60 ft., over NW. slope.
- 28.00 Descend gradually over W. slope, to
- 34.00 Descend 82 ft., over S. slope, to
- 40.00 Set an iron post, 3 ft. long, 1 in. in diam., 18 ins. in the ground to bed rock, supported in a mound of stone for $\frac{1}{4}$ sec. cor., marked on brass cap,



No bearing trees or bearing objects available.
 Raise a mound of stone, 3 ft. base, 2 ft. high, W. of cor.

Survey of part of S. division lines of T1 28 N., R.11 W. 9.

Chains.

Set flag on the closing cor. of secs. 4 and 5, on 7th Std. Par. N., indicated on diagram at "A."

From point "B" on 7th Std. Par. N., measure a Base S. 22° 2' W., 11.21 chs. to point "C."

Set flag at point "D" which brs. S. 40° 00' E. from "B" and S. 65° 55' E. from "C."

By solution of triangle "B-C-D" the length of "B-D" is found to be 25.63 chs.

From "D" to flag at "A" brs. N. 79° 49' E..

By solution of triangle "A-B-D" the length of "A-B" on the 7th Std. Par. N. is found to be 125.78 chs.

The triangulated portion (A-B-D) of the traverse is therefore

West, 125.78 chs.
S. 40° 00' E. 25.63 chs. thence chaining measurement of traverse from point "D" along rim of canyon, as follows:

S. 27° 15' E. 22.02 chs. to point "E."

Thence,

East, 9.10 chs. to point "F."

Thence,

North, 0.64 chs. to point "G."

Thence,

East, 0.35 chs. to point "H" which is as close to the point for 1/4 sec. cor., indicated on diagram at "L," as it is possible to measure.

The latitude of traverse "A-B-D-E-F-G-H" is 38.57 chs. S., and the departure is 89.78 chs. W.

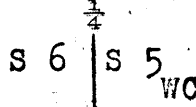
The latitude of traverse "A-K-L" (West 80.00 chs., and S. 0° 3' E., 40.00 chs) is 40.00 chs. S., and the departure is 79.97 chs. W.

Point "H" is therefore 1.43 chs. (40.00 chs. - 38.57 chs.) north of E and W line thru. point for 1/4 sec. cor. (L) and 9.81 chs. (89.78 chs. - 79.97 chs.) west of N. and S. line, thru. point for 1/4 sec. cor. (L).

Point "H" is therefore 9.91 chs. N. 81° 42' W. from 1/4 sec. cor. point.

Establish witness cor. to 1/4 sec. cor. of secs. 5 and 6 at point "H" as follows:

Mark a cross (x) on surface rock, and over same set an iron post, 3 ft. long, 1 in. in diam., supported in a mound of stone for witness cor. to 1/4 sec. cor., of secs. 5 and 6, marked on brass cap,



1923

No bearing trees or bearing objects available.

From true point for 1/4 sec. cor.

S. 0° 3' E., bet. secs. 5 and 6 (S. 1/4).

Over mountainous land in canyon, thru. scattering undergrowth.

Chaining is impracticable. Measurement by traverse as described as follows, and as shown on the diagram hereon:

From point for 1/4 sec. cor. indicated at "A" on diagram,

N. 81° 42' W., 9.91 chs. (measurement computed by previous traverse) to the witness cor. "B."

Thence chaining the measurement of the remainder of the traverse along rim of canyon, as follows:

West, 0.35 chs. to point "C."

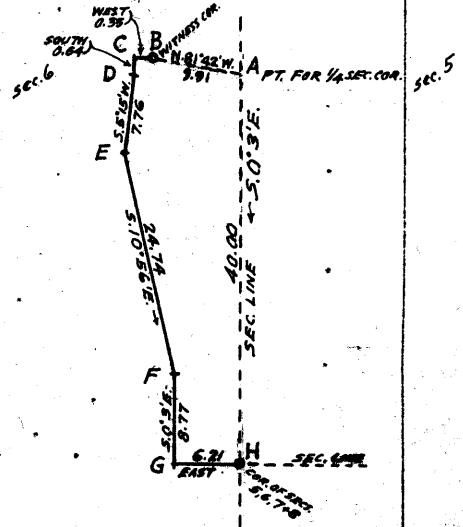
Thence,

South, 0.64 chs. to point "D."

Thence,

S. 5° 15' W. 7.76 chs. to point "E."

Thence,

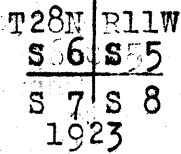


BOOK 3646

10 Survey of Subdivision lines of T

Chains.

