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Book No. 2662

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BOOK "L"

BOOK 2662

DEC 23 1913

FIELD NOTES

OF THE SURVEY OF THE

..... North and West Boundaries of T. 15 S. R. 30 E.

..... and the West Boundary of T. 14 S. R. 30 E.

Of the Gila and Salt River Base and Meridian,

In the State of Arizona.

EXECUTED BY

..... John F. Hesse

In the capacity of U. S. Surveyor....., under instructions dated *May 22nd*, 1912,
issued by the United States Surveyor General to govern surveys included in
Group No. 18....., which were approved by the Commissioner of the General Land
Office, *June 29th*....., 1912, pursuant to authority contained in the Act of
Congress dated *August 23rd*, 1912

Survey commenced April 29....., 1913.

Survey completed May 6....., 1913.

INDEX DIAGRAM.*(see special index)*

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T.14S. R.30E.

T.15S. R.30E.

West Bdy. of Tr. 15 S. R. 30 E.

Chains.

Survey commenced April 29, 1913 and executed with a W. and L.F. Gurley transit, not numbered, with solar attachment. The horizontal limb is provided with one double vernier, reading to single minutes of arc, which is also the least count of the verniers of the latitude and declination arcs.

The instrument was approved by the Supervising Surveyor August 28, 1912.

I examine the adjustments of the transit and find them correct, 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 by observations on Polaris, I proceed as follows:

At my camp, which is situated near the cor. of secs. 19, 20, 29 and 30, Tp. 15 S. R. 30 E., latitude 32°05'55"N., longitude 109°19'10"W; I set off 32°05.9'N. on the lat. arc, 14°30'N. on the decl. arc and at 4h.00m. p.m. l.m.t., determine with the solar a meridian, and mark a point thereof, on a stone firmly set in the ground 5 chs. N. of my station.

April 29, 1913.

April 30¹⁹¹³ At 5h.02m., a.m. by my watch which has correct l.m.t., I observe Polaris at eastern elongation, in accordance with the Manual of Instruction, and mark a point in the line thus determined, on a peg driven in the ground 5 chs. N. of my station.

At 6h.30m. a.m. l.m.t., I lay off the azimuth of Polaris 1°22' to the west, and mark the meridian thus determined by cutting a small groove in the stone set April 29, on which the meridian falls 0.3 ins. east of the mark determined by the solar.

At 7h.00m. a.m. l.m.t., I set off 32°05.9'N. on the lat. arc, 14°43'N. on the decl. arc and mark a point in the meridian determined with the solar, by a cross on the stone already set 5 chs. N. of my station: this mark falls 0.3 ins. east of the meridian established by the Polaris observation.

The solar apparatus, by p.m. and a.m. observations, defines positions for meridians, respectively about 0'16"E and 0'16"W. of the meridian established by the Polaris observations; therefore, I conclude that the adjustments of the instrument are satisfactory.

The magnetic bearing of the true meridian at 7h.30m. a. m., is N. 13° 00' W. the angle thus determined gives the mag. decl. as 13° 00' E.

At 9h.00m. a.m. l.m.t., I set off 32°04'N. on the lat. arc, 14°43'N. on the decl. arc and determine with the solar a meridian at the standard cor. of Tp. 15 S. Rgs. 29 and 30 E., which is a limestone 14x8x8 ins. above ground firmly set and marked, SC on N.; with 6 grooves on N., E., and W. faces; from which

- An oak 10 ins. diam., bears N5°11'E 34 lks. dist., marked T15SR30ES31BT
- A juniper 18 ins. diam., bears N51°53'W. 47 lks. dist., marked T15SR29ES36BT

From this cor.

- A witness cor. on the forest reserve line, which is an iron post 3 ins. diam., marked on brass cap
- SC } N. of center
- WC }
- T14SR30ES31 in S.E. and
- T14SR29ES36 in S.W. quadrant; bears 1.91 chs. W.

Taylor's house bears N60°40'E.

Thence I run, as per instructions North, bet. secs. 31 and 36. Over mountainous land, descending over point of low ridge through heavy timber and dense brush. Road, bears N.E. Wash, 20 lks. wide, course N.E., stream of running water 5 lks. wide, 2 ins. deep, in wash for about 2.50 chs.

4.83
8.00

West Edy. of Tr. 15 S. R. 30 E.

