

BOOK "R"
2708

BOOK 2708

FIELD NOTES

OF THE SURVEY OF THE

Subdivision Lines and Resurvey of the S. and E. boundaries of frac-
tional T. 21 S., R. 18 E. and the Third Guide Meridian

East, through a portion of T. 21 S., Be-

tween Ranges 17 and 18 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 August 24, 1911,
issued by the United States Surveyor General to govern surveys included in
Group No. 5, which were approved by the Commissioner of the General Land
Office, September 11, 1911, pursuant to authority contained in the Act of
Congress dated August 23, 1912.

Survey & Resurvey commenced November 22, 1912.

Survey & Resurvey completed December 13, 1912.

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INDEX DIAGRAM.

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3d Guide Meridian East.

Bdy. San Ignacio del Babocomari Grant.

Resurvey of the South boundary of frac. Tp. 21 S., Rg. 18 E.

Chains. Resurvey commenced November 22, 1912, 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.

At 8h. 00m., a. m., 1. m. t., I set off 31° 33' N. on the lat. arc; 20° 06' S. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 21 and 22 S., Rgs. 17 and 18 E., which is a stone, marked and witnessed as described by the surveyor general.

Thence I run

S. 89° 45' E., bet. secs. 6 and 31.

37.75 Fall 58 lks. N. of 1/4 sec. cor., a stone, firmly set, marked and witnessed as described by the surveyor general.

The course of this half mile is S. 88° 52' E., 37.76 chs. Thence I run, from 1/4 sec. cor.

S. 89° 45' E.

39.88 Fall 9 lks. N. of cor. of secs. 5, 6, 31, and 32, a stone marked and witnessed as described by the surveyor general. I destroy the two bearing trees in secs. N. of line. The course of this half mile is S. 89° 37' E., 39.88 chs.

S. 89° 45' E., bet. secs. 5 and 32.

39.78 Fall 4 lks. S. of 1/4 sec. cor., a stone firmly set, marked and witnessed as described by the surveyor general. I destroy the bearing trees N. of line, and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, N. of cor. Pits impracticable. No bearings available.

The course of this half mile is S. 89° 48' E., 39.78 chs. November 22: At this cor., I set off 20° 10' S. on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is 31° 33' N.

Thence I run, from 1/4 sec. cor.

S. 89° 45' E.

39.84 Fall 24 lks. N. of true point for cor. of secs. 4, 5, 32, and 33, which is 20 lks. E. of the witness cor. of secs 4, 5, 32, and 33, which is a stone, firmly set in the ground, marked and witnessed as described by the surveyor general. I destroy the bearing tree N. of line, and move the mound of stone S. of cor. The course of this half mile is S. 89° 24' E., 39.84 chs.

S. 89° 45' E., bet. secs. 4 and 33, from true cor. point.

39.74 Fall 12 lks. S. of 1/4 sec. cor., a stone, firmly set, marked and witnessed as described by the surveyor general. I destroy the bearing tree N. of line.

The course of this half mile is S. 89° 55' E., 39.74 chs. Thence I run, from 1/4 sec. cor.

S. 89° 45' E.

39.61 Fall 4 lks. S. of cor. of secs. 3, 4, 33, and 34, a stone firmly set, marked and witnessed as described by the surveyor general. I destroy the bearing trees N. of line. The course of this half mile is S. 89° 48' E., 39.61 chs. November 22, 1912.

November 23, 1912: At 8h. 00m., a. m., 1. m. t., I set off 31° 33' N. on the lat. arc; 20° 19' S. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 3, 4, 33, and 34.

Thence I run

S. 89° 45' E., bet. secs. 3 and 34.

39.18 Fall 30 lks. S. of 1/4 sec. cor., a stone firmly set, marked and witnessed as described by the surveyor general.

2. Resurvey of the South boundary of frac. Tp. 21 S., Rg. 18 E.

Chains	The course of this half mile is N. 89° 49' E., 39.18 chs. Thence I run, from $\frac{1}{4}$ sec. cor. S. 89° 45' E.
40.05	Fall 18 lks. S. of the cor. of secs. 2, 3, 34, and 35, a stone, firmly set, marked and witnessed as described by the surveyor general. I destroy the bearing tree N. of line, and move the mound of stone S. of cor. The course of this half mile is east 40.05 chs.
40.00	S. 89° 45' E., bet. secs. 2 and 35. Fall 12 lks. N. of $\frac{1}{4}$ sec. cor., a stone, firmly set, marked and witnessed as described by the surveyor general. The course of this half mile is S. 89° 35' E., 40.00 chs. November 23: At this cor., I set off 20° 22 $\frac{1}{2}$ ' S., on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is 31° 33' N. Thence I run, from $\frac{1}{4}$ sec. cor. S. 89° 45' E.
40.11	Fall 27 lks. S. of cor. of secs. 1, 2, 35, and 36, a stone, firmly set, marked and witnessed as described by the surveyor general. I destroy the bearing tree in sec. 36 and move the mound of stone S. of cor. The course of this half mile is N. 89° 52' E., 40.11 chs.
40.24	S. 89° 45' E., bet. secs. 1 and 36. Fall 1 lk. S. of $\frac{1}{4}$ sec. cor., which is a stone, firmly set marked and witnessed as described by the surveyor general. The course of this half mile is S. 89° 46' E., 40.24 chs. Thence I run, from $\frac{1}{4}$ sec. cor. S. 89° 45' E.
40.04	Fall 6 lks. S. of the cor. of Tps. 21 and 22 S., Rgs. 18 and 19 E., which is a stone, firmly set, marked and witnessed as described by the surveyor general. The course of this half mile is S. 89° 50' E., 40.04 chs. November 23, 1912.
	November 24: 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 located near the cor. of secs. 21, 22, 27, and 28, Tp. 21 S., Rg. 18 E.; latitude 31° 34 $\frac{1}{2}$ ' N.; longitude 110° 31' 09" W.; At 3h. 15m., a. m., by my watch, which has correct l. m. t., I observe Polaris at western elongation, in accordance with 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 8h. 00m., a. m., l. m. t., I lay off the azimuth of Polaris 1° 21 $\frac{1}{2}$ ' to the east, and mark the meridian thus determined, by cutting a small groove on a stone, firmly set in the ground, 5 chs. N. of my station. At 9h. 00m., a. m., l. m. t., I set off 31° 34 $\frac{1}{2}$ ' N. on the lat. arc; 20° 33' S. 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. I set off 20° 35' S. on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is 31° 34 $\frac{1}{2}$ ' N. At 3h. 00m., p. m., l. m. t., I set off 31° 34 $\frac{1}{2}$ ' N. on the lat. arc; 20° 36' S. 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. west of the meridian established by the Polaris observation. The solar apparatus, by a. m. and p. m. observations, de-

Resurvey of the south boundary of Tp. 21 S. Rg. 18 E.

chains. **finds positions for meridians, respectively about 16"** east and west 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 9h. 15m. a.m. is N. 13 45' W.; the angle thus determined gives the mag. decl. 13 45' E.

November 24, 1912.

November 26: At 8h. 00m. a.m., l.m.t., I set off 31 33' N. on the lat. arc; 20 55' S. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 21 and 22 S. Rgs. 18 and 19 E. previously described, and as the N. bdy. of Tp. 22 S. Rg. 18 E. is defective both in alinement and measurement,

I run thence along the south boundary of Tp. 21 S. Rg. 18 E. making the S. bdy. of sec. 36, 80.00 chs. plus the westing of the east bdy. of Tp. 21 S. Rg. 18 E. and setting cors. of secs. and $\frac{1}{4}$ sec. cors. for secs. in Tp. 21 S. Rg. 18 E., **at intervals of 40.00 chains.**

N. 89 50' W. on S. bdy. of sec. 36.

Descending.

- 6.32 Cross road bears N. E. and S. W.
 11.53 Cross fence bears N. E. and S. W.
 20.30 Cross creek 3 lks. wide 1 in. deep, course S. W. pure water, and ascend along S. E. slope.
 22.00 Cross fence bears N. W. and S. E.
 40.04 The $\frac{1}{4}$ sec. cor. on N. bdy. of sec. 1 Tp. 22 S. Rg. 18 E. previously described. Descend along S. W. slope.
 Thence I run
 N. 89 46' W.
 40.17 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 N. and 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
 47.60 Cross road bears N. W. and S. E.
 48.70 The S. E. cor. of ruined adobe house.
 49.90 Creek 4 lks. wide 1 in. deep, pure water, bears S. E. course west, and along same to
 54.85 Leave creek course N. W. ascend.
 60.50 Spur bears N. W. and S. E.; descend.
 66.15 Cross wash 30 lks. wide course N. W. ascend.
 78.80 Spur bears N. and S.; descend.
 80.17 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 35 and 36, marked on brass cap T21S in N.
 S1 S2 T22S 1912 in S. and
 R18E in W. half;
 S35 in N. W. and
 S36 in N. E. quadrant; from which
 An oak 8 ins. diam., bears N. 67 E. 22 lks. dist., marked T21SR18ES36BT.
 No other bearing available; Raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
 Land, mountainous.
 Soil, rocky; 4th. rate.
 Timber, a few scattering oaks.

N. 89 46' W. on S. bdy. of secs. 35.

Descend through scattering timber and brush.

0.11 The cor. of secs. 1 and 2 Tp. 22 S. Rg. 18 E. previously described.

Thence I run

S. 89 52' W.

1.65 Cross creek 4 lks. wide 1 in. deep, pure water, course N. ascend.

Resurvey of the south boundary of Tp. 21 S. Rg. 18 E.

Chains	
8.45	Spur bears N. E. and S. W.
12.75	Cross wash 5 lks. wide course N. E.
20.75	Ridge bears N. and S. descend.
29.45	Cross wash 70 lks. wide course N. E.
38.75	Spur bears N. W. and S. E. descend.
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 $\frac{1}{4}$ S35 in N. and 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
40.22	The $\frac{1}{4}$ sec. cor. on N. bdy. of sec. 2, previously described.
	Thence I run
	N. 89 \checkmark 35' W.
46.50	Cross wash 10 lks. wide course N. W., ascend.
56.00	Ridge bears N. W. and S. E. descend.
60.11	A granite stone firmly set in the ground, marked and witnessed as described by the surveyor general, this is cor. No. 11 of Homestead Entry Survey No. 72.
65.10	Cross creek 30 lks. wide course N. pure water 2 ins. deep. Ascend.
65.40	Cross road bears N. and S.
65.91	The witness cor. to cor. No. 10 of Homestead Entry Survey No. 72, a stone marked and witnessed as described by the surveyor general.
70.13	Cor. No. 4 of Homestead Entry Survey No. 72, a stone marked and witnessed as described by the surveyor general.
75.11	Cor. No. 5 of Homestead Entry Survey No. 72, a stone marked and witnessed as described by the surveyor general.
80.00	Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 34 and 35, marked on brass cap T21S in N. S2 S3 T22S 1912 in S. and R18E in W. half; S34 in N. W. and S35 in N. E. quadrant; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Land, mountainous. Soil, rocky; 4th. rate. Timber, scattering oak.
	N. 89 \checkmark 35' W. on S. bdy. of sec. 34
	Ascend through scattering brush and timber.
0.22	The cor. of secs. 2 and 3, Tp. 22 S. Rg. 18 E. previously described.
	Thence I run
	West
4.80	Cross wash 40 lks. wide course S. E.
19.30	Road on top of ridge bears N. and S. descend.
28.30	Cross wash 15 lks. wide course N. E. ascend.
37.60	Ridge bears N. and S. descend.
40.00	Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for $\frac{1}{4}$ sec. cor., sec. 34, marked on brass cap $\frac{1}{4}$ S34 in N. and 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
40.27	The $\frac{1}{4}$ sec. cor. on N. bdy. of sec. 3 Tp. 22 S. Rg. 18 E. previously described.
	Thence I run
	S. 89 \checkmark 49' W.
42.50	Timber and brush becomes heavy.
61.70	Cross wash 20 lks. wide course N. and ascend.
65.70	Spur bears N. W. and S. E. and over broken hills.
73.25	Cross wash 10 lks. wide course N. W.
77.80	Cross wash 7 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. 33 and 34, marked on brass cap T21S in N. S3 S4 T22S 1912 in S. and R18E in W. half; S33 in N. W. and S34 in N. E. quadrant; from which

Resurvey of the south boundary of Tp. 21 S. Rg. 18 E.