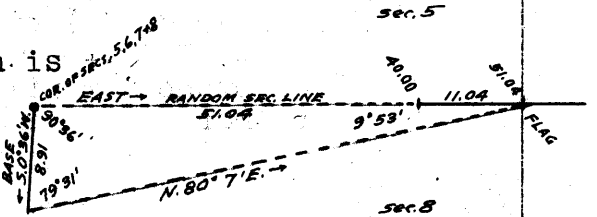
S.10°56'E., 24.74 chs. to point "F."
 Thence,
 S.0°3'E., 8.77 chs. to point "G".
 Thence,
 East, 6.21 chs. to point "H."
 The latitude of the traverse "A-B-C-D-E-F-G-H" is 40.00 chs.S and the departure is 0.035 chs.E., which agrees with the latitude and departure of the S.½ of the sec. line bet. secs.5 and 6 (A-H).
 Point "H" is therefore 40.00 chs.S 0°3'E. from "A" and is the true point for the establishment of the cor. of secs. 5,6,7 and 8.
 3.00 (Approx.) Bottom of canyon, course NW.
 Ascend over precipitous NE. and E. faces of cliffs, to
 80.00 Top of cliffs, bearing NW. and S., facing E.
 Set an iron post, 3 ft. long, 2 ins. in diam., 12 ins. in the ground to bed rock, deposit a stone marked with a cross (x) at base of post, and raise a mound of stone around post, for cor. of secs. 5,6,7 and 8, marked on brass cap,



No bearing trees or bearing objects available.
 Land, mountainous.
 Soil, rocky, 4th rate.
 Timber, none.
 Undergrowth, black brush yucca and cactus.

East, on random line, bet. secs.5 and 8.
 The cor. of secs. 5,6,7 and 8 is at the top of cliffs on W. side of canyon; therefore, it is impracticable to chain measurement on random sec. line therefrom.
 Triangulate from sec. cor. as follows:

Set flag ahead on random line, the vertical angle to which is + 18°.
 From sec. cor., measure a Base, S. 0°36'W., 8.91 chs.
 From S. end of Base, the flag brs. N. 80°07'E.
 Dist. by triangulation = 51.04 chs. East.
 Dist. by return measurement = 11.04 chs. West.
 40.00 chs. East.



40.00 Set temp. ¼ sec. cor.
 Continue line and measurement by chaining.
 51.04 Triangulation point. Continue chaining.
 79.84 Fall 7 lks. S. of the cor. of secs. 4,5,8 and 9.
 Thence,
 S. 89°57'W., on a true line, bet. secs. 5 and 8.
 Over rolling land, thru scattering timber and undergrowth.
 Descend 30 ft., over W. slope, to
 3.17 Enter mountainous land.
 Descend 96 ft., over steep SW. slope, to
 8.00 New trail, brs. NW and SE. at foot of steep descent, same bearing. Enter rolling land.
 Descend 87 ft., over SW. slope, to
 28.80 Triangulation point at top of cliffs, bearing SE. and NW., facing W. Enter mountainous land. Continue chaining.
 Descend 380 ft., over cliffs and steep W. slope, to
 39.92 Set an iron post, 3 ft. long, 1 in. in diam., on surface rock, deposit a stone, marked with a cross (x) at base of post, and raise a mound of stone around post, for ¼ sec. cor., marked on brass cap.

Survey of part of Subdivision lines of T. 28 N. R. 11 W. 11

Chains.

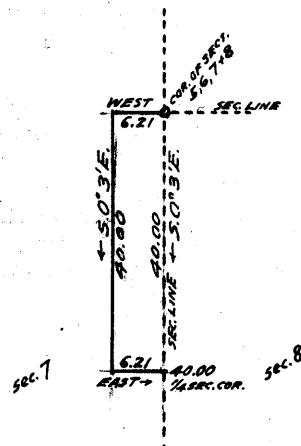
$\frac{1}{4}$ S 5
S 8
1923

No bearing trees or bearing objects available.
 Discontinue chaining. Measurement of $W.\frac{1}{4}$ of line by
 triangulation, hereinbefore described.
 Descend about 700 ft. to cor. of secs. 5, 6, 7 and 8.
 50.00 (Approx.) Bottom of canyon, course NW. about 900 ft. below
 $\frac{1}{4}$ sec. cor.
 Ascend about 500 ft. over NE. slope.
 60.00 Spur, slopes NW.
 Descend about 900 ft., over W. slope.
 70.00 Wash, in bottom of canyon, course NW.
 Ascend about 600 ft., over cliffs, facing E., to
 79.84 The cor. of secs. 5, 6, 7 and 8 at top of cliffs, bearing NW.
 and S.
 Land, rolling and mountainous.
 Soil, rocky, 4th rate.
 Timber, cedar and pinyon.
 Undergrowth, black brush, cactus and yucca.

S.0°3'E., bet. secs. 7 and 8.
 Over mountainous land, in canyon, thru scattering timber
 and undergrowth. Precipitous E. slope and cliffs pre-
 vent chaining on the sec. line; therefore, survey
 the line by offset, as described as follows:

From cor. of secs. 5, 6, 7 and 8,
 West, 6.21 chs. to W. or left rim
 of canyon, bearing N.
 and S. about 100 ft.
 above sec. cor.

