

2933

BOOK 'A'
Standard lines & Exteriors

2933

BOOK 2933

FIELD NOTES

OF THE SURVEY OF THE

3rd. Std. Par. N. thru Rs. 13, 14, 15, 16, 17, 18 and 19 West.
 East, West, and North bdrs. of Ts. 13, 14, 15 and 16 N., R. 17 West
 " " " " " " T. 15 N., R. 20 W. and Fract. T. 14 N., R. 20 W.
 West and North bdrs. of Ts. 13, 14, 15 and 16 N., R. 18 W.
 " " " " " " Ts. 13 and 16 N., R. 19 W.
 " " " " " " T. 16 N., R. 20 W.
 North bdrs. of Ts. 14 and 15 N., R. 19 W.
 " bdy. of Fract. T. 13 N., R. 20 W.
 " bdrs. of Fract. Ts. 14, 15 and 16 N., R. 20 1/2 W.
 East and West bdrs. of Fract. T. 16 1/2 N., R. 17 W.
 West bdrs. of Fract. Ts. 16 1/2 N., Rs. 18, 19 and 20 W.
 and Resurvey and Survey of
 Part of East bdy. of Fract. T. 15 N., R. 21 W.

OF THE GILA AND SALT RIVER MERIDIAN

IN THE STATE OF ARIZONA

EXECUTED BY

Albert Smith, Jr. and Otis Ross, U.S. Surveyors
 J.M. Mc. Kinney, Jr. and John Gonin, U.S. Transitmen
 Deane J. Wolff and Ray D. Armstrong, U.S. Transitmen

Under instructions dated December 28, 1914, and
 January 29, 1915, issued by the United States Surveyor
 General to govern surveys included in Group No. 42
 which were approved by the Commissioner of the General
 Land Office, Jan. 22, and Feb. 6, 1915.

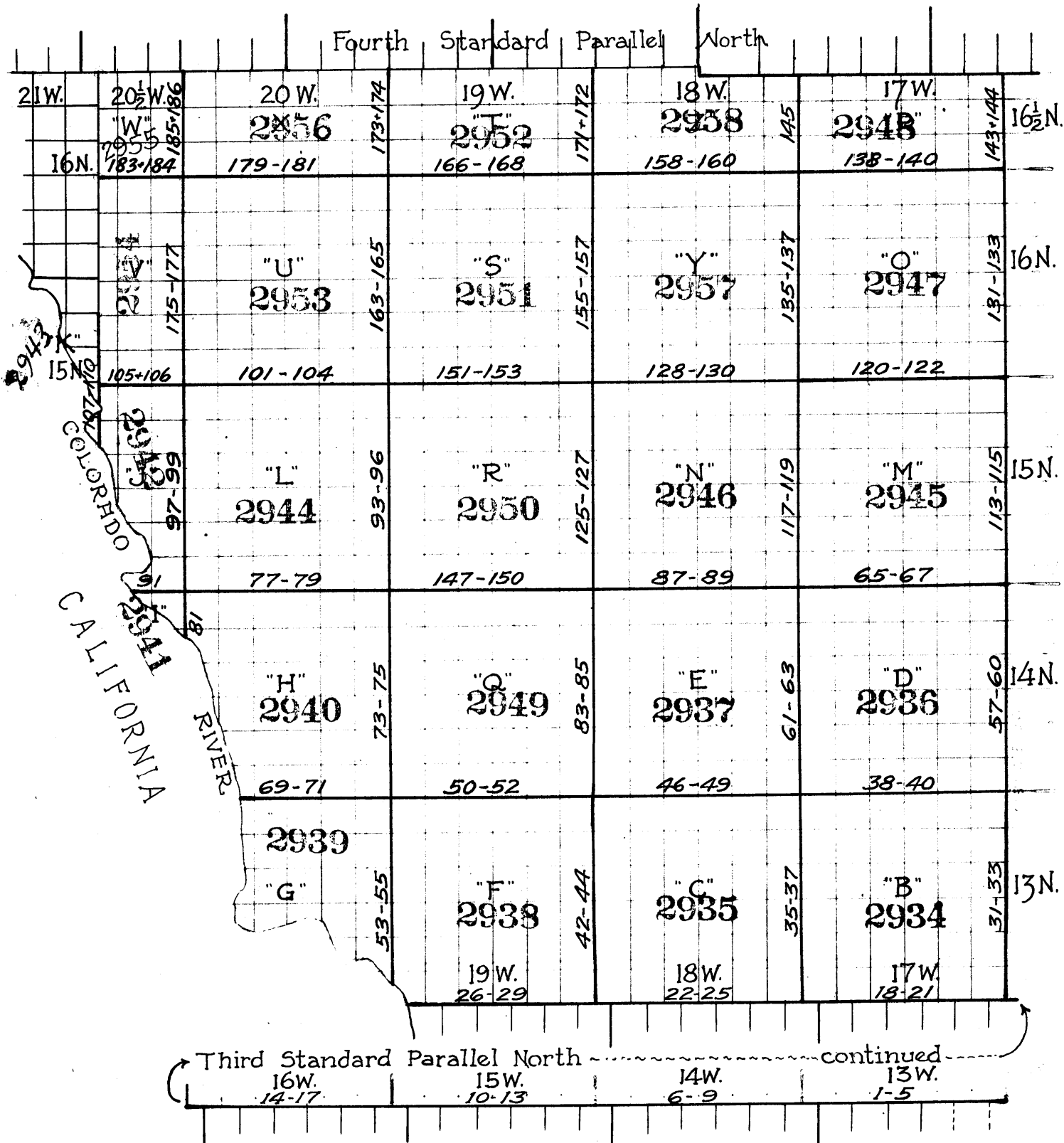
Survey commenced Feb. 7, 1915.
 Survey completed March 27, 1916.

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INDEX-DIAGRAM.

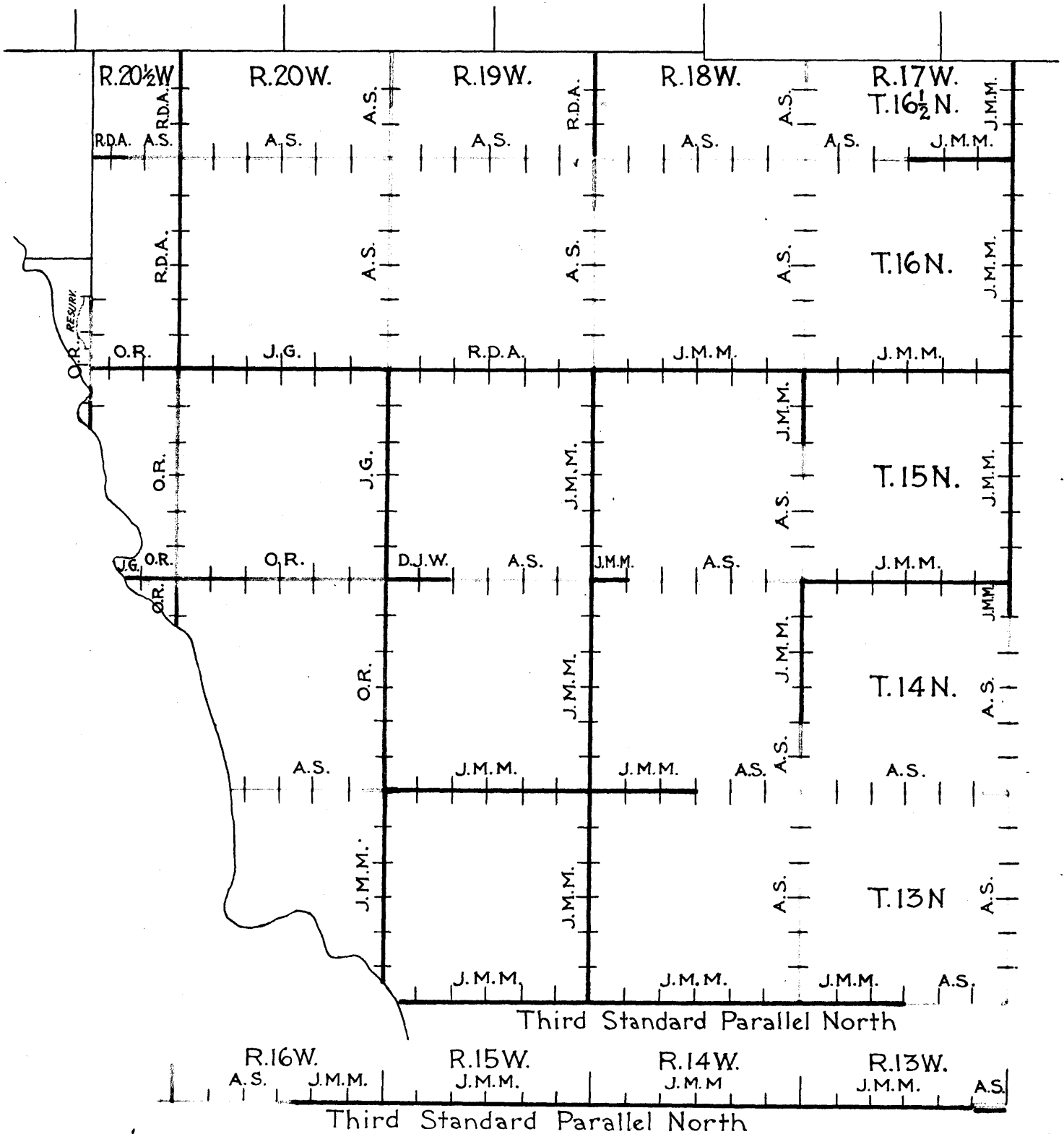
Group 42 - Arizona.

BOOK 2933



- Field notes in this book (indexed)
- Subdivision lines - this group.
- Accepted surveys.
- Unsurveyed lines.
- ~~~~~ Surveyed under current group 41.
- Surveyed under current group 48
- ~~~~~ Surveyed under current group 43
- Surveyed under current group 46.

DIAGRAM ~ SHOWING THE RESPECTIVE
 SURVEYS OF STANDARD LINES
 AND TOWNSHIP EXTERIOR LINES
 EXECUTED BY EACH SURVEYOR
 AND TRANSITMAN UNDER INSTRUCTIONS
 FOR **GROUP 42, ARIZONA.**



Albert Smith Jr., U.S. Surveyor
 (Green)

Otis Ross, U.S. Surveyor
 (Yellow)

J. M. McKinney Jr., U.S. Transitman
 (Carmine)

John Gonin, U.S. Transitman
 (Blue)

Deane J. Wolff, U.S. Transitman
 (Orange)

Ray D. Armstrong, U.S. Transitman
 (Brown)

1A

BOOK 2933

FINAL CERTIFICATE OF U. S. SURVEYORS AND TRANSITMEN.

We, the undersigned, hereby certify on honor that, in pursuance of special instructions received from the U. S. Surveyor General for Arizona, bearing date of December 28, 1914, we have well, faithfully, and truly, in our own proper persons, 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

G R O U P 4 2,

which are represented on the diagram on the reverse hereof as having severally been executed by us, and under our direction; and we do further certify on honor 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 our respective field notes.

Robert Smith Jr.

Otis Ross

Leane J. Wolff

Ray D. Armstrong

John Gorman

John McKinney Jr.

Third Standard Parallel North Through R. 13 W.

Chains.

Survey commenced Feb. 7, 1915, and executed jointly by Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, with Young and Sons' light mountain transits Nos. 8540 and 8145, respectively, with Smith solar attachments. The horizontal limbs of the instruments are provided with two double verniers, placed opposited to each other, and reading to single minutes of arc; which is also the least count of the verniers of the declination arcs;

These instruments were approved Jan. 28, 1915, by the Assistant Supervisor of Surveys for Arizona and California, subject to satisfactory field performance.

In the following field notes, the initials A. S. and J. M. M. refer to Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, respectively.

Using the meridian established by Irving W. Stoddard, U. S. Surveyor, as described in the field notes of Group 41, Arizona, in sec. 17, T. 13 N., R. 13 W., lat. 34° 28' N., long. 113° 38' W., at 8 hrs. 5 m., a.m., l.m.t., we set off 34° 28' N. on the lat. arcs; 15° 28' S. on the decl. arcs; and determine a meridian with each instrument. Each meridian thus determined departs less than 1' from the meridian determined by observation on Polaris at elongation.

At apparent noon, we set off 15° 26' S. on the decl. arcs; and observe the sun on the meridian; the resulting lat. by each instrument is 34° 28' N.

At 4 hrs. 5 m., p.m., l.m.t., we set off 34° 28' N. on the lat. arcs; 15° 21½' S. on the decl. arcs; and determine a meridian with each transit. Each meridian thus determined departs less than 1' from the meridian determined by observation on Polaris at elongation.

The solar, by a.m., and p.m. observations, define positions for meridians which depart less than 1' from the true meridian determined by observation on Polaris at elongation; we therefore conclude that the instruments are in satisfactory adjustment.

Feb. 7, 1915.

A.S. and J.M.M. Feb. 9, 1915.

At 3 hrs. p.m., l.m.t., we set off 34° 25' N. on the lat. arcs; 14° 45½' S. on the decl. arcs; and determine meridians with our solar on the secant 3½ lks. S. of Std. cor. of Tps. 13 N., Rs. 12 and 13 W., which is an iron post, properly set, marked and witnessed as described by the Surveyor-General.

Thence we run

N. 89° 58' W., on the secant S. of sec. 36.

Over mountainous land, through scattering undergrowth.

Asc. rocky SE. slope, 60 ft. to

2.88 Spur, brs. S. Desc. W. slope, 145 ft. to

9.70 Gulch, course S. Asc. E. slope, 85 ft. to

11.69 Spur, brs. S. Desc. W. slope, 265 ft. to

32.56 Wash, course S. Asc. E. slope, 55 ft. to

36.48 Spur, brs. S. Desc. W. slope, 45 ft. to

40.00 Point for stand. ¼ sec. cor. falls in gulch, course S.

We therefore set a witness cor. as follows:-

Difference between measurements of 38.60 chs. by two sets of chainmen is 20 lks.; position of middle point

By 1st set, 38.50 chs.

By 2nd set, 38.70 chs.; the mean of which is

38.60 N. 2 lks. from the secant,

Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for witness cor. to stand. ¼ sec. cor., marked on brass cap

1915 on S. rim;

¼ in W. and

WCSC S36 in N. half;

and raise a mound of stone, 2 ft. base, 1½ ft. high,

N. of cor. Pits impracticable.

From the true point for stand. ¼ sec. cor., asc. SE. slope,

2 Third Standard Parallel North Through R. 13 W.

Chains.

95 ft. to
 44.75 Spur, brs. S. Desc. SW. slope, 70 ft. to
 49.32 Gulch, course S. Asc. E. slope, 95 ft. to
 55.53 Spur, brs. S. Desc. SW. slope, 310 ft. to
 73.30 E. bank of Big Sandy River, brs. NW. and SE.
 78.00 W. bank of Big Sandy River, brs. NW. and SE. Course of
 river, dry at this point, SE.
 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 stand. cor. of secs. 35 and 36, marked on
 brass cap
 1915 on S. rim;
 SC T13N R13W in N. half;
 S35 in NW. and
 S36 in NE. quadrant; from which
 A cottonwood, 6 ins. diam., brs. N. 63° E., 80 lks. dist.;
 marked T13N R13W S36 BT.
 A cottonwood, 10 ins. diam., brs. N. 27° W., 110 lks. dist.;
 marked T13N R13W S35 BT.
 Land, mountainous.
 Soil, 4th rate.
 Timber, cottonwood.
 Undergrowth, palo verde, greasewood and cacti.
 A. S. and J. M. M.
 Feb. 9, 1915.

Feb. 10, 1915: J. M. M.
 At 9 hrs. a.m., l.m.t., I set off 34° 25' N. on the lat.
 arc; 14° 31' S. on the decl. arc; and determine a mer-
 idian with the solar at the stand. cor. of secs. 35
 and 36.
 Thence I run
 N. 89° 59' W. on the secant, through sec. 35.
 Along river bottom land, through dense undergrowth.
 22.50 E. bank of Big Sandy River, brs. NE. and SW.
 27.80 W. bank of Big Sandy River, brs. NE. and SW. Course of
 River, dry at this point, NE.
 Difference between measurements of 40.00 chs. by two sets
 of chainmen is 1 lk.; position of middle point,
 By 1st set, 39.99½ chs.
 By 2nd set, 40.00½ chs.; the mean of which
 is
 40.00 S. 1 lk. from the secant,
 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the
 ground, for stand. ¼ sec. cor., marked on brass cap
 1915 on S. rim;
 SC ¼ in W. and
 S35 in N. half;
 and raise a mound of stone, 2 ft. base, 1½ ft. high,
 N. of cor. Pits impracticable.
 Asc. SE. slope, 70 ft. to
 46.37 Top of bar; thence across level bar.
 53.00 W. edge of bar. Desc. SW. slope, 70 ft. to
 54.57 Enter Big Sandy River, course SE. No water.
 57.00 Leave Big Sandy River, asc. NE. slope, 170 ft.
 69.47 Road, brs. NE. to old mine, and SW.
 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 S. 2 lks. from the secant,
 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the

Chains	
	<p>ground, for standard cor. of secs. 34 and 35, marked on brass cap</p> <p>1915 on S. rim; SCT13N R13W in N. half; S34 in NW. and S35 in NE. quadrant; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.</p> <p>Land, level and mountainous. Soil, 2nd and 4th rate. Timber, cottonwood. Undergrowth, palo verde, mesquite, greasewood and cacti. Feb. 10, 1915: At this cor., I set off 14° 29' S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 25' N.</p>
	<p>West, on the secant, through sec. 34. Over mountainous land, through scattering undergrowth.</p>
1.00	Spur, slopes NE. Desc. NW. slope, 80 ft. to
10.00	Enter wash, course NE.
15.00	Leave wash, from NW. Asc. NE. slope, 170 ft. to
19.30	Spur, slopes N. Desc. NW. slope, 80 ft. to
29.22	Wash, course NE. Asc. rocky SE. slope, 376 ft. to
	Difference between measurements of 40.00 chs. by two sets of chainmen is 0 lks.
40.00	Sharp spur, slopes S. S. 3 lks. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 12 ins. in the ground, on solid rock, supported by a mound of stone, for standard ¼ sec. cor., marked on brass cap
	1915 on S. rim; SC ¼ in W. and S34 in N. half; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.
46.94	Desc. SW. slope, 25 ft. to
59.21	Draw, course SE. Asc. rocky point, 366 ft. to
63.00	Spur ridge, slopes S. Thence along broken S. slope
79.87	Desc. SW. slope, 270 ft. to Wash, course SE.
	Difference between measurements of 80.00 chs. by two sets of chainmen is 10 lks.; position of middle point
	By 1st set, 79.95 chs., By 2nd set, 80.05 chs.; the mean of which is
80.00	S. 3 lks. from the secant, Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for standard cor. of secs. 33 and 34, marked on brass cap
	1915 on S. rim; SCT13N R13W in N. half; S33 in NW. and S34 in NE. quadrant; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.
	Land, mountainous. Soil, rocky 4th rate. No timber. Undergrowth, palo verde, greasewood and cacti.
	West, on the se cant, through sec. 33. Over mountainous land, through scattering undergrowth.
4.62	Asc. NE. slope, 105 ft. to Spur, slopes N.
7.79	Gulch, course NE.