Chains.	
	An oak 8 ins. diam., bears N. $34\frac{1}{2}$ W. 201 lks. dist., marked T21SR18ES33BT.
	An oak 16 ins. diam., bears N. $46\frac{3}{4}$ E. 137 lks. dist., marked T21SR18ES34BT.
	Land, mountainous.
	Soil, rocky; 4th. rate.
	Timber, oak.
	Undergrowth, oak.
	November 26: At this cor. I set off 20 $58\frac{1}{2}$ ' S. on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is $31\checkmark33'$ N.
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	N. $89\checkmark48'$ W. on S. bdy. of sec. 33.
	Descending over broken hills through dense brush and heavy timber.
7.50	Cross wash 40 lks. wide course N. E.
18.10	Cross creek 15 lks. wide course N. pure water 2 ins. deep, timber and brush becomes scattering. Ascend.
23.10	Cross fence bears N. E. and S. W.
31.70	Spur bears N. E. and S. W.
36.10	Cross drain 8 lks. wide course S. E.
39.06	The $\frac{1}{4}$ sec. cor. on N. bdy. of sec. 4 Tp. 21 S. Rg. 18 E. previously described.
	Thence I run
	N. $89\checkmark55'$ W.
39.20	Spur bears N. W. and S. 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 $\frac{1}{4}$ S33 in N. and 1912 in S. half; from which
	An oak 10 ins. diam., bears N. 15 W. 90 lks. dist., marked $\frac{1}{4}$ S33BT
	An oak 8 ins. diam., bears N. 25 E. 132 lks. dist., marked $\frac{1}{4}$ S33BT.
46.80	Cross wash 15 lks. wide course S. E.
53.80	High ridge bears N. and S. descend.
62.00	Cross fence bears N. and S. and over level cultivated land.
64.30	Cross creek 40 lks. wide course N. pure water 1 in. deep.
78.40	Cross fence bears N. and S.
78.80	The true point for cor. of secs. 4 and 5 Tp. 22 S. Rg. 18 E.
	Thence I run
	N. $89\checkmark24'$ W.
78.90	Cross road bears N. and S.
79.00	The witness cor. of secs. 4 and 5 Tp. 22 S. Rg. 18 E. previously described.
80.00	Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 32 and 33, marked on brass cap T21S in N.
	S4 S5 T22S 1912 in S. and
	R18E in W. half;
	S32 in N. W. and
	S33 in N. E. quadrant; from which
	An oak 12 ins. diam., bears N. $46\frac{1}{4}$ W. 113 lks. dist., marked T21SR18ES32BT.
	An oak 8 ins. diam., bears N. $14\frac{3}{4}$ E. 156 lks. dist., marked T21SR18ES33BT.
	Land, mountainous, and level.
	Soil, E. 62.00 chs. rocky; 4th. rate. W. 18.00 chs. is a rich black loam, medium texture, moist; 1st. rate.
	Timber, oak.
	Undergrowth, oak.
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	N. $89\checkmark24'$ W. on S. bdy. of sec. 32.
	Ascending over rolling mountainous land, through dense brush and heavy timber.
1.92	Cross under telephone line bears N. and S.

Resurvey of the south boundary of Tp. 21 S. Rg. 18 E.

Chains.	
15.10	Cross wash 8 lks. wide course S. E.
38.64	The $\frac{1}{4}$ sec. cor. on N. bdy. of sec. 5, Tp. 22 S. Rg. 18 E. previously described. Thence I run
	N. 89 48' 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 $\frac{1}{4}$ S32 in N. and 1912 in S. half; from which An oak 14 ins. diam., bears N. $86\frac{1}{2}$ W. 112 lks. dist., marked $\frac{1}{4}$ S32BT An oak 10 ins. diam., bears N. 67 E. 42 lks. dist., marked $\frac{1}{4}$ S32BT.
48.65	Cross wash 50 lks. wide course N. E.
78.42	The cor. of secs. 5 and 6 Tp. 22 S. Rg. 18 E. previously described. Thence I run N. 89 37' W.
80.00	Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 31 and 32, marked on brass cap T21S in N. S5 S6 T22S.1912 in S. and R18E in W. half; S31 in N. W. and S32 in N. E. quadrant; from which An oak 20 ins. diam., bears N. $47\frac{1}{2}$ W. 83 lks. dist., marked T21SR18ES31BT. An oak 16 ins. diam., bears N. $65\frac{1}{4}$ E. 84 lks. dist., marked T21SR18ES32BT.
	Land, rolling mountains. Soil, rocky; 4th. rate. Timber, oak. Undergrowth, oak.
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	N. 89 37' W. on S. bdy. of sec. 31 Ascending over rolling mountainous land, through dense brush and heavy timber.
14.50	Cross wash 20 lks. wide course N. E.
36.00	Cross wash 30 lks. wide course N. E.
38.30	The $\frac{1}{4}$ sec. cor. on N. bdy. of sec. 6 Tp. 22 S. Rg. 18 E. previously described. Thence I run
	N. 88 52' 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 $\frac{1}{4}$ S31 in N. and 1912 in S. half; from which A juniper 10 ins. diam., bears N. $1\frac{1}{4}$ W. 151 lks. dist., marked $\frac{1}{4}$ S31BT An oak 12 ins. diam., bears N. $50\frac{3}{4}$ E. 42 lks. dist., marked $\frac{1}{4}$ S31BT.
42.05	Cross wash 10 lks. wide course N. E.
48.60	Cross wash 15 lks. wide course N.
63.75	Cross wash 10 lks. wide course N.
76.06	The cor. of Tps. 21 and 22 S. Rgs. 17 and 18 E. previously described. Land, rolling mountains. Soil, rocky; 4th. rate. Timber, oak. Undergrowth, oak.

November 26, 1912.

Resurvey of the east boundary of Tp. 21 S. Rg. 18 E.

Chains.	
	November 25: At 8h. 00m. a.m., l.m.t., I set off 31 36 $\frac{1}{2}$ ' N. on the lat. arc; 20 43 $\frac{1}{2}$ ' S. on the decl. arc; and determine a meridian with the solar at the closing cor. of secs. 13 and 18 Tps. 21 S. Rgs. 18 and 19 E., a stone, marked and witnessed as described by the surveyor general. Thence I run South, bet. secs. 13 and 18
34.37	Fall 5 lks. E. of the true point for $\frac{1}{4}$ sec. cor. The witness $\frac{1}{4}$ sec. cor. 3.00 chs. N. of this point is a stone marked and witnessed as described by the surveyor general set firmly in the ground. Thence I run from true point for $\frac{1}{4}$ sec. cor.
40.00	South Fall 11 lks. W. of cor. of secs. 13, 18, 19 and 24, a stone, firmly set, marked and witnessed as described by the surveyor general. I move mound of stone E. of cor.
39.97	South bet. secs. 19 and 24. Fall on $\frac{1}{4}$ sec. cor. a stone marked and witnessed as described by the surveyor general set firmly in the ground. I destroy the bearing tree W. of line. Thence from $\frac{1}{4}$ sec. cor. I run
40.11	South Fall 5 lks. W. of cor. of secs. 19, 24, 25 and 30, a stone, firmly set, marked and witnessed as described by the surveyor general. I move mound of stone E. of cor.
40.16	South bet. secs. 25 and 30. Fall on $\frac{1}{4}$ sec. cor., a stone, firmly set, marked and witnessed as described by the surveyor general. Thence from $\frac{1}{4}$ sec. cor. I run
40.05	South Fall 1 lk. W. of cor. of secs. 25, 30, 31 and 36, a stone firmly set, marked and witnessed as described by the surveyor general. I destroy the bearing tree W. of line and move the mound of stone E. of cor.
40.00	South bet. secs. 31 and 36. Fall on $\frac{1}{4}$ sec. cor. a stone firmly set, marked and witnessed as described by the surveyor general. Thence from $\frac{1}{4}$ sec. cor. I run
40.00	South Fall 5 lks. W. of the cor. of Tps. 21 and 22 S. Rgs. 18 and 19 E., previously described.
	I commence at the cor. of Tps. 21 and 22 S. Rgs. 18 and 19 E. previously described and run thence along the E. bdy. of Tp. 21 S. Rg. 18 E. making the E. bdy. of sec. 36 80.00 chs. plus the southing of the south boundary of Tp. 21 S. Rg. 18 E., and setting $\frac{1}{4}$ sec. and sec. cors. for secs. in Tp. 21 S. Rg. 18 E. at intervals of 40.00 chs.
0.57	N. 0 04' W. bet. secs. 31 and 36. Over mountainous land gradual descent.
2.45	Cross road bears E. and W.
11.56	Cross fence bears E. and W.
13.80	Cross fence bears N. E. and S. W.
18.80	Ridge bears N. W. and S. E. descend through scattering timber.
26.80	Cross wash 7 lks. wide course N. W. ascend.
32.80	Cross wash 7 lks. wide course N. W.
39.00	Cross wash 8 lks. wide course N. W.
40.00	Spur bears N. W. and S. E. descend. The $\frac{1}{4}$ sec. cor. on the W. bdy. of sec. 31, Tp. 21 S. Rg. 19 E. previously described. Thence I run
41.90	North Cross wash 6 lks. wide course N. W.
42.14	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 1912 in S. half; and raise a mound of earth 2 ft.

Resurvey of the east boundary of Tp. 21 S. Rg. 18 E.

Chains.	
	base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
45.00	Spur bears N. W. and S. E. descend.
50.45	Cross drain 7 lks. wide course N. W. ascend.
55.00	High ridge bears N. W. and S. E. descend.
68.45	Cross wash 50 lks. wide course N. W. and through dense brush.
70.00	Cross wash 50 lks. wide course N. W. ascend.
71.00	Over rolling land.
77.50	Leave brush.
78.60	Cross wash 7 lks. wide course N. W.
80.00	The cor. of secs. 30 and 31, Tp. 21 S. Rg. 19 E. previously described.
	Thence I run
	N. 0 01' W.
82.14	Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 25 and 36, marked on brass cap T21S in N. S30 S31 R19E in E. and 1912 in S. half; S25 in N. W. and S36 R18E in S. W. quadrant; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, rolling and mountainous. Soil, sandy loam mixed with rocks and gravel; 2nd. rate. Timber, a few scattering oaks. Undergrowth, mesquite. Good grass. November 25: At this cor. I set off 20' 47' S. on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is $31^{\circ} 33\frac{1}{2}'$ N.
	N. 0 01' W. on E. bdy. of sec. 25
	Over rolling land.
7.70	Cross wash 10 lks. wide course N. W.
14.85	Cross wash 10 lks. wide course N. W. ascend.
22.65	Cross road on ridge bears N, W. and S. E. descend.
28.00	Cross wash 10 lks. wide course N. W. ascend.
37.91	The $\frac{1}{4}$ sec. cor. on W. bdy. of sec. 30, Tp. 21 S. Rg. 19 E., previously described.
	Thence I run.
	North
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 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
49.05	Ridge bears N. W. and S. E. descend.
55.85	Cross wash 7 lks. wide course N. W.
73.00	Cross wash 10 lks. wide course N. W. ascend.
78.07	The cor. of secs. 19 and 30, Tp. 21 S. Rg. 19 E. previously described.
	Thence I run
	N. 0 04' W.
80.00	Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 24 and 25, marked on brass cap T21S in N. S19 S30 R19E in E. and 1912 in S. half; S24 in N. W. and S25 R18E in S. W. quadrant; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, mountainous. Soil, sandy loam, mixed with rocks and gravel; 3rd. rate. No timber. Good grass.
	N. 0 04' W. on E. bdy. of sec. 24.

Resurvey of the east boundary of Tp. 21 S. Rg. 18 E.

Chains.	
	Ascend.
10.60	Ridge bears N. W. and S. E. descend.
27.50	Cross wash 5 lks. wide course N. W.
34.00	Slope becomes abrupt.
35.60	Over level bottom land through dense sacaton.
38.18	The $\frac{1}{4}$ sec. cor. on the W. bdy. of sec. 19 T. 21 S. Rg. 19 E., previously described.
40.00	Point for $\frac{1}{4}$ sec. cor. falls in wash 50 lks. wide course N. E. so, thence I run North and at
42.00	Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for witness $\frac{1}{4}$ sec. cor., marked on brass cap WC $\frac{1}{4}$ in N. and 1912 in S. half; S24 in S. W. quadrant; and raise a mound of stone 2 ft. base 1 $\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
45.00	Leave sacaton and ascend.
58.80	Cross drain 10 lks. wide course E.
73.00	Along rough broken E. slope.
74.75	Cross drain 15 lks. wide course E.
78.15	The cor. of secs. 18 and 19, Tp. 21 S. Rg. 19 E. previously described.
	Thence I run
	N. 0 09' W.
80.00	Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 13 and 24, marked on brass cap T21S in N. S18 S19 R19E in E. and 1912 in S. half; S13 in N. W. and S24 in S. W. quadrant; and raise a mound of stone 2 ft. base 1 $\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, mountainous. Soil, sandy loam, mixed with rocks and gravel; 3rd. rate. except from 35.60 to 45.00 chs. which is a rich loam, dry, medium texture; 1st. rate. No timber. Good grass.
	N. 0 09' W. on E. bdy. of sec. 13
	Along rough broken E. slope.
1.15	Cross drain 7 lks. wide course N. E.
5.65	Spur bears E. and W.
9.25	Cross wash 10 lks. wide course N. E.
21.45	Cross wash 15 lks. wide course N. E.
38.15	Cross drain 8 lks. wide course S. E. the true point for $\frac{1}{4}$ sec. cor. on W. bdy. of sec. 18.
	Thence I run
	N. 0 04' E. ascend.
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 $\frac{1}{4}$ S13 in W. and 1912 in S. half; and raise a mound of stone 2 ft. base 1 $\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
41.15	The witness $\frac{1}{4}$ sec. cor. on W. bdy. of sec. 18, previously described.
44.85	Cross wash 5 lks. wide course N. E.
47.50	Top and over level land.
64.65	Cross road bears N. E. and S. W.
72.52	The closing cor. of Tps. 21 S. Rgs. 18 and 19 E. previously described. Land, mountainous and level. Soil, sandy loam, mixed with rocks and gravel; 3rd. rate. No timber. Undergrowth, scattering mesquite.