Thence,
 S.0°3'E., 40.00 chs. on offset line
 parallel to and 6.21
 chs. W. of sec. line.
 Along top of spur,
 sloping N. at W. rim
 of canyon.
 Asc. 225 ft. to offset
 point.



Thence,
 East, 6.21 chs. descending over steep
 NE. slope, to
 40.00 Set an iron post, 3 ft. long, 1 in. in diam., 24 ins. in
 the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap,

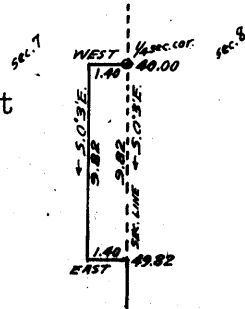
$\frac{1}{4}$
S 7 | S 8
1923

from which,
 A cedar, 8 ins. in diam., brs. N. 8 $\frac{3}{4}$ ° E., 37 lks.
 dist., marked $\frac{1}{4}$ S 8 BT.
 A pinyon, 10 ins. in diam., brs. N. 66 $\frac{1}{2}$ ° W., 223 lks.
 dist., marked $\frac{1}{4}$ S 7 BT.

Cliffs facing NE. beyond this cor. prevent chaining on
 sec. line; therefore, measure by offset line as fol-
 lows:

From $\frac{1}{4}$ sec. cor.,
 West, 1.40 chs. Ascending 60 ft.,
 over steep E. slope to offset
 pt. Thence,

S.0°3'E., 9.82 chs. on offset line,
 parallel to and 1.40 chs.
 W. of sec. line.
 Asc. 70 ft., over NE.
 slope to offset point on
 ridge, bearing NW. and SE.



BOOK 3646

12 Survey of part of Subdivision lines of T.28 N. R.11 W.

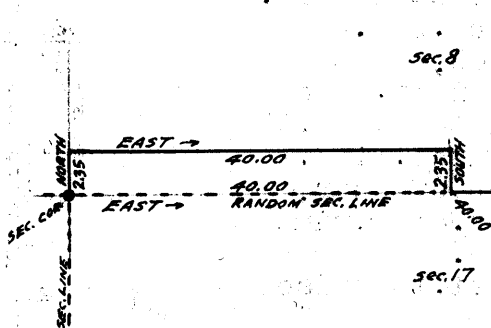
Chains.

Thence,
 49.82 East, 1,40 chs., descending slightly over NE.slope, to
 Thence, S 0°3'E., on sec.line, continuing measurement.
 Over mountainous land, thru. scattering timber and under-
 growth.
 52.75 Ascend 20 ft., over NE.slope.
 Ridge, brs.NW. and SE.
 61.12 Descend 62 ft., over SW.slope, to
 North, or right rim of canyon, brs.NW. and SE.
 80.00 Descend 340 ft., over steep SW.slope, to
 Set an iron post, 3 ft. long, 2 ins. in diam., 12 ins. in
 the ground to bed rock, deposit a stone, marked with a
 cross (x) at base of post, and raise a mound of stone
 around post, for cor. of secs. 7, 8, 17 and 18, marked
 on brass cap,

| | |
|------|------|
| T28N | R11W |
| S 7 | S 8 |
| S18 | S17 |
| 1923 | |

No bearing trees or bearing objects available.
 Land, mountainous.
 Soil, rocky 4th rate.
 Timber, cedar and pinyon.
 Undergrowth, black brush.

East, on random line, bet. secs. 8 and 17.
 Precipitous ascent prevents chaining on random sec. line
 from the sec. cor.; therefore, measure the W. $\frac{1}{2}$ of line
 by offset line as follows:



From cor. of secs. 7, 8, 17 and
 18,
 North, 2.35 chs. to offset
 point.
 Thence
 East, 40.00 chs. on offset line
 parallel to and 2.35
 chs. N. of random sec.
 line, to offset
 point.
 Thence,
 South, 2.35 chs. returning to
 random sec. line, at

40.00 Set temp. $\frac{1}{4}$ sec. cor.
 Thence, East, on random line, bet. secs. 8 and 17, continuing
 measurement.
 79.92 Fall 21 lks. S. of the cor. of secs. 8, 9, 16 and 17.
 Thence,
 S. 89°51'W., on true line, bet. secs. 8 and 17.
 Over mountainous land, thru. scattering timber and under-
 growth.
 14.50 Descend 135 ft., over steep SW.slope.
 26.00 Ascend 165 ft., over SE. slope.
 Spur, slopes SW.
 39.96 Descend 45 ft., over NW. slope, to
 Set an iron post, 3 ft. long, 1 in. in diam., 6 ins. in
 the ground to bed rock, supported in a mound of stone,
 for $\frac{1}{4}$ sec. cor., marked on brass cap,

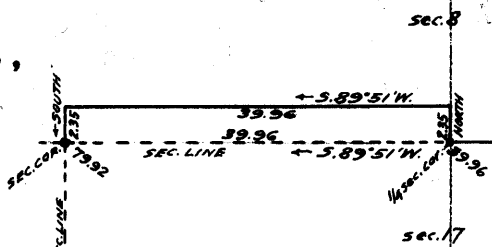
| | |
|---------------|------|
| $\frac{1}{4}$ | S 8 |
| | S 17 |
| 1923 | |

from which,
 A pinyon, 10 ins. in diam., brs. N. 73°E., 63
 lks. dist., marked $\frac{1}{4}$ S 8 BT.
 A pinyon, 6 ins. in diam., brs. S. 62°W., 143
 lks. dist., marked $\frac{1}{4}$ S 17 BT.