- Chains. Ascend over rough broken land.
- 36.20 Wash, 18 lks. wide, course N.E., water all along this wash in pools.
- 40.00 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for $\frac{1}{4}$ sec. cor., marked on brass cap $\frac{1}{4}$ S36 in W. and S31 in E. half; from which
 An oak 10 ins. diam., bears S18°E. 53 lks. dist., marked $\frac{1}{4}$ S31BT
 An oak 12 ins. diam., bears S71°W. 42 lks. dist., marked $\frac{1}{4}$ S36BT.
- 68.55 Wash, 14 lks. wide, course S.E.
- 78.50 Ridge, bears S. East and N.W., descend.
- 80.00 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 25, 30, 31 and 36, marked on brass cap, 1913;
 T15S in N. half;
 R29E, S25 in N.W.
 R30E, S30 in N.E.
 S31 in S.E. and
 S36 in S.W. quadrant; from which
 An oak 10 ins. diam., bears N5°E. 94 lks. dist., marked T15SR30ES30BT
 An oak 14 ins. diam., bears S64°E. 71 lks. dist. marked T15SR30ES31BT,
 An oak 10 ins. diam., bears S12°W. 38 lks. dist. marked T15SR29ES36BT
 An oak 10 ins. diam., bears N42°W 72 lks. dist., marked T15SR29ES25BT.
- Land, rough mountainous.
 Soil, rocky 4th rate.
 Timber, heavy oak, juniper and pinon, with scattering ash and maple along the washes.
 Undergrowth, dense oak brush.
 April 30¹⁹¹³ At this cor. I set off 14°45'N. on the decl. arc and observe the Sun on the meridian at noon; the resulting latitude is 32°05'N.

-
- North, bet. secs. 25 and 30
 Over rough mountainous land, descending through heavy timber and dense brush.
- 7.50 Wash, 10 lks. wide, course S.E. ascend.
- 38.46 Top of long ascent, main ridge, bears S70°E. N70°W., descend. Timber becomes scattering.
- 40.00 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for $\frac{1}{4}$ sec. cor., marked on brass cap $\frac{1}{4}$ S25 in W. and S30 in E. half; raise a mound of stone 3 ft. base, 1 $\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. No trees available
- 78.50 Wash, 10 lks. wide, course N.E.
- 79.45 Wash, 10 lks. wide, course N.E., ascend.
- 80.00 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 19, 24, 25 and 30, marked on brass cap, 1913;
 T15S. in N. half;
 R29E, S24 in N.W.
 R30E, S19 in N.E.
 S30 in S.E. and
 S25 in S.W. quadrant; from which
 A juniper 10 ins. diam., bears N9°E. 35 lks. dist marked T15SR30S19BT
 A juniper 10 ins. diam., bears S57 $\frac{1}{2}$ °E. 159 lks. dist., marked T15SR30ES30BT
 An oak, 8 ins. diam., bears S74°W. 96 lks. dist., marked T15SR29ES25BT
 An oak 14 ins. diam., bears N22°W. 91 lks. dist., marked T15SR29ES24BT.
- Land, rough mountainous.
 Soil, rocky, 4th rate.
 Timber, heavy oak, juniper and pinon, 38.00 chs. scattering 42.00 chs.
 Undergrowth, dense oak brush

April 30, 1913.

West Bdy. of Tp. 15 S. R. 30 E.

Chains. May 2¹⁹¹³ At 7h.00m. a.m. l.m.t., I set off 32°06'N. on the lat. arc, 15°19½'N. on the decl. arc and determine with the solar a meridian at the cor. of secs. 19,24,25 and 30, above described,

Thence I run
 North, bet. secs. 19 and 24
 Over mountainous land, ascending through scattering timber and dense brush.

7.10 Ridge, bears N.E. and S.W., descend.
 12.60 Wash, 18 lks. wide, course S.E., ascend steep S.W. slope of ridge.
 40.00 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for ¼ sec. cor., marked on brass cap¹⁹¹³ S24 in W. and S19 in E. half; no trees available therefore raise a mound of stone 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
 40.20 Ridge, bears N.E. and S.W., descend.
 74.20 Canyon, 20 lks. wide, course S.E. leave brush, ascend.
 80.00 Set an iron post 3 ft. long, 3 ins. in diam., 24 ins. in the ground for cor. of secs. 13,18,19 and 24, marked on brass cap, 1913;
 T15S in N. half;
 R29E, S13 in N.W.
 R30E, S18 in N.E.
 S19 in S.E. and
 S24 in S.W. quadrant; no trees available, therefore raise a mound of stone 2 ft. base, 1½ ft. high, W. of cor. Pits Impracticable.
 Land, rough mountainous.
 Soil, rocky, 4th rate.
 Timber, scattering oak and pinon.
 Undergrowth, dense oak brush, 74.00 chs.
 May 2¹⁹¹³ At this cor. I set off 15°22'N. on the decl. arc and observe the sun on the meridian at noon; the resulting latitude is 32°06.8'N.