November 25, 1912.

Resurvey of the 3rd. Guide Meridian E. through T. 21 S.

Chains.	
	December 11: At 8h. 00m. a.m., l.m.t., I set off 31 ¹ / ₃₃ ' N. on the lat. arc; 22 ¹ / _{57¹/₂} ' S. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 21 and 22 S. Rgs. 17 and 18 E. Thence I run
	North on a random line.
40.15	Fall on $\frac{1}{4}$ sec. cor.
80.65	Fall 10 lks. E. of cor. of secs. 30, 31, 25 and 36.
	North bet. secs. 25 and 30.
40.00	Fall 8 lks. E. of $\frac{1}{4}$ sec. cor. Thence from $\frac{1}{4}$ sec. cor.
	North
40.00	Fall 12 lks. E. of cor. of secs. 19, 24, 25 and 30.
	North bet. secs. 19 and 24
40.15	Fall 16 lks. E. of $\frac{1}{4}$ sec. cor. Thence from $\frac{1}{4}$ sec. cor.
	North.
40.20	Fall 12 lks. E. of cor. of secs. 13, 18, 19 and 24.
	North bet. secs. 13 and 18.
40.02	Fall 8 lks. E. of $\frac{1}{4}$ sec. cor. Thence from $\frac{1}{4}$ sec. cor.
	North
40.10	Fall 5 lks. E. of cor. of secs. 7, 12, 13 and 18.
	December 11, 1912.

	December 12: At 8h. 00m. a.m., l.m.t., I set off 31 ¹ / ₃₃ ' N. on the lat. arc; 23 ¹ / _{02¹/₂} ' S. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 21 and 22 S. Rgs. 17 and 18 E. previously described, and as there are no subdivision lines on either side of the 3rd. Guide meridian through Tp. 21 S. and the line as run is defective in measurement bet. secs. 31 and 36 therefore I re-run this line North and destroy the old cors. as follows: From the cor. of Tps. 21 and 22 S. Rgs. 17 and 18 E. I run
	North bet. secs. 31 and 36. Descending through dense brush and heavy timber.
4.50	Cross wash 10 lks. wide course N. E.
20.40	Cross wash 30 lks. wide course N. E.
34.80	Cross wash 15 lks. wide course N. E.
	Difference between measurements of 40.00 chs. by two sets of chainmen is 2 lks.; position of middle point By 1st. set 40.01 chs. By 2nd. set 39.99 chs.; the mean of which is
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. S31 in E. and 1912 in S. half; from which An oak 10 ins. diam., bears N. 82 E. 60 lks. dist., marked $\frac{1}{4}$ S31BT. An oak 6 ins. diam., bears N. 20 W. 75 lks. dist., marked $\frac{1}{4}$ S36BT
	I destroy the old $\frac{1}{4}$ sec. cor.
58.46	Cross road bears N. E. and S. W.
	Difference between measurements of 80.00 chs. by two sets of chainmen is 20 lks.; position of middle point By 1st. set 80.01 chs. By 2nd. set 79.99 chs.; the mean of which is
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 T21S in N. and 1912 in S. half;

Resurvey of the 3rd. Guide Meridian E. through Tp. 21 S.

chains.

R17E S25 in N. W.
 R18E S30 in N. E.
 S31 in S. E. and
 S36 in S. W. quadrant; from which
 An oak 10 ins. diam., bears N. 55 W. 116 lks.
 dist., marked T21SR17ES25BT.
 An oak 12 ins. diam., bears N. $2\frac{1}{2}$ E. 163 lks.
 dist., marked T21SR18ES30BT.
 An oak 5 ins. diam., bears S. $69\frac{3}{4}$ E. 141 lks.
 dist., marked T21SR18ES31BT.
 An oak 18 ins. diam., bears S. $65\frac{1}{2}$ W. 122 lks.
 dist., marked T21SR17ES36BT.

Land, rolling mountains and level.
 Soil, sandy loam, mixed with rocks and gravel; 3rd. rate.
 Timber, oak.
 Undergrowth, oak.
 I destroy the old cor.

North bet. secs. 25 and 30.
 Over rolling land, gradually descending, through heavy timber.

7.33 Cross fence, bears E. and W.
 15.00 Cross wash 6 lks. wide course N. W.
 24.50 Cross wash 30 lks. wide course N. E.
 25.45 Cross fence bears E. and W. leave timber and over cultivated land.
 Difference between measurements of 40.00 chs. by two sets of chainmen is 2 lks.; position of middle point
 By 1st. set 39.99 chs.
 By 2nd. set 40.01 chs.; the mean of which is
 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. S30 in E. and 1912 in S. half; dig pits 18 x 18 x 12 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.
 I destroy the old cor.
 40.60 Cross fence bears E. and W. leave cultivated land.
 73.80 Cross road bears N. W. and S. E.
 75.15 Cross road bears N. W. and S. E.
 Difference between measurements of 80.00 chs. by two sets of chainmen is 4 lks.; position of middle point
 By 1st. set 79.98 chs.
 By 2nd. set 80.02 chs.; the mean of which is
 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

T21S in N. and
 1912 in S. half;
 R17ES24 in N. W.
 R18ES19 in N. E.
 S30 in S. E. and
 S25 in S. W. quadrant; from which
 An oak 6 ins. diam., bears N. $58\frac{1}{2}$ W. 6 lks.
 dist., marked T21SR17ES24BT.
 An oak 6 ins. diam., bears N. $9\frac{1}{2}$ E. 49 lks.
 dist., marked T21SR18ES19BT.
 An oak 10 ins. diam., bears S. $46\frac{1}{4}$ E. 88 lks.
 dist., marked T21SR18ES30BT.
 An oak 6 ins. diam., bears S. $30\frac{1}{4}$ W. 95 lks.
 dist., marked T21SR17ES25BT.

I destroy the old cor.
 Land, rolling.
 Soil, sandy loam, mixed with rocks and gravel; 2nd. rate. except from 25.45 chs. to 40.60 chs. which is rich sandy loam, dry, medium texture; 1st. rate.
 Timber, oak.
 December 12: At this cor. I set off 23 $\sqrt{05}$ ' S. on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is 31 $\sqrt{34\frac{1}{2}}$ ' N.

Resurvey of the 3rd. Guide Meridian E. through Tp. 21 S.

Chains	
	North bet. secs. 19 and 24. Over rolling land, gradually descending, through heavy timber and brush.
6.43	Cross road bears N. E. and S. W. Difference between measurements of 40.00 chs. by two sets of chainmen is 4 lks.; position of middle point By 1st. set 40.02 chs. By 2nd. set 39.98 chs.; the mean of which is
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 $\frac{1}{4}$ S24 in W. S19 in E. and 1912 in S. half; from which An oak 8 ins. diam., bears N. 48 E. 148 lks. dist., marked $\frac{1}{4}$ S19BT. An oak 10 ins. diam., bears S. 60 W. 112 lks. dist., marked $\frac{1}{4}$ S24BT. I destroy old cor.
56.50	Cross wash 15 lks. wide course N. E.
65.62	Jas. Cunningham house bears N. 24 50' W. 8.50 chs. dist.
74.30	Cross fence bears N. E. and S. W. Difference between measurements of 80.00 chs. by two sets of chainmen is 6 lks.; position of middle point By 1st. set 80.03 chs. By 2nd. set 79.97 chs.; the mean of which is
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 T21S in N. and 1912 in S. half; R17ES13 in N. W. R18ES18 in N. E. S19 in S. E. and S24 in S. W. quadrant; from which An oak 8 ins. diam., bears S. 86 E. 127 lks. dist., marked T21SR18ES19BT. An oak 6 ins. diam., bears S. 50 W. 90 lks. dist., marked T21SR17ES24BT. No other bearings available. Raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. I destroy old cor. Land, rolling. Soil, sandy loam, mixed with rocks and gravel; 2nd. rate. Timber, oak. Undergrowth, oak.
	North bet. secs. 13 and 18. Over rolling land.
0.32	Cross fence bears E. and W.
0.43	Cross road bears E. and W.
1.25	Cross fence bears E. and W.
6.45	Cross fence bears N. E. and S. W.
8.30	Cross wash 20 lks. wide course N. E.
21.03	Cross fence bears E. and W. Difference between measurements of 40.00 chs. by two sets of chainmen is 2 lks.; position of middle point By 1st. set 39.99 chs. By 2nd. set 40.01 chs.; the mean of which is
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 $\frac{1}{4}$ S13 in W. S18 in E. and 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. I destroy the old $\frac{1}{4}$ sec. cor.
72.90	Cross drain 5 lks. wide course N. W.
77.90	Foot of bluff 40 ft. high, and over level land. Difference between measurements of 80.00 chs. by two sets of chainmen is 6 lks.; position of middle point By 1st. set 79.97 chs. By 2nd. set 80.03 chs.; the mean of which is
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 T21S in N.

Resurvey of the 3rd. Guide Meridian E. through Tp. 21 S.

chains.

1912 in S. half;
 R17ES12 in N. W.
 R18ES7 in N. E.
 S18 in S. E. and
 S13 in S. W. quadrant; from which
 An oak 7 ins. diam., bears S. $69\frac{3}{4}$ E. 219 lks.
 dist., marked T21SR18ES18BT.
 An oak 16 ins. diam., bears S. $41\frac{1}{2}$ W. 279 lks.
 dist., marked T21SR17ES13BT.

No other bearings available. Raise a mound of stone 2 ft.
 base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 I destroy the old cor.
 Land, rolling..
 Soil, sandy loam, mixed with gravel; 2nd. rate.
 Timber, a few scattering oaks.

North bet. secs. 7 and 12.

Over level land.

Difference between measurements of 8.04 chs. by two sets
 of chainmen is 0 lks.; position of middle point

By 1st. set 8.04 chs.

By 2nd. set 8.04 chs.; the mean of which is

8.04 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the
 ground for closing cor. of Tps. 21 S. Rgs. 17 and 18 E.

Marked on brass cap

CC E. of center;

S1DB in N. E. and

T21S 1912 in S. W. half;

S7R18E in S. E. and

S12R17E in S. W. sector; and raise a mound of stone
 2 ft. base $1\frac{1}{2}$ ft. high S. of cor. Pits impracticable..
 From this closing cor. the 18 mile cor. on the S. bdy. of
 San Ignacio Del Babocomari Private Land Grant bears
 S. 88 07' E. 6.13 chs. dist.

Land, level.

Soil, sandy loam, dry, medium texture; 1st. rate.

No timber.

December 12, 1912.

Subdivision of Tp. 21.S. Rg. 18 E.

Chains.

Survey commenced November 27, 1912, 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.

At 8h. 00m. a.m., l.m.t., I set off 31° 33' N. on the lat. arc; 21° 06' S. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 35 and 36 on the S. bdy. of the Tp., from this cor. I run North, and from the cor. of secs. 25 and 36 on the E. bdy. of the Tp. I run West and at the point of intersection of the two lines I

Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 25, 26, 35 and 36, marked on brass cap

T21SR18E in N. and
1912 in S. half;
S26 in N. W.
S25 in N. E.
S36 in S. E. and
S35 in S. W. quadrant; and raise a mound of stone 2 ft. base 1½ ft. high, W. of cor. Pits impracticable.

From this cor. I run
South bet. secs. 35 and 36
Over rolling land.

21.20 Cross fence bears E. and W..

26.30 Cross wash 50 lks. wide course N. E.

30.30 Cross wash 12 lks. wide course W.

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 ¼S35 in W. S36 in E. and 1912 in S. half; from which
An oak 6 ins. diam., bears N. 78½° E. 35 lks. dist. marked ¼S36BT.

No other bearing available. Raise a mound of stone 2 ft. base 1½ ft. high, W. of cor. Pits impracticable.
Thence ascend along rolling W. slope.