Third Standard Parallel North, through R. 13 W.

Chains.	Asc. SE. slope, 32 ft. to
12.96	Spur, brs. NE. Asc. NE. slope.
21.63	Spur, brs. N. Continue asc.
25.57	Spur, brs. NW. Desc. NW. slope, 100 ft. to
35.95	Gulch, course NE. Asc. SE. slope, 40 ft. to
	Difference between measurements of 40.00 chs. by two sets of chainmen is 5 lks.; position of middle point, By 1st set, 39.97 $\frac{1}{2}$ chs. By 2nd set, 40.02 $\frac{1}{2}$ chs.; the mean of which is
40.00	S. 3 lks. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for standard $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; SC $\frac{1}{4}$ in W. and S33 in N. half; and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Feb. 10, 1915.
	Feb. 12, 1915: At 8 hrs. 58 m., a.m., l.m.t., I set off 34° 25' N. on the lat. arc; 13° 51 $\frac{1}{2}$ ' S. on the decl. arc; and determine a meridian with the solar at a point on the secant 3 lks. N. of the Std. $\frac{1}{4}$ sec. cor. of sec. 33. N. of the secant.
	Thence I continue measurement West, on the secant, through sec. 33. Along broken N. slope, through scattering undergrowth.
49.95	Gulch, course NE. Asc. SE. slope, 353 ft. to
64.11	Spur ridge, brs. N. Desc. NW. slope, 187 ft.
65.00	Highrocky butte, brs. S. about 15 chs. dist.
	Difference between measurements of 80.00 chs. by two sets of chainmen is 2 lks.; position of middle point By 1st set, 79.99 chs. By 2nd set, 80.01 chs.; the mean of which is
80.00	S. 2 lks. from the secant, Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for standard cor. of secs. 32 and 33, marked on brass cap 1915 on S. rim; SCT13N R13W in N. half; S32 in NW. and S33 in NE. 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. No timber. Undergrowth, palo verde, greasewood, and cacti.
	S. 89° 59' W., on the secant, through sec. 32. Over mountainous land, through scattering undergrowth.
3.40	Gulch, course N. Asc. E. slope, 145 ft. to
15.55	Spur, brs. N. Desc. NW. slope, 40 ft. to
19.50	Gulch, course NE. Asc. NE. slope, 88 ft. to
26.93	Spur, brs. SE. Thence over broken land.
	Difference between measurements of 40.00 chs. by two sets of chainmen is 4 lks.; position of middle point By 1st set, 39.98 chs. By 2nd set, 40.02 chs.; the mean of which is
40.00	S. 1 lks from the secant, Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for standard $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; SC $\frac{1}{4}$ in W. and S32 in N. half;

Chains.	and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
64.86	Wash, course N. Asc. broken SE . slope, 100 ft. to
77.71	Spur, slopes N. Difference between measurements of 80.00 chs. by two sets of chainmen is 2 lks.; position of middle point By 1st set, 79.99 chs. By 2nd set, 80.01 chs.; the mean of which is
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 14 ins. in the ground, on solid rock, supported by a mound of stone, for standard cor. of secs. 31 and 32, marked on brass cap 1915 on S. rim; SCT13N R13W in N. half; S31 in NW. and S32 in NE. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Land, mountainous. Soil, 2nd and 3rd rate. Undergrowth, palo verde, yucca, spanish bayonet and cacti. No timber. Feb. 12, 1915: At this cor., I set off $13^{\circ} 50'$ S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 25'$ N.
22.07	S. $89^{\circ} 58'$ W., on the secant, S. of sec. 31. Over rolling land, through undergrowth. Low spur, brs. N. Difference between measurements of 40.00 chs. by two sets of chainmen is 3 lks.; position of middle point By 1st set, $39.98\frac{1}{2}$ chs. By 2nd set, $40.01\frac{1}{2}$ chs.; the mean of which is
40.00	N. 2 lks. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for standard $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; SC $\frac{1}{4}$ in W. and S31 in N. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
44.95	Wash, course NW.
51.20	Old road, brs. NW. and SE.
60.00	Asc. E. slope, 360 ft. to
72.00	Top of high peak. Desc. W. slope, 65 ft. to Difference between measurements of 80.00 chs. by two sets of chainmentis 2 lks.; position of middle point, By 1st set, 39.99 chs. By 2nd set, 80.01 chs., the mean of which is
80.00	N. $3\frac{1}{2}$ lks. from the secant, Set an iron post, 3 ft. long, 3 ins. diam., 12 ins. in the ground, on solid rock, supported by a mound of stone, for standard cor. of Tps. 13 N., Rs. 13 and 14 W., marked on brass cap 1915 on S. rim; SCT13N. in N. half; R14W S36 in NW. and R13W S31 in NE. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Land, rolling and mountainous. Soil, rocky 3rd and 4th rate. No timber. Undergrowth, greasewood and cacti.

6. Third Standard Parallel North Through R. 14 W.

Chains.	N.89° 58' W. on the secant, S. of sec. 36. Over mountainous land, through scattering undergrowth. Desc. W. slope, 405 ft. to
28.44	Wash, course N. Asc. E. slope, 245 ft. to
37.33	Spur, brs. NW. Thence along N. slope. Difference between measurements of 40.00 chs. by two sets of chainment is 6 lks.; position of middle point By 1st set, 39.97 chs. By 2nd set, 40.03 chs.; the mean of which is
40.00	N. 2 lks. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for standard $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; SC $\frac{1}{4}$ in W. and S36 in N. half; and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Feb. 12, 1915.
	Feb. 13, 1915: At 7 hrs. 54 m., a.m., l.m.t., I set off 34° 25' N. on the lat. arc; 13° 32' S. on the decl. arc; and determine a meridian with the solar at a point on the secant 2 lks. S. of std. $\frac{1}{4}$ sec. cor. of sec. 36. Thence I continue measurement
41.80	N.89° 58' W. on the secant S. of sec. 36. Spur ridge, brs. NW. Road, brs. NW. and SE. Desc. SW. slope, 105 ft. to
55.40	Draw, course NW. Thence along N. slope.
74.87	Spur, brs. NW. Desc. SW. slope to Difference between measurements of 80.00 chs. by two sets of chainmen is 2 lks.; position of middle point By 1st set, 79.99 chs. By 2nd set, 80.01 chs.; the mean of which is
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for standard cor. of secs. 35 and 36, marked on brass cap 1915 on S. rim; SCT13N R14W in N. half; S35 in NW. and S36 in NE. quadrant; and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Land, rolling and mountainous. Soil, 2nd and 3rd rate. No timber. Undergrowth, palo verde and cacti.
	N.89° 59' W., on the secant through sec. 35. Over rolling land, through scattering undergrowth. Desc. SW. slope, 45 ft. to
14.00	Wash, course NW. Asc. NE. slope, 110 ft. to
25.00	Spur, brs. NW. Desc. SW. slope, 25 ft. to
30.00	Draw, course NW. Difference bet. 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	S. 1 lk. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for standard $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; SC $\frac{1}{4}$ in W. and S35 in N. half; and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

Third Standard Parallel North Through R. 14 W.

7.

Chains.	Desc. rolling SW.slope, 80 ft. to
57.35	Wash, course NW.
66.72	Wash, course SW.
	Difference between measurements of 80.00 chs. by two sets of chainmen is 4 lks.; position of middle point
	By 1st set, 80.02 chs.
	By 2nd set, 79.98 chs.; the mean of which
	is
80.00	S. 2 lks. from the secant, Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for standard cor. of secs. 34 and 35, marked on brass cap
	1915 on S. rim; SCT13N R14W in N. half; S34 in NW. and S35 in NE. quadrant; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.
	Land, rolling. Soil, 2nd rate. No timber. Undergrowth, palo verde, yucca and cacti.
	West . . . , on the secant, through sec. 34. Over rolling land, through scattering undergrowth.
5.00	Wash, course NW.
24.99	Low spur, brs. NW. Desc. SW. slope, 60 ft. to
29.86	Wash, course N.
40.00	Point for standard ¼ sec. cor. falls in wash. I therefore proceed as follows;- Difference bet. measurements of 39.80 chs. is 6 lks. by two sets of chainmen; position of middle point
	By 1st set, 39.77 chs.
	By 2nd set, 39.83 chs.; the mean of which
	is
39.80	S. 3 lks. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for witness cor. to standard ¼ sec. cor., marked on brass cap
	1915 on S. rim; WCSC ¼ S34 in N. half; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.
40.20	Wash, course N. Asc. NE. slope, 135 ft. to
	Difference bet. measurements of 80.00 chs. by two sets of chainmen is 2 lks.; position of middle point
	By 1st set, 80.01 chs.
	By 2nd set, 79.99 chs.; the mean of which
	is
80.00	S. 3 lks. from the secant, Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for standard cor. of secs. 33 and 34, marked on brass cap
	1915 on S. rim; SCT13N R14W in N. half; S33 in NW. and S34 in NE. quadrant; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.
	Land, rolling. Soil, 2nd rate. No timber. Undergrowth, palo verde, yucca and cacti. Feb. 13, 1915: At this cor., I set off 13° 30' S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 25' N.

Chains.

West on the secant, through sec. 33.
Over mountainous land, through scattering undergrowth.
Asc. NE. slope, 360 ft. to
28.85 Top of high hill. Desc. NW. slope, 140 ft. to
Difference between measurements of 40.00 chs. by two sets
of chainmen is 0 lks.
40.00 S. 3 lks. from the secant,
Set an iron post, 3 ft. long, 1 in. diam., 16 ins. in the
ground, on solid rock, supported by a mound of stone,
for standard $\frac{1}{4}$ sec. cor., marked on brass cap
1915 on S. rim;
SC $\frac{1}{4}$ in W. and
S33 in N. half;
and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
N. of cor. Pits impracticable.
Desc. rocky NW. slope, 445 ft. to
71.46 Wash, course NE.
75.00 Road, brs. NE. and SW.
Difference between measurements of 80.00 chs. by two sets
of chainmen is 10 lks.; position of middle point
By 1st set, 80.05 chs.
By 2nd set, 79.95 chs.; the mean of which
is
80.00 S. 2 lks. from the secant,
Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
ground, for standard cor. of secs. 32 and 33, marked
on brass cap
1915 on S. rim;
SCT13N R14W in N. half;
S32 in NW. and
S33 in NE. quadrant;
and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
N. of cor. Pits impracticable.
Land, mountainous.
Soil, 3rd rate.
No timber.
Undergrowth, yucca and cacti.

S. $89^{\circ} 59' W.$, on the secant, through sec. 32.
Over rolling land, through scattering undergrowth.
Difference between measurements of 40.00 chs. by two sets
of chainmen is 0 lks.
40.00 S. 1 lk. from the secant.
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
1915 on S. rim;
SC $\frac{1}{4}$ in W. and
S32 in N. half;
and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
N. of cor. Pits impracticable.
Difference bet. measurements of 80.00 chs. by two sets of
chainmen is 0 lks.
80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
ground, for standard cor. of secs. 31 and 32, marked on
brass cap
1915 on S. rim;
SCT13N R14W in N. half;
S31 in NW. and
S32 in NE. quadrant;
and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
N. of cor. Pits impracticable.
Land, rolling.
Soil, 2nd rate.
No timber.
Undergrowth, greasewood, palo verde, yucca and cacti.
Feb. 13, 1915.

Third Standard Parallel North Through R. 14 W.

9

Chains.	<p>Feb. 14, 1915: At 8 hrs. 4 m. a.m., l.m.t., I set off $34^{\circ} 25'$ N. on the lat. arc; $13^{\circ} 12'$ S. on the decl. arc; and determine a meridian with the solar at the standard cor. of secs. 31 and 32.</p>
19.87	<p>Thence I run S. $89^{\circ} 58'$ W. on the secant, S. of sec. 31. Over rolling land, through scattering undergrowth. Asc. NE. slope, 110 ft. to Rocky spur, brs. NW. Desc. W.. slope, 190 ft. to Difference bet. measurements of 40.00 chs. by two sets of chainmen is 5 lks.; position of middle point By 1st set, $40.02\frac{1}{2}$ chs. By 2nd set, $39.98\frac{1}{2}$ chs.; the mean of which is</p>
40.00	<p>N. 2 lks. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for stand. $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; SC $\frac{1}{4}$ in W. and S31 in N. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p>
74.62	<p>Gulch, course N. Asc. E. slope, 195 ft. to Spur, brs. SE. Desc. SW.. slope, 70 ft. to Difference between measurements of 80.00 chs. by two sets of chainmen is 9 lks.; position of middle point By 1st set, $80.04\frac{1}{2}$ chs. By 2nd set, $79.95\frac{1}{2}$ chs.; the mean of which is</p>
80.00	<p>N. $3\frac{1}{2}$ lks. from the secant. Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for standard cor. of Tps. 13 N., Rr. 14 and 15 W., marked on brass cap 1915 on S. rim, SC T13N in N. half; R15W S36 in NW. and R14W S31 in NE. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Land, rolling and mountainous. Soil, 2nd and 3rd rate. No timber. Undergrowth, palo verde, yucca and cacti.</p>

Chains.	From a point $3\frac{1}{2}$ lks. S. of the standard cor. of Tps. 13 N., Rs. 14 and 15 W., I run N. $89^{\circ} 58'$ W. on the secant, S. of sec. 36. Over rolling land, through scattering undergrowth.
17.98	Wash, comes from NE.; course NW.
26.95	Road, brs. N. and S. Wash, course SW.
34.95	Same road, brs. NE. and SW. Same road, brs. NW. and SE.
	Difference between measurements of 40.00 chs. by two sets of chainmen is 1 lk.; position of middle point By 1st set, $40.00\frac{1}{2}$ chs. By 2nd set, $39.99\frac{1}{2}$ chs.; the mean of which is
40.00	N. 2 lks. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for standard $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; SC $\frac{1}{4}$ in W. and S36 in N. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
67.77	Asc. SE. slope, 215 ft. to
69.70	Spur, brs. NE. Desc. W. slope, 30 ft. to
74.70	Draw, course N. Asc. E. slope, 30 ft. to Spur, brs. N. Thence along N. slope.
	Difference between measurements of 80.00 chs. by two sets of chainmen is 5 lks.; position of middle point By 1st set, $79.97\frac{1}{2}$ chs. By 2nd set, $80.02\frac{1}{2}$ chs.; the mean of which is
80.00	Set a granite stone, 20 X 14 X 6 ins., 15 ins. in the ground, for stand. cor. of secs. 35 and 36, marked SC on N.; with 1 groove on E. and 5 grooves on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Land, rolling and mountainous. Soil, 3rd and 4th rate. No timber. Undergrowth, yucca, palo verde, greasewood and cacti.
	N. $89^{\circ} 59'$ W., on the secant, through sec. 35. Over rolling land, through scattering undergrowth.
24.90	Desc. NW. slope, 125 ft. to
37.80	Wash, course N. Asc. E. slope, 60 ft. to Spur, brs. N. Desc. NW. slope, 105 ft.
	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	S. 1 lk. from the secant,
40.00	Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for standard $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; SC $\frac{1}{4}$ in W. and S35 in N. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
60.00	At this cor., I set off $13^{\circ} 9\frac{1}{2}'$ S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 25'$ N.
60.00	Foot of desc., brs. NE. and SW. Thence over level land,

Third Standard Parallel North Through R. 15 W.