North, bet. secs. 13 and 18
 Over mountainous land, ascending through scattering timber.

4.50 Ridge, bears N.E. and S.W., top of high peak bears W. 8.00 chs., descend.
 40.00 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for ¼ sec. cor., marked on brass cap¹⁹¹³ S13 in W. and S18 in E. half; no trees available, therefore raise a mound of stone 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
 69.50 Wash, 18 lks. wide, course N.E., water in pools along bed of this wash, ascend.
 80.00 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs, 7,12,13 and 18, marked on brass cap, 1913;
 T15S in N. half;
 R29E, S12 in N.W.
 R30E, S7 in N.E.
 S12 in S.E. and
 S13 in S.W. quadrant; no trees available, therefore raise a mound of stone 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
 Land, rough mountainous.
 Soil, rocky, 4th rate.
 Timber, scattering oak.
 Undergrowth, none.

May 2, 1913.

May 3¹⁹¹³ At 7h.00m. a.m. l.m.t. I set off 32°07½'N. on the lat. arc, 15°37'N. on the decl. arc and determine with the solar a meridian at the cor. of secs, 7,12,13 and 18 above described, Thence I run,
 North, bet. secs. 7 and 12
 Over mountainous land, ascending through scattering timber

West Bdy. of Tp. 15 S. R. 30 E.

Chains.	
7.50	Ridge, bears N.E. and S.W., leave scattering timber and descend along W. slope of ridge.
40.00	Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for $\frac{1}{4}$ sec. cor., marked on brass cap ¹⁹¹³ S12 in W. and S7 in E. half; raise a mound of stone 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
80.00	Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs, 1,6,7, and 12, marked on brass cap, 1913; T158 in N. half; R29E, S1 in N.W. R30 E. S6 in N.E. S7 in S.E. and S12 in S.W. quadrant; Raise a mound of stone 2 ft. base $\frac{1}{2}$ ft. high, W. of cor. ^{Pits impracticable} Land, rough mountainous. Soil, rocky, 4th rate. Timber, scattering oak 7.50 chs. No undergrowth. May 3 ¹⁹¹³ At this cor. I set off $15^{\circ}40'N$. on the decl. arc and observe the sun on the meridian at noon; the resulting latitude is $32^{\circ}08'N$.

	North, bet. secs. 1 and 6. Over rough rolling land, descending
22.90	Wash, 18 lks. wide, course N.E. Soil changes from 4th to
39.20	Road, bears N.E. and S.W. 2nd rate
40.00	Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for $\frac{1}{4}$ sec. cor., marked on brass cap ¹⁹¹³ S1 in W. and S6 in E. half; dig pits 18x18x12 ins. N. and S. of post 3 ft. dist., and raise a mound of earth $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, W. of cor.
80.00	Set temp. cor. of Tps. 14 and 15 S. Rgs. 29 and 30 E. When I run West on the N. bdy. of Tp. 15 S. R. 30 E. I intersect this line 16.10 chs. S. of this temp cor. of Tps. 14 and 15 S. Rgs. 29 and 30 E., which makes this mile
63.90	The cor. of Tps. 14 and 15 S. Rgs. 29 and 30 E., hereinafter described. Land, rough rolling, Soil, rocky, 4th rate. 23.00 chs. coarse gravel and sand dry, coarse texture, 2nd rate. No timber. No undergrowth.

May 3, 1913.

North Bdy. of Tp. 15 S. R. 30 E.

Chains.

May 4th At 7h.00m. a.m. l.m.t., I set off 32°09'N. on the lat. arc, 15°55'N. on the decl. arc and determine with the solar a meridian at the cor. of Tps. 14 and 15 S. Rgs. 30 and 31 E., which is an old mesquite stake, 2x2 ins. square 10 ins. above ground, marks illegible and no trace of old pits or mound.

Thence I run

West, on random line along N. bdy. of Tp. 15 S. R. 30 E., setting temp 1/4 sec. and sec. cor. at 40.00 and 80.00 chs. respectively and at

479.90

Intersect W. bdy. of Tp. 15 S. R. 30 E. 16.10 chs. S. of the temp. cor. of Tps. 14 and 15 S. Rgs. 29 and 30 E. At point of intersection set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of Tps. 14 and 15 S. Rgs. 29 and 30 E., marked on brass cap, 1913;

T14S in N
R30E in E.
T15S in S. and
R29E in W. half;
S36 in N.W.
S31 in N.E.
S6 in S.E. and
S1 in S.W. quadrant;

Dig pits 24x24x12 ins. on each line, N., E., and W., 4 ft. and S. of post, 8 ft. dist., and raise a mound of earth 5 ft. base, 2 1/2 ft. high, S. of cor.