46.00 Cross wash 7 lks. wide course N. W.

51.47 Ridge bears N. W. and S. E.

54.80 Cross wash 10 lks. wide course N. W.

61.70 Cross wash 15 lks. wide course N. W.

63.30 Cross road bears N. W. and S. E.

66.00 Cross wash 75 lks. wide course N. W.

70.00 Cross same wash 75 lks. wide course N. E.

76.10 Cross same wash 75 lks. wide course N. W. ascend.

81.75 The cor. of secs. 35 and 36 on the S. bdy. of the Tp. Land, rolling and mountainous.
Soil, sandy loam mixed with rocks and gravel; 3rd. rate. Timber, scattering oaks.

November 27: At this cor. I set off 21° 09½' S. on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is 31° 33½' N.

From the cor. of secs. 25, 26, 35 and 36 I now run
East bet. secs. 25 and 36
Over rolling land.

13.45 Cross wash 100 lks. wide course N. E. ascend.

19.55 Cross fence bears N. and S.

30.00 Spur bears N. W. and S. E. descend.

36.50 Cross wash 35 lks. wide course N. W. ascend.

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 ¼S25 in N. S36 1912 in S. half; and raise a mound of stone 2 ft. base 1½ ft. high, N. of cor. Pits impracticable.

56.00 Ridge bears N. W. and S. E. descend.

Subdivision of Tp. 21 S. Rg. 18 E.

Chains.	
76.00	Cross wash 40 lks. wide course N. W. ascend.
80.00	The cor. of secs. 25 and 36 on the E. bdy. of the Tp. Land, rolling and mountainous. Soil, sandy loam, mixed with rocks and gravel. 2nd. rate. No timber. Good grass.
	From the cor. of secs. 25, 26, 35 and 36 I run on a sectional correction line. West bet. secs. 26 and 35. Ascending.
8.18	Fence bears N. and S.
26.00	Ridge bears N. E. and S. W. descend.
36.25	Cross drain 7 lks. wide course N. E. ascend.
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 $\frac{1}{4}$ S26 in N. and S35 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. An oak 10 ins. diam., bears N. $33\frac{1}{4}$ E. 264 lks. dist., marked $\frac{1}{4}$ S26BT.
	No other bearing available.
47.50	Ridge bears N. W. and S. E.
59.00	Cross wash 7 lks. wide course S. E.
63.90	Cross road bears N. and S.
65.25	Ridge bears N. and S.
69.40	Cross wash 7 lks. wide course N. W.
74.44	Ridge bears N. W. and S. E.
80.00	Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 26, 27, 34 and 35, marked on brass cap T21SR18E in N. and 1912 in S. half; S27 in N. W. S26 in N. E. S35 in S. E. and S34 in S. W. quadrant; from which An oak 6 ins. diam., bears S. $13\frac{1}{2}$ E. 185 lks. dist., marked T21SR18ES35BT. An oak 10 ins. diam., bears S. $45\frac{1}{2}$ W. 89 lks. dist., marked T21SR18ES34BT.
	No other bearings available. Raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, rolling and mountainous. Soil, sandy loam, mixed with rocks and gravel; 3rd. rate. No timber. Good grass.
	November 27, 1912.
	November 28: At 8h. 00m. a.m., l.m.t., I set off $31^{\circ} 33\frac{1}{2}'$ N. on the lat. arc; $21^{\circ} 17'$ S. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 26, 27, 34 and 35. Thence I run West bet. secs. 27 and 34. Descend.
1.20	Cross wash 15 lks. wide course N. W. ascend through scattering timber.
8.50	Spur bears N. W. and S. E. descend.
12.20	Cross drain 7 lks. wide course N. W.
16.90	Cross wash 50 lks. wide course N. ascend.
27.25	Ridge bears N. and S. descend.
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 $\frac{1}{4}$ S27 in N. and S34 1912 in S. half; from which An oak 6 ins. diam., bears N. 16 E. 130 lks. dist., marked $\frac{1}{4}$ S27BT.

Subdivision of Tp. 21 S. Rg. 18 E.

Chains.	
	An oak 6 ins. diam., bears S. 32 W. 226 lks. dist., marked $\frac{1}{4}$ S34BT.
41.65	Cross wash 50 lks. wide course N. ascend.
69.90	Cross fence bears N. E. and S. W.
70.00	Ridge bears N. E. and S. W. descend.
77.00	Cross wash 20 lks. wide course N. E. ascend.
80.00	Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 27, 28, 33 and 34, marked on brass cap T21SR18E in N. and 1912 in S. half; S28 in N. W. S27 in N. E. S34 in S. E. and S33 in S. W. quadrant; from which An oak 4 ins. diam., bears S. $19\frac{1}{2}$ E. 151 lks. dist., marked T21SR18ES34BT.
	No other bearings available. Raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, mountainous. Soil, rocky; 4th. rate. Timber, oak.
	West bet. secs. 28 and 33. Ascending through scattering timber.
5.00	Spur bears N. E. and S. W.
7.75	Cross wash 10 lks. wide course N. E.
15.00	Ridge bears N. and S. descend.
18.70	Fence bears N. W. and S. E. and through heavy timber and brush.
26.00	Cross drain 7 lks. wide course N.
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 $\frac{1}{4}$ S28 in N. and S33 1912 in S. half; from which An oak 6 ins. diam., bears N. 82 E. 33 lks. dist., marked $\frac{1}{4}$ S28BT. An oak 6 ins. diam., bears S. 15 E. 42 lks. dist., marked $\frac{1}{4}$ S33BT.
47.80	Cross creek 15 lks. wide course N., pure water 6 ins. deep. Ascend.
52.75	Cross fence bears N. E. and S. W.
65.60	Cross wash in bend Course S. E. bears S. W. 10 lks. wide.
72.90	Cross same wash 10 lks. wide course S. E.
80.00	Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 28, 29, 32 and 33, marked on brass cap T21SR18E in N. and 1912 in S. half; S29 in N. W. S28 in N. E. S33 in S. E. and S32 in S. W. quadrant; from which An oak 24 ins. diam., bears N. $25\frac{1}{2}$ W. 80 lks. dist., marked T21SR18ES29BT. An oak 18 ins. diam., bears N. $84\frac{1}{2}$ E. 86 lks. dist., marked T21SR18ES28BT. An oak 6 ins. diam., bears S. 61 E. 93 lks. dist., marked T21SR18ES33BT. An oak 8 ins. diam., bears S. $22\frac{1}{2}$ W. 20 lks. dist., marked T21SR18ES32BT.
	Land, mountainous. Soil, rocky; 4th. rate. Timber, oak. Undergrowth, oak. November 28: At this cor. I set off 21 $20\frac{1}{2}$ ' S. on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is $31\frac{1}{2}$ ' N.

Subdivision of Tp. 21 S. Rg. 18 E.

Chains.	
	West bet. secs. 29 and 32.
	Ascend through scattering timber.
5.60	Ridge bears N. and S.
8.80	Cross fence bears N. and S.
10.00	Cross road bears N. E. and S. W.
13.00	Cross wash 10 lks. wide course N.
15.75	Cross under telephone line bears N. and S.
17.37	Cross road bears N. and S.
17.91	Cross fence bears N. and S.
26.00	Cross drain 7 lks. wide course N. W. and through heavy timber and dense brush.
31.50	Ridge 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 $\frac{1}{4}$ S29 in N. and S32 1912 in S. half; from which
	An oak 6 ins. diam., bears N. 11 W. 71 lks. dist., marked $\frac{1}{4}$ S29BT.
	An oak 10 ins. diam., bears S. $74\frac{1}{2}$ E. 59 lks. dist., marked $\frac{1}{4}$ S32BT.
45.65	Cross wash 40 lks. wide course N.
61.75	Cross wash 30 lks. wide course N. E.
80.00	Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 29, 30, 31 and 32, marked on brass cap
	T21SR18E in N. and
	1912 in S. half;
	S30 in N. W.
	S29 in N. E.
	S32 in S. E. and
	S31 in S. W. quadrant; from which
	An oak 4 ins. diam., bears N. 52 W. 58 lks. dist., marked T21SR18ES30BT.
	An oak 12 ins. diam., bears N. $63\frac{1}{2}$ E. 146 lks. dist., marked T21SR18ES29BT.
	An oak 6 ins. diam., bears S. 54 E. 96 lks. dist., marked T21SR18ES32BT.
	An oak 6 ins. diam., bears S. $26\frac{1}{2}$ W. 61 lks. dist., marked T21SR18ES31BT.
	Land, mountainous.
	Soil, rocky; 4th. rate.
	Timber, oak.
	Undergrowth, oak.
	<hr/>
	West bet. secs. 30 and 31 on a random line.
40.00	Set temp. $\frac{1}{4}$ sec. cor.
76.09	Intersect W. bdy. of Tp. 5 lks. S. of the cor. of secs. 25, 30, 31 and 36, and as the accessories would interfere if a closing cor. were established here, therefore I run S. 89 \searrow 58' E. on a true line bet. secs. 30 and 31
	Over rolling mountainous land, through heavy timber and dense brush.
5.28	Cross road bears N. and S.
35.70	Cross wash 10 lks. wide course N. E.
36.09	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 $\frac{1}{4}$ S30 in N. and S31 1912 in S. half; from which
	An oak 10 ins. diam., bears N. 39 E. 115 lks. dist., marked $\frac{1}{4}$ S30BT.
	An oak 8 ins. diam., bears S. 41 W. 80 lks. dist., marked $\frac{1}{4}$ S31BT.
51.26	Cross road bears N. W. and S. E.
60.73	Cross fence bears N. E. and S. W.
76.09	The cor. of secs. 29, 30, 31 and 32.
	Land, rolling mountains.
	Soil, rocky; 3rd. rate.
	Timber, oak.
	Undergrowth, oak.

November 28, 1912.

Subdivision of Tp. 21 S. Rg. 18 E.

Chains

November 29: At 8h. 00m. a.m., l.m.t., I set off 31 33 1/2' N. on the lat. arc; 21 26 1/2' S. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 26, 27, 34 and 35,
 Thence I run
 South on a random line bet. secs. 34 and 35.
 40.00 Set temp. 1/4 sec. cor.
 81.59 Intersect S. bdy. of Tp. 5 lks. W. of the cor. of secs. 34 and 35.
 Thence I run
 N. 0 02' W. on a true line bet. secs. 34 and 35.
 Ascend through scattering timber.
 6.60 Ridge bears E. and W. descend.
 12.60 Cross wash 10 lks. wide course S. E. ascend.
 16.40 Ridge bears E. and W. descend.
 23.40 Cross wash 15 lks. wide course N. E. and leave timber. Ascend.
 27.50 Ridge bears N. W. and S. E. descend.
 31.90 Cross wash 15 lks. wide course S. E. ascend.
 41.59 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for 1/4 sec. cor., marked on brass cap 1/4 S34 in W. S35 in E, and 1912 in. S. half; and raise a mound of stone 2 ft. base 1 1/2 ft. high, W. of cor. Pits impracticable.
 46.00 Ridge bears N. W. and S. E. descend.
 48.61 Cross road bears N. W. and S. E.
 54.50 Ascend.
 56.69 Cross road bears N. E. and S. W.
 59.00 Ridge bears N. W. and S. E. descend.
 81.15 Cross wash 15 lks. wide course N. W. ascend.
 81.59 The cor. of secs. 26, 27, 34 and 35.
 Land, mountainous.
 Soil, rocky; 3rd. rate.
 Timber, oak.
 Good grass.

From the cor. of secs. 27, 28, 33 and 34 I run
 South bet. secs. 33 and 34 on a random line.
 40.00 Set temp. 1/4 sec. cor.
 81.64 Intersect S. bdy. of Tp. 5 lks. E. of the cor. of secs. 33 and 34.
 Thence I run
 N. 0 02' E. on a true line bet. secs. 33 and 34.
 Descending through scattering timber, and brush.
 5.65 Cross wash 25 lks. wide course N. W.
 36.55 Cross creek 8 lks. wide course N. E. pure water 4 ins. deep. Ascend.
 41.64 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for 1/4 sec. cor., marked on brass cap 1/4 S33 in W. S34 in E. and 1912 in S. half; from which
 An oak 7 ins. diam., bears S. 52 1/2 E. 110 lks. dist., marked 1/4 S34BT.
 An oak 10 ins. diam., bears S. 67 1/2 W. 173 lks. dist., marked 1/4 S33BT.
 48.45 Cross drain 7 lks. wide course S. E.
 62.60 Cross drain 7 lks. wide course S. E.
 71.55 Fence bears N. E. and S. W. on ridge bears N. E. and S. W. descend.
 81.44 Cross drain 5 lks. wide course N. E.
 81.64 The cor. of secs. 27, 28, 33 and 34.
 Land, mountainous.
 Soil, rocky; 4th. rate.
 Timber, oak.
 Undergrowth, oak.
 November 29; At this cor. I set off 21 30 1/2' S. on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is 31 33 1/2' N.