Chains.	<p>Difference between measurements of 80.00 chs. by two sets of chainmen is 3 lks.; position of middle point By 1st set, 80.01$\frac{1}{2}$ chs. By 2nd set, 79.98$\frac{1}{2}$ chs.; the mean of which is</p>
80.00	<p>S. 2 lks. from the secant, Set a granite stone, 18 X 8 X 6 ins., 12 ins. in the ground, for standard cor. of secs. 34 and 35, marked SC. on N.; with 2 grooves on E. and 4 grooves on W. face; and raise a mound of stone, 2 ft. base, 1$\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Land, rolling and hilly. Soil, 2nd and 3rd rate. No timber. Undergrowth, yucca, palo verde and cacti.</p>
<hr/>	
	<p>West . . . , on the secant, through sec. 34. Over rolling land, consisting of small draws and knolls, through scattering undergrowth.</p>
30.00	<p>Wash, course NW. Asc. NE. slope, 110 ft. Difference between measurements of 40.00 chs. by two sets of chainmen is 3 lks.; position of middle point By 1st set, 39.98$\frac{1}{2}$ chs. By 2nd set, 40.01$\frac{1}{2}$ chs.; the mean of which is</p>
40.00	<p>S. 3 lks. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for stand. $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; SC$\frac{1}{4}$ in W. and S34 in N. half; and raise a mound of stone, 2 ft. base, 1$\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p>
45.89	<p>Spur, brs. N. Desc. W. slope, 90 ft. to</p>
51.40	<p>Draw, course NW.</p>
75.00	<p>Draw, course N. Ascend. Difference between measurements of 80.00 chs. by two sets of chainmen is 3 lks.; position of middle point, By 1st set, 80.01$\frac{1}{2}$ chs. By 2nd set, 79.98$\frac{1}{2}$ chs.; the mean of which is</p>
80.00	<p>S. 3 lks. from the secant, Set a granite stone, 24 X 12 X 10 ins., 18 ins. in the ground, for stand. cor. of secs. 33 and 34, marked SC. on N.; with 3 grooves on E. and W. faces; and raise a mound of stone, 2 ft. base, 1$\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Land, rolling. Soil, 2nd and 3rd rate. No timber. Undergrowth, yucca, palo verde, greasewood and cacti.</p>
<hr/>	
	<p>West on the secant, through sec. 33. Over mountainous land, through scattering undergrowth. Asc. steep rocky E. slope, 355 ft.</p>
11.00	<p>Base of vertical cliff, 100 ft. high, brs. N. and S.</p>
12.45	<p>Top of asc., brs. N. and S. Desc. W. slope, 395 ft. to</p>
32.15	<p>Wash, course NW. Thence over rolling land. Difference between measurements of 40.00 chs. by two sets of chainmen is 15 lks.; position of middle point By 1st set, 40.07$\frac{1}{2}$ chs. By 2nd set, 39.92$\frac{1}{2}$ chs.; the mean of which is</p>
40.00	<p>S. 3 lks. from the secant,</p>

Chains.	<p>Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for standard $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; SC $\frac{1}{4}$ in W. and S33 in N. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p> <p style="text-align: right;">Feb. 14, 1915.</p> <p>Feb. 15, 1915: At 9 hrs. 5 m., a.m., l.m.t., I set off $34^{\circ} 25'$ N. on the lat. arc; $12^{\circ} 51\frac{1}{2}'$ S. on the decl. arc; and determine a meridian with the solar on the secant 3 lks. N. of the Std. $\frac{1}{4}$ sec. cor. of sec. 33. Thence I continue measurement West on the secant, through sec. 33. Asc. rocky E. slope, 145 ft. to Spur, brs. NW. Desc. SW. slope, 135 ft. to 45.23 Draw, course NW. Continue to desc. over broken SW. slope, 61.40 80 ft. to 78.60 Draw, course NW. 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 S. 2 lks. from the secant, Set a granite stone, 20 X 14 X 10 ins., 15 ins. in the ground, for stand. cor. of secs. 32 and 33, marked SC on N. face; with 4 grooves on E. and 2 grooves on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Land, mountainous. Soil, 4th rate. No timber. Undergrowth, palo verde and cacti.</p>
<p>3.65 23.10 32.60</p>	<p>S. $89^{\circ} 59'$ W. on the secant, through sec. 32. Over rolling land, through scattering undergrowth. Asc. E. slope, 70 ft. to Spur, brs. N. Desc. NW. slope, 85 ft. to Wash, course N. Asc. NE. slope, 50 ft. to Spur, brs. N. Thence over small broken washes. Difference between measurements of 40.00 chs. by two sets of chainmen 1 lk.; position of middle point By 1st set, $39.99\frac{1}{2}$ chs. By 2nd set, $40.00\frac{1}{2}$ chs.; the mean of which is 40.00 S. 1 lk. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for stand. $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; SC $\frac{1}{4}$ in W. and S32 in N. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Difference between measurements of 80.00 chs. by two sets of chainmen is 0 lks.</p>
80.00	<p>Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for stand. cor. of secs. 31 and 32, marked on brass cap 1915 on S. rim; SC T13N R15W in N. half; S31 in NW. and S32 in NE. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Land, rolling. Soil, 4th rate. No timber.</p>

Third Standard Parallel North Through R. 15 W. 13.

Chains.

Undergrowth, palo verde, greasewood and cacti.

40.00 S. 89° 58' W. on the secant, S. of sec. 31.
Over rolling land, through scattering timber.
Difference between measurements of 40.00 chs. by two sets of chainmen, 0 lks.

N. 2 lks. from the secant,
Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for stand. 1/4 sec. cor., marked on brass cap
1915 on S. rim;
SC 1/4 in W. and
S31 in N. half;
and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, N. of cor. Pits impracticable.

49.95 Asc. NE. slope, 60 ft. to Spur, brs. NW. Desc. NW. slope, 80 ft.

70.24 Road, brs. NE. and SW.

71.85 Draw, course NE. Asc. SE. slope, 50 ft. to
Difference between measurements of 80.00 chs. by two sets of chainmen is 2 lks.; position of middle point
By 1st set, 80.01 chs.
By 2nd set, 79.99 chs.; the mean of which

80.00 is
N. 3 1/2 lks. from the secant,
Set a lava stone, 18 X 14 X 10 ins., 12 ins. in the ground, for stand. cor. of Tps. 13 N., Rs. 15 and 16 W., marked SC on N. face; with 6 grooves on N., E., and W. faces; and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, N. of cor. Pits impracticable.

Land, rolling.

Soil, 3rd and 4th rate.

No timber.

Undergrowth, palo verde, greasewood, ocatilla and cacti.

14 Third Standard Parallel North Through R. 16 W.

Chains.	From a point on the secant, 3½ lks. S. of the stand. cor. of Tps. 13 N., Rs. 15 and 16 W., I run N.89° 58' W., on the secant, S. of sec. 36. Over rolling land, through scattering undergrowth. Desc. rocky W. slope, 120 ft. to Wash, course SW. Thence across flat, brs. NE. and SW. Difference between measurements of 40.00 chs. by two sets of chainmen is 4 lks.; position of middle point By 1st set, 39.98 chs. By 2nd set, 40.02 chs.; the mean of which is
21.30	
40.00	N. 2 lks. from the secant, Set a lava stone, 14 X 9 X 9 ins., 10 ins. in the ground, for stand. ¼ sec. cor., marked SC ¼ on N. face; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable. At this cor., I set off 12° 49' S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 25' N. Difference between measurements of 80.00 chs. by two sets of chainmen is 5 lks.; position of middle point By 1st set, 80.02½ chs. By 2nd set, 79.97½ chs.; the mean of which is
80.00	Set a granite stone, 18 X 10 X 8 ins., 12 ins. in the ground, for stand. cor. of secs. 35 and 36, marked SC on N. face; with 1 groove on E. and 5 grooves on W. face; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable. Land, rolling and level. Soil, 4th rate. No timber. Undergrowth, palo verde and cacti.
14.75	N.89° 59' W. on the secant, through sec. 35. Over rolling land, through scattering undergrowth. Enter wash, course SW.
22.00	Leave wash, course SW. 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	S. 1 lk. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for stand. ¼ sec. cor., marked on brass cap 1915 on S. rim; SC ¼ in W. and S35 in N. half; dig pits, 18 X 18 X 12 ins., E. and W. of post, 3 ft. dist., and raise a mound of earth, 3½ ft. base, 1½ ft. high, N. of cor.
42.00	Feb. 15, 1915. Road, brs. N. and S.
50.00	Wash, course S. Asc. SE. slope, 50 ft. to
56.85	Spur, brs. S. Desc. SW. slope, 65 ft. to
62.20	Draw, course SE. Asc. E. slope, 140 ft. to
74.52	Spur, brs. SE. Desc. SW. slope. Difference bet. measurements of 80.00 chs. by two sets of chainmen is 9 lks.; position of middle point By 1st set, 80.04½ chs. By 2nd set, 79.95½ chs., the mean of which is
80.00	S. 2 lks. from the secant, Set a granite stone, 18 X 12 X 8 ins., 12 ins. in the ground, for stand. cor. of secs. 34 and 35, marked SC on N. face; with 2 grooves on E. and 4 grooves on W. face; and raise a mound of stone, 2 ft. base, 1½ ft.

Chains.

high, N. of cor. Pits impracticable.
 Land, mountainous.
 Soil, 3rd rate.
 No timber.
 Undergrowth, greasewood, yucca and cacti.

West on the secant, through sec. 34.
 Over rolling land, through scattering undergrowth.

6.95 Low spur, brs. S. Desc. W. slope, 40 ft. to
 14.90 Wash, course S. Asc. E. slope, 20 ft. to
 17.85 Spur, brs. S. Desc. SW. slope, 25 ft. to
 29.85 Asc. NE. slope, 105 ft. to
 36.50 Spur, brs. SE. Desc. SW. slope,
 Difference between measurements of 40.00 chs. by two sets
 of chainmen is 3 lks.; position of middle point,
 By 1st set, 40.01 $\frac{1}{2}$ chs.
 By 2nd set, 39.98 $\frac{1}{2}$ chs.; the mean of which
 is

40.00 S. 3 lks. from the secant,
 Set an iron post, 3 ft. long, 1 in. diam., 12 ins. in the
 ground, on solid rock, supported by a mound of stone,
 for stand. $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 SC $\frac{1}{4}$ in W. and
 S34 in N. half;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
 N. of cor. Pits impracticable.

J. M. M.
 Feb. 16, 1915.

Feb. 17, 1915: A. S.
 At 8 hrs. 4 m., a.m., l.m.t., I set off 34° 25' N. on the
 lat. arc; 12° 10' S. on the decl. arc; and determine a
 meridian with the solar on the secant $\frac{3}{4}$ lks. N. of the
 Std. $\frac{1}{4}$ sec. cor. of sec. 34
 Thence I continue measurement
 West on the secant, through sec. 34.

52.14 Asc. SE. slope, 130 ft. to
 57.52 Spur, slopes S. Desc. SW. slope, 110 ft. to
 72.48 Draw, course S. Asc. SE. slope, 145 ft. to
 Spur, brs. S. Desc. W. slope, 130 ft. to
 Difference between measurements of 80.00 chs. by two sets
 of chainmen is 16 lks.; position of middle point
 By 1st set, 80.08 chs.
 By 2nd set, 79.92 chs.; the mean of which
 is

80.00 S. 3 lks. from the secant,
 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
 ground, for stand. cor. of secs. 33 and 34, marked on
 brass cap 1915 on S. rim;
 SC T13N R16W in N. half;
 S33 in NW. and
 S34 in NE. quadrant;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
 N. of cor. Pits impracticable.
 Land, rolling and mountainous.
 Soil, 3rd rate.
 No timber.
 Undergrowth, yucca and cacti.

West on the secant, through sec. 33.
 Over mountainous land, through scattering undergrowth.

.50 Draw, course S. Asc. E. slope, 135 ft. to
 10.83 Spur, slopes S. Desc. SW. slope, 160 ft. to
 19.09 Draw, course SE. Asc. SE. slope, 150 ft. to
 26.06 Spur, slopes S. Desc. SW. slope 270 ft.

16 Third Standard Parallel North Through R. 16 W.

Chains.	
40.00	Point for stand. cor. falls on rotten limestone ledge.
	I therefore proceed as follows:-
	Difference between measurements of 39.75 chs. by two sets of chainmen is 5 lks.; position of middle point
	By 1st set, 39.72 $\frac{1}{2}$ chs.
	By 2nd set, 39.77 $\frac{1}{2}$ chs.; the mean of which
	is
39.75	S. 3 lks. from the secant,
	Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for witness cor. to stand. $\frac{1}{4}$ sec. cor., marked on brass cap
	1915 on S. rim;
	$\frac{1}{4}$ in W. and
	WC SC S33 in N. half;
	and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
44.91	Draw, course S. Asc. E. slope, 85 ft. to
47.36	Spur, slopes S. Desc. W. slope, 45 ft. to
53.79	Draw, course S. Asc. E. slope, 40 ft. to
57.08	Spur, brs. S. Desc. W. slope, 80 ft. to
60.46	Draw, course S. Asc. E. slope, 80 ft. to
74.31	Spur, slopes S. Desc. SW. slope, 90 ft. to
79.07	Draw, course SW.
	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	S. 2 lks. from the secant,
	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for stand. cor. of secs. 32 and 33, marked on brass cap
	1915 on S. rim;
	SC T13N R16W in N. half;
	S32 in NW. and
	S33 in NE. quadrant;
	and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
	Land, mountainous.
	Soil, 3rd and 4th rate, rocky.
	No timber.
	Undergrowth, greasewood, palo verde, sage brush and cacti.
	Feb. 17, 1915: At this cor., I set off 12° 8 $\frac{1}{2}$ ' S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 25' N.
	S. 89° 59' W. on the secant through sec. 32.
	Over rolling and mountainous land, through scattering undergrowth.
	Desc. SW. slope, 120 ft. to
22.86	Wash, course SE. Asc. NE. slope, 330 ft.
	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	S. 1 lk. from the secant,
	Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for stand. $\frac{1}{4}$ sec. cor., marked on brass cap
	1915 on S. rim;
	SC $\frac{1}{4}$ in W. and
	S32 in N. half;
	and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
48.01	Spur, brs. SE. Desc. SW. slope, 30 ft. to
51.38	Draw, course SW. Asc. E. slope, 238 ft. to
63.87	Ridge, brs. N. and S. Desc. W. slope, 95 ft. to
	Difference between measurements of 80.00 chs. by two sets of chainmen is 11 lks.; position of middle point

Chains.	<p>By 1st set, 79.94$\frac{1}{2}$ chs. By 2nd set, 80.05$\frac{1}{2}$ chs.; the mean of which is</p> <p>80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for stand. cor. of secs. 31 and 32, marked on brass cap</p> <p>1915 on S. rim; SC T13N R16W in N. half; S31 in NW. and S32 in NE. quadrant; and raise a mound of stone, 2 ft. base, 1$\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p> <p>Land, mountainous. Soil, 3rd and 4th rate, rocky, limestone and decomposed granite. No timber. Undergrowth, palo verde, greasewood and sage brush.</p>
19.42 22.44	<p>S. 89° 58' W. on the secant, S. of sec. 31. Over mountainous land, through scattering undergrowth. Desc. W. slope, 321 ft to Draw, course S. Asc. E. slope, 50 ft. to Spur, brs. S. Desc. W. slope, 178 ft. to Difference between measurements of 40.00 chs. by two sets of chainmen is 12 lks.; position of middle point</p>
40.00	<p>By 1st set, 40.06 chs. By 2nd set, 39.94 chs.; the mean of which is</p> <p>40.00 N. 2 lks. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for stand. $\frac{1}{4}$ sec. cor., marked on brass cap</p> <p>1915 on S. rim; $\frac{1}{4}$ in W. and SC S31 in N. half; and raise a mound of stone, 2 ft. base, 1$\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p>
49.96 57.86	<p>Feb. 17, 1915. Feb. 18, 1915: Cloudy. Continue back and foresight line. Over rolling land, through scattering undergrowth. Desc. W. slope, 55 ft. to Draw, course S. Asc. E. slope, 65 ft. to Spur, slopes S. Desc. broken SW. slope, 160 ft. to Difference bet. measurements of 80.00 chs. by two sets of chainmen is 5 lks.; position of middle point</p>
80.00	<p>By 1st set, 80.02$\frac{1}{2}$ chs. By 2nd set, 79.97$\frac{1}{2}$ chs.; the mean of which is</p> <p>80.00 N. 3$\frac{1}{2}$ lks. from the secant, Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for stand cor. of Tps. 13 N., Rs. 16 and 17 W., marked on brass cap</p> <p>1915 on S. rim; SCT13N in N. half; R17W S36 in NW. and R16W S31 in NE. quadrant; and raise a mound of stone, 2 ft. base, 1$\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p> <p>Land, rolling. Soil, 3rd rate. No timber. Undergrowth, palo verde, greasewood and cacti.</p>

18 Third Standard Parallel North Through R. 17 W.

Chains. From a point $3\frac{1}{2}$ lks. S. of the stand. cor. of Tps. 13 N.,
 Rs. 16 and 17 W., I run
 N. $89^{\circ} 58'$ W. on the secant, S. of sec. 36.
 Over rolling land, through scattering undergrowth.
 1.90 Wash, course S. Asc. E. slope, 75 ft. to
 9.92 Spur, slopes S. Desc. W. slope, 90 ft. to
 27.70 Wash, course S. Thence over broken land,
 Difference between measurements of 40.00 chs. by two sets
 of chainmen is 1 lk.; position of middle point
 By 1st set, $39.99\frac{1}{2}$ chs.
 By 2nd set, $40.00\frac{1}{2}$ chs.; the mean of which
 is
 40.00 N. 2 lks. from the secant,
 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the
 ground, for stand. $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 SC $\frac{1}{4}$ in W. and
 S36 in N. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 N. of cor. Pits impracticable.
 50.00 Low spur, brs. S.
 Difference between measurements of 80.00 chs. by two sets
 of chainmen is 2 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 stand. cor. of secs. 35 and 36, marked on
 brass cap
 1915 on S. rim;
 SC T13N R17W in N. half;
 S35 in NW. and
 S36 in NE. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 N. of cor. Pits impracticable.
 Land, rolling.
 Soil, 3rd rate.
 No timber.
 Undergrowth, palo verde, grea sewood and cacti.

N. $89^{\circ} 59'$ W., on the secant, through sec. 35.
 Over rolling land, across small draws and knolls, through
 scattering undergrowth. Desc. W. slope, 110 ft. to
 9.85 Draw, course S. Asc. E. slope, 60 ft. to
 14.90 Spur, brs. S. Desc. W. slope, 120 ft. to
 35.15 Wash, course S.
 Difference bet. measurements of 40.00 chs. by two sets of
 chainmen is 5 lks.; position of middle point,
 By 1st set, $40.02\frac{1}{2}$ chs.
 By 2nd set, $39.97\frac{1}{2}$ chs.; the mean of which
 is
 40.00 S. 1 lk. from the secant,
 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the
 ground, for stand. $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 SC $\frac{1}{4}$ in W. and
 S35 in N. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 N. of cor. Pits impracticable.
 Feb. 18, 1915: At this cor., I set off $11^{\circ} 47'$ S. on the
 decl. arc; and observe the sun on the meridian; the
 resulting lat. is $34^{\circ} 25'$ N.

Third Standard Parallel North, Through R. 17 W. 19

Chains

Asc. E. slope, 60 ft. to
 46.00 Spur, brs. SW. Desc. W. slope, 100 ft. to
 56.30 Wash, course S. Asc. SE. slope, 80 ft. to
 62.20 Spur, brs. S. Desc. SW. slope, 90 ft. to
 75.60 Wash, course S. Asc. E. slope, 45 ft. to
 Difference between measurements of 80.00 chs. by two sets
 of chainmen is 3 lks.; position of middle point
 By 1st set, 80.01 $\frac{1}{2}$ chs.
 By 2nd set, 79.98 $\frac{1}{2}$ chs.; the mean of which
 is
 80.00 S. 2 lks. from the secant,
 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
 ground, for stand. cor. of secs. 34 and 35, marked on
 brass cap
 1915 on S. rim;
 SC T13N R17W in N. half;
 S34 in NW. and
 S35 in NE. 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 3rd rate.
 No timber.
 Undergrowth, greasewood, palo verde and cacti.
 Feb. 18, 1915.