Chains.

Measurement of $W\frac{1}{2}$ of line by offset line as follows:

From $\frac{1}{4}$ sec.cor.,
North, 2.35 chs. to offset pt.,
in sec. 8.
Thence,
S. 89° 51' W., 39.96 chs. on off-
set line in
sec. 8, parallel
to and 2.35 chs.
N. of sec. line, to
offset point.



Thence,
South, 2.35 chs. to cor. of
secs. 7, 8, 17 and 18.

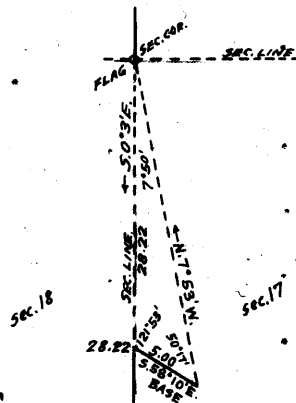
70.15 From $\frac{1}{4}$ sec.cor., descend 120 ft., over NW. slope, to
(Approx.) Rim of canyon, brs. NE. and SW. Enter canyon.

79.92 Descend 285 ft., over steep W. slope, to
The cor. of secs. 7, 8, 17 and 18.

Land, mountainous.
Soil, rocky, 4th rate.
Timber, cedar and pinyon.
Undergrowth, black brush and sagebrush.

S. 0° 3' E., bet. secs. 17 and 18.
Over mountainous land, in canyon, thru scattering under-
growth.
Precipitous slopes in canyon prevent chaining on sec.
line from sec.cor.; therefore, triangulate as follows:

Set flag on the cor. of secs.
7, 8, 17 and 18.
The vertical angle from said sec.
cor. to point on sec. line in
bottom of gulch is - 26°.
From point ahead on sec. line at
rim of canyon, measure a Base,
S. 58° 10' E., 5.00 chs.
From SE. end of Base, the flag
brs. N. 7° 53' W.
From NW. end of Base, the vertical
angle to flag is - 7°.



6.00 Dist. triangulated = 28.22 chs. S. 0° 3' E.
(Approx.) Wash, 20 lks. wide, in bottom of gulch, course W.,
about 195 ft. below cor. of secs. 7, 8, 17 and 18.

28.22 Ascend about 420 ft., over N. slope, to
Triangulation point on short spur, projecting NW. from
canyon rim.

Leave canyon. Enter rolling land, scattering timber and
undergrowth.

40.00 Continue line and measurement by chaining.
Ascend 65 ft., over NW. slope, to
Set an iron post, 3 ft. long, 1 in. in diam., on surface
rock, supported in a mound of stone, for $\frac{1}{4}$ sec.cor.,
marked on brass cap,

$\frac{1}{4}$
S18 | S17
1923

from which,
A pinyon, 8 ins. in diam., brs. S. 89 $\frac{1}{2}$ ° E., 79
lks. dist., marked $\frac{1}{4}$ S17 BT.
A pinyon, 6 ins. in diam., brs. N. 12° W., 60
lks. dist., marked $\frac{1}{4}$ S18 BT.
Continue over rolling land, thru scattering timber and
undergrowth.
Ascend 70 ft., over NW. slope.

BOOK 3646

14 Survey of part of Subdivision lines of T. 28 N., R. 11 W.
Chains.

72.00 Descend gradually over SE. slope, to
80.00 Set an iron post, 3 ft. long, 2 ins. in diam., 24 ins. in
the ground for cor. of secs. 17, 18, 19 and 20, marked on
brass cap, . . .

| | |
|------|------|
| T28N | R11W |
| S18 | S17 |
| S19 | S20 |
| 1923 | |

from which,

A pinyon, 14 ins. in diam., brs. N. $26\frac{3}{4}^{\circ}$ E., 51
lks. dist., marked T28N R11W S17 BT.

A pinyon, 12 ins. in diam., brs. S. 43° E., 215
lks. dist., marked T28N R11W S20 BT.

A pinyon, 10 ins. in diam., brs. S. $29\frac{1}{4}^{\circ}$ W., 120
lks. dist., marked T28N R11W S19 BT.

A pinyon, 10 ins. in diam., brs. N. $64\frac{3}{4}^{\circ}$ W., 60
lks. dist., marked T28N R11W S18 BT.

Land, mountainous and rolling.

Soil, rocky, 3rd and 4th rate.