Subdivision of Tp. 21 S. Rg. 18 E.

chains.	
	From the cor. of secs. 28, 29, 32 and 33 I run South on a random line bet. secs. 32 and 33.
40.00	Set temp. $\frac{1}{4}$ sec. cor.
81.34	Intersect S. bdy. of Tp. 9 lks. W. of the cor. of secs. 32 and 33.
	Thence I run
	N. 0° 04' W. on a true line bet. secs. 32 and 33. Over rolling land.
4.14	Cross road bears N. W. and S. E.
4.40	Cross fence bears N. W. and S. E. over level land.
5.59	E. S. McCarty house bears N. 39° 17' W.
8.60	E. S. McCarty house bears E. 1.20 chs. dist.
10.00	E. S. McCarty house bears S. 84° 42' W.
10.32	Cross fence bears E. and W.
19.46	Cross fence bears N. E. and S. W.
23.65	Cross fence bears N. E. and S. W.
31.00	Cross fence bears E. and W.
34.30	Cross fence bears E. and W.
39.40	Cross fence bears E. and W.
41.34	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 $\frac{1}{4}$ S32 in W. S33 in E. and 1912 in S. half; from which A cottonwood 9 ins. diam., bears S. 45 $\frac{3}{4}$ ° E. 250 lks. dist., marked $\frac{1}{4}$ S33BT. A cottonwood 8 ins. diam., bears N. 42 $\frac{1}{2}$ ° W. 259 lks. dist., marked $\frac{1}{4}$ S32BT.
40.48	Cross fence bears E. and W.
44.06	Cross fence bears E. and W. and ascend over rolling land.
46.89	Sorrell's house bears S. 35° 05' W. 6.40 chs. dist.
52.50	Cross wash 10 lks. wide course E.
65.00	Ridge bears N. E. and S. W.
81.34	The cor. of secs. 28, 29, 32 and 33. Land, rolling and level and hilly. Soil, sandy loam mixed with rocks and gravel; 3rd. rate. except from 4.40 chs. to 44.06 chs. which is sandy loam, dry, medium texture; 1st. rate. Timber a few scattering oaks.
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	From the cor. of secs. 29, 30, 31 and 32 I run South bet. secs. 31 and 32 on a random line.
40.00	Set temp. $\frac{1}{4}$ sec. cor.
80.83	Intersect S. bdy. of Tp. 2 lks. W. of the cor. of secs. 31 and 32.
	Thence I run
	N. 0° 01' W. on a true line bet. secs. 31 and 32. Descending over rolling mountainous land, Through heavy timber and dense brush.
19.80	Cross wash 15 lks. wide course N. E.
40.83	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 $\frac{1}{4}$ S31 in W. S32 in E. and 1912 in S. half; from which An oak 14 ins. diam., bears N. 70° E. 92 lks. dist., marked $\frac{1}{4}$ S32BT. An oak 5 ins. diam., bears S. 62° W. 84 lks. dist., marked $\frac{1}{4}$ S31BT.
43.15	Cross wash 50 lks. wide course S. E. ascend.
46.25	Cross road bears N. W. and S. E.
51.70	Cross fence bears S. E. and N. W.
63.80	Ridge bears E. and W.
79.30	Cross wash 8 lks. wide course E.
80.83	The cor. of secs. 29, 30, 31 and 32. Land, mountainous. Soil, sandy loam, mixed with rocks and gravel; 3rd. rate. Timber, oak. Undergrowth, oak, manzanita and sweet cedar.

November 29, 1912.

Subdivision of Tp. 21 S. Rg. 18 E.

Chains.

November 30: At 9h. 00m. a.m., l.m.t., I set off 31 33 $\frac{1}{2}$ ' N. on the lat. arc; 21 36 $\frac{1}{2}$ ' S. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 25, 26, 35 and 36..

Thence I run

N. 0 01' W. bet. secs. 25 and 26.
Over rolling land.

17.75 Cross wash 15 lks. wide course N. E.
20.15 Cross wash 10 lks. wide course N. E.
32.55 Cross wash 10 lks. wide course N. E.
33.45 Cross fence bears N. E. and S. 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 $\frac{1}{4}$ S26 in W. S25 in E. and 1912 in S. half; and raise a mound of stone 2 ft. base 1 $\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

45.80 Cross wash 10 lks. wide course S. E.
58.80 Cross wash 7 lks. wide course N. E.
64.00 Spur bears N. E. and S. W.
73.50 Spur bears N. E. and S. W.
78.10 Cross wash 7 lks. wide course N. E.
80.00 Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 23, 24, 25 and 26, marked on brass cap
T21SR18E in N. and
1912 in S. half;
S23 in N. W.
S24 in N. E.
S25 in S. E. and
S26 in S. W. quadrant; and 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 rocks; 2nd. rate.
No timber.
Good grass.

East on a random line bet. secs. 24 and 25.
40.00 Set temp. $\frac{1}{4}$ sec. cor.,
80.12 Intersect E. bdy. of Tp. 12 lks. S. of the cor. of secs. 24 and 25

Thence I run

S. 89 55' W. on a true line bet. secs. 24 and 25.
Descending.

7.30 Cross wash 15 lks. wide course N. W.
13.60 Ridge bears N. W. and S. E.
16.10 Cross wash 7 lks. wide course N. W.
20.50 Ridge bears N. W. and S. E.
26.30 Cross wash 7 lks. wide course N. W.
30.50 Ridge bears N. W. and S. E.
40.06 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 $\frac{1}{4}$ S24 in N. and S25¹⁹¹² in S. half; dig pits 18 x 18 x 12 ins. E. and W. of post 3 ft. dist., and raise a mound of earth 3 $\frac{1}{2}$ ft. base 2 ft. high N. of cor.

41.30 Cross road bears N. and S.
47.60 Cross wash 100 lks. wide course N. E. and over rolling land.
80.12 The cor. of secs. 23, 24, 25 and 26.
Land, mountainous and rolling.
Soil, sandy loam, mixed with rocks; 2nd. rate.
No timber.
Good grass.

N. 0 01' W. bet. secs. 23 and 24.
Over level land, gradually descending.
34.75 Cross road bears N. E. and S. 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 $\frac{1}{4}$ S23 in W.

Subdivision of Tp. 21 S. Rg. 18 E.

Chains.	
80.00	S24 in E. and 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 13, 14, 23 and 24, marked on brass cap
	T21SR18E in N. and 1912 in S. half;
	S14 in N. W.
	S13 in N. E.
	S24 in S. E. and
	S23 in S. W. quadrant; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
	Land, level.
	Soil, sandy loam, mixed with rocks; 2nd. rate.
	No timber.
	Good grass.

40.00	N. 89 55' E. on a random line bet. secs. 13 and 24.
80.04	Set temp. $\frac{1}{4}$ sec. cor.
	Intersect E. bdy. of Tp. 9 lks. N. of the cor. of secs. 13 and 24.
	Thence I run
	S. 89 59' W. on a true line bet. secs. 13 and 24.
	Ascend rough E. slope.
5.90	Top and over rolling land.
23.00	Drain 7 lks. wide course N. E. in canyon.
40.02	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 $\frac{1}{4}$ S13 in N.
	and S24 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
46.75	Cross road bears N. E. and S. W.
70.60	Cross wash 10 lks. wide course N. W.
75.50	Cross wash 10 lks. wide course N. W.
80.04	The cor. of secs. 13, 14, 23 and 24.
	Land, mountainous and nearly level.
	Soil, sandy loam, mixed with rocks; 2nd. rate.
	No timber.
	Good grass.

10.00	N. o 01' W. bet. secs. 13 and 14.
18.75	Descend.
24.20	Descent becomes steep.
40.00	Cross wash 7 lks. wide course N. E. and along point of spur bears S. W.
	Cross wash 10 lks. wide course N. E. and ascend.
50.00	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 $\frac{1}{4}$ S14 in W.
59.00	S13 in E. and 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
75.15	Top of spur bears S. W. descend.
	Cross wash 10 lks. wide course N. E.
	Intersect S. bdy. of San Ignacio Del Babacomari P.L.G. 11.20 chs. N. 88 07' W. of the 13 mile cor. a stone
	marked and witnessed as described by the surveyor general.
	At point of intersection I set an iron post 3 ft. long
	2 ins. diam., 24 ins. in the ground for closing cor. of
	secs. 13 and 14, marked on brass cap
	CC E. of center;
	SIDB in N. E. and
	T21SR18E 1912 in S. W. half;
	S13 in S. E. and
	S14 in S. W. sector; and raise a mound of stone 2 ft.
	base $1\frac{1}{2}$ ft. high, S. of cor. Pits impracticable.
	Land, rolling.
	Soil, sandy loam, mixed with rocks; 2nd. rate.
	No timber.
	Good grass.

November 30, 1912.

Subdivision of Tp. 21 S. Rg. 18 E.

chains

December 1: 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 located near the cor. of secs. 21 22, 27 and 28, Tp. 21 S. Rg. 18 E.; latitude $31^{\circ} 34\frac{1}{2}'$ N. longitude $110^{\circ} 31' 09''$ W.; At the south end of the meridian established by observations on Polaris November 24, I set off $31^{\circ} 34\frac{1}{2}'$ N. on the lat. arc; $21^{\circ} 48'$ S. on the decl. arc; and at 9h. 00m. a.m., l.m.t., determine with the solar a meridian, and mark a point thereof by a cross on the stone already set 5 chs. N. of my station; This mark falls 0.3 ins. east of the meridian determined by the Polaris observation.

I set off $21^{\circ} 49\frac{1}{2}'$ S. on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is $31^{\circ} 34\frac{1}{2}'$ N.

At 3h. 00m. p.m., l.m.t., I set off $31^{\circ} 34\frac{1}{2}'$ N. on the lat. arc; $21^{\circ} 50'$ S. 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. west of the meridian established by the Polaris observation.

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

December 1, 1912.

December 2: At 8h. 00m. a.m., l.m.t., I set off $31^{\circ} 33\frac{1}{2}'$ N. on the lat. arc; $21^{\circ} 55\frac{1}{2}'$ S. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 26, 27, 34 and 35.

Thence I run

N. $0^{\circ} 01'$ W. bet. secs. 26 and 27.

Ascend through scattering timber.

- 5.07 Cross fence bears E. and W. and along rough W. slope of mesa.
- 5.50 Spur bears N. W. and S. E.
- 12.60 Cross wash 7 lks. wide course N. W.
- 15.80 Cross wash 7 lks. wide course N..W.
- 20.00 Cross wash 7 lks. wide course N. W.
- 25.00 Spur bears N. W. and S. E.
- 33.00 Cross wash 5 lks. wide course N..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 $\frac{1}{4}$ S27 in W. S26 in E. and 1912 in S. half; from which
 - An oak 24 ins. diam., bears N. 3 W. 181 lks. dist., marked $\frac{1}{4}$ S27BT.
 - An oak 8 ins. diam., bears S. $12\frac{1}{2}$ E. 69 lks. dist., marked $\frac{1}{4}$ S26BT.
- 52.00 Cross wash 8 lks. wide course N. W.
- 58.50 Cross wash 8 lks. wide course N..W.
- 62.43 A point from which
 - Fenderson's house bears N. 36 23' W.
 - T. B. Titus house bears N. 55 03' W.
 - house bears N. 56 35' W..
- 67.00 Cross wash 25 lks. wide course W..
- 71.88 Cross road bears E. and W.
- 80.00 Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 22, 23, 26 and 27, marked on brass cap
 - T21SR18E in N. and 1912 in S. half;
 - S22 in N. W.
 - S23 in N. E.
 - S26 in S. E. and
 - S27 in S. W. quadrant; from which

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Chains.