Feb. 21, 1915: At 8 hrs. 30 m., a.m., l.m.t., I set off
 34° 25' N. on the lat. arc; 10° 45 $\frac{1}{2}$ ' S. on the decl.
 arc; and determine a meridian with the solar on the
 secant 2 lks. N. of Std. cor. of secs. 34 and 35.
 Thence I run
 West on the secant, through sec. 34.
 Over rolling land, through dense undergrowth.
 29.97 Enter wash, course S.
 37.66 Leave wash, course S. Base of cliff, 40 ft. high, brs. N
 and S.
 Difference between measurements of 40.00 chs. by two sets
 of chainmen is 0 lks.
 40.00 S. 3 lks. from the secant,
 Set a granite stone, 20 X 10 X 6 ins., 15 ins. in the
 ground, for stand. $\frac{1}{4}$ sec. cor., marked SC $\frac{1}{4}$ on N. face;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
 N. of cor. Pits impracticable.
 41.97 Spur, brs. SE. Desc. SW. slope, 30 ft. to
 44.33 Draw, course SE. Asc. rocky E. slope, 395 ft.
 61.38 Base of vertical cliff, 50 ft. high, brs. N. and S.
 61.70 Top of cliff, brs. N. and S. Thence across rocky mesa.
 76.70 Rim of canyon, brs. NW. and SE. Desc. vertical cliff 100
 ft.
 80.00 Point for stand. cor. of secs. 33 and 34 falls on side
 hill where it would be destroyed. I return to
 76.20 S. 3 lks. from the secant,
 Point for witness cor. to stand. cor. of secs. 33 and 34
 falls on a basaltic ledge, 10 ft. long, 2 ft. high,
 and 4 ft. wide, running E. and W.
 Cut a cross (X) at the exact point for witness cor. to
 stand. cor. of secs. 33 and 34, with WCS on N. and S.
 grooves E. and W. of cross; and raise a mound of stone,
 4 ft. base, 3 ft. high, N. of cor. Pits impracticable.
 Land, rolling and mountainous.
 Soil, rocky, 3rd and 4th rate.
 No timber.
 Undergrowth, palo verde, ocatilla and cacti.
 Feb. 21, 1915.
 A. S.

Chains.

- J. M. M.
 Feb. 23, 1915: At 8 hrs. 3 m., a.m., l.m.t., I set off
 34° 25' N. on the lat. arc; 10° 2' S. on the deal. arc;
 and determine a meridian with the solar on the secant, 3 lks.
 N. of point for stand. cor. of secs. 33 and 34.
 Thence I run
 West on the secant through sec. 33.
 Over mountainous land, through scattering undergrowth.
 Asc. SE. slope, 40 ft.
- 7.00 Cliff, 20 ft. high, brs. NE. and SW.
 8.50 Top of cliff, brs. NE. and SW. Desc. point of rocky spur,
 285 ft.
 14.36 Rocky butte on spur.
 27.29 Wash, 35 lks. wide, course S. Asc. E. slope, 30 ft. to
 32.80 Spur, slopes S. Desc. SW. slope, 40 ft.
 40.00 True point for stand. $\frac{1}{4}$ sec. cor. falls on rotten granite
 ledge where it could not be established. I proceed as
 follows:-
 Difference between measurements of 39.70 chs. by two sets
 of chainmen is 11 lks.; position of middle point
 By 1st set, 39.64 $\frac{1}{2}$ chs.
 By 2nd set, 39.75 $\frac{1}{2}$ chs.; the mean of which
 is
 39.70 S. 3 lks. from the secant,
 Set an iron post, 3 ft. long, 1 in. diam., 24 ins. in the
 ground, on solid rock, for witness cor. to stand. $\frac{1}{4}$ sec.
 cor., marked on brass cap
 1915 on S. rim;
 $\frac{1}{4}$ in W. and
 WCSC S33 in N. half;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
 N. of cor. Pits impracticable.
- 40.49 Wash, 30 lks. wide, course S. Asc. rocky NE. slope, 300 ft.
 to
 56.78 Rocky spur, brs. S. Desc. SW. slope, 165 ft. to
 65.01 Small draw, course S. Asc. SE. slope, 135 ft. to
 72.35 Rocky spur, brs. S. Desc. SW. slope, 165 ft. to
 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 S. 2 lks. from the secant,
 Set a lava stone, 20 X 12 X 8 ins., 15 ins. in the ground,
 for stand. cor. of secs. 32 and 33, marked SC on N.
 face; with 4 grooves on E. and 2 grooves on W. face;
 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.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.
-
- S. 89° 59' W. on the secant, through sec. 32.
 Over mountainous land, through scattering undergrowth.
- 3.85 Wash, 25 lks. wide, course SE., 75 ft. below cor.
 Asc. rocky E. slope, 165 ft. to
 11.31 Rocky spur, brs. S. Desc. SW. slope, 225 ft. to
 32.50 Mohave Wash, 4 chs. wide, course SE. Asc. NE. slope, 40 ft. to
 Difference between measurements of 40.00 chs. by two sets
 of chainmen is 8 lks.; position of middle point
 By 1st set, 40.04 chs.
 By 2nd set, 39.96 chs.; the mean of which is
 40.00 S. 1 lk. from the secant,
 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the
 ground, for stand. $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 SC $\frac{1}{4}$ in W. and

Chains.	<p>S32 in N. half; and raise a mound of s tone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable. Thence over gently rolling land, sloping E. Difference between measurements of 80.00 chs. by two sets of chainmen is 0 lks. 80.00 Point for stand. cor. of secs. 31 and 32 falls in bottom of wash, 15 lks. wide, course NE. therefore at 79.40 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for witness cor. to stand. cor. of secs. 31 and 32, marked on brass cap 1915 on S. rim; WCSC N. of center; T13N R17W in N. half; S31 in NW. and S32 in NE. quadrant, and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable. Land, level and mountainous. Soil, 3rd and 4th rate. No timber. Undergrowth, palo verde, ocatilla and cacti. Feb 23, 1915: At this cor., I set off 9° 59' S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 25' N.</p>	
22.87 26.07 30.93 40.00 40.15 40.95 51.71 67.18 73.61	<p>S. 89° 58' W. on the secant, S. of sec. 31, from the point for stand. cor. of secs. 31 and 32. Over mountainous land, through scattering undergrowth. Asc. NE. slope, 185 ft. to Spur, slopes N. Desc. W. slope, 40 ft. to Gulch, 10 lks. wide, course NE. Asc. E. slope, 80 ft. to Spur, from SW. to N. Asc. NE. slope, 115 ft. to Point for stand. ¼ sec. cor. falls on rotten granite ledge. Difference between measurements of 40.15 chs. by two sets of chainmen is 0 lks. 40.15 N. 2 lks. from the secant, Set a granite stone, 20 X 12 X 5 ins., 15 ins. in the ground, for witness cor. to stand. ¼ sec. cor., marked WC SC ¼ on N. face; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable. Note: Impossible to set an iron post here, as the soil to bed rock is only 12 ins. deep. 40.95 Point of spur, slopes N. Desc. NW. slope, 195 ft. to 51.71 Wash, 10 lks. wide, course NE. Thence along N. slope. 67.18 Wash, 10 lks. wide, course NE. Asc. E. slope, 90 ft. to 73.61 Spur, slope, NE. Desc. NW. slope, 50 ft. to Difference between measurements of 80.00 chs. by two sets of chainmen is 1 lk.; position of middle point By 1st set, 79.99½ chs. By 2nd set, 80.00½ chs.; the mean of which is</p>	
80.00	<p>N. 3½ lks. from the secant, Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for stand. cor. of Tps. 13 N., Rs. 17 and 18 W., marked on brass cap 1915 on S. rim; SC T13N in N. half; R18W S36 in NW. and R17W S31 in NE. quadrant; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable. Land, mountainous. Soil, 3rd and 4th rate. No timber. Undergrowth, greasewood, palo verde, ocatilla and cacti. Feb. 23, 1915.</p>	

22 Third Standard Parallel North Through R. 18 W.

Chains.	<p>Mar. 6, 1915. Survey executed with Young and Sons' light mountain transit No 8483, with Smith Solar attachment. For description of instrument, certificate of approval and record of tests of adjustment, see subdivision of T. 13 N., R. 18 W. in book "C". At 9 hrs. 58 m., a.m., l.m.t., I set off $34^{\circ} 25'$ N. on the lat. arc; $5^{\circ} 52'$ S. on the decl. arc; and determine a meridian with the solar on the secant $3\frac{1}{2}$ lks. S. of Std. cor. of Tps. 13 N., Rs. 17 and 18 W. hereinbefore described. Thence I run $N. 89^{\circ} 58'$ W. on the secant, S. of sec. 36. Over mountainous land, through scattering undergrowth. Asc. SE. slope, 95 ft. to 6.31 Spur, slopes NE. Desc. NW. slope, 105 ft. to 15.76 Wash, 20 lks. wide, course NE. Asc. SE. slope, 60 ft. to 20.00 Spur, brs. N. and S. Desc. W. slope, 70 ft. to 25.78 Wash, 30 lks. wide, course NE. Asc. NE. slope, 230 ft. to 38.17 Spur, slopes NE. Thence along N. slope. Difference between measurements of 40.00 chs. by two sets of chainmen is 6 lks.; position of middle point By 1st set, 39.97 chs. By 2nd set, 40.03 chs.; the mean of which is 40.00 N. 2 lks. from the secant, Set a granite stone, 18 X 10 X 6 ins., 12 ins. in the ground, for stand. $\frac{1}{4}$ sec. cor., marked SC $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Note: soil only 8 ins. deep; impracticable to set iron post. Mar. 6, 1915: At this cor., I set off $5^{\circ} 50'$ S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 25'$ N. 48.43 Spur, slopes NE. Desc. broken NW. slope, 150 ft. to 61.00 Wash, 20 lks. wide, course NE. Asc. broken NE. slope, 130 ft. to 77.00 Spur, slopes SE. Desc. SW. slope, 50 ft. to 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 Head of draw, course SW. Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for stand. cor. of secs. 35 and 36, marked on brass cap 1915 on S. rim; SC T13N R18W in N. half; S35 in NW. and S36 in NE. 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. No timber. Undergrowth, greasewood, ocatilla, palo verde and cacti.</p>
6.33	<p>$N. 89^{\circ} 59'$ W., on the secant, through sec. 35. Over mountainous land, through scattering undergrowth. Asc. E. slope, 94 ft. to Ridge, brs. NE. and SE. Water shed between Williams and Colorado Rivers, Desc. W. slope, 200 ft. to 21.63 Wash, 10 lks. wide, course N. Asc. NE. slope, 90 ft. to 34.74 Spur, brs. N. and S. Desc. W. slope, 40 ft. to 37.00 Wash, 10 lks. wide, course N. Asc. NE. slope, 35 ft. 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.</p>

Chains.	
40.00	By 2nd set, 39.98 chs.; the mean of which is S. 1 lk. from the secant, Set a granite stone, 16 X 12 X 10 ins., 11 ins. in the ground, for stand. $\frac{1}{4}$ sec. cor., marked SC $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Note: Soil only 12 ins deep. Impracticable to set iron post.
42.13	Spur, slopes NE. Desc. SW. slope, 125 ft. to
49.18	Wash, 8 lks. wide, course N. Asc. SE. slope, 105 ft. to
57.10	Spur ridge, brs. N. Desc. SW. slope, 35 ft. to
70.56	Wash, 15 lks. wide, course N. Asc. NE. slope, 130 ft. to Difference between measurements of 80.00 chs. by two sets of chainmen is 5 lks.; position of middle point By 1st set, $79.97\frac{1}{2}$ chs.; By 2nd set, $80.02\frac{1}{2}$ chs.; the mean of which is
80.00	S. 2 lks. from the secant, Set a granite stone, 16 X 14 X 8 ins., 11 ins. in the ground, for stand. cor. of secs. 34 and 35, marked SC on N. face; with 2 grooves on E. and 4 grooves on W. face; 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. No timber. Undergrowth, palo verde, acatilla and cacti.
	West on the secant, through sec. 34. Over mountainous land, through scattering undergrowth. Desc. NW. slope, 425 ft. to
25.74	Wash, 20 lks. wide, course NW. Asc. NE. slope, 70 ft. to
30.16	Spur, slopes NW. Desc. SW. slope, 175 ft. to 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	S. 3 lks. from the secant, Set a granite stone, 16 X 12 X 8 ins., 12 ins. in the ground, for stand. $\frac{1}{4}$ sec. cor., marked SC $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Mar. 6, 1915. Mar. 7, 1915: At 9 hrs. a.m., l.m.t., I set off $34^{\circ} 25'$ N. on the lat. arc; $5^{\circ} 29\frac{1}{2}'$ S. on the decl. arc; and deter- mine a meridian with the solar on the secant $\frac{3}{4}$ lks. N. of the Std. $\frac{1}{4}$ sec. cor. of sec. 34. Thence I continue measurement West on the secant, through sec. 34. Asc. E. slope, 30 ft. to
46.70	Spur, brs. N. Desc. broken SW. slope, 200 ft. to
62.50	Head of draw, course SW. Asc. E. slope, 25 ft. to
65.45	Spur, brs. S. Desc. NW. slope, 105 ft. to
72.25	Enter wash, course S.
77.30	Leave wash, course S. Asc. SE. slope, 35 ft. to
78.30	Spur, brs. S. Desc. SW. slope 20 ft. to Difference between measurements of 80.00 chs. by two sets of chainmen is 4 lks.; position of middle point By 1st set, 80.02 chs. By 2nd set, 79.98 chs.; the mean of which is
80.00	S. 3 lks. from the secant, Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for stand. cor. of secs. 33 and 34, marked on brass cap 1915 on S. rim; SCT13N R18W in N. half; S33 in NW. and S34 in NE. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

24 Third Standard Parallel North Through R. 18 W.

Chains.	<p>Land, mountainous. Soil, rocky 4th rate. No timber. Undergrowth, palo verde, ocatilla, greasewood and cacti.</p>
<p>2.95 8.30 20.35 37.65</p>	<p>West on the secant, through sec. 33. Over rolling land, through scattering undergrowth. Asc. SE. slope, 35 ft. to Low spur, slopes SW. Desc. NW. slope, 120 ft. to Wash, 15 lks. wide, course SW. Asc. SE. slope, 65 ft. to Spur, brs. S. Desc. broken SW. slope, 145 ft. to Wash, 20 lks. wide, course SW. Difference between measurements of 40.00 chs. by two sets of chainmen is 5 lks.; position of middle point By 1st set, 40.02$\frac{1}{2}$ chs. By 2nd set, 39.97$\frac{1}{2}$ chs.; the mean of which is</p>
40.00	<p>S. 3 lks. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for standard $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; SC $\frac{1}{4}$ in W. and S33 in N. half; and raise a mound of stone, 2 ft. base, 1$\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p>
<p>50.00 57.30</p>	<p>Thence over low broken hills. Wash, 20 lks. wide, course S. Wash, 50 lks. wide, course S. Difference between measurements of 80.00 chs. by two sets of chainmen is 0 lks.</p>
80.00	<p>S. 2 lks. from the secant, Set a granite stone, 16 X 10 X 8 ins., 12 ins. in the ground, on bed rock, for stand. cor. of secs. 32 and 33, marked SC on N. with 4 grooves on E. and 2 grooves on W. face; and raise a mound of stone, 2 ft. base, 1$\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Land, rolling. Soil, 4th rate. No timber. Undergrowth, palo verde, greasewood, ocatilla and cacti. Mar. 7, 1915: At this cor., I set off 5° 27' S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 25' N.</p>
<p>15.00 35.00</p>	<p>S. 89° 59' W. on the secant, through sec. 32. Over low broken hills, small draws and knolls, through dense undergrowth. Wash, 50 lks. wide, course SW. Wash, 50 lks. wide, course SW. Difference between measurements of 40.00 chs. by two sets of chainmen is 1 lk.; position of middle point By 1st set, 40.00$\frac{1}{2}$ chs. By 2nd set, 39.99$\frac{1}{2}$ chs.; the mean of which is</p>
40.00	<p>S. 1 lk. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for stand. $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; SC $\frac{1}{4}$ in W. and S32 in N. half; and raise a mound of stone, 2 ft. base, 1$\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p>

Third Standard Parallel North Through R. 18 W.

Chains. 50.00	Over land, subject to overflow. Difference between measurements of 80.00 chs. by two sets of chainmen is 2 lks.; position of middle point By 1st set, 79.99 chs. By 2nd set, 80.01 chs.; the mean of which is
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 16 ins. in the ground, on solid rock, supported by a mound of stone, for stand. cor. of secs. 31 and 32, marked on brass cap 1915 on S. rim; SC T13N R18W in N. half; S31 in NW. and S32 in NE. quadrant; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable. Land, rolling. Soil, 3rd and 4th rate. No timber. Undergrowth, palo verde, greasewood, ocatilla and cacti.
40.00	S.89° 58' W. on the secant, S. of sec. 31. Over level land, subject to overflow, through scattering undergrowth. Difference bet. measurements of 40.00 chs. by two sets of chainmen is 3 lks.; position of middle point By 1st set, 40.01½ chs. By 2nd set, 39.98½ chs.; the mean of which is N. 2 lks. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for std. ¼ sec. cor., marked on brass cap 1915 on S. rim; SC ¼ in W. and S31 in N. half; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.
42.60	Wash, 50 lks. wide, course S. Difference between measurements of 80.00 chs. by two sets of chainmen is 1 lk.; position of middle point By 1st set, 79.99½ chs. By 2nd set, 80.00½ chs.; the mean of which is
80.00	N. 3½ lks. from the secant, Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for stand. cor. of Tps. 13 N., Rs. 18 and 19 W., marked on brass cap 1915 on S. rim; SC T13N in N. half; R19W S36 in NW. and R18W S31 in NE. quadrant; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable. Land, level and rolling. Soil, rocky 3rd rate. No timber. Undergrowth, palo verde, greasewood and cacti. Mar. 7, 1915.

26.

Third Standard Parallel North Through R. 19 W.