Timber, pinyon and cedar,

Undergrowth, black brush.

40.00 East, on a random line, bet. secs. 17 and 20.
Set temp. $\frac{1}{4}$ sec. cor.

79.78 Fall 7 lks. S. of the cor. of secs. 16, 17, 20 and 21.

Thence,

S. 89° 57' W., on a true line, bet. secs. 17 and 20.

Over rolling land, thru. scattering timber and undergrowth.

Descend 57 ft., over SW. slope, to

22.00 Rim of canyon, brs. NE and SW. Enter mountainous land in
canyon.

Descend 153 ft., over W. slope, to

33.50 Wash, 50 lks. wide in gulch, course SW.

Ascend 60 ft., over SE. slope.

35.80 Point of spur, slopes S.

Descend 70 ft., over SW. slope.

37.85 Wash, 20 lks. wide, course SE. in bottom of canyon.

Ascend 34 ft., over NE. slope, to

39.89 Set an iron post, 3 ft. long, 1 in. in diam., 18 ins. in
the ground to bed rock, supported in a mound of stone
for $\frac{1}{4}$ sec. cor., marked on brass cap,

| |
|--------------------|
| $\frac{1}{4}$ S 17 |
| S 20 |
| 1923 |

from which,

A pinyon, 8 ins. in diam., brs. N. $41\frac{1}{2}^{\circ}$ E., 116 lks.
dist., marked $\frac{1}{4}$ S 17 BT.

A pinyon, 6 ins. in diam., brs. East 123 lks.
dist., marked $\frac{1}{4}$ S 20 BT.

Continue over mountainous land in canyon, thru. scattering
timber and undergrowth.

Ascend 90 ft., over NE. slope.

43.50 Descend 46 ft., over NW. slope.

48.80 Wash, 20 lks. wide, in gulch, course NE.

Ascend 130 ft., over SE. slope.

53.20 Point of spur, slopes S.

Descend 27 ft., over SW. slope.

59.86 Same wash, 10 lks. wide, course SE.

Ascend 52 ft., over NE. slope, to

64.80 West rim of canyon, brs. NW. and SE. Leave canyon. Enter
rolling land.

Ascend gradually over SE. slope, to

79.78 The cor. of secs. 17, 18, 19 and 20.

Land, rolling and mountainous.

Soil, rocky, 3rd and 4th rate.

Timber, cedar and pinyon.

Undergrowth, black brush, catclaw and cactus.

Survey of part of Subdivision lines of T.28 N. R. 11 W. 15

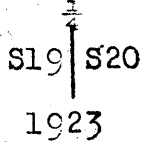
Chains.

S.0°3'E., bet. secs. 19. and 20.
Over gently rolling land, thru. scattering timber and undergrowth.

22.50 Descend gradually over SE. slope.
Rim of canyon, brs.NW and E. Leave gently rolling land and timber, and enter mountainous land in canyon.

33.30 Descend 350 ft., over steep S.slope.
Wash, 20 lks.wide, in gulch, course W.

40.00 Ascend 112 ft., over steep NW.slope, to
Set an iron post, 3 ft.long, 1 in. in diam., 12 ins. in the ground to bed rock, deposit a stone, marked with a cross (x) at base of post, and raise a mound of stone around post, for 1/4 sec.cor., marked on brass cap,



No bearing trees or bearing objects available.
Continue along E.side of canyon.

51.46 Ascend 300 ft., over steep NW.slope, to
Rim of canyon, brs.NE and SW. Leave canyon. Enter rolling land.

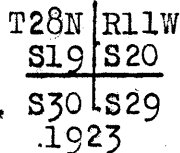
66.03 Ascend 46 ft., over NW.slope.
Point of spur, slopes W.

71.00 Descend 20 ft., over SW.slope, to

Same canyon rim, brs.SE. and NW. Enter mountainous land in canyon.

80.00 Descend 125 ft., over SW.slope, to

Set an iron post, 3 ft.long, 2 ins. in diam., on surface rock, deposit a stone marked with a cross (x) at base of post, and raise a mound of stone around post, for cor.of secs.19, 20, 29 and 30, marked on brass cap,



No bearing trees or bearing objects available.
Land, gently rolling, mountainous.
Soil, rocky, 4th rate,
Timber, cedar and pinyon.
Undergrowth, black brush.

40.00 East, on a random line, bet. secs. 20 and 29.

79.96 Set temp. 1/4 sec.cor.

Walk 12 lks.N.of the cor.of secs.20, 21, 28 and 29.

Thence,

N.89°55'W., on a true line, bet. secs.20 and 29.

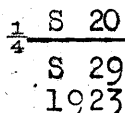
Over mountainous land, in canyon, thru.scattering timber and undergrowth.

21.00 Ascend 280 ft., over NE.slope, to

Right rim of canyon, brs.SE. and NW. Leave canyon. Enter gently rolling land on mesa.