- An oak 8 ins. diam., bears N. 82 W. 240 lks. dist., marked T21SR18ES22BT.
 An oak 8 ins. diam., bears N. 67 E. 208 lks. dist., marked T21SR18ES23BT.
 An oak 8 ins. diam., bears S. 32 $\frac{1}{4}$ W. 420 lks. dist., marked T21SR18ES27BT.
- No other bearing available, Raise a mound of stone 2 ft. base 1 $\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 From this cor.
 Fenderson house bears N. 56 45' W.
 T. B. Titus house bears N. 68 53' W.
 house bears N. 69 43' W.
- Land, mountainous.
 Soil, rocky; 3rd. rate.
 Timber, scattering oak.
 Good grass.
-
- East on a random line bet. secs. 23 and 26.
 40.00 Set temp. $\frac{1}{4}$ sec. cor.
 79.98 Intersect N. and S. line at the cor. of secs. 23, 24, 25 and 26.
- Thence. I run
 West on a true line bet. secs. 23 and 26.
 Over nearly level land.
- 20.54 Cross road bears N. E. and S. W.
 39.99 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 $\frac{1}{4}$ S23 in N. and S26 1912 in S. half; and raise a mound of stone 2 ft. base 1 $\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
- 47.70 Cross wash 10 lks. wide course N.
 53.20 Cross fence bears N. E. and S. W.
 55.00 Descend steep W. slope.
 63.50 Drain course S. W. and cross and recross same to
 74.90 Leave drain 7 lks. wide course N. W.
 79.98 The cor. of secs. 22, 23, 26 and 27.
- Land, level and mountainous.
 Soil, sandy loam, mixed with rocks and gravel; 2nd. rate.
 No timber.
 Good grass.
-
- N. 0 01' W. bet. secs. 22 and 23.
 Along rough W. slope.
- 5.40 Cross wash 10 lks. wide course N. W.
 6.70 Cross fence bears N. E. and S. W.
 12.41 A point from which
 Wm. Roth house bears N. 8 24' E.
- 17.00 Over level land.
 25.85 Cross wash 150 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 $\frac{1}{4}$ S22 in W. S23 in E. and 1912 in S. half; dig pits 18 x 18 x 12 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.
- 42.70 Cross fence bears N. E. and S. W. and over rolling land gradually ascending.
 47.80 Cross road bears E. and W.
 55.80 Cross wash 50 lks. wide course E.
 57.50 Cross road bears N. W. and S. E.
 69.66 A point from which
 Wm. Roth house bears S. 15 36' E.
- 80.00 Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 14, 15, 22 and 23, marked on brass cap
 T21SR18E in N. and
 1912 in S. half;
 S15 in N. W.
 S14 in N. E.

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Chains.

S23 in S. E. and

S22 in S. W. quadrant; from which

An oak 8 ins. diam., bears N. $38\frac{1}{4}$ W. 171 lks. dist., marked T21SR18ES15BT.An oak 6 ins. diam., bears N. $49\frac{1}{2}$ E. 142 lks. dist., marked T21SR18ES14BT.No other bearings available. Raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, rolling and mountainous and level.

Soil, sandy loam, mixed with rocks; 2nd. rate.

No timber.

Good grass.

December 2: Clouds prevented an observation for latitude, at noon.

East on a random line bet. secs. 14 and 23.

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

80.02 Intersect N. and S. line 2 lks. S. of the cor. of secs. 13, 14, 23 and 24..

Thence I run

S. $89^{\circ} 59'$ W. on a true line bet. secs. 14 and 23.

Descend.

4.30 Cross wash 10 lks. wide course N. ascend.

7.50 Spur bears N. and S..descend.

16.83 Cross wash 15 lks. wide course N. ascend.

26.00 Ridge bears N. and S..descend.

39.69 Cross fence bears N. E. and S. W.

40.01 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 $\frac{1}{4}$ S14 in N. and S23 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

45.50 Over level land.

58.20 Cross wash 70 lks. wide course N.

63.44 Cross road bears N. and S. and over rolling land.

65.80 Cross fence bears N. E. and S. W.

80.02 The cor. of secs. 14, 15, 22 and 23.

Land, level and mountainous.

Soil, sandy loam, mixed with rocks; 2nd. rate. except from 45.50 to 58.20 chs. which is sandy loam, dry, medium texture; 1st. rate.

No timber.

December 2, 1912.

December 4:

N. 0 01' W. bet. secs. 14 and 15.

Over rolling land.

20.78 Cross fence bears N. E. and S. W.

27.10 Cross wash 10 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 $\frac{1}{4}$ S15 in W. S14 in E. and 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

45.76 Cross fence bears N. E. and S. W..

57.50 Cross wash 7 lks. wide course N. E.

60.20 Cross wash 8 lks. wide course N. E.

67.40 Cross wash 7 lks. wide course N. E.

77.77 Intersect S. bdy. of San Ignacio Del Babocomari P. L. G. 10.88 chs. N. $88^{\circ} 07'$ W. of the 14 mile cor., which is a stone marked and witnessed as described by the surveyor general. At point of intersection I

Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for closing cor. of secs. 14 and 15, marked on brass cap.

CC E. of center;

SIDB in N. E. and

T21SR18E 1912 in S. W. half;

S14 in S. E. and

S15 in S. W. sector; dig pits 24 x 18 x 12 ins. cross-wise on each line E. and W. 3 ft. and S. of post 7 ft. dist.; and raise a mound of earth 4 ft. base 2 ft. high S. of cor.

Subdivision of Tp. 21 S. Rg. 18 E.

Chains.

Land, rolling.
Soil, sandy loam, mixed with rocks; 2nd. rate.
No timber.
Good grass.

December 4, 1912.

December 3: At 9h. 30m. a.m.; l.m.t., I set off 31 $33\frac{1}{2}'$ N. on the lat. arc; 22 $406'$ S. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 27, 28, 33 and 34.

Thence I run

N. 0° 02' W. bet. secs. 27 and 28.

Through heavy timber and dense brush. Descend.

- 7.60 Cross wash 15 lks. wide course N. E.
19.85 Cross wash 15 lks. wide course N. W.
29.50 Cross creek 35 lks. wide course N. E. pure water 4 ins. deep. Ascend.
38.10 Cross wash 15 lks. wide course S. 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 $\frac{1}{4}$ S28 in W. S27 in E. and 1912 in S. half; from which
An oak 14 ins. diam., bears S. $89\frac{1}{2}$ E. 98 lks. dist., marked $\frac{1}{4}$ S27BT.
An oak 6 ins. diam., bears S. $79\frac{1}{4}$ W. 134 lks. dist., marked $\frac{1}{4}$ S28BT.
46.80 Cross wash 10 lks. wide course S. E.
54.80 Cross road bears E. and W.
55.00 Ridge bears E. and W. descend.
64.00 Cross O'Donnell wash 200 lks. wide course N. E. and over rolling land.
75.00 Leave timber and brush.
80.00 Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 21, 22, 27 and 28, marked on brass cap
T21SR18E in N. and 1912 in S. half;
S21 in N. W.
S22 in N. E.
S27 in S. E. and
S28 in S. W. quadrant; from which
An oak 18 ins. diam., bears N. 8° W. 571 lks. dist., marked T21SR18ES21BT.
An oak 10 ins. diam., bears N. $10\frac{1}{2}$ E. 495 lks. dist., marked T21SR18ES22BT.
An oak 10 ins. diam., bears S. $14\frac{3}{4}$ E. 525 lks. dist., marked T21SR18ES27BT.
An oak 8 ins. diam., bears S. 64° W. 190 lks. dist., marked T21SR18ES28BT.

Land, mountainous.
Soil, sandy loam, mixed with rocks; 2nd. rate.
Timber, oak.
Undergrowth, oak.

December 3: At this cor. I set off 22 $407\frac{1}{2}'$ S. on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is 31 $34\frac{1}{2}'$ N.

East on a random line bet. secs. 22 and 27.

- 40.00 Set temp. $\frac{1}{4}$ sec. cor.
80.04 Intersect N. and S. line 5 lks. N. of the cor. of secs. 22, 23, 26 and 27.
Thence I run
N. 89° 58' W. on a true line bet. secs. 22 and 27.
Descend.
2.20 Cross fence bears N. E. and S. W.
6.00 Over level land.
14.40 Cross wash 45 lks. wide course N.

Subdivision of Tp. 21 S. Rg. 18 E.

Chains.
 16.30 Cross wash 40 lks. wide course N. E.
 32.70 Cross road bears N. W. and S. E.
 35.00 Enter wash 100 lks. wide course N. E.
 40.02 Point for $\frac{1}{4}$ sec. cor., falls in wash.
 40.10 Leave wash 100 lks. wide course E. bears N. W. and ascend
 small spur.
 41.22 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the
 ground for witness $\frac{1}{4}$ sec. cor., marked on brass cap WC $\frac{1}{4}$
 In E. and 1912 in S. half; S22 in N. W. and S27 in S. W.
 quadrant; and raise a mound of stone 2 ft. base 1 $\frac{1}{2}$ ft.
 high N. of cor. Pits impracticable.
 43.10 Cross road bears N. and S.
 47.40 Cross wash 50 lks. wide course N. W. ascend.
 51.80 Ridge bears N. and S.
 56.60 Cross O'Donnell wash 50 lks. wide course N. and over
 rolling land, through scattering timber. Xca
 60.71 Cross fence bears N. and S.
 75.50 Leave timber.
 80.04 The cor. of secs. 21, 22, 27 and 28.
 Land, level and rolling.
 Soil, sandy loam, dry, medium texture; 1st. rate.
 Timber, oak.
 Good grass.

N. O. 02' W. bet. secs. 21 and 22.
 Over rolling land.

5.90 Cross wash 15 lks. wide course S. E.
 13.10 Cross road bears N. E. and S. W.
 20.35 Cross road bears E. and W.
 22.85 Cross road bears E. and W.
 26.70 Descend steep slope.
 29.70 Cross wash 30 lks. wide course S. E. and over rolling
 land.
 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 $\frac{1}{4}$ S21 in W.
 S22 in E. and 1912 in S. half; and raise a mound of stone
 2 ft. base 1 $\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 48.80 Cross wash 10 lks. wide course S. E.
 71.90 Cross wash 4 lks. wide course N. E.
 79.94 Cross fence bears E. and W.
 80.00 Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the
 ground for cor. of secs. 15, 16, 21 and 22, marked on
 brass cap
 T21SR18E in N. and
 1912 in S. half;
 S16 in N. W.
 S15 in N. E.
 S22 in S. E. and
 S21 in S. W. quadrant; and 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 rocks; 2nd. rate.
 Timber, a few scattering oaks.
 Good grass.

December 3, 1912.

December 4: At 8h. 00m. a.m., l.m.t., I set off 31' 35 $\frac{1}{2}$ "
 N. on the lat. arc; 22' 12 $\frac{1}{2}$ " S. on the decl. arc; and
 determine a meridian with the solar at the cor. of secs.
 15, 16, 21 and 22.

Thence I run

S. 89' 58" E. on a random line bet. secs. 15 and 22.

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

79.96 Intersect N. and S. line 9 lks. N. of the cor. of secs.
 14, 15, 22 and 23.

Thence I run

Subdivision of Tp. 21 S. Rg. 18 E.

Chains.	
	N. 89° 54' W. on a true line bet. secs. 15 and 22. Over rolling land.
7.50	Cross road bears N. W. and S. E.
12.00	Cross wash 20 lks. wide course S.
39.98	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 $\frac{1}{4}$ S15 in N. and S22 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
61.00	Cross fence bears N. and S.
66.00	Cross wash 25 lks. wide course N. E.
79.96	The cor. of secs. 15, 16, 21 and 22. Land, rolling. Soil, sandy loam, mixed with rocks; 2nd. rate. No timber. Good grass.
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	N. 0° 02' W. bet. secs. 15 and 16. Over rolling land.
36.70	Cross wash 10 lks. wide course N. E.
39.75	Cross wash 15 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 $\frac{1}{4}$ S16 in W. S15 in E. and 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
46.00	Cross wash 10 lks. wide course N. E.
63.30	Cross wash 10 lks. wide course N. E.
80.00	Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 9, 10, 15 and 16, marked on brass cap T21SR18E in N. and 1912 in S. half; S9 in N.W. S10 in N. E. S15 in S. E. and S16 in S. W. quadrant; and 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 rocks; 2nd. rate. No timber. Good grass.
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	East bet. secs. 10 and 15. Over rolling land.
7.78	Intersect S. bdy. of San Ignacio Del Babacomari P. L. G. N. 88° 07' W. 2.83 chs. from the 15 mile cor. which is a stone marked and witnessed as described by the surveyor general. At point of intersection. I Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for closing cor. of secs. 10 and 15, marked on brass cap CC W. of center; SIDB in N. E. and T21SR18E. 1912 in S. W. half; S10 in N. W. and S15 in S. W. sector; and 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 rocks; 2nd. rate. No timber. Good grass.
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	N. 0° 02' W. bet. secs. 9 and 10. Over level land.
0.24	Intersect S. bdy. of San Ignacio Del Babacomari P. L. G.

Subdivision of Tp. 21 S. Rg. 18 E.

Chains.

N. 88° 07' W. 10.62 chs. from the 15 mile cor. which has been previously described. At point of intersection I set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for closing cor. of secs. 9 and 10, marked on brass cap.

CC E. of center;

SIDB in N. E. and

T21SR18E 1912 in S. W. half;

S10 in S. E. and

S9 in S. W. quadrant; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, S. of cor. Pits impracticable.

Land, level.

Soil, sandy loam, mixed with rocks; 2nd. rate.

No timber.

Good grass.

December 4, 1912.

December 5; At 8h. 00m. a.m., l.m.t., I set off 31° 33 $\frac{1}{2}$ ' N. on the lat. arc; 22° 20' S. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 28, 29, 32 and 33.

Thence I run

N. 0° 02' W. bet. secs. 28 and 29.

Over rolling land, gradually ascending through heavy timber.