Chains.	<p>Mar. 31, 1915: At 8 hrs. 30 m., a.m., l.m.t., I set off $34^{\circ} 25'$ N. on the lat. arc; $3^{\circ} 55\frac{1}{2}'$ N. on the decl. arc; and determine a meridian with the solar on the secant $3\frac{1}{2}$ lks. S. of Std. cor. of T_s. 13 N., Rs. 18 and 19 W. hereinbefore described.</p> <p>Thence I run N. $89^{\circ} 58'$ W., on the secant, S. of sec. 36. Over level rocky land, through scattering undergrowth.</p> <p>20.00 Enter wash, course SW.</p> <p>29.30 Leave wash, course SW. Leave flat, brs. NE. and SW.; thence over rolling land.</p> <p>31.40 Low hill, brs. N. and S. Desc. W. slope, 40 ft. to</p> <p>35.00 Wash, 2 chs. wide, course SW. Asc. SE. slope, 80 ft. 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</p> <p>40.00 N. 2 lks. from the secant, Set a lava stone, 18 X 12 X 6 ins., 12 ins. in the ground, for stand. $\frac{1}{4}$ sec. cor., marked SC $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p> <p>43.50 Low hill, brs. N. and S. Desc. SW. slope, 50 ft. to</p> <p>49.90 Wash, 50 lks. wide, course SW. Asc. broken SE. slope, 40 ft. to</p> <p>69.85 Low hill, brs. N. and S. Desc. W. slope, 40 ft. to</p> <p>74.85 Wash, 10 lks. wide, course S. 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</p> <p>80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for stand. cor. of secs. 35 and 36, marked on brass cap 1915 on S. rim; SC T13N R19W in N. half; S35 in NW. and S36 in NE. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Land, rolling. Soil, rocky 4th rate. No timber. Undergrowth, palo verde, greasewood and cacti.</p>
	<p>N. $89^{\circ} 59'$ W. on the secant, through sec. 35. Over rolling land, through dense undergrowth.</p> <p>5.00 Wash, 50 lks. wide, course S.</p> <p>17.00 Road, brs. NW. and SE.</p> <p>35.00 Wash, 10 lks. wide, course SE. Difference between measurements of 40.00 chs. by two sets of chainmen is 3 lks.; position of middle point By 1st set, $40.01\frac{1}{2}$ chs.; By 2nd set, $39.98\frac{1}{2}$ chs.; the mean of which is</p> <p>40.00 S. 1 lk. from the secant, Set a lava stone, 16 X 8 X 6 ins., 12 ins. in the ground, for stand. $\frac{1}{4}$ sec. cor., marked SC $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p> <p>Asc. NNE. slope, 50 ft. to</p> <p>52.30 Low hill, brs. NW. and SE. Desc. broken SW. slope, 50 ft. to</p> <p>64.90 Ravine, course NW. Asc. rocky NE. slope, 85 ft. to Difference between measurements of 80.00 chs. by two sets of chainmen is 0 lks.</p>

Third Standard Parallel North Through R. 19 W. 27.

Chains.
80.00

S. 2 lks. from the secant,
Set a granite stone, 14 X 10 X 8 ins., 10 ins. in the ground, for stand. cor. of secs. 34 and 35, marked SC. on N., with 2 grooves on E. and 4 grooves on W. face; and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, N. of cor. Pits impracticable.
Land, rolling.
Soil, rocky 4th rate.
No timber.
Undergrowth, palo verde, greasewood, and cacti.
Mar. 31, 1915: At this cor., I set off 3° 58 1/2' N. on the lat. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 25' N.

West on the secant, through sec. 34.
Over mountainous land, through scattering undergrowth.
1.00 Base of vertical cliff, brs. NW. and SE., 85 ft. high.
3.00 Top of cliff, brs. NW. and SE. Desc. SW. slope, 230 ft., over broken cliffs, to
11.30 Wash, 15 lks. wide, course NW. Asc. E. slope, 20 ft. to
37.30 Low rocky hill, brs. N. and S.; desc. W. slope, 60 ft. to
Difference bet. 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 S. 3 lks. from the secant,
Set a granite stone, 15 X 8 X 6 ins., 12 ins. in the ground, for stand. cor., marked SC. on N. face; and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, N. of cor. Pits impracticable.
43.00 Low hill, brs. N. and S. Desc. W. slope, 40 ft. to
45.00 Wash, 10 lks. wide, course S. Asc. E. slope, 45 ft. to
46.30 Top of knoll. Desc. broken NW. slope, 70 ft. to
61.60 Wash, 20 lks. wide, course S. Thence over level land.
Difference between measurements of 80.00 chs. by two sets of chainmen is 4 lks.; position of middle point
By 1st set, 80.02 chs.
By 2nd set, 79.98 chs.; the mean of which is

80.00 S. 3 lks. from the secant,
Set a granite stone, 16 X 10 X 6 ins., 11 ins. in the ground, for stand. cor. of secs. 33 and 34, marked SC on N. with 3 grooves on E. and W. faces; and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, N. of cor. Pits impracticable.
Land, level, rolling and mountainous.
Soil, rocky 4th rate.
No timber.
Undergrowth, palo verde, greasewood and cacti.

West on the secant, through sec. 33.
Over broken mountainous land, through dense undergrowth.
Asc. E. slope, 25 ft. to
1.20 Low hill, brs. N. and S. Desc. NW. slope, 40 ft. to
9.90 Ravine, course N. Asc. NE. slope, 55 ft. to
14.80 Low hill, brs. N. and S. Desc. broken NW. slope, 135 ft. to
Difference between measurements of 40.00 chs. by two sets of chainmen is 7 lks.; position of middle point
By 1st set, 40.03 1/2 chs.
By 2nd set, 39.96 1/2 chs.; the mean of which is

40.00 S. 3 lks. from the secant,
Set a lava stone, 14 X 10 X 8 ins., 10 ins. in the ground,

Third Standard Parallel North Through R. 19 W.

Chains	<p>for stand. $\frac{1}{4}$ sec. cor., marked SC $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p>
57.60	<p>Desc. broken NW. slope, 195 ft. to</p>
67.30	<p>Wash, 20 lks. wide, course S. Asc. SE. slope, 210 ft. to Rocky hill, brs. N. and S. Desc. W. slope, over broken granite cliffs, 60 ft. to</p>
80.00	<p>Difference between measurements of 80.00 chs. by two sets of chainmen is 3 lks.; position of middle point By 1st set, 80.01$\frac{1}{2}$ chs. By 2nd set, 79.98$\frac{1}{2}$ chs.; the mean of which is</p>
	<p>S. 2 lks. from the secant,</p>
	<p>Set a granite stone, 16 X 12 X 10 ins., 12 ins. in a mound of stone, for stand. cor. of secs. 32 and 33, marked SC on N., with 4 grooves on E. and 2 grooves on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p>
	<p>Land, very rough and broken; mountainous.</p>
	<p>Soil, decomposed granite, 4th rate.</p>
	<p>No timber.</p>
	<p>Undergrowth, palo verde, greasewood and cacti.</p>
	<p>Mar. 31, 1915.</p>
<hr/>	
	<p>Apr. 1, 1915: At 8 hrs. a.m., l.m.t., I set off 34° 25' N. on the lat. arc; 4° 18$\frac{1}{2}$' N. on the decl. arc; and determine a meridian with the solar on the secant, 2 lks. N. of Std. cor. of secs. 32 and 33.</p>
	<p>Thence I run</p>
	<p>S. 89° 59' W., on the secant, through sec. 32.</p>
	<p>Over mountainous land, through undergrowth.</p>
	<p>Asc. E. slope, 30 ft. to</p>
8.80	<p>Rocky hill, brs. N. and S. Desc. W. slope, 185 ft. to</p>
23.80	<p>Wash, 15 lks. wide, course SW. Asc. broken SE. slope, 30 ft. to</p>
35.25	<p>Low hill, brs. N. and S. Desc. W. slope, 70 ft.</p>
40.00	<p>Difference between measurements of 40.00 chs. by two sets of chainmen is 16 lks.; position of middle point By 1st set, 40.08 chs. By 2nd set, 39.92 chs.; the mean of which is</p>
	<p>S. 1 lk. from the secant,</p>
	<p>Set an iron post, 3 ft. long, 1 in. diam., 18 ins. in the ground, for stand. $\frac{1}{4}$ sec. cor., marked on brass cap</p>
	<p>1915 on S. rim;</p>
	<p>SC $\frac{1}{4}$ in W. and</p>
	<p>S32 in N. half;</p>
	<p>and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p>
43.60	<p>Wash, 30 lks. wide, course S. Asc. broken E. slope, 130 ft. to</p>
52.70	<p>Rocky hill, brs. N. and S. Desc. W. slope, 135 ft. to</p>
69.45	<p>Wash, 10 lks. wide, course S. Asc. broken SE. slope, 35 ft. to</p>
80.00	<p>Difference between measurements of 80.00 chs. by two sets of chainmen is 3 lks.; position of middle point By 1st set, 80.01$\frac{1}{2}$ chs. By 2nd set, 79.98$\frac{1}{2}$ chs.; the mean of which is</p>
	<p>Set a granite stone, 20 X 12 X 6 ins., 14 ins. in the ground, on bed rock, for stand. cor. of secs. 31 and 32, marked SC on N., with 5 grooves on E. and 1 groove on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p>

Third Standard Parallel North Through R. 19 W. 29.

Chains. Land, mountainous.
 Soil, rocky 4th rate.
 No timber.
 Undergrowth, palo verde, greasewood and cacti.

S.89° 58' W. on the secant, S. of sec. 31.
 Over broken mountainous land, through dense undergrowth.
 Asc. SE. slope, 95 ft. to
 5.60 Rocky hill, brs. N. and S. Desc. rocky W. slope, 100 ft.
 to
 9.50 Wash, 10 lks. wide, course S. Asc. E. slope, 65 ft. to
 12.30 Rocky hill, brs. N. and S. Desc. broken NW. slope, 305 ft.
 to
 36.50 Wash, 1 ch. wide, course SW.
 Difference between measurements of 38.40 chs. by two sets
 of chainmen is 10 lks.; position of middle point
 By 1st set, 38.45 chs.;
 By 2nd set, 38.35 chs.; the mean of which
 is
 38.40 N. 2 lks. from the secant,
 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
 ground, at mean high water mark, on the left bank of the
 Colorado River, for meander cor. of fractional sec. 31,
 marked on brass cap
 1915 on S. rim;
 MC W. of center;
 T13N R19W in N. half;
 S31 in NE. sector; from which
 A cottonwood, 18 ins. diam., brs. N. 13½° W., 95 lks. dist.;
 marked T13N R19W S31 MC BT.
 No other trees within limits. Dig a pit, 36 X 36 X 12 ins.,
 8 ft. E. of post; and raise a mound of earth, 4 ft. base,
 2 ft. high, E. of cor.
 Land, mountainous.
 Soil, rocky 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde and cacti.
 J. M. M.
 Apr. 1, 1915.

General Description.

The land on the 3rd Standard Parallel North, Rs. 13 to
 19 W., inc., varies from rolling plain to rough mountainous.
 The soil is principally a gravelly loam in the rolling land
 and rocky in the mountainous regions. The Tps. north of
 this line are to be surveyed under Groups 41 and 42. The
 lands lying south of the standard appeared to be of a
 mountainous character. Native stone was set for corners
 instead of iron posts where there was little or no soil.
 There are some indications of mineral. There are no settlers
 in the near vicinity of this line. The standard intersects
 the Colorado River at 38.40 chs. on the S. bdy. of sec. 31,
 T. 13 N., R. 19 W., which is the terminus of the line.
 Scattering timber was found along the Big Sandy and the
 Colorado Rivers.

East Boundary of T. 13 N., R. 17 W.

Chains.

Survey commenced Feb. 20, 1915, and executed by Albert Smith, Jr., U. S. Surveyor, with Young and Sons' light mountain transit No 8540, with Smith solar attachment. For description of instrument, and certificate of approval, see page 1 of this book.

In the following field notes, the initials A. S. and J. M. M. refer to Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, respectively.

Knowing from recent and repeated tests of this instrument on a meridian established by observations on Polaris at elongation, that it is in adjustment, I proceed to the survey of the E. W. and N. bdrs. of T. 13 N., R. 17 W.

At 8 hrs. 3 m., a.m., l.m.t., I set off 34° 25' N. on the lat. arc; 11° 7' S. on the decl. arc; and determine a meridian with the solar at the std. cor. of Tps. 13 N., Rs. 16 and 17 W., which is an iron post, established by me, and hereinbefore described.

Thence I run

North bet. secs. 31 and 36.

Over rolling land, through scattering undergrowth.

- 2.69 Wash, course SW. Asc. SE. slope, 155 ft. to
- 40.00 Set an iron post, 3 ft. long, 1 in. diam., 24 ins in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
1915 on S. rim;
 $\frac{1}{4}$ in N.,
S31 in E., and
S36 in W. half;

and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Desc. NE. slope, 110 ft. to

- 62.45 Wash, course NW.
- 73.94 Wash, course NW.

- 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

1915 on S. rim;
T13N in N. half;
R17W S25 in NW.,
R16W S30 in NE.,
S31 in SE. and
S36 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, rolling.

Soil, rocky, 3rd rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla, cat claw and cacti.

North bet. secs. 25 and 30.

Overrolling land, through scattering undergrowth.

- 9.95 Wash, course W. Asc. SW. slope, 95 ft. to
- 37.93 Spur, slopes NW. Desc. NE. slope, 50 ft.
- 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
1915 on S. rim;
 $\frac{1}{4}$ in N.,
S30 in E. and
S25 in W. half;

and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

- 56.77 Wash, course NW.
- 66.00 Desc. NW. slope, 65 ft. to
- 69.47 Wash, course W.

- 80.00 Impracticable to set an iron post at this point. Set a granite stone, 17 X 14 X 8 ins., 14 ins. in the ground, for cor. of secs. 19, 24, 25 and 30, marked with 4

Chains.

notches on N. and 2 notches on S. edge; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, rolling.

Soil, rocky, 3rd rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla, cat claw and cacti.

Feb. 20, 1915: At this cor., I set off 11° 4' S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 27' N.

North bet. secs. 19 and 24.

Over rolling land, through scattering undergrowth.

22.00 Wash, 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
 1915 on S. rim;
 ¼ in N.,
 S19 in E. and
 S24 in W. half;

and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

49.98 Wash, course W.

64.96 Wash, course W. Asc. S. slope, 105 ft. to

80.00 Spur, ridge, brs. W. and E. Impracticable to set an iron post at this point. Set a granite stone, 18 X 10 X 10 ins., 6 ins. in the ground, in a mound of stone, for cor. of secs. 13, 18, 19 and 24, marked with 3 notches on N. and S. edges; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, rolling.

Soil, rocky, 3rd rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla and cacti.

North bet. secs. 13 and 18.

Over rolling land, through dense undergrowth.

19.57 Desc. N. slope, 160 ft. to

40.00 Wash, course W. Asc. S. slope, 65 ft. to

Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for ¼ sec. cor., marked on brass cap
 1915 on S. rim;
 ¼ in N.,
 S18 in E. and
 S13 in W. half;

and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable. Descend gradually to

71.21 Wash, course W.

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

1915 on S. rim;

T13N in N. half;

R17W S12 in NW.,

R16W S7 in NE.,

S18 in SE. and

S13 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., 5½ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, rolling.

Soil, 3rd rate.

No timber.

Undergrowth, dense palo verde, yucca, ocatilla and cacti.

Feb. 20, 1915.

Chains

Feb. 22, 1915: At 8 hrs. a.m., l.m.t., I set off $34^{\circ} 28\frac{1}{2}'$ N. on the lat. arc; $10^{\circ} 23\frac{1}{2}'$ S. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 7, 12, 13 and 18.

Thence I run
 North, bet. secs. 7 and 12.
 Over gently rolling land, through dense undergrowth.
 Wash, 40 lks. wide, course SW. Asc. S. slope, 60 ft. to
 7.10 Low spur, slopes SW. Desc. NW. slope, 30 ft. to
 14.88 Wash, 5 lks. wide, course W. Asc. S. slope, to
 17.05
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 20 ins. in the ground, on solid rock, supported by a mound of stone, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S7 in E. and
 S12 in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Descend gradually to
 65.50 Wash, 25 lks. wide, course W.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 1, 6, 7 and 12, marked on brass cap
 1915 on S. rim;
 T13N in N. half;
 R17W S1 in NW.,
 R16W S6 in NE.,
 S7 in SE. and
 S12 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 Land, gently rolling.
 Soil, sandy loam on surface, 12 ins. deep; clay subsoil; 2nd and 3rd rate.
 No timber.
 Undergrowth, dense yucca, palo verde, greasewood, sagebrush, ocatilla and cacti.

North, bet. secs. 1 and 6.
 Over level land, through dense undergrowth.
 28.60 Wash, 20 lks. wide, course SW.
 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
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S6 in E. and
 S1 in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 48.00 Wash, 15 lks. wide, course SW.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of Tps. 13 and 14 N., Rs. 16 and 17 W., marked on brass cap
 1915 on S. rim;
 T14N in N.,
 R16W in E.,
 T13N in S. and
 R17W in W. half;
 S36 in NW.,
 S31 in NE.,
 S6 in SE. and
 S1 in SW. quadrant;
 dig pits, 24 X 24 X 12 ins., N., E., and W., 4 ft., and S. of cor., 8 ft. dist.; and raise a mound of earth, 5 ft. base, $2\frac{1}{2}$ ft. high, S. of cor.

Chains.

Land, level.
Soil, sandy, depth unknown, 2nd and 3rd rate.
Undergrowth, dense yucca, greasewood, sage brush and cacti.
No timber.
Feb. 22, 1915: At this cor., I set off $10^{\circ} 21'$ S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 30\frac{1}{2}'$ N.
A. S.
Feb. 22, 1915.

Chains.

Feb. 24, 1915. At 2 hrs. 5 m., p.m., l.m.t., I set off 34° 25' N. on the lat. arc; 9° 35' S. on the decl. arc; and determine a meridian with the solar at the std. cor. of Tps. 13 N., Rs. 17 and 18 W., which is an iron post, established by J. M. M., and hereinbefore described.

Thence I run

North bet. secs. 31 and 36.

Over mountainous land, through scattering undergrowth. Asc. SE. slope, 135 ft. to

14.42 Spur, brs. NE. Desc. NW. slope, 110 ft. to

19.50 Enter wash, 25 lks. wide, course N. Comes from SW.

25.80 Leave wash, course NE. Asc. S. slope, 125 ft. to

31.39 Spur, brs. NE. Desc. NW. slope, 250 ft.

40.00 True point for 1/4 sec. cor. falls where it would be destroyed, I return to

39.50 Impracticable to set an iron post at this point, as the soil is only 12 ins. deep to bed rock. Set a granite stone, 20 X 10 X 6 ins., 15 ins. in the ground, for witness cor. to 1/4 sec. cor., marked WC 1/4 on W. face; and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable.