Thence I run

East, on true line, bet. secs. 6 and 31. Over rough rolling land.

2.50

Wash, 20 lks. wide, course N.E., enter dense brush

39.90

Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for 1/4 sec. cor., marked on brass cap, S31 in N. and S6 in S. half; raise a mound of stone 2 ft. base, 1 1/2 ft. high, N. of cor. Pits impracticable.

53.00

Wash, 14 lks. wide, course N.E.

73.92

Wash, 10 lks. wide, course N.E.

79.90

Set an iron post 3 ft. long, 3 ins. in diam., 24 ins. in the ground for cor. of secs. 5, 6, 31 and 32, marked on brass cap, 1913;

T14S in N.
T15S in S. and
R30E in W. half;
S31 in N.W.
S32 in N.E.
S5 in S.E. and
S6 in S.W. quadrant;

Dig pits 18x18x12 ins. in each sec. 5 1/2 ft. dist., and raise a mound of earth 4 ft. base, 2 ft. high, W. of cor. Land, rough rolling.

Soil, coarse gravel and sand, coarse texture, dry, 2nd rate.

No timber.

Undergrowth, dense catclaw and mesquite, 77.50 chs.

May 4th At this cor. I set off 15°57 1/2'N on the decl. arc and observe the sun on the meridian at noon; the resulting latitude is 32°09'N.

East, on true line, bet. secs. 5 and 32.

Over rough rolling land, through dense brush.

8.10

Wash, 12 lks. wide, course N.E.

12.50

Wash, 20 lks. wide, course N.E.

40.00

Set an iron post 3 ft. long, 1 in. diam., 26-ins. in the ground for 1/4 sec. cor., marked on brass cap, S32 in N. and S5 in S. half; raise a mound of stone 2 ft. base, 1 1/2 ft. high, N. of cor. Pits impracticable.

48.00

Wash, 40 lks. wide, course N.E.

53.20

Road, bears N. and S.

76.50

Wash, 14 lks. wide, course N.E.

79.33

Wash, 20 lks. wide, course N.E.

80.00

Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 4, 5, 33 and 33, marked on brass cap, 1913;

North Bdy. of Tp. 15 S. R. 30 E.

Chains.	T14S in N. T15S in S. and R30E in W. half; S33 in N.W. S33 in N.E. S4 in S.E. and S5 in S.W. quadrant; Raise a mound of stone 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable. Land, rough rolling. Soil, coarse sand and gravel, coarse texture, dry, 2nd. rate. No timber Undergrowth, dense catclaw and mesquite.

	East, on true line, bet. secs. 4 and 33 Over rolling land, through dense brush
10.00	Brush becomes scattering.
39.05	Wash, 20 lks. wide, course N.E., brush becomes dense.
40.00	Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for ¼ sec. cor., marked on brass cap ¹⁹³¹ S33 in N. and S4 in S. half; raise a mound of stone 2 ft. base, 1½ ft. high, N. of cor. PITS impracticable
80.00	Set an iron post 3 ft. long, 3 ins. in diam., 24 ins. in the ground for cor. of secs. 3, 4, 33 and 34, marked on brass cap, 1913; T14S in N. T15S in S. and R30E in W. half; S33 in N.W. S34 in N.E. S3 in S.E. and S4 in S.W. quadrant; Dig pits 18x18x12 ins. in each sec. 5½ ft. dist., and raise a mound of earth 4 ft. base, 2 ft. high, W. of cor. Land, rolling. Soil, coarse sand and gravel, coarse texture, dry, 2nd, rate. No timber. Undergrowth, dense catclaw, 51.00 chs., scattering 29.00 chs.