39.98 Ascend gradually over SE.slope, to

Set an iron post, 3 ft.long, 1 in. in diam., on surface rock, supported in a mound of stone, for 1/4 sec.cor., marked on brass cap,



from which,

A pinyon, 10 ins.in diam., brs.N.48°W., 100 lks.dist., marked 1/4 S 20 BT.

A pinyon, 8 ins, in diam., brs.S.21 3/4°E., 41 lks.dist., marked 1/4 S 29 BT.

16. Survey of part of Subdivision lines of T. 28 N., R. 11 W.

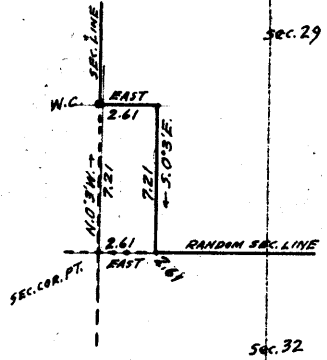
Chains.

- Continue over gently rolling land on mesa, thru. scattering timber and undergrowth.
- 70.60 Descend gradually over S. and SW. slopes, to Rim of canyon, brs. N. and S. Enter mountainous land in canyon.
- 79.96 Descend 130 ft., over W. slope, to The cor. of secs. 19, 20, 29 and 30. Land, mountainous and gently rolling. Soil, rocky, 4th rate. Timber, cedar and pinyon. Undergrowth, black brush.
-
- S. 0° 3' E., bet. secs. 29 and 30. Over mountainous land, in canyon, thru. very scattering timber and scattering undergrowth.
- 20.80 Descend 360 ft., over steep SW. slope. Wash, 30 lks. wide, in gulch, course W.
- 40.00 Ascend 280 ft., over NW. slope, to Set an iron post, 3 ft. long, 1 in. in diam., 6 ins. in the ground to bed rock, deposit a stone marked with a cross (x) at base of post, and raise a mound of stone around post, for $\frac{1}{4}$ sec. cor., marked on brass cap,
- $\frac{1}{4}$
 S30 | S29
 1923
- No bearing trees or bearing objects available. Continue along E. side of canyon.
- 61.44 Ascend 490 ft., over NW. slope, to Rim of canyon, brs. E. and W. Leave canyon. Enter rolling land.
- 72.79 Ascend 46 ft., over NW. slope, to Same canyon rim, brs. SE. and NW. Set an iron post, 3 ft. long, 2 ins. in diam., 12 ins. in the ground to bed rock, deposit a stone, marked with a cross (x) at base of post, and raise a mound of stone around post, for witness cor. to the cor. of secs. 29, 30, 31 and 32, marked on brass cap,
- T28N | R11W
 S30 | S29
 S31 | S32
 W. C
 1923
- No bearing trees or bearing objects available. Precipitous descent over cliffs prevent chaining farther on the sec. line.
- 80.00 True point for cor. of secs. 29, 30, 31 and 32 falls on face of cliffs, where it is inaccessible: Land, mountainous and rolling. Soil, rocky, 4th rate. Timber, cedar and pinyon. Undergrowth, black brush, cactus and yucca.
-
- From true point for cor. of secs. 29, 30, 31 and 32, East, on random line, bet. secs. 29 and 32. The sec. cor. point being inaccessible and part of the random line falling on cliffs in canyon, begin measurement by offset line, as described as follows:
- From sec. cor. point,

Survey of part of Subdivision lines of T. 28 N., R. 11 W. 17

Chains.

N. 0° 3' W., 7.21 chs. (computed) on the sec. line, bet. secs. 29 and 30, to the W.C. to sec. cor.
 Thence,
 East, 2.61 chs. on offset line in sec. 29, parallel to, and 7.21 chs. N. of random sec. line, to offset point.
 Thence,
 S. 0° 3' E., 7.21 chs. on offset line, returning to point on random sec. line at



2.61 Offset point. Thence East, on random line, bet. secs. 29 and 32, continuing measurement from point for cor. of secs. 29, 30, 31 and 32.

40.00 Set temp. $\frac{1}{4}$ sec. cor.

79.68 Fall 14 lks. N. of the cor. of secs. 28, 29, 32 and 33.

Thence,
 N. 89° 54' W., on true line, bet. secs. 29 and 32.
 Over rolling land, thru. scattering undergrowth.
 Descend 165 ft., over W. slope.

15.85 Wash, 30 lks. wide, course S. Enter mountainous land.
 Ascend 206 ft., over SE. slope.

26.70 Point of spur, slopes S. Enter rolling land.
 Descend 30 ft., over SW. slope.

37.20 Wash, 10 lks. wide, course SE. near head.
 Ascend 17 ft., over SE. slope, to

39.84 Set an iron post, 3 ft. long, 1 in. in diam., 12 ins. in the ground to bed rock, deposit a stone, marked with a cross (x) at base of post, and raise a mound of stone around post, for $\frac{1}{4}$ sec. cor., marked on brass cap,

$\frac{1}{4}$ S 29
 $\frac{1}{4}$ S 32
 1923

No bearing trees or bearing objects available.
 Thence, over mountainous land, thru. scattering undergrowth.