41.15 Wash, 25 lks. wide, course NE. Asc. SE. slope, 175 ft. to

54.57 Spur, brs. NE. Desc. NW. slope, 95 ft. to

63.81 Wash, 15 lks. wide, course NE. Asc. SE. slope, 35 ft. to

69.33 Low spur, slopes NE. Desc. NW. slope, 50 ft. to

74.77 Wash, 5 lks. wide, course NE. Asc. SE. slope, 70 ft. to

80.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 12 X 8 ins., 10 ins. in the ground, for cor. of secs. 25, 30, 31 and 36, marked with 5 notches on N. and 1 notch on S. edge; and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable.

Land, mountainous.

Soil, rocky, 4th rate.

No timber.

Undergrowth, greasewood, ocatilla, palo verde and cacti.

North bet. secs. 25 and 30.

Over mountainous land, through scattering undergrowth. Desc. NW. slope, 170 ft. to

14.32 Wash, 8 lks. wide, course NE. Asc. SE. slope, 75 ft. to

20.18 Spur, slopes NE. Desc. NW. slope, 80 ft. to

23.94 Wash, 5 lks. wide, course NE. Asc. SE. slope, 75 ft. to

27.44 Spur, slopes E. Desc. N. slope, 35 ft. to

29.37 Wash, 4 lks. wide, course E. Thence along E. slope.

40.00 Point for 1/4 sec. cor. falls on granite ledge.

40.30 Impracticable to set an iron post at this point. Set a granite stone, 20 X 10 X 8 ins., 15 ins. in the ground, for witness cor. to 1/4 sec. cor., marked WC 1/4 on W. face; and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable.

Desc. NW. slope, 170 ft. to

49.57 Wash, 15 lks. wide, course NE. Asc. SE. slope, 20 ft. to

52.34 Low spur, slopes NE. Desc. NW. slope, 25 ft. to

54.73 Wash, 5 lks. wide, course E. Asc. SE. slope, 60 ft. to

60.74 Spur, slopes NE. Desc. NW. slope, 50 ft. to

68.63 Wash, 5 lks. wide, course NE. Asc. SE. slope, 20 ft. to

72.20 Desc. NE. slope, 95 ft. to

80.00 Point for cor. of secs. 19, 24, 25 and 30 falls in wash, course NE., where it would be destroyed.

80.60 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for witness cor. to cor. of secs. 19, 24, 25 and 30, marked on brass cap

1915 on S. rim;

WC T13N in N. half;

R18W S24 in NW.,

R17W S19 in NE.,

S30 in SE. and

S25 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high,

36 West Boundary of T. 13 N., R. 17 W.

Chains.

W. of cor. Pits impracticable.
 Land, mountainous.
 Soil, rocky, 3rd rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.

Feb. 24, 1915.

Feb. 25, 1915: At 8 hrs. 0 m., a.m., l.m.t., I set off 34° 27' N. on the lat. arc; 19° 17½' S. on the decl. arc; and determine a meridian with the solar at the witness cor. to cor. of secs. 19, 24, 25 and 30. Thence I run, measuring from true cor. point North bet. secs. 19 and 24. Over rolling land, through scattering undergrowth.

15.00 Wash, 3 chs. wide, course SE. Asc. SW. slope, 90 ft. to
 22.00 Rim, brs. NW. and SE. Thence across rocky mesa.
 40.00 Impracticable to set iron post at this point. Set a granite stone, 14 X 12 X 8 ins., 10 ins. in the ground, for ¼ sec. cor., marked ¼ on W. face; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

48.00 Asc. S. slope, 50 ft. to
 50.00 Low spur, slopes E. Desc. N. slope, 20 ft. to
 50.00 Thence over level land.
 77.24 Wash, 15 lks. wide, course SE.
 80.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 10 X 10 ins., 10 ins. in the ground, for cor. of secs. 13, 18, 19 and 24, marked with 3 notches on N. and S. edges; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, level and rolling mesa.
 Soil, rocky, 4th rate.
 No timber.
 Undergrowth, palo verde, ocatilla, greasewood and cacti.

40.00 North bet. secs. 13 and 18.
 Over level land, through scattering undergrowth.
 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for ¼ sec. cor., marked on brass cap
 1915 on S. rim;
 ½ in N.,
 S18 in E. and
 S13 in W. half;
 and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

70.00 Through dense undergrowth.
 Leave level land, brs. E. and W. Thence over rolling land,
 78.76 Wash, 5 lks. wide, course SE. Heads 8 chs. NW.
 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
 1915 on S. rim,
 T13N in N. half;
 R18W S12 in NW.,
 R17W S7 in NE.,
 S18 in SE. and
 S13 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, level and rolling.
 Soil, 2nd and 3rd rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.

North bet. secs. 7 and 12.
 Over rolling land, through scattering undergrowth.

Chains.
 6.98 Wash, 8 lks. wide, course SE. Ascend to
 12.28 Low hill, brs. E. Desc. to
 16.27 Wash, 15 lks. wide, course E. Ascend to
 26.95 Low hill, brs. E. Desc.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 24 ins. in the
 ground, on solid rock, for $\frac{1}{4}$ sec. cor., marked on brass
 cap
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S7 in E. and
 S12 in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 W. of cor. Pits impracticable.
 52.50 Wash, 15 lks. wide, course E. Asc. S. slope, 45 ft. to
 57.49 Low hill, brs. E. Desc. to
 65.00 Wash, 5 lks. wide, course E.
 80.00 Set a granite stone, 16 X 10 X 6 ins., 11 ins. in the
 ground, for cor. of secs. 1, 6, 7 and 12, marked with
 1 notch on N. and 5 notches on S. edge; and raise a
 mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor.
 Pits impracticable.
 Land, rolling
 Soil, 3rd rate.
 No timber.
 Undergrowth, greasewood, ocatilla and palo verde.
 Feb. 25, 1915: At this cor., I set off $9^{\circ} 15'$ S. on the
 decl. arc; and at apparent noon, I observe the sun on
 the meridian; the resulting lat. is $34^{\circ} 29\frac{1}{2}'$ N.

North bet. secs. 1 and 6.
 Over rolling land, through scattering undergrowth.
 14.98 Wash, 10 lks. wide, course E.
 22.97 Wash, 20 lks. wide, course SE. Asc. to
 28.95 Low hill, brs. E. Desc. to
 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
 1915 on S. rim;
 $\frac{1}{2}$ in N.,
 S6 in E. and
 S1 in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 W. of cor. Pits impracticable.
 Asc. to
 42.00 Low hill, brs. SE. Desc. to
 44.95 Wash, 5 lks. wide, course SE.
 58.33 Wash, 15 lks. wide, course E. Asc.
 59.63 Road, brs. E. and W.
 61.94 Low hill, brs. E. and W. Desc. to
 63.44 Wash, 10 lks. wide, course E.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
 ground, for cor. of Tps. 13 and 14 N., Rs. 17 and 18 W.,
 marked on brass cap
 1915 on S. rim;
 T14N in N. half;
 T13N in S. half;
 R18W S36 in NW.,
 R17W S31 in NE.,
 S6 in SE. and
 S1 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 S. of cor. Pits impracticable.
 Land, rolling.
 Soil, 2nd and 3rd rate.
 No timber.
 Undergrowth, greasewood, palo verde and cacti.

A. S.
 Feb. 25, 1915.

Chains.

Feb. 22, 1915: A. S.

From the cor. of Tps. 13 and 14 N., Rs. 16 and 17 W., which is an iron post, established by me, as hereinbefore described, I run

West on a random line, along the N. bdy. of T. 13 N., R. 17 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs. to the $\frac{1}{4}$ sec. cor. bet. secs. 3 and 34, where I leave a temp. point.

Feb. 22, 1915.

Feb 28, 1915: At 9 hrs. 0 m., a.m., l.m.t., I set off $34^{\circ} 30\frac{1}{2}'$ N. on the lat. arc; $8^{\circ} 10'$ S. on the decl. arc; and determine a meridian with the solar at the temp. $\frac{1}{4}$ sec. cor. bet. secs. 3 and 34.

Thence I run

West on a random line, along the N. bdy. of T. 13 N., R. 17 W., setting temp. sec. and $\frac{1}{4}$ sec. cors. at intervals of 40.00 chs. to the cor. of secs. 5, 6, 31 and 32, where I leave a temp. point.

Feb. 28, 1915.

Feb. 25, 1915: From the temp. point for cor. of secs. 5, 6, 31 and 32, I run

West on a random line, along the N. bdy. of T. 13 N., R. 17 W., setting temp. $\frac{1}{4}$ sec. cor. at 40.00 chs.; and at 79.36 chs., intersect the W. bdy. of T. 14 N., R. 17 W., 60 lks. N. of the cor. of Tps. 13 and 14 N., Rs. 17 and 18 W., which is an iron post, established by me, as hereinbefore described. The falling answers to a correction of $0^{\circ} 4'$ or 10 lks. S. per mile, counting from the NE. cor. of the Tp.; therefore I run

N. $89^{\circ} 56'$ E., on a true line, bet. secs. 6 and 31. Over rolling land, through scattering undergrowth.

4.50 Wash, 12 lks. wide, course SE. Asc.

12.00 Road, brs. NE. and SW.

38.40 Low hill, brs. SE. Desc.

39.36 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

1915 on S. rim;

S31 in N.,

S6 in S. and

 $\frac{1}{4}$ in W. half;

and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

58.60 Wash, 40 lks. wide, course S.

64.98 Leave rolling land, brs. N. and S. Asc. steep, rocky SW. slope, 250 ft. to

79.36 Impracticable to set an iron post at this point. Set a lava stone, 14 X 14 X 5 ins., 10 ins. in the ground, for cor. of secs. 5, 6, 31 and 32, marked with 5 notches on E. and 1 notch on W. edge; 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, 2nd and 4th rate.

No timber.

Undergrowth, palo verde, ocatilla and cacti.

Feb. 25, 1915.

Feb. 28, 1915.

N. $89^{\circ} 56'$ E., on a true line, bet. secs. 5 and 32. Over mountainous land, through scattering undergrowth. Asc. rocky SW. slope, 180 ft.

5.00 Rim, brs. N. and S. Continue asc.

15.00 Top of asc; brs. N. and S. Thence over level land.

20.80 Desc. SE. slope, 285 ft.

24.20 Rim, brs. N. and S. Continue desc.

27.50 Gulch, 15 lks. wide, course SW. Asc. rocky NW. slope, 325 ft.

40.00 Impracticable to set an iron post at this point. Set a lava stone, 15 X 10 X 8 ins., 12 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound

Ecology 1915

North Boundary of T. 13 N., R. 17 W. 39.

Chains. of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.

50.00 Top of asc. Desc. 45 ft. to

65.00 Thence over rolling land.

75.00 Asc. to

75.93 Spur, brs. NW. Desc. NE. slope, 45 ft. to

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 4, 5, 32 and 33, marked on brass cap

1915 on S. rim;
T14N R17W in N. and
T13N in S. half;
S32 in NW.,
S33 in NE.,
S4 in SE. and
S5 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, mountainous.
Soil, 4th rate.
No timber.
Undergrowth, palo verde, ocatilla and cacti.

Feb. 28, 1915: At this cor., I set off 8° 7½' S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 30½' N.

N.89° 56' E., on a true line, bet. secs. 4 and 33. Over mountainous land, through scattering undergrowth. Desc. NE. slope, 45 ft. to

4.76 Wash, 8 lks. wide at bottom, course NW. Heads 15 chs. SE. Asc. SW. slope, 285 ft. to

35.00 Top of ascent, brs. NE. and SW. Thence across mesa.

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

1915 on S. rim;
S33 in N.,
S4 in S. and
½ in W. half;

and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.

54.00 Rim of mesa, brs. NW. and SE. Desc. rocky NE. slope, 600 ft. to

80.00 Impracticable to set an iron post at this point. Set a lava stone, 20 X 10 X 8 ins., in a mound of stone, for cor. of secs. 3, 4, 33 and 34, marked with 3 notches on E. and W. edges; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, mountainous. and rolling.
Soil, 4th rate.
No timber.
Undergrowth, palo verde, greasewood, ocatilla and cacti.

N.89° 56' E., on a true line, bet. secs. 3 and 34. Over mountainous land, through scattering undergrowth. Desc. NE. slope, 165 ft. to

16.90 Gulch, 10 lks. wide at bottom, course NE. Heads 10 chs. SW. Asc. NW. slope, 40 ft. to

20.00 Low spur, brs. NE. Desc. NE. slope, 50 ft. to

29.35 Same gulch, course SE. Thence over rolling land,

40.00 Impracticable to set an iron post at this point. Set a basaltic stone, 15 X 12 X 10 ins., 10 ins. in the ground, for ¼ sec. cor., marked ¼ on N. face; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.

Feb. 28, 1915.

Feb. 22, 1915.
Desc. NE. slope, 50 ft. to

64.72 Wash, 25 lks. wide, course SE. Asc. SW. slope, 65 ft. to

Chains.	
71.23	Spur, slopes SE. Desc. NE. slope, 50 ft. to
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 2, 3, 34 and 35, marked on brass cap
	1915 on S. rim; T14N R17W in N. and T13N in S. half; S34 in NW., S35 in NE., S2 in SE. and S3 in SW. quadrant; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable. Land, mountainous and rolling. Soil, 4th rate. No timber. Undergrowth, greasewood, palo verde, ocatilla and cacti.
	N.89° 56' E., on a true line, bet. secs. 2 and 35. Over mountainous land, through scattering undergrowth. Asc. SW. slope, 95 ft. to 35.00 Desc. SE. slope, 65 ft.
40.00	Impracticable to set an iron post at this point. Set a basaltic stone, 16 X 12 X 6 ins., 11 ins. in the ground, for ¼ sec. cor., marked ¼ on N. face; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.
45.00	Asc. to
50.15	Spur, brs. S.. Desc. SE. slope, 60 ft. to
55.07	Gulch, course NE. Thence along N. slope.
65.00	Butte brs. S. about 10 chs. dist.
70.00	Leave mountainous land, brs. NW. and SE. Thence across level land.
75.90	Wash, 70 lks. wide, course SE.
80.00	Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 1, 2, 35 and 36, marked on brass cap
	1915 on S. rim; T14N R17W in N. and T13N in S. half; S35 in NW., S36 in NE., S1 in SE. and S2 in SW. quadrant; dig pits, 18 X 18 X 12 ins., in each sec., 5½ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, level and mountainous. Soil, 4th rate. No timber. Undergrowth, palo verde, greasewood, ocatilla and cacti.
	N.89° 56' E., on a true line, bet. secs. 1 and 36. Over level land, through dense undergrowth.
.80	Wash, 50 lks. wide, course SE.
18.30	Wash, 40 lks. wide, course SW.
23.00	Wash, 8 lks. wide, course S.
26.30	Wash, 5 lks. wide, course SW.
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
	1915 on S. rim; S36 in N., S1 in S. and ¼ in W. half;

Chains.

dig pits, 18 X 18 X 12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, 3 1/2 ft. base, 1 1/2 ft. high, N. of cor.

63.60 Wash, 50 lks. wide, course SW.

80.00 The cor. of Tps. 13 and 14 N., Rs. 16 and 17 W.

Land, level.

Soil, 2nd rate.

No timber.

Undergrowth, yucca, palo verde, greasewood and cacti.

A. S.

Feb. 22, 1915.

Boundaries of T. 13 N., R. 17 W.

Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
SOUTH BOUNDARY (3rd Standard Parallel N.)	West.	480.00				480.00
West boundary	North	480.00	480.00			
North boundary	N89°56'E.	479.36	.60		479.30	
East boundary	South	480.00		480.00		
Convergency					.50	
Totals.			480.60	480.00	479.86	480.00
			480.00			479.86
Error in lat.			.60		Error in dep. .14	

Chains.

- Survey commenced Mar. 7, 1915, and executed by J. M. McKinney, Jr., U. S. Transitman, with Young and Sons' light mountain transit No. 8145, with Smith solar attachment. For description of instrument and certificate of approval, see page 1 of this book.
- In the following field notes, the initials A. S. and J. M. M. refer to Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, respectively.
- Knowing from recent and repeated tests of this instrument on a meridian established by observation on Polaris at elongation, that it is in adjustment, I proceed to the survey of the W. bdy. of T. 13 N., R. 18 W.
- From the stand. cor. of Tps. 13 N., Rs. 18 and 19 W., which is an iron post, established by me, and hereinbefore described, I run,
- North, bet. secs. 31 and 36.
- Over level land, subject to overflow, through dense undergrowth.
- 40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
1915 on S. rim;
 $\frac{1}{4}$ in N.,
S31 in E. and
S36 in W. half;
and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
- 45.00 Wash, 60 lks. wide, course SW.
- 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 25, 30, 31 and 36, marked on brass cap
1915 on S. rim;
T13N in N. half;
R19W S25 in NW.,
R18W S30 in NE.,
S31 in SE. and
S36 in SW. quadrant;
and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
- Land, level; one wide wash.
Soil, 3rd rate.
No timber.
Undergrowth, greasewood, palo verde, yucca and cacti.
- Mar. 7, 1915.
-
- Mar. 13, 1915.
- North, bet. secs. 25 and 30.
- Over level land, subject to overflow, through dense undergrowth.
- 34.20 Leave overflow land, enter rolling hills.
- 40.00 Set an iron post, 3 ft. long, 1 in diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
1915 on S. rim;
 $\frac{1}{4}$ in N.,
S30 in E. and
S25 in W. half;
and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
- Asc. broken S. slope, 185 ft. to
- 61.20 Spur, brs. SW. Desc. NW. slope, 35 ft. to
- 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 19, 24, 25 and 30, marked on brass cap
1915 on S. rim;
T13N in N. half;
R19W S24 in NW.,
R18W S19 in NE.,

Chains.

S30 in SE. and
 S25 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1½ ft. high,
 W. of cor. Pits impracticable.
 Land, level and rolling.
 Soil, shallow, sandy; decomposed granite, limestone and
 lava rocks; 3rd and 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.

North bet. secs. 19 and 24.

Over rolling hills, through dense undergrowth.