	East, on true line, bet. secs. 3 and 34. Over rolling land, through dense brush.
3.30	Wash, 15 lks. wide, course N.E., brush becomes scattering, and soil changes from 2nd, to 1st rate.
7.45	Road, bears N30°E and S30°W.
24.80	Wash, 14 lks. wide, course N.E.
39.00	Wash, 12 lks. wide, course N.E.
40.00	Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for ¼ sec. cor., marked on brass cap ¹⁹³¹ S34 in N. and S3 in S. half; raise a mound of stone 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.
53.40	Wash, 18 lks. wide, course N.E.
80.00	Set an iron post 3 ft. long, 3 ins. in diam., 24 ins. in the ground for cor. of secs. 3, 3, 34 and 35, marked on brass cap, 1913; T14S in N. T15S in S. and R30E in W. half; S34 in N.W. S35 in N.E. S3 in S.E. and S3 in S.W. quadrant; Dig pits 18x18x12 ins. in each sec. 5½ ft. dist., and raise a mound of earth 4 ft. base, 2 ft. high, W. of cor. Land, rolling. Soil, sandy loam mixed with gravel over 2 ft. deep, medium texture, dry, 1st rate. 77.00 chs. Coarse sand and gravel coarse texture, dry, 2nd, rate, 3.00 chs. No timber. Undergrowth, dense catclaw, 3.00 chs. scattering 77.00 chs.

North Rdy. of Tp. 15 S. R. 30 E.

Chains East, on true line, bet. 3 and 35.
 Over rolling land, through scattering brush

16.70 Wash, 10 lks. wide, course N.E.

37.70 Wash, 8 lks. wide, course N.E., enter dense brush. bears N. and S.

40.00 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for $\frac{1}{4}$ sec. cor., marked on brass cap ¹⁹¹³ S35 in N. and S2 in S. half; dig pits 18x18x12 ins. E. and W. of post, 3 ft. dist., and raise a mound of earth $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, N. of cor.

64.95 Wash, 15 lks. wide, course N.E.

76.20 Wash, 20 lks. wide, course N.E.

80.00 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 1, 2, 35 and 36, marked on brass cap, 1913;
 T14S in N.
 T15S in S. and
 R30E in W. half;
 S35 in N.W.
 S36 in N.E.
 S1 in S.E. and
 S2 in S.W. quadrant;
 Raise a mound of stone 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor.
 Pits impracticable.
 Land, rolling,
 Soil, sandy loam mixed with gravel, over 2 ft. deep, medium texture, dry, 1st rate.
 No timber.
 Undergrowth, scattering mesquite and catclaw, 38.00 chs.
 dense mesquite, catclaw and greasewood 42.00 chs.

12.80 East, on true line, bet. secs. 1 and 36.
 Over rolling land, through dense brush.

23.10 Wash, 16 lks. wide, course N.E.

40.00 Wash, 8 lks. wide, course N.E.

40.00 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for $\frac{1}{4}$ sec. cor., marked on brass cap ¹⁹¹³ S36 in N. and S1 in S. half; raise a mound of stone 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor., Pits impracticable.

40.20 Wash, 10 lks. wide, course S.E.

43.60 Same wash, 20 lks. wide, from S.W., course N.E.

79.85 Road, bears N. and S.

80.00 The old cor. of Tps. 14 and 15 S. Rgs. 30 and 31 E. hereinbefore described.
 I destroy all trace of this old cor. and reestablish it in the same place as follows;
 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor., of Tps. 14 and 15 S. Rgs. 30 and 31 E. marked on brass cap, 1913;
 T14S in N.
 R31E in E.
 T15S in S. and
 R30E in W. half;
 S36 in N.W.
 S31 in N.E.
 S6 in S.E. and
 S1 in S.W. quadrant;
 Dig pits 24x24x12 ins. crosswise on each line, N., E., and W., 4 ft. and S. of post 8 ft. dist., and raise a mound of earth 5 ft. base, $2\frac{1}{2}$ ft. high, S. of cor.
 Land, rolling.
 Soil, sandy loam mixed with gravel, over 2 ft. deep, medium texture, dry, 1st rate.
 No timber.
 Undergrowth, dense greasewood and scattering mesquite

May 4, 1913.

West Bdy. of Tp. 14 S. R. 30 E.

Chains.

Survey commenced May 4, 1913, and executed with a W. and L.E. Gurley transit, not numbered, with solar attachment. The horizontal limb is provided with one double vernier, reading to single minutes of arc, which is also the least count of the verniers of the latitude and declination arcs. The instrument was approved by the Supervising Surveyor August 28, 1912.

I examine the adjustments of the transit and find them correct, 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 by observations on Polaris, I proceed as follows:

At my camp, which is situated near the cor. of secs. 3, 4, 33 and 34, Tp. 14 S. R. 30 E., latitude, 32°09'24"N., longitude, 109°17'W. I set off 32°09'N. on the lat. arc, 16°02'N. on the decl. arc, and at 5h.00m. p.m., l.m.t., determine with the solar a meridian, and mark a point thereof, on a stone firmly set in the ground 5 chs. N. of my station

May 4, 1913.