50.70 Ascend 200 ft., over SE. slope.
 Point of spur, slopes SE.

55.70 Descend 75 ft., over SW. slope.
 Draw, course S.

64.50 Ascend 225 ft., over E. slope, to Rim, brs. NW, and SE. Enter rolling land.
 Ascend 64 ft., over SE. slope.

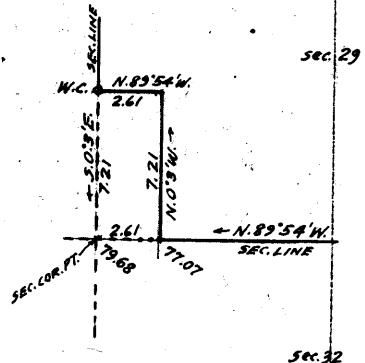
72.90 Descend slightly over SW. slope, to

77.07 E. rim of canyon, brs. NW. and SW.
 Descend over cliffs to sec. cor. point. Measurement by offset line as follows:

From 77.07 ch. station on sec. line,
 N. 0° 3' W., 7.21 chs. on offset line in sec. 29, to offset point.

Thence,
 N. 89° 54' W., 2.61 chs. on offset line, parallel to and 7.21 chs. N. of sec. line, to the W.C. to sec. cor.
 Thence,

S. 0° 3' E., 7.21 chs. (computed) on sec. line, bet. secs. 29 and 30, to



79.68 The true point for cor. of secs. 29, 30, 31 and 32, on face of cliffs on E. side of canyon, where it is inaccessible. Land, rolling and mountainous. Soil, rocky, 4th rate. Timber, none. Undergrowth, black brush.

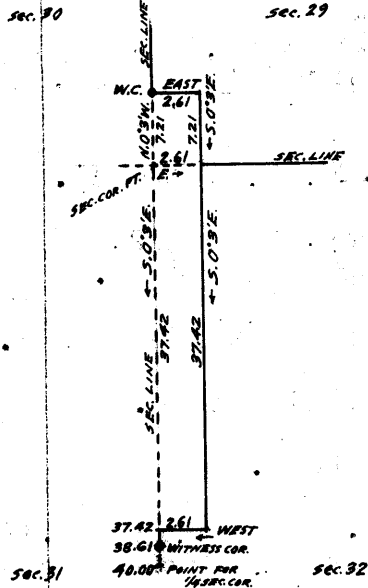
BOOK 3646

18 Survey of part of Subdivision lines of T. 28 N., R. 11 W.

Chains.

From true point for cor. of secs. 29, 30, 31 and 32;
 S.0°3'E., bet. secs. 31 and 32 (N. $\frac{1}{2}$).
 Over mountainous land, on E. side of canyon, thru. scattering undergrowth.
 The sec. cor. point being inaccessible, and part of the sec. line impassable owing to cliffs, measure by offset line as follows:

From point for cor. of secs. 29, 30, 31 and 32,
 N.0°3'W., 7.21 chs. (computed) on sec. line, bet. secs. 29 & 30, to the W.C. to cor. of secs. 29, 30, 31 and 32, at E. rim of canyon.



Thence,
 East, 2.61 chs. chaining measurement to offset point in sec. 29.
 Thence,
 S.0°3'E., 7.21 chs. chaining measurement to a point at same canyon rim at 2.61 chs. E. of sec. cor. point.
 Thence,
 S.0°3'E., 37.42 chs. chaining measurement on offset line in sec. 32, parallel to and 2.61 chs. E. of sec. line, to offset point.
 Thence,
 West, 2.61 chs. chaining measurement to offset point on sec. line at 37.42 chs. S.0°3'E. from sec. cor. point.

From sec. cor. point,
 Ascend over NW. face of cliffs to
 10.00 (Approx.) Spur, slopes SW. between two canyons, one in sec. 31, and the other in sec. 32.
 25.00 Descend about 300 ft., over steep SE. slope, to (Approx.) Foot of steep descent, bearing NE. and SW. Thence over ledge, same bearing.
 32.00 (Approx.) Leave ledge.
 37.42 Descend 75 ft., over S. slope, to Offset point at foot of descent.
 Thence, S.0°3'E. on sec. line, bet. secs. 31 and 32, continuing measurement.
 38.61 Descend slightly over ledge to Top of perpendicular cliff about 400 ft. high, bearing E. and W., facing S., and forming North or right rim of the Colorado River Canyon.
 Set an iron post, 3 ft. long, 1 in. in diam., on surface rock, deposit a stone, marked with a cross (x) at base of post, and raise a mound of stone around post, for witness cor. to $\frac{1}{4}$ sec. cor., marked on brass cap,

S31 | S32
 W C
 1923

40.00 No bearing trees or bearing objects available.
 The true point for $\frac{1}{4}$ sec. cor. falls on face of cliffs and is inaccessible.
 The S. $\frac{1}{2}$ of this line is in the Colorado River Canyon, and is unsurveyable.
 The Colorado River is about 3000 ft. below, and about three quarters of a mile south from the above described W.C.