1.60 Cross wash 7 lks. wide course E.

8.65 Cross fence bears E. and W.

9.35 Cross road bears E. and W.

17.30 Cross wash 7 lks. wide course E. ascend steeply.

21.00 Ridge bears E. and W. descend.

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 $\frac{1}{4}$ S29 in W. S28 in E. and 1912 in S. half; from which

An oak 8 ins. diam., bears S. 22 E. 39 lks. dist., marked $\frac{1}{4}$ S28BT.

An oak 6 ins. diam., bears S. 73 W. 56 lks. dist., marked $\frac{1}{4}$ S29BT.

41.45 Cross wash 30 lks. wide course N. E. and leave timber.

46.40 Cross road bears E. and W.

51.70 Cross O'Donnell wash 60 lks. wide course E. and over rolling land.

63.00 Cross wash 15 lks. wide course S. E.

73.40 Cross road bears N. W. and S. E.

80.00 Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 20, 21, 28 and 29, marked on brass cap

T21SR18E in N. and

1912 in S. half;

S20 in N. W.

S21 in N. E.

S28 in S. E. and

S29 in S. W. quadrant; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, rolling and mountainous.

Soil, sandy loam mixed with rocks; 2nd. rate.

Timber, oak.

East on a random line bet. secs. 21 and 28.

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

79.98 Intersect N. and S. line 5 lks. S. of the cor. of secs. 21, 22, 27 and 28.

Thence I run

S. 89° 58' W. on a true line bet. secs. 21 and 28.

Over rolling land.

20.00 Cross road bears N. E. and S. W.

Subdivision of Tp. 21 S. Rg. 18 E.

Chains.	
39.99	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 $\frac{1}{4}$ S21 in N. and S28 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
52.80	Cross road bears N. E. and S. W.
62.65	Cross wash 20 lks. wide course S. E.
79.98	The cor. of secs. 20, 21, 28 and 29. Land, rolling. Soil, sandy loam, mixed with rocks and gravel; 2nd. rate. Timber, a few scattering oaks. Good grass.
	December 5, 1912.
	December 6: At 8h. 00m. a.m., l.m.t., I set off 31 $34\frac{1}{2}$ ' N on the lat. arc; 22 $27\frac{1}{2}$ ' S. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 20, 21, 28 and 29 Thence I run N. 0 02' W. bet. secs. 20 and 21. Over rolling land.
8.60	Cross road bears N. E. and S. W.
14.70	Cross wash 20 lks. wide course S. E.
27.74	Cross road bears N. W. and S. 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 $\frac{1}{4}$ S20 in W. S21 in E. and 1912 in S. half; from which An oak 9 ins. diam., bears N. 7 E. 202 lks. dist., marked $\frac{1}{4}$ S21BT. An oak 6 ins. diam., bears S. 42 W. 145 lks. dist., marked $\frac{1}{4}$ S20BT.
43.90	Cross wash 10 lks. wide course N. E.
65.90	Cross road bears N. E. and S. W.
80.00	Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 16, 17, 20 and 21, marked on brass cap T21SR18E in N. and 1912 in S. half; S17 in N. W. S16 in N. E. S21 in S. E. and. S20 in S. W. quadrant; from which An oak 12 ins. diam., bears S. $34\frac{1}{2}$ W. 343 lks. dist., marked T21SR18ES20BT. No other bearings available. 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 rocks and gravel; 2nd. rate. Timber, a few scattering oaks. Good grass.
40.00	N. 89 58' E. on a random line bet. secs. 16 and 21. Set temp. $\frac{1}{4}$ sec. cor.
79.96	Intersect N. and S. line 7 lks. N. of the cor. of secs. 15, 16, 21 and 22 Thence I run N. 89 59' W. on a true line bet. secs. 16 and 21. Over rolling land.
20.00	Cross fence bears N. 89 W. and S89 E.
33.20	Cross wash 25 lks. wide course S. E.
39.98	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 $\frac{1}{4}$ S16 in N. and S21 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
56.85	Cross fence bears N. E. and S. W. nearly E. and W. and through scattering timber.
73.80	Cross wash 15 lks. wide course N. W.

. Subdivision of Tp. 21 S. Rg. 18 E.

Chains.	
75.70	Cross fence bears N. W. and S. E. leave timber.
79.96	The cor. of secs. 16, 17, 20 and 21. Land, rolling. Soil, sandy loam, mixed with rocks and gravel; 2nd. rate. Timber, oak. Good grass. December 6: At this cor. I set off 22 $\sqrt{30\frac{1}{2}}$ ' S. on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is 31 $\sqrt{35\frac{1}{2}}$ ' N.
	—————
	N. 0 $\sqrt{02}$ ' W. bet. secs. 16 and 17. Over rolling land.
6.30	Cross wash 10 lks. wide course N. 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 $\frac{1}{4}$ S17 in W. S16 in E. and 1912 in S. half; from which An oak 10 ins. diam., bears N. 27 W. 31 lks. dist., marked $\frac{1}{4}$ S17BT. An oak 14 ins. diam., bears S. 30 E. 62 lks. dist., marked $\frac{1}{4}$ S16BT..
41.00	Cross wash 10 lks. wide course N. W.
80.00	Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 8, 9, 16 and 17, marked on brass cap T21SR18E in N. and 1912 in S. half; S8 in N. W. S9 in N. E. S16 in S. E. and S17 in S. W. quadrant; from which An oak 10 ins. diam., bears N. 48 $\frac{3}{4}$ W. 37 lks. dist., marked T21SR18ES8BT. An oak 10 ins. diam., bears N. 23 E. 187 lks. dist., marked T21SR18ES9BT. An oak 18 ins. diam., bears S. 10 $\frac{3}{4}$ E. 326 lks. dist., marked T21SR18ES16BT. An oak 20 ins. diam., bears S. 6 W. 261 lks. dist., marked T21SR18ES17BT. Land, rolling. Soil, sandy loam, mixed with rocks and gravel; 2nd. rate. Timber, a few scattering oaks. Good grass.
	—————
	S. 89 $\sqrt{59}$ ' E. on a random line bet. secs. 9 and 16.
40.00	Set temp. $\frac{1}{4}$ sec. cor.
79.94	Intersect N. and S. line 5 lks. S. of the cor. of secs. 9, 10, 15 and 16 Thence I run S. 89 $\sqrt{59}$ ' W. on a true line bet. secs. 9 and 16 Over rolling land.
8.30	Cross wash 20 lks. wide course N. E.
24.20	Cross wash 15 lks. wide course N. E..
33.15	Cross wash 15 lks. wide course N. E.
39.97	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 $\frac{1}{4}$ S9 in N. and S16 1912 in S. half; from which An oak 12 ins. diam., bears N. 72 E. 236 lks. dist., marked $\frac{1}{4}$ S9BT. An oak 10 ins. diam., bears S. 62 E. 142 lks. dist., marked $\frac{1}{4}$ S16BT.
53.80	Cross wash 10 lks. wide course N.
66.60	Cross wash 25 lks. wide course N. E.
75.50	Cross fence bears N. E. and S. W.
78.50	Cross wash 5 lks. wide course N. E.
79.94	The cor. of secs. 8, 9, 16 and 17. Land, rolling. Soil, sandy loam, mixed with rocks and gravel, 2nd. rate.

Subdivision of Tp. 21 S. Rg. 18 E.

Chains.

Timber, a few scattering oaks.
Good grass.

2.82 N. 0° 02' W. bet. secs. 8 and 9.
Descend steep rocky N. slope, through heavy timber.
Intersect S. bdy. of San Ignacio Del Babocomari P. L. G.
N. 88° 07' W. 10.27 chs. from the 16 mile cor. which is a
stone marked and witnessed as described by the surveyor
general. At point of intersection I
Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the
ground for closing cor. of secs. 8 and 9, marked on brass
cap
CC E. of center.
SIDB in N. E. and
T21SR18E 1912 in S. W. half;
S9 in S. E. and
S8 in S. W. quadrant; from which
An oak 14 ins. diam., bears S. 10° E. 31 lks.
dist., marked CCT21SR18ES9BT.
An oak 10 ins. diam., bears S. 28½° W. 148 lks.
dist., marked CCT21SR18ES8BT.
Land, mountainous.
Soil, rocky; 3rd. rate.
Timber, oak.

December 6, 1912.

December 9: At 8h. 00m. a.m., lmm.t., I set off 31° 33½'
N. on the lat. arc; 22° 47' S. on the decl. arc; and
determine a meridian with the solar at the cor. of secs.
29, 30, 31 and 32.
Thence I run
N. 0° 03' W. bet. secs. 29 and 30.
Over rolling mountainous land, through dense timber and
brush.
21.75 Cross wash 40 lks. wide course E. ascend.
31.75 Cross fence bears N. E. and S. W..
34.60 Ridge bears E. and W. 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 cap ¼S30 in W.
S29 in E. and 1912 in S. half; from which
An oak 6 ins. diam., bears S. 64½° E. 71 lks.
dist., marked ¼S29BT.
An oak 14 ins. diam., bears S. 84½° W. 63 lks.
dist., marked ¼S30BT.
64.65 Cross wash 50 lks. wide course E. and ascend gradually.
73.75 Cross wash 10 lks. wide course S. E.
80.00 Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the
ground for cor. of secs. 19, 20, 29 and 30, marked on
brass cap
T21SR18E in N. and
1912 in S. half;
S19 in N. W.
S20 in N. E.
S29 in S. E. and
S30 in S. W. quadrant; from which
An oak 10 ins. diam., bears N. 28° W. 165 lks.
dist., marked T21SR18ES19BT.
An oak 18 ins. diam., bears N. 18° E. 116 lks.
dist., marked T21SR18ES20BT.
An oak 6 ins. diam., bears S. 59½° E. 105 lks.
dist., marked T21SR18ES29BT.
An oak 8 ins. diam., bears S. 26½° W. 171 lks.
dist., marked T21SR18ES30BT.
Land, rolling and mountainous.
Soil, sandy loam, mixed with rocks and gravel; 2nd. rate.
Timber, oak.

Subdivision of Tp. 21 S. Rg. 18 E.

Chains

Undergrowth, oak and sweet cedar.

East on a random line bet. secs. 20 and 29.
 40.00 Set temp. $\frac{1}{4}$ sec. cor.
 79.96 Intersect N. and S. line 2 lks. S. of the cor. of secs. 20, 21, 28 and 29
 Thence I run
 S. 89° 59' W. on a true line bet. secs. 20 and 29.
 Over rolling land.
 5.90 Cross road bears N. W. and S. E.
 10.00 Enter heavy oak timber and brush.
 14.60 Cross wash 10 lks. wide course S.
 14.87 Cross under telephone line bears N. and S.
 39.98 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 $\frac{1}{4}$ S20 in N. and S29 1912 in S. half; from which
 An oak 6 ins. diam., bears N. $1\frac{1}{2}$ E. 94 lks. dist., marked $\frac{1}{4}$ S20BT.
 An oak 8 ins. diam., bears S. $42\frac{1}{2}$ W. 71 lks. dist., marked $\frac{1}{4}$ S29BT.
 50.00 Cross wash 20 lks. wide course S. E.
 70.10 Cross wash 30 lks. wide course S. E.
 79.96 The cor. of secs. 19, 20, 29 and 30.
 Land, rolling.
 Soil, sandy loam, mixed with rocks and gravel; 2nd. rate.
 Timber, oak.
 Undergrowth, oak.
 Good grass.

N. 89° 58' W. on a random line bet. secs. 19 and 30.
 40.00 Set temp. $\frac{1}{4}$ sec. cor.
 76.06 Intersect W. bdy. of Tp. 2 lks. N. of the cor. of secs. 19, 24, 25 and 30
 Thence I run
 S. 89° 59' E. on a true line bet. secs. 19 and 30.
 Over rolling land, through heavy timber and dense brush,
 17.05 Cross wash 7 lks. wide course N. E.
 36.06 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 $\frac{1}{4}$ S19 in N. and S30 1912 in S. half; from which
 An oak 9 ins. diam., bears N. $42\frac{1}{2}$ E. 108 lks. dist., marked $\frac{1}{4}$ S19BT.
 An oak 9 ins. diam., bears S. $34\frac{1}{2}$ W. 64 lks. dist., marked $\frac{1}{4}$ S30BT.
 45.00 Cross wash 15 lks. wide course N. E.
 63.55 Cross road bears N. E. and S. W.
 76.06 The cor. of secs. 19, 20, 29 and 30.
 Land, rolling.
 Soil, sandy loam, mixed with rocks and gravel; 2nd. rate.
 Timber, oak.
 Undergrowth, oak.

December 9, 1912.

December 13: At 8h. 00m. a.m.; l.m.t., I set off 31° 34 $\frac{1}{2}$ ' N. on the lat. arc; 23° 06 $\frac{1}{2}$ ' S. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 19, 20, 29 and 30.
 Thence I run
 N. 0° 03' W. bet. secs. 19 and 20.
 Over rolling mountainous land; through heavy timber and dense brush.
 5.96 Cross road bears N. E. and S. W.