May 5¹⁹¹³ At 4h.42.3m., a.m., by my watch, which has correct l.m.t., I observe Polaris at eastern elongation, in accordance with the Manual of Instructions, and mark a point in the line thus determined, on a peg driven in the ground 5 chs. N. of my station.

At 6h.00m., a.m., l.m.t., I lay off the azimuth of Polaris 1°22' to the west, and mark the meridian thus determined by cutting a small groove in the stone set May 4, on which the meridian falls 0.3 ins. east of the mark determined by the solar.

At 7h.00m., a.m., l.m.t., I set off 32°09'N. on the lat. arc, 16°12'N. on the decl. arc and mark a point in the meridian determined with the solar, by a cross on the stone already set 5 chs. N. of my station; this mark falls 0.3 ins. east of the meridian established by the Polaris observation.

The solar apparatus by p.m., and a.m., observations, defines position for meridians, respectively, about 0'16"E and 0'16"W. of the meridian established by the Polaris observations; therefore I conclude that the adjustments of the instrument are satisfactory.

The magnetic bearing of the true meridian at 7h.30m., a.m. is N. 13° 00' W. the angle thus determined gives the mag. decl. as 13° 00' E.

At 9h.00m., a.m., l.m.t., I set off 32°09'N. on the lat. arc, 16°13'N. on the decl. arc and determine with the solar a meridian at the cor. of Tps. 14 and 15 S. Rgs. 29 and 30 E., which is an iron post 3 ins. diam., 12 ins. above ground, marked on brass cap, 1913;

- T14S in N.
- R30E in E.
- T15S in S. and
- R29E in W. half;
- S36 in N.W.
- S31 in N.E.
- S6 in S.E. and
- S1 in S.W. quadrant;

Pits 24x24x12 ins. crosswise on each line N., E., and W/4 ft. and S. of post 8 ft. dist., and a mound of earth 5 ft. base, 2½ ft. high, S. of cor.

Thence I run

North, on random line, along W. bdy. of Tp. 14 S. R. 30 E. setting ¼ sec. and sec. cors. at intervals of 40.00 chs.; and at 479.71 chs., intersect the S. bdy. of T. 13 S. R. 29 E. at a point S89°48'E. 2.65 chs. dist., from old cor. of Tps. 13 and 14 S. Rgs. 29 and 30 E., which is a redwood stake 18 ins. long, 1½ ins. square, marked with Roman characters, visible but illegible, and 6 notches on each edge. Slight trace of pits.

West Edy. of Tp. 14 S. R. 30 E.

Chains. I destroy all trace of this old cor., and reestablish it in the same place as follows;
 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of Tps. 13 and 14 S. Rgs. 29 and 30 E., marked on brass cap, 1913;
 T13S in N.
 R30E in E.
 T14S in S. and
 R29E in W. half;
 S36 in N.W.
 S31 in N.E.
 S6 in S.E. and
 S1 in S.W. quadrant;
 Dig pits 24x24x12 ins. crosswise on each line, N., E., and W. 4 ft. and S. of post 8 ft. dist., and raise a mound of earth 5 ft. base, 3½ ft. high, S. of cor.
 The falling answers to a correction of 0°19', or 44 lks. W. per mile, counting from the S.W. cor. of the TP.
 May 5, 1913.
 May 6¹⁹¹³ At 7h00m a.m. l.m.t., I set off 32°14'N. on the lat. arc, 16°29'N. on the decl. arc and determine with the solar a meridian at the above described T.P. cor. Thence I run 80°19'E., on true line, bet. secs. 1 and 6.
 Over level land, through dense brush.
 39.71 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for ¼ sec. cor., marked on brass cap, 1913; S1 in W. and S6 in E. half; dig pits 18x18x12 ins. N. and S. of post 3 ft. dist., and raise a mound of earth 3½ ft. base, 1½ ft. high, W. of cor.
 79.71 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 1, 6, 7, and 12, marked on brass cap, 1913;
 T14S in N. half;
 R29E, S1 in N.W.
 R30E, S6 in N.E.
 S7 in S.E. and
 S12 in S.W. quadrant;
 Dig pits 18x18x12 ins. in each sec. 5½ ft. dist., and raise a mound of earth 4 ft. base, 2 ft. high, W. of cor.
 Land, level.
 Soil, sandy loam over 2 ft. deep, medium texture, dry, 1st rate.
 No timber.
 Undergrowth, dense catclaw and greasewood.