Survey of part of Subdivision lines of T. 28 N., R. 11 W. 19

Chains.

Land, mountainous.
Soil, rocky, 4th rate.
Timber, none.
Undergrowth, black brush.

The continued satisfactory adjustment of the solar apparatus of the instrument used in the execution of the surveys described in the foregoing notes is indicated from field tests described in Book "H."

Boundaries of that part of T. 28 N., R. 11 W. surveyed under this Group (secs. 8, 17, 20 and 29).

Latitudes, departures and closing errors.

| Line designated. | True course. | Dist. | Latitudes. | | Departures. | |
|-------------------------|---------------|--------|------------|--------|-------------|-------|
| | | | N. | S. | E. | W. |
| Subdivisional boundary, | N. 89° 54' W. | 79.68 | .14 | | | 79.68 |
| | N. 0° 3' W. | 320.00 | 320.00 | | | .28 |
| | N. 89° 57' E. | 79.84 | .07 | | 79.84 | |
| | S. 0° 3' E. | 320.00 | | 320.00 | .28 | |
| Convergency, | | | | | .06 | |
| Totals, | | | 320.21 | 320.00 | 80.18 | 79.96 |
| | | | 320.00 | | 79.96 | |
| Error in latitude, | | | 0.21 | | | |
| Error in departure, | | | | | 0.22 | |

GENERAL DESCRIPTION.

The portion of T. 28 N., R. 11 W., subdivided as described in the foregoing notes includes all of the land in the township which practical to survey. The unsurveyed portion is in the Colorado River Canyon and deep side canyons thereto from 2000 to 3000 ft. deep. The area surveyed has a mountainous and rolling surface. On a mesa in secs. 20 and 29 this surface is gently rolling.

The soil is rocky, 4th rate, tho. a part might be classed as 3rd rate.

The timber consisting of cedar and pinyon is scattering over secs. 5, 8, and 17, and very scattering in sec. 20, and part of sec. 29. There is no timber in sec. 32, and part of sec. 29.

There is a scattering undergrowth of black brush, cactus, cat-claw, sagebrush and yucca in nearly all parts of the surveyed area.

There are no water courses carrying a permanent flow of water, and no springs. No indications of valuable mineral deposits were observed during the progress of the survey.

No settlers are located in the township, and there are no improvements. A new trail extends northerly from the southern part of sec. 8, thru secs. 5 and 4, leaving the Tp. on the N. bdy. of sec. 4.

There are no other trails and no roads.

At the present time this township is almost inaccessible, and the land is unsuitable for any purpose.

4-680

FIELD ASSISTANTS. to

William E. Hiester, U.S. Surveyor.

| NAMES. | CAPACITY. |
|--------------------|---------------|
| John Boggs, | 1st chainman, |
| Thomas Tennison, | 2nd chainman, |
| Lowell McAllister, | cornerman, |
| Aza Alldredge, | axman, |
| Reed Hunt, | flagman. |
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CERTIFICATE OF UNITED STATES SURVEYOR.

I, William E. Hiester, U. S. Surveyor, hereby certify upon honor that, in pursuance of special instructions received from the U. S. Surveyor General, for Group 74, Arizona, bearing date of the 12th day of October, 1916 I have well, faithfully, and truly in my own proper person, and in strict conformity with said instructions, the Manual of Surveying Instructions, and the laws of the United States, surveyed all those parts or portions of the

Subdivision lines of

TOWNSHIP 28 NORTH, RANGE 11 WEST,

of the Gila and Salt

River Base and Meridian, in the State of Arizona, which are represented in and by diagram on page 1 hereof the foregoing field notes as having been executed by me, and under my direction; and that all the corners of said survey have been established and perpetuated in strict accordance with the Manual of Surveying Instructions, and the special written instructions of the U. S. Surveyor General, for Group 74, Arizona, and in the specific manner described in the field notes, and that the foregoing are the original field notes of such survey.

Place: Hurricane Utah. William E. Hiester U. S. Surveyor.

Date: Jan. 24 1925 APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,

Phoenix, Arizona, FEB 16 1925, 1925

The foregoing field notes of the survey of the

Subdivision lines of

TOWNSHIP 28 NORTH, RANGE 11 WEST,

of the Gila and Salt River Base and Meridian, in the State of Arizona,

executed by William E. Hiester, U.S. Surveyor,

under his special instructions dated October 12, 1916, for Grp. 74, Arizona, , having been critically examined, and the necessary corrections and explanations made, the said field notes, and the surveys they describe, are hereby approved.

Charles M. Douglas U. S. Surveyor General.

I certify that the foregoing transcript of the field notes of the above described surveys in has been correctly copied from the original notes on file in this office.