Subdivision of Tp. 21 S. Rg. 18 E.

Chains.	
32.00	Cross wash 20 lks. wide course N. E. ascend.
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 $\frac{1}{4}$ S19 in W. S20 in E. and 1912 in S. half; from which An oak 6 ins. diam., bears N. 17 E. 49 lks. dist., marked $\frac{1}{4}$ S20BT. An oak 24 ins. diam., bears S. 57 W. 158 lks. dist., marked $\frac{1}{4}$ S19BT.
57.50	Ridge bears N. E. and S. W.
64.40	Cross wash 20 lks. wide course N. E.
75.00	Ridge bears N. E. and S. W.
80.00	Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 17, 18, 19 and 20, marked on brass cap T21SR18E in N. and 1912 in S. half; S18 in N. W. S17 in N. E. S20 in S. E. and S19 in S. W. quadrant; from which An oak 16 ins. diam., bears N. 42 $\frac{3}{4}$ W. 90 lks. dist., marked T21SR18ES18BT. An oak 16 ins. diam., bears N. 35 E. 66 lks. dist., marked T21SR18ES17BT. An oak 14 ins. diam., bears S. 52 $\frac{1}{2}$ E. 70 lks. dist., marked T21SR18ES20BT. An oak 8 ins. diam., bears S. 54 $\frac{1}{2}$ W. 202 lks. dist., marked T21SR18ES19BT.
	Land, rolling mountains. Soil, sandy loam, mixed with rocks and gravel; 2nd. rate. Timber, oak. Undergrowth, oak.
40.00	N. 89 59' E. on a random line bet. secs. 17 and 20. Set temp. $\frac{1}{4}$ sec. cor.,
80.02	Intersect N. and S. line 12 lks. N. of the cor. of secs. 16, 17, 20 and 21 Thence I run N. 89 56' W. on a true line bet. secs. 17 and 20. Over rolling land.
21.00	Cross wash 10 lks. wide course N. W.
37.30	Cross under telephone line bears N. and S.
38.96	Cross road bears N. E. and S. W.
40.01	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 $\frac{1}{4}$ S17 in N. and S20 1912 in S. half; and raise a mound of stone 2 ft. base 1 $\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
62.50	Cross wash 35 lks. wide course N. E. ascend.
76.50	Spur bears N. E. and S. W. descend through heavy timber.
80.02	The cor. of secs. 17, 18, 19 and 20. Land, rolling. Soil, sandy loam, mixed with rocks and gravel; 2nd. rate. Timber, oak. Undergrowth, oak. Good grass.
40.00	N. 89 59' W. on a random line bet. secs. 18 and 19 Set temp. $\frac{1}{4}$ sec. cor.
76.14	Intersect W. bdy. of Tp. 7 lks. S. of the cor. of secs. 13, 18, 19 and 24. Thence I run S. 89 56' E. on a true line bet. secs. 18 and 19. Over rolling land.
6.00	A point from which James Ridge house bears North.
6.75	Cross fence bears N. and S.
8.18	Cross road bears N. E. and S. W.
13.73	A point from which James Ridge house bears N. 55 30' W.

Subdivision of Tp. 21 S. Rg. 18 E.

Chains	
14.47	Cross road bears N. and S.
31.35	Cross wash 25 lks. wide course N.
36.14	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 $\frac{1}{4}$ S18 in N. and S19 1912 in S. half; from which An oak 20 ins. diam., bears N. $67\frac{1}{2}$ W. 85 lks. dist., marked $\frac{1}{4}$ S18BT. An oak 12 ins. diam., bears S. 18 E. 42 lks. dist., marked $\frac{1}{4}$ S19BT.
57.00	Ridge bears N. E. and S. W.
76.14	The cor. of secs. 17, 18, 19 and 20. Land, rolling. Soil, sandy loam, mixed with rocks and gravel; 2nd. rate. Timber, a few scattering oaks. December 13: At this cor. I set off 23' 09" S. on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is $31\frac{1}{2}$ ' N.
	N. O. 03' W. bet. secs. 17 and 18. Over rolling land, through heavy timber.
26.90	Cross wash 7 lks. wide course N. E.
35.00	Cross road bears N. E. and S. 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 $\frac{1}{4}$ S18 in W. S17 in E. and 1912 in S. half; from which An oak 6 ins. diam., bears N. $24\frac{1}{2}$ E. 55 lks. dist., marked $\frac{1}{4}$ S17BT. An oak 8 ins. diam., bears S. $35\frac{1}{2}$ W. 38 lks. dist., marked $\frac{1}{4}$ S18BT.
43.50	Cross wash 10 lks. wide course N. E. scattering timber.
58.80	Cross wash 15 lks. wide course E.
71.50	Cross wash 7 lks. wide course S. E.
80.00	Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the ground for cor. of secs. 7, 8, 17 and 18, marked on brass cap T21SR18E in N. and 1912 in S. half; S7 in N. W. S8 in N. E. S17 in S. E. and S18 in S. W. quadrant; from which An oak 18 ins. diam., bears S. $78\frac{1}{2}$ E. 335 lks. dist., marked T21SR18ES17BT. No other bearings available.. 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 rocks and gravel; 2nd. rate. Timber, oak.
	S. 89' 56" E. on a random line bet. secs. 8 and 17
40.00	Set temp. $\frac{1}{4}$ sec. cor.
79.96	Intersect N. and S. line 9 lks. S. of the cor. of secs. 8, 9, 16 and 17. Thence I run West bet. secs. 8 and 17 Descend rough N. W. slope.
11.70	Cross wash 50 lks. wide course N. E. and over rolling land.
27.50	Cross under telephone line bears N. and S.
29.40	Cross road bears N. and S.
39.98	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 $\frac{1}{4}$ S8 in N. and S17 1912 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
70.25	Cross wash 10 lks. wide course S. E.
79.96	The cor. of secs. 7, 8, 17 and 18. Land, rolling.

Subdivision of Tp. 21 S. Rg. 18 E.

Chains.

Soil, sandy loam, mixed with rocks and gravel. 2nd. rate.
No timber.
Good grass.

40.00 N. 89° 56' W. on a random line bet. secs. 7 and 18.
Set temp. $\frac{1}{4}$ sec. cor.
76.15 Intersect W. bdy. of Tp. 2 lks. N. of the cor. of secs.
7, 12, 13 and 18
Thence I run
S. 89° 57' E. on a true line bet. secs. 7 and 18.
Over level land.
1.80 Ascend steep W. slope.
4.20 Top and over level land.
8.90 Cross road bears N. E. and S. W.
36.15 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 $\frac{1}{4}$ S7 in N.
and S18 1912 in S. half; and raise a mound of stone 2 ft.
base $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
76.15 The cor. of secs. 7, 8, 17 and 18.
Land, level and rolling.
Soil, sandy loam, mixed with rocks and gravel; 2nd. rate.
No timber.
Good grass.

5.54 N. 0° 03' W. bet. secs. 7 and 8.
Over rolling land.
Intersect S. bdy. of San Ignacio Del Babocomari P. L. G.
N. 88° 07' W. 10, 16 chs. from the 17 mile cor. which is a
stone marked and witnessed as described by the surveyor
general. At point of intersection I
Set an iron post 3 ft. long, 2 ins. diam., 24 ins. in the
ground for closing cor. of secs. 7 and 8, marked on brass
cap.
CC E. of center;
SIDB in N. E. and
T21SR18E 1912 in S. W. half;
S8 in S. E. and
S7 in S. W. quadrant; and raise a mound of stone 2 ft.
base $1\frac{1}{2}$ ft. high, S. of cor. Pits impracticable.
Land, rolling.
Soil, sandy loam, mixed with rocks and gravel; 2nd. rate.
No timber.

December 13, 1912.

GENERAL DESCRIPTION.

The southern part of this township is mountainous and covered with a good growth of oak timber. The northern part of the township is rolling and covered with a good growth of grass. The soil is generally a sandy loam, mixed with rocks and gravel and with water would be very fertile.

Small streams of water cross the S. bdy. of the township, but sink in the sand.

There is one settler in sec. 18, two in sec. 22, one in sec. 23 and two in secs. 32 and 33.

John P. Hesse
U. S. Surveyor.

Boundaries of fractional T. 21 S., R. 17 E.
 Latitudes, Departures and closing errors.

Line Designated	True Bearing	Distance	Latitudes		Departures	
			N	S	E	W
South bdy.	West	452.50				452.50
West bdy.	North	481.42	481.42			
4th Std. Par. S.	East	48.48			48.48	
4th Std. Par. S.	S. 89°05'E.	39.61		.63	39.60	
4th Std. Par. S.	S. 89°55'E.	3.69			3.69	
W. Bdy. S. IDB Grant	S. 19°04'E.	151.54		143.23	49.50	
S. Bdy. S. IDB Grant	S. 88°07'E.	309.59		10.17	309.42	
3rd Guide Mer. E.	South	328.04		328.04		
Convergency					.33	
Totals			481.42	482.07	451.02	452.50
				<u>481.42</u>		<u>451.02</u>
Error in Latitude					0.65	
Error in Departure						1.48

Boundaries of fractional T. 21 S., R. 18 E.
 Latitudes, Departures and closing errors.

Line Designated	True Bearing	Distance	Latitudes		Departures	
			N	S	E	W
S. bdy.	N. 89°50'W.	40.04	.12			40.04
"	N. 89°46'W.	40.24	.16			40.24
"	S. 89°52'W.	40.11		.09		40.11
"	N. 89°35'W.	40.00	.29			40.00
"	West	40.05				40.05
"	S. 89°49'W.	39.18		.12		39.18
"	N. 89°48'W.	79.39	.28			79.39
"	N. 89°55'W.	39.74	.06			39.74
"	N. 89°24'W.	39.84	.42			39.84
"	N. 89°37'W.	39.88	.27			39.88
"	N. 88°52'W.	37.76	.75			37.75
3rd Guide Mer. E.	North	328.04	328.04			
S. bdy. S. IDB Grant	S. 88°07'E.	474.82		15.60	474.56	
E. bdy.	S. 0°04'W.	34.37		34.37		.04
"	S. 0°09'E.	40.00		40.00	.10	
"	South	120.13		120.13		
"	S. 0°04'E.	80.11		80.11	.09	
"	S. 0°01'E.	40.05		40.05	.01	
Convergency					.30	
Totals			330.39	330.37	475.06	476.26
			<u>330.50</u>	<u>330.39</u>		<u>475.06</u>
Error in latitude					0.11	0.08
Error in Departure						1.20

John A. 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 Tp. 21 S. Rg. 18 E., and resurveying the E. and S. bdys. of Tp. 21 S. Rg. 18 E. and the 3rd. Guide Meridian E. through Tp. 21 S.

of the Gila and Salt River ^{Base &} 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.

NAME.	PERIOD OF SERVICE.		CAPACITY.
	BEGUN.	ENDED.	
<u>Juan Serrano</u>	<u>Nov. 24, 1912</u>	<u>Nov. 27, 1912</u>	<u>axman</u> <u>Coverman</u>
<u>Jose Martinez</u>	<u>Nov. 28, 1912</u>	<u>Dec. 12, 1912</u>	<u>coverman</u> <u>axman</u>
<u>S. E. Lang</u>	<u>Nov. 21, 1912</u>	<u>Dec. 13, 1912</u>	<u>Chairman</u>
<u>D. B. Nicoll</u>	<u>Nov. 21, 1912</u>	<u>Dec. 13, 1912</u>	<u>Chairman</u>
<u>F. E. Ayers</u>	<u>Nov. 21, 1912</u>	<u>Dec. 13, 1912</u>	<u>Flagman</u>
<u>E. L. Hamlett</u>	<u>Dec. 9, 1912</u>	<u>Dec. 13, 1912</u>	<u>Chairman</u> <u>Coverman</u>
<u>James Ridge</u>	<u>Dec. 13, 1912</u>	<u>Dec. 13, 1912</u>	<u>Chairman</u> <u>Axman</u>

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 2708

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 bearing date of the 24th day of August, 1911, 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 Tp. 21 S. Rg. 18 E. and resurveyed the E. and S bdrs. of Tp. 21 S. Rg. 18 E. and the 3rd. Guide Meridian E. through Tp. 21 S.

of the Gila and Salt River Base & 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 4th day of August, 1914.

Frank Ingalls

Surveyor-General of Arizona.



APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,

Phoenix, Arizona NOV 14 1914 191

The foregoing field notes of the survey of the subdivision lines of T. 21 S., R. 18 E. and the resurvey of the E. and S. bdrs. of T. 21 S., R. 18 E. and the 3d Guide Meridian East, through T. 21 S., of the Gila and Salt River Base and Meridian, Arizona.

executed by John F. Hesse, U. S. Surveyor, under his special instructions dated August 24, 1911, 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.