 26.40 80°19'E., bet. secs. 7 and 12.
 40.00 Over gently rolling land, through dense brush.
 Road, bears N.E. and S.W.
 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for ¼ sec. cor., marked on brass cap, 1913; S12 in W. and S7 in E. half; dig pits 18x18x12 ins. N. and S. of post 3 ft. dist., and raise a mound of earth 3½ ft. base, 1½ ft. high, W. of cor.
 80.00 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 7, 12, 13 and 18, marked on brass cap, 1913;
 T14S in N. half;
 R29E, S12 in N.W.,
 R30E, S7 in N.E.
 S12 in S.E. and
 S13 in S.W. quadrant;
 Dig pits 18x18x12 ins. in each sec. 5½ ft. dist., and raise a mound of earth 4 ft. base, 2 ft. high, W. of cor.
 Land, gently rolling.
 Soil, sandy loam over 2 ft. deep, medium texture, dry, 1st rate.
 No timber.
 Undergrowth, dense greasewood and catclaw.
 May 6¹⁹¹³ At this cor. I set off 16°32'N. on the decl. arc and observe the sun on the meridian at noon; the resulting latitude is 32°12'N.

West Bdy. of Tp. 14 S. R. 30 E.

Chains, 80°19'E., bet. secs. 13 and 18
 Over gently rolling land, through dense brush.
 40.00 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for $\frac{1}{4}$ sec. cor., marked on brass cap, 1913; S13 in W. and S18 in E. half; raise a mound of stone 2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable.
 80.00 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 13, 18, 19 and 24, marked on brass cap, 1913;
 T14S in N. half;
 R29E, S13 in N.W.
 R30E, S18 in N.E.
 S19 in S.E. and
 S24 in S.W. quadrant;
 Dig pits 18x18x12 ins. in each sec. 5 1/2 ft. dist., and raise a mound of earth 3 1/2 ft. base, 1 1/2 ft. high, W. of cor.
 Land, gently rolling.
 Soil, sandy loam mixed with gravel, over 2 ft. deep, medium texture, dry, 1st rate.
 No timber.
 Undergrowth, dense greasewood, mesquite and catclaw.



80°19E., bet. secs. 19 and 24.
 Over gently rolling land, through dense brush.
 14.00 Draw, 2.00 chs. wide, course N.E.
 40.00 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for $\frac{1}{4}$ sec. cor., marked on brass cap, 1913; S24 in W. and S19 in E. half; dig pits 18x18x12 ins. N. and S. of post, 3 ft. dist., and raise a mound of earth 3 1/2 ft. base, 1 1/2 ft. high, W. of cor.
 52.70 Wash, 12 lks. wide, course N.E.
 67.10 Dim road, bears E. and W.
 80.00 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 19, 24, 25 and 30, marked on brass cap, 1913;
 T14S. in N. half;
 R29E, S24 in N.W.
 R30E, S19 in N.E.
 S30 in S.E. and
 S25 in S.W. quadrant;
 Dig pits 18x18x12 ins. in each sec. 5 1/2 ft. dist., and raise a mound of earth 4 ft. base, 2 ft. high, W. of cor.
 Land, gently rolling.
 Soil, sandy loam mixed with gravel, over 2 ft. deep, medium texture, dry, 1st rate.
 No timber.
 Undergrowth, dense greasewood, mesquite and catclaw.



80°19'E., bet. secs. 25 and 30
 Over rolling land, through dense brush.
 25.55 Wash, 40 lks, wide, course N.E.
 40.00 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for $\frac{1}{4}$ sec. cor., marked on brass cap, 1913; S25 in W. and S30 in E. half; dig pits 18x18x12 ins. N. and S. of post 3 ft. dist., and raise a mound of earth 3 1/2 ft. base, 1 1/2 ft. high, W. of cor.
 80.00 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 25, 30, 31 and 36, marked on brass cap, 1913
 T14S in N. half;
 R29E, S25 in N.W.
 R30E, S30 in N.E.
 S31 in S.E. and
 S36 in S.W. quadrant;
 Raise a mound of stone 2 ft. base, 1 1/2 ft. high, W. of cor.
 Pits impracticable.
 Land, rolling.
 Soil, sandy loam mixed with coarse gravel and rocks, over 2 ft. deep, coarse texture, dry, 2nd rate.
 No timber.
 Undergrowth, dense greasewood and catclaw.

West Bdy. of Tp. 14 S. R. 20 E.