1.60 Wash, 40 lks. wide, course SW. Asc. SE. slope, 125 ft. to
 17.20 Spur, brs. SW. Desc. NW. slope, 20 ft. to
 25.80 Gulch, course SW. Asc. SE. slope, 35 ft. to
 34.80 Spur, brs. SW. Thence along W. slope.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the
 ground, for ¼ sec. cor., marked on brass cap
 1915 on S. rim;
 ¼ in N.,
 S19 in E. and
 S24 in W. half;

and raise a mound of stone, 2 ft. base, 1½ ft. high,
 W. of cor. Pits impracticable.

44.10 Wash, 40 lks. wide, course SW. Asc. broken SE. slope, 100
 ft. to

62.50 Spur, brs. SW. Thence along W. slope.

76.50 Gulch, course SW. Asc. SE. slope, 35 ft. to

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the
 ground, for cor. of secs. 13, 18, 19 and 24, marked on
 brass cap

1915 on S. rim;
 T13N in N. half;
 R19W S13 in NW.,
 R18W S18 in NE.,
 S19 in SE. and
 S24 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1½ ft. high,
 W. of cor. Pits impracticable.

Land, rolling hills

Soil, shallow, sandy, decomposed granite, sandstone and
 lava rocks; 3rd and 4th rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla and cacti.

Mar. 13, 1915.

Mar. 14, 1915: At 8 hrs. 30 m., a.m., l.m.t., I set off
 34° 28' N. on the lat. arc; 2° 45½' S. on the decl.
 arc; and determine a meridian with the solar at the cor.
 of secs. 13, 18, 19 and 24.

Thence I run

North bet. secs. 13 and 18.

Over rolling hills, through scattering undergrowth.

Asc. SW. slope, 65 ft. to

24.50 Spur, brs. SW. Desc. broken NW. slope, 85 ft. to

39.20 Wash, 50 lks. wide, course SW. Asc. SE. slope, 130 ft.

40.00 Knoll brs. E. about 20 chs. dist..

Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the
 ground, for ¼ sec. cor., marked on brass cap

1915 on S. rim;
 ¼ in N.,
 S18 in E. and
 S13 in W. half;

and raise a mound of stone, 2 ft. base, 1½ ft. high,
 W. of cor. Pits impracticable.

49.10 Spur, brs. SW. Desc. NW. slope, 55 ft. to

56.10 Gulch, course SW. Asc. SW. slope, 45 ft. to

65.40 Top of small knoll. Desc. 20 ft. to

44

West Boundary of T. 13 N., R. 18 W.

Chains.
 69.60 Asc. 30 ft. to
 80.00 Impossible to set an iron post at this point. Set a granite stone, 18 X 12 X 10 ins., 12 ins. in the ground, on solid rock, for cor. of secs. 7, 12, 13 and 18, marked with 2 notches on N. and 4 notches on S. edge; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 Land, rolling hills.
 Soil, shallow, rocky, decomposed granite, limestone and lava rocks; 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.

North bet. secs. 7 and 12.
 Over rolling hills, through scattering undergrowth.
 Asc. SW. slope, 90 ft. to
 12.80 Knoll, extends E. about 8 chs. Desc. N. slope, 40 ft. to
 18.50 Wash, 30 lks. wide, course SW.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S7 in E. and
 S12 in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 69.10 Wash, 30 lks. wide, course SW. Asc. SE. slope, 170 ft.
 70.00 Knoll, brs. E. about 10 chs. dist.
 76.80 Spur, brs. SW. Desc. NW. slope, 35 ft. to
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 1, 6, 7 and 12, marked on brass cap
 1915 on S. rim;
 T13N in N. half;
 R19W S1 in NW.,
 R18W S6 in NE.,
 S7 in SE. and
 S12 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 Land, rolling hills.
 Soil, shallow, rocky, decomposed granite and lava; 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.
 Mar. 14, 1915: At this cor., I set off $2^{\circ} 42\frac{1}{2}'$ S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 29\frac{1}{2}'$ N.

North bet. secs. 1 and 6.
 Over rolling hills, through scattering undergrowth.
 .20 Wash, 40 lks. wide, course SW. Asc. SE. slope, 140 ft. to
 12.50 Spur, brs. SW. Thence along W. slope.
 15.60 Enter wash, course SW.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S6 in E. and
 S1 in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

West Boundary of T. 13 N., R. 18 W.

Chains.

- 41.20 Leave wash, course SW. Enter mountainous land, brs. NE. and SW. Asc. broken S. slope, 45 ft. to
- 44.00 Spur, brs. SW. Desc. NW. slope, 20 ft. to
- 47.80 Wash, 40 lks. wide, course SW. Asc. SE. slope, 100 ft. to
- 54.80 Spur, brs. SW. Continue to asc. SW. slope, 160 ft. to
- 68.10 Same spur, brs. SE. Desc. NE. slope, 60 ft. to
- 74.50 Ravine, course SE. Asc. SE. slope, 70 ft. to
- 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 18 ins. in the

ground, on solid rock, supported by a mound of stone, for cor. of Tps. 13 and 14 N., Rs. 18 and 19 W., marked on brass cap

- 1915 on S. rim;
- T14N in N.,
- R18W in E.
- T13N in S. and
- R19W in W. half;
- S36 in NW.,
- S31 in NE.,
- S6 in SE. and
- S1 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, S. of cor. Pits impracticable.

Land, rolling and mountainous.

Soil, shallow, rocky, decomposed granite and lava; 4th rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla and cacti.

J. M. M.
Mar. 14, 1915.

Chains.

Mar. 11, 1915: A. S.

From the cor. of Tps. 13 and 14 N., Rs. 17 and 18 W., which is an iron post, established by me, as hereinbefore described, I run

West, on a random line, along the N. bdy. of T. 13 N., R. 18 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs., to the cor. of secs. 3, 4, 33 and 34, where I leave a temporary point.

A. S.
Mar. 11, 1915.

Mar. 14, 1915. J. M. M.

From the temp. cor. of secs. 3, 4, 33 and 34, I continue West, on a random line, along the N. bdy. of Tp. 13 N., R. 18 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs.; and at 479.53 chs., intersect the W. bdy of Tp. 14 N., R. 18 W., 20 lks. N. of the cor. of Tps. 13 and 14 N., Rs. 18 and 19 W., which is an iron post, established by me, as hereinbefore described. The falling answers to a correction of $0^{\circ} 1'$, or 3 lks. S. per mile, counting from the NE. cor. of the Tp.; therefore I run

N. $89^{\circ} 59'$ E., on a true line, bet. secs. 6 and 31. Over mountainous land, through scattering undergrowth. Desc. SE. slope, 75 ft. to

- 3.60 Gulch, course S. Asc. W. slope, 65 ft. to
- 7.60 Spur, brs. S. Desc. broken SE. slope, 90 ft. to
- 14.20 Gulch, course SW. Asc. broken NW. slope, 100 ft. to
- 21.90 Saddle in spur, brs. SW. Desc. SE. slope, 125 ft. to
- 29.50 Wash, 250 lks. wide, course SW. Asc. broken NW. slope, 315 ft.
- 39.53 Impracticable to set iron post at this point. Set a granite stone, 18 X 10 X 8 ins., 12 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
- 49.60 Spur, brs. SW. Desc. broken SE. slope, 290 ft.
- 58.50 Spur, brs. S. Continue desc.
- 70.10 Gulch, course S. Thence over rolling land.
- 77.50 Wash, 30 lks. wide, course SW. Asc. broken NW. slope, 25 ft. to
- 79.53 Impracticable to set iron post at this point. Set a granite stone, 18 X 12 X 10 ins., 10 ins. in the ground, in a mound of stone, for cor. of secs. 5, 6, 31 and 32, marked with 5 notches on E. and 1 notch on W. edge; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, mountainous. and rolling.
Soil, rocky, shallow, decomposed granite and lava; 4th rate.
No timber.
Undergrowth, greasewood, palo verde, ocatilla and cacti.

N. $89^{\circ} 59'$ E., on a true line, bet. secs. 5 and 32. Over mountainous land, through scattering undergrowth. Asc. broken NW. slope, 145 ft. to

- 8.10 Saddle in spur, brs. SW. Desc. SE. slope, 120 ft. to
- 14.10 Gulch, course SW. Asc. W. slope, 40 ft. to
- 16.00 Spur, brs. S. Desc. E. slope, 90 ft. to
- 21.10 Wash, 30 lks. wide, course S. Asc. SW. slope, 100 ft. to
- 30.70 Spur, brs. S. Desc. SE. slope, 60 ft. to
- 34.10 Wash, 30 lks. wide, course S. Asc. SW. slope, 25 ft.
- 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
1915 on S. rim;
S32 in N.,
S5 in S. and

Chains.

$\frac{1}{4}$ in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 N. of cor. Pits impracticable.
 42.00 Spur, brs. S. Desc. E. slope, 65 ft.
 45.80 Leave mountainous land, brs. NE. and SW. Thence over roll-
 ing land.
 47.50 Wash, 4 chs. wide, course SE. Asc. SW. slope, 60 ft.
 52.50 Old road, brs. N. and S.
 58.00 Spur, brs. S. Desc. broken SE. slope, 155 ft. to
 75.80 Wash, 80 lks. wide, course SE.
 80.00 Set an iron post, 3ft. long, 3 ins. diam., 28 ins. in the
 ground, for cor. of secs. 4, 5, 32 and 33, marked on
 brass cap
 1915 on S. rim;
 T14N R18W in N. and
 T13N in S. half;
 S32 in NW.,
 S33 in NE.,
 S4 in SE. and
 S5 in SW. 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, shallow, decomposed granite and lava.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.

N.89° 59' E., on a true line, bet. secs. 4 and 33.
 Over rolling hills, through scattering undergrowth.
 1.10 Wash, 90 lks. wide, course SW. Joins other wash about 3
 chs. SW. Asc. SW. slope, 40 ft. to
 8.56 Spur, brs. S. Desc. E. slope, 65 ft. to
 14.50 Wash, 80 lks. wide, course S. Asc. W. slope, 40 ft. to
 21.50 Spur, brs. S. Thence along S. slope.
 25.00 Wash, course SE.
 39.70 Wash, 15 lks. wide, course SE.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the
 ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 S33 in N.,
 S4 in S. and
 $\frac{1}{4}$ in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 N. of cor. Pits impracticable.
 46.50 Wash, 20 lks. wide, course S.
 63.50 Wash, 50 lks. wide, course SE.
 75.50 Wash, 90 lks. wide, course SW.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
 ground, for cor. of secs. 3, 4, 33 and 34, marked on
 brass cap
 1915 on S. rim;
 T14N R18W in N., and
 T13N in S. half;
 S33 in NW.,
 S34 in NE.,
 S3 in SE. and
 S4 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 W. of cor. Pits impracticable.
 Land, rolling hills.
 Soil, shallow, sandy, decomposed granite and lava; 3rd and
 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.
 J. M. M.
 Mar. 14, 1915.

Chains.

- Mar. 11, 1915: A. S.
N.89° 59' E., on a true line, bet. secs. 3 and 34.
Over mountainous land, through scattering undergrowth.
- 7.00 Wash, 20 lks. wide, course SW. Asc. W. slope, 25 ft.
15.00 Rocky butte, brs. S. 15 chs. dist.
26.00 Small gulch, course S. Asc. W. slope, 70 ft. to
32.00 Spur, slopes S. Desc. E. slope, 100 ft.
40.00 Set a granite stone, 14 X 12 X 6 ins., 10 ins. in the
ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and
raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N.
of cor. Pits impracticable.
- 40.70 Wash, 30 lks. wide, course SW. Asc. W. slope, 50 ft. to
45.40 Low spur, slopes S. Desc. E. slope, 50 ft. to
51.10 Wash, 20 lks. wide, course SW. Asc. W. slope, 75 ft. to
56.10 Spur, slopes S. Desc. E. slope, 80 ft. to
60.30 Wash, 10 lks. wide, course SE. Asc. W. slope, 65 ft. to
77.10 Low hill, brs. S. Desc. E. slope, 60 ft. to
79.50 Gulch, 8 lks. wide, course S. Ascend.
80.00 Point for cor. of secs. 2, 3, 34 and 35 falls on rotten
ledge where it cannot be established. I return to
79.70 Set a granite stone, 16 X 10 X 8 ins., 11 ins. in the
ground, for witness cor. to cor. of secs. 2, 3, 34 and
35, marked WC on NE. face; with 2 notches on E. and
4 notches on W. edge; and raise a mound of stone,
2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
Land, mountainous.
Soil, rocky 3rd rate.
No timber.
Undergrowth, palo verde, greasewood, ocatilla and cacti.

- From the true point for wor. of secs. 2, 3, 34 and 35, I
run
N.89° 59' E., on a true line, bet. secs. 2 and 35.
Over rolling land, through scattering undergrowth.
- 11.00 Low hill, brs. SW. Desc. to
19.60 Gulch, 8 lks. wide, course S.
35.00 Wash, 25 lks. wide, course 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
1915 on S. rim;
S35 in N.,
S2 in S. and
 $\frac{1}{4}$ in W. half;
and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
N. of cor. Pits impracticable.
- 60.00 Wash, 30 lks. wide, course S. Asc. to
70.00 Divide between Williams and Colorado Rivers, brs. NW.
and SE. Desc. to
80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
ground, for cor. of secs. 1, 2, 35 and 36, marked on
brass cap
1915 on S. rim;
T14N R18W in N. land
T13N in S. half;
S35 in NW.,
S36 in NE.,
S1 in SE. and
S2 in SW. quadrant;
and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
W. of cor. Pits impracticable.
Land, rolling.
Soil, 3rd and 4th rate.
No timber.
Undergrowth, greasewood, palo verde, ocatilla and cacti.

North Boundary of T. 13 N., R. 18 W.

10.49

Chains. N.89° 59' E., on a true line, bet. secs. 1 and 36.
 Over rolling land, through scattering undergrowth.
 31.90 Wash, 15 lks. wide, course SE.
 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
 1915 on S. rim;
 S36 in N.,
 S1 in S. and
 $\frac{1}{4}$ in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 N. of cor. Pits impracticable.
 46.50 Wash, 10 lks. wide, course SE.
 80.00 The cor. of Tps. 13 and 14 N., Rs. 17 and 18.W.
 Land, rolling.
 Soil, 2nd and 3rd rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.
 A. S.
 Mar. 11, 1915.

Boundaries of T. 13 N., R. 18 W.

Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South boundary (3rd. Std. Par. N.)	West.	480.00				480.00
West boundary	North.	480.00	480.00			
North boundary "	N.89°59'E.	479.53	.14		479.53	
East boundary "	South.	480.00		480.00		
Convergency.					.50	
<u>Totals</u>			480.14	480.00	480.03	480.00
			480.00		480.00	
<u>Error in lat.</u>			.14			
<u>Error in dep.</u>			.03			

L. A. Hartman.

C. B. Hartman.

North Boundary of Township 13 North, Range 19 West

Chains

Survey commenced Apr. 7, 1915, and executed by J. M. McKinney, Jr., U. S. Transitman, with Young and Sons' light mountain transit No. 8483, with Smith solar attachment. For description of instrument, and certificate of approval, see subdivision of T. 13 N., R. 18 W. in Book "C."

Knowing from recent and repeated tests of this instrument on a meridian established by observations on Polaris at elongation, that it is in adjustment, I proceed to the survey of the N. and W. bdrs. of T. 13 N., R. 19 W.

At 9 hrs. 30 m., a.m., l.m.t., I set off $34^{\circ} 30\frac{1}{2}'$ N. on the lat. arc; $6^{\circ} 37'$ N. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 13 and 14 N., Rs. 18 and 19 W., which is an iron post, established by me, as hereinbefore described.

Thence I run
 West bet. secs. 1 and 36.
 Over mountainous land, through scattering undergrowth.
 Asc. broken SE. slope, 125 ft. to
 6.20 Spur, brs. SE. Desc. broken SW. slope, 175 ft. to
 17.40 Gulch, course SW. Asc. SE. slope, 40 ft. to
 21.20 Spur, brs. SW. Desc. W. slope, 85 ft. to
 27.40 Wash, 150 lks. wide, course SW. Asc. SE. slope, 45 ft. to
 34.80 Spur, brs. SW. Desc. SW. slope, 75 ft. to
 37.40 Gulch, course SW. Asc. broken SE. slope, 90 ft.
 40.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 10 X 6 ins., 10 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

45.20 Spur, brs. SW. Desc. W. slope, 160 ft. to
 51.60 Gulch, course SW. Asc. broken SE. slope, 105 ft. to
 69.20 Spur, brs. SW. Desc. broken SW. slope, 70 ft. to
 80.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 10 X 8 ins., 5 ins. in the ground, on solid rock, in a mound of stone, for cor. of secs. 1, 2, 35 and 36, marked with 1 notch on E. and 5 notches on W. edge; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, mountainous.
 Soil, shallow, rocky, decomposed granite and lava; 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.
 Apr. 7, 1915: At this cor., I set off $6^{\circ} 39'$ N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 30\frac{1}{2}'$ N.

West bet. secs. 2 and 35.
 Over mountainous land, through scattering undergrowth.
 Desc. broken SW. slope, 80 ft. to
 10.80 Gulch, course SW. Asc. broken SE. slope, 150 ft. to
 19.20 Spur, brs. SW. Desc. broken SW. slope, 530 ft.
 40.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 10 X 8 ins., 8 ins. in the ground, on solid rock, in a mound of stone, for $\frac{1}{2}$ sec. cor., marked $\frac{1}{2}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

53.20 Wash, 40 lks. wide, course NW. Thence along N. slope.
 62.20 Same wash, course SW. Leave mountainous land, brs. NW. and SE. Thence over rolling hills.
 77.00 Desc. SW. slope, 45 ft. to
 80.00 Impracticable to set an iron post at this point. Set a granite stone, 16 X 10 X 8 ins., 11 ins. in the ground, for cor. of secs. 2, 3, 34 and 35, marked with 2 notches on E. and 4 notches on W. edge; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, rolling and mountainous.

North Boundary of Township 13 North, Range 19 West 51

Chains.

Soil, shallow, rocky, decomposed granite and lava; 3rd and 4th rate.
No timber.
Undergrowth, greasewood, palo verde, ocatilla and cacti.

West bet. secs. 3 and 34.
Over rolling hills, through scattering undergrowth.

- .70 Wash, 80 lks. wide, course SW.
 - 15.60 Wash, 50 lks. wide, course SW.
 - 40.00 Impracticable to set an iron post at this point. Set a granite stone, 16 X 10 X 8 ins., 11 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
 - 44.80 Wash, 20 lks. wide, course SW.
 - 68.50 Wash, 20 lks. wide, course SW.
 - 80.00 Impracticable to set an iron post at this point. Set a granite stone, 18 X 12 X 8 ins., 12 ins. in the ground, for cor. of secs. 3, 4, 33 and 34, marked with 3 notches on E. and W. edges; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
- Land, rolling hills.
Soil, shallow, sandy, decomposed granite and lava; 3rd and 4th rate.
No timber.
Undergrowth, greasewood, palo verde, ocatilla and cacti.
Apr. 7, 1915.

Apr. 8, 1915: At 8 hrs. 30 m., a.m., l.m.t., I set off $34^{\circ} 30\frac{1}{2}'$ N. on the lat. arc; $6^{\circ} 59'$ N. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 3, 4, 33 and 34.

Thence I run

West, bet. secs. 4 and 33.

Over rolling hills, through scattering undergrowth.

- 3.20 Wash, 50 lks. wide, course SW.
 - 23.00 Wash, 50 lks. wide, course SW.
 - 40.00 Impracticable to set an iron post at this point; Set a granite stone, 14 X 10 X 8 ins., 10 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
 - 58.20 Wash, 90 lks. wide, course SW.
 - 74.20 Wash, 50 lks. wide, course SW.
 - 80.00 Impracticable to set an iron post at this point. Set a granite stone, 18 X 10 X 8 ins., 12 ins. in the ground, for cor. of secs. 4, 5, 32 and 33, marked with 4 notches on E. and 2 notches on W. edge; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
- Land, rolling hills.
Soil, shallow, sandy, decomposed granite and lava; 3rd and 4th rate.
No timber.
Undergrowth, greasewood, palo verde, ocatilla and cacti.

West bet. secs. 5 and 32.

Over rolling hills, through scattering undergrowth.

Asc. SE. slope, 55 ft. to

- 13.80 Knoll, brs. N. about 3 chs. Desc. SW. slope, 150 ft. to
- 39.50 Wash, 50 lks. wide, course SW.

Chains.

40.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 8 X 6 ins., 10 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

45.00 Wash, 90 lks. wide, course SW.

63.40 Wash, 30 lks. wide, course SW.

64.90 Old road, brs. NE and SW.

72.40 Wash, 120 lks. wide, course SW.

80.00 Impracticable to set an iron post at this point. Set a lava stone, 14 X 10 X 8 ins., 10 ins. in the ground, for cor. of secs. 5, 6, 31 and 32, marked with 5 notches on E. and 1 notch on W. edge; and raise a mound of stone 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, rolling hills.
Soil, shallow, rocky, decomposed granite and lava; 3rd and 4th rate.
No timber.
Undergrowth, greasewood, palo verde, ocatilla and cacti.

West bet. secs. 6 and 31.
Over rolling hills, through scattering undergrowth.

17.40 Wash, 60 lks. wide, course SW.

38.50 Wash, 40 lks. wide, course SW.

40.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 10 X 8 ins., 10 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

64.20 Wash, 30 lks. wide, course SW.

79.50 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of Tps. 13 and 14 N., Rs. 19 and 20 W., marked on brass cap
1915 on S. rim;
T14N in N.,
R19W in E.,
T13N in S. and
R20 W in W. half;
S36 in NW.,
S31 in NE.,
S6 in SE. and
S1 in SW. quadrant;
and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, S. of cor. Pits impracticable.

Land, rolling hills.
Soil, shallow, rocky, decomposed granite and lava; 3rd and 4th rate.
No timber.
Undergrowth, greasewood, palo verde, ocatilla and cacti.
Apr. 8, 1915: At this cor., I set off $7^{\circ} 1\frac{1}{2}'$ N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 30\frac{1}{2}'$ N.

J. M. M.

West Boundary of Township 13 North, Range 19 West 53

Chains. J.M.M.
 South, bet. secs. 1 and 6.
 Over rolling hills, through scattering undergrowth.
 Desc. SW. slope, 45 ft. to
 12.40 Wash, 30 lks. wide, course SW.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the
 ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S6 in E. and
 S1 in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 W. of cor. Pits impracticable.
 47.80 Wash, 3 chs. wide, course SW.
 61.20 Wash, 90 lks. wide, course SW.
 65.20 Old road, brs. NE. and SW.
 71.40 Wash, 60 lks. wide, course SW.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the
 ground, for cor. of secs. 1, 6, 7 and 12, marked on
 brass cap
 1915 on S. rim;
 T13N in N. half;
 R20W S1 in NW.,
 R19W S6 in NE.,
 S7 in SE. and
 S12 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 W. of cor. Pits impracticable.
 Land, rolling hills.
 Soil, shallow, rocky, decomposed granite and lava; 3rd
 and 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.

South, bet. secs. 7 and 12.
 Over rolling hills, through scattering undergrowth.
 22.40 Wash, 40 lks. wide, course SW.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the
 ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S7 in E. and
 S12 in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 W. of cor. Pits impracticable.
 44.00 Wash, 3 chs. wide, course SW.
 75.80 Wash, 60 lks. wide, course SW.
 80.00 Impracticable to set an iron post at this point. Set a
 lava stone, 14 X 12 X 10 ins., 10 ins. in the ground,
 for cor. of secs. 7, 12, 13 and 18, marked with 2 not-
 ches on N. and 4 notches on S. edge; and raise a mound
 of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits
 impracticable.
 Land, rolling hills.
 Soil, shallow, rocky, decomposed granite and lava; 3rd and
 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.

South, bet. secs. 13 and 18.
 Over rolling hills, through scattering undergrowth.
 13.80 Wash, 50 lks. wide, course SW.
 27.40 Wash, 30 lks. wide, course SW.
 40.00 Impracticable to set an iron post at this point. Set a
 lava stone, 14 X 8 X 6 ins., 10 ins. in the ground, for

Chains.	
	<p>$\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.</p>
61.60	Wash, 70 lks. wide, course SW.
73.20	Wash, 50 lks. wide, course SW.
80.00	<p>Impracticable to set an iron post at this point. Set a granite stone, 14 X 10 X 8 ins., 10 ins. in the ground, for cor. of secs. 13, 18, 19 and 24, marked with 3 notches on N. and S. edges; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.</p> <p>Land, rolling hills. Soil, shallow, sandy, decomposed granite and lava; 3rd and 4th rate. No timber. Undergrowth, greasewood, palo verde, ocatilla and cacti. Apr. 8, 1915.</p>
40.00	<p>Apr. 9, 1915: At 8 hrs. 58 m., a.m., l.m.t., I set off $34^{\circ} 28'$ N. on the lat. arc; $7^{\circ} 21\frac{1}{2}'$ N. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 13, 18, 19 and 24.</p> <p>Thence I run South, bet. secs. 19 and 24. Over rolling hills, through scattering undergrowth.</p> <p>Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; $\frac{1}{4}$ in N., S19 in E. and S24 in W. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.</p>
54.50	Wash, 80 lks. wide, course SW. Asc. NW. slope, 35 ft. to
58.50	Top of small knoll. Desc. S. slope, 85 ft. to
64.70	Wash, 150 lks. wide, course SW. Asc. NW. slope, 75 ft. to
70.80	Top of small knoll. Desc. S. slope, 45 ft. to
80.00	<p>Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 19, 24, and 30 and fractional sec. 25, marked on brass cap, 1915 on S. rim; T13N in N. half; R20W S24 in NW., R19W S19 in NE., S30 in SE. and S25 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.</p> <p>Land, rolling hills. Soil, shallow, rocky, decomposed granite and lava; 3rd and 4th rate. No timber. Undergrowth, greasewood, palo verde, ocatilla and cacti.</p>
40.00	<p>South, bet. sec. 30 and fractional sec. 25. Over rolling hills, through scattering undergrowth.</p> <p>Impracticable to set an iron post at this point. Set a granite stone, 14 X 10 X 8 ins., 6 ins. in the ground, on solid rock, in a mound of stone, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.</p>
54.50	<p>Apr. 9, 1915: At this cor., I set off $7^{\circ} 24'$ N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 26\frac{1}{2}'$ N.</p> <p>Head of gulch, course SE. Enter mountainous land, brs. NW. and SE. Asc. broken NE. slope, 110 ft.</p>

Chains.

54.90 Road brs. NW. and SE.
 64.60 Top of rocky hill, which extends about 6 chs. NW. and 10 chs. SE. of line. Descend broken SW. slope, 90 ft. to
 76.90 Point of spur, brs. SW. Descend broken SE. slope to
 80.00 Impracticable to set iron post at this point. Set a granite stone, 16x12x8 ins., 6 ins. in the ground, on solid rock, in a mound of stone, for cor. of sec. 30 and frac. secs. 25, 31 and 36, marked with 5 notches on N., and 1 notch on S. edge; and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable.
 Land, N. 55 chs., rolling hills; S. 25 chs., mountainous.
 Soil, shallow, rocky, decomposed granite and lava; 3rd rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocotillo and cacti.

 South, bet. ^{fracl.}secs. 31 and 36.
 Over mountainous land, through scattering undergrowth.
 Descend broken SE. slope, 100 ft. to
 9.20 Enter wash, course SW. Thence over level land.
 15.00 Enter dense undergrowth, brs. NW. and SE.
 21.30 Set an iron post, 3 ft. long, 1 in. in diam., 28 ins. in the ground, at mean high water mark, on the left bank of the Colorado River, for meander cor. of fractional secs. 31 and 36, marked on brass cap
 1915 on S. rim;
 M C S of center;
 T 13 N in N. half;
 R 20 W S 36 in NW., and
 R 19 W S 31 in NE. sector;
 dig a pit, 36x36x12 ins., 8 ft. N. of post; and raise a mound of earth, 4 ft. base, 2 ft. high, N. of cor.
 Land, N. 10 chs., mountainous; S. 10 chs., bottom land.
 Soil, sandy, 3rd rate; and rocky 4th rate.
 No timber.
 Undergrowth, arrow-weed, mesquite and cacti.

J.M.M.
 April 9, 1915.

Boundaries of Township 13 North, Range 19 West.

Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South boundary (3rd Std. Par. N.)	West	438.40				438.40
Left bank Colorado River in sec. 31	Meanders		58.44			41.89
West boundary	North	421.30	421.30			
North boundary	East	479.50			479.50	
East boundary	South	480.00		480.00		
Convergency					.49	
Totals.			479.74	480.00	479.99	480.29
				479.74		479.99
Error in latitude		-----		.26		
Error in departure		-----		.30		

Chains.

Survey commenced Mar. 22, 1915, and executed jointly by Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, with Young and Sons' light mountain transits Nos. 8540 and 8483, respectively, with Smith solar attachments. For description of instruments, and certificate of approval, see page 1 of this book and subdivision of T. 13 N., R. 18 W. in Book "C."

In the following field notes, the initials A. S. and J. M. M. refer to Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, respectively.

We examine the adjustments of the transits and find them satisfactory; then to test the solars by comparing their indications, resulting from solar observations, made during a.m., and p.m., hours, with a meridian established by observations on Polaris, we proceed as follows:-

At 5 hrs. 0 m. p.m., l.m.t., by our watches, which are set to correct local mean time, at our camp in sec. 21, T. 14 N., R. 17 W., in lat. 34° 33' N., long 114° 2' W., we set off 34° 33' N. on the lat. arcs; 0° 34' N. on the decl. arc; and determine meridians with our solars and mark points in the lines thus determined on pegs driven in the ground, 5 chs. N. of our stations.

At 7 hrs. 26.7 m., p.m., l.m.t., we observe Polaris at western elongation, in accordance with the Manual of Instructions, and mark points in the lines thus determined on pegs driven in the ground, 5 chs. N. of our stations.

Mar. 22, 1915.

Mar. 23, 1915: At 6 hrs. 50 m., a.m., l.m.t., we lay off the azimuth of Polaris, 1° 23' to the right. The meridians thus determined coincide with the lines obtained by solar observations last evening.

At 7 hrs. 0 m., a.m., l.m.t., we set off 34° 33' N. on the lat. arcs; 0° 47½' N. on the decl. arcs; and determine meridians with the solars. Each meridian thus determined coincides with the meridian established by observations on Polaris; we therefore conclude that the transits are in satisfactory adjustment.

A. S. and J. M. M.

A. S.

From the cor. of Tps. 13 and 14 N., Rs. 16 and 17 W., which is an iron post, established by me, as hereinbefore described, I run

North bet. secs. 31 and 36.
Over level land, through dense undergrowth.

20.00

Wash, 15 lks. wide, course SW.

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
1915 on S. rim;
¼ in N.,
S31 in E. and
S36 in W. half;

dig pits, 18 X 18 X 12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3½ ft. base, 1½ ft. high, W. of cor.

80.00

Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 25, 30, 31 and 36, marked on brass cap

1915 on S. rim;
T14N in N. half;
R17W S25 in NW.,
R16W S30 in NE.,
S31 in SE. and
S36 in SW. quadrant;

Chains.	<p>dig pits, 18 X 18 X 12 ins., in each sec., 5½ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, level. Soil, 2nd rate. No timber. Undergrowth, yucca, cacti, palo verde, greasewood, ocatilla and sage brush.</p>
<p>18.30 34.00 40.00 43.00 80.00</p>	<p>North bet. secs. 25 and 30. Over level land, through dense undergrowth. Road, brs. NW. and SE. to Castaneta Well. Wash, 10 lks. wide, course SW. Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for ¼ sec. cor., marked on brass cap 1915 on S. rim; ¼ in N., S30 in E. and S25 in W. half; dig pits, 18 X 18 X 12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3½ ft. base, 1½ ft. high, W. of cor. Pits impracticable. Wash, 10 lks. wide, course SW. 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 1915 on S. rim; T14N in N. half; R17W S24 in NW., R16W S19 in NE., S30 in SE. and S25 in SW. quadrant; dig pits, 18 X 18 X 12 ins., in each sec., 5½ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, level. Soil, 2nd rate. No timber. Undergrowth, greasewood, yucca, cacti and sage brush.</p>
<p>13.00 40.00 80.00</p>	<p>North bet. secs. 19 and 24. Over level land, through dense undergrowth. Wash, 15 lks. wide, course SW. Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for ¼ sec. cor., marked on brass cap 1915 on S. rim; ¼ in N., S19 in E. and S24 in W. half; dig pits, 18 X 18 X 12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3½ ft. base, 1½ ft. high, W. of cor. 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 1915 on S. rim; T14N in N. half; R17W S13 in NW., R16W S18 in NE., S19 in SE. and S24 in SW. quadrant; dig pits, 18 X 18 X 12 ins., in each sec., 5½ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, level.</p>

East Boundary of T. 14 N., R. 17 W.

Chains.

Soil, 2nd rate.
No timber.
Undergrowth, cacti, greasewood, yucca and sage brush.
Mar. 23, 1915: At this cor., I set off 0° 51' N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 33' N.

40.00 North, bet. secs. 13 and 18, Over level land, through dense undergrowth.
Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap
1915 on S. rim;
1/4 in N.,
S18 in E. and
S13 in W. half;
dig pits, 18 X 18 X 12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3 1/2 ft. base, 1 1/2 ft. high, W. of cor.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 7, 12, 13 and 18, marked on brass cap
1915 on S. rim;
T14N in N. half;
R17W S12 in NW.,
R16W S7 in NE.,
S18 in SE. and
S13 in SW. quadrant;
dig pits, 18 X 18 X 12 ins., in each sec., 5 1/2 ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
Land, level.
Soil, 2nd rate.
No timber.
Undergrowth, cacti, yucca, greasewood and sage brush.

40.00 North, bet. secs. 7 and 12. Over level land, through dense undergrowth.
Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap
1915 on S. rim;
1/4 in N.,
S7 in E. and
S12 in W. half;
dig pits, 18 X 18 X 12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3 1/2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 1, 6, 7 and 12, marked on brass cap
1915 on S. rim;
T14N in N. half;
R17W S1 in NW.,
R16W S6 in NE.,
S7 in SE. and
S12 in SW. quadrant;
dig pits, 18 X 18 X 12 ins., in each sec., 5 1/2 ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
Land, level.
Soil, 2nd rate.
No timber.
Undergrowth, greasewood, yucca and cacti.
From this cor., Crossman Peak brs. S. 81° 8' W.

A. S.
Mar. 23, 1915.

Chains.

Mar. 27, 1915: J. M. M.

At 8 hrs. 55 m., a.m., l.m.t., I set off $34^{\circ} 35'$ N. on the lat. arc; $2^{\circ} 22\frac{1}{2}'$ N. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 1, 6, 7 and 12.

Thence I run

North, bet. secs. 1 and 6.

Over level land, through dense undergrowth.

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

1915 on S. rim;

 $\frac{1}{4}$ in N.,

S6 in E. and

S1 in W. 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.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of Tps. 14 and 15 N., Rs. 16 and 17 W., marked on brass cap

1915 on S. rim;

T15N in N.,

R16W in E.,

T14N in S. and

R17W in W. half;

S36 in NW.,

S31 in NE.,

S6 in SE. and

S1 in SW. quadrant;

dig pits, 24 X 24 X 12 ins., on each line, N., E., and W., 4 ft. and S. of post, 8 ft. dist.; and raise a mound of earth, 5 ft. base, $2\frac{1}{2}$ ft. high, S. of cor.

Land, level.

Soil, sandy loam, and and 3rd rate.

No timber.

Undergrowth, dense cat claw, greasewood, ocatilla and cacti.

J. M. M.

Mar. 27, 1915 .

1915

West Boundary of T. 14 N., R. 17 W.

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Chains

Mar. 18, 1915: A. S.
 At 8 hrs. 28 m., a.m., l.m.t., I set off 34° 30 $\frac{1}{2}$ ' N. on the lat. arc; 1° 10 $\frac{1}{2}$ ' S. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 13 and 14 N., Rs. 17 and 18 W., which is an iron post, established by me, as hereinbefore described.

Thence I run
 North, bet. secs. 31 and 36.
 Over rolling land, through scattering undergrowth.

2.00 Wash, 15 lks. wide, course SE. Asc. to
 13.20 Low hill, brs. SE. Desc. NE. slope to
 17.00 Wash, 10 lks. wide, course SE.
 24.30 Wash, 15 lks. wide, course SE. Thence over level