Chains. SO^o19'E. bet. secs. 31 and 36.
 Over rolling land, through dense brush.
 24.40 Road, Apache Pass to Paradise, bears E. and W.
 40.00 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the
 ground for $\frac{1}{4}$ sec. cor., marked on brass cap $\frac{1}{4}$ S36 in W.
 and S31 in E. half; dig pits 18x18x12 ins. N. and S. of
 post, 3 ft. dist, and raise a mound of earth 3 $\frac{1}{2}$ ft. base,
 1 $\frac{1}{2}$ ft. high, W. of cor.,
 60.00 Leave brush, bears E. and W.
 80.00 The cor. of Tps. 14 and 15 S. Rgs. 29 and 30 E. *hereinbefore*
 by described.
 Land, rolling.
 Soil, sandy loam mixed with coarse gravel and rocks,
 coarse texture, dry, 2nd rate.
 No timber.
 Undergrowth, dense greasewood and catclaw, 60.00 chs.

May 6, 1913.

Boundaries of T. 14 S. R. 30 E.

Latitudes, departures, and closing errors.

Lines Designated.	True Bearing.	Distance.	Latitudes.		Departures.	
			N.	S.	E.	W.
		Chs.	Chs.	Chs.	Chs.	Chs.
East Boundary.	N0°16'W.	480.84	480.84			2.23
NORTH BDY.	N.bdy. sec. 1	80.04	0.16			80.04
	N.bdy. sec. 2	80.78		0.13		80.78
	N.bdy. sec. 3	80.10		0.28		80.10
	N.bdy. sec. 4	80.10		0.28		80.10
	N.bdy. sec. 5	80.10		0.28		80.10
	N.bdy. sec. 6	78.75		0.28		78.75
West Boundary.	S0°19'E.	479.71		479.71	2.65	
South Boundary.	EaEt	479.90			479.90	
Convergency						0.45
Totals			481.00	480.95	482.55	482.55
			480.95			482.55
Error in lat.			0.05	Error in dep.		0.00

General Description

This township is generally level excepting the extreme southern portion which is rolling. The drainage is to the north. Soil generally rich sandy loam and very productive. A dense growth of brush covers the entire township, consisting of mesquite and greasewood. There is no water in the township.

John P. Hesse
 U.S. Surveyor.

CERTIFICATE OF ASSISTANTS.

We, the undersigned, hereby certify upon honor that we assisted, to the best of our skill and ability, John F. Hesse, U. S. Surveyor, during the periods and in the capacities stated opposite our several signatures, in surveying all those parts or portions of the North and West Boundaries of T. 15 S. R. 30 E. and the West Boundary of T. 14 S. R. 30 E.

of the Gila and Salt River Base and Meridian, in the State of Arizona which are represented in the foregoing field notes as having been executed by him, and under his direction; and that said survey has been, in all respects, to the best of our knowledge and belief, well and faithfully executed.

Table with columns: NAME, PERIOD OF SERVICE (BEGUN, ENDED), CAPACITY. Includes handwritten entries for J. J. Wilkin, B. S. Jackson, J. E. Lang, E. E. Keatney, J. S. Hughes, and Frank J. McSherry.

Subscribed and certified to before me on the dates of the final service as shown above.

John F. Hesse U. S. Surveyor.

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BOOK 2662

FINAL OATH OF UNITED STATES SURVEYOR.

I, John F. Hesse, U. S. Surveyor, do solemnly swear that, in pursuance of special instructions received from the U. S. Surveyor General for Arizona for Group 18 bearing date of the 22nd day of May, 1912, 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 North and West Boundaries of T. 15 S. R. 30 E. and the West Boundary of T. 14 S. R. 30 E.

of the Gila and Salt River Base and Meridian, in the State of Arizona, which are represented in the foregoing field notes as having been executed by me, and under my direction; and I do further solemnly swear 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 Arizona and in the specific manner described in the field notes, and that the foregoing are the original field notes of such survey.

John F. Hesse
U. S. Surveyor.

Subscribed by said John F. Hesse, and sworn to before me }
this 23 day of December, 1913



Frank Ingalls
U. S. Surveyor General of
Arizona.

APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,

Phoenix, Arizona, 1914

The foregoing field notes of the survey of the North and West boundaries of Township N° 15 South, Range N° 30 East and the West boundary of Township N° 14 South, Range N° 30 E. of the Gila and Salt River Base and Meridian, Arizona

executed by John F. Hesse, U. S. Surveyor under his special instructions ~~dated~~ for Group 18 dated May 22nd, 1912, having been critically examined, and the necessary corrections and explanations made, the said field notes, and the surveys they describe, are hereby approved.

Frank Ingalls
U. S. Surveyor General of
Arizona.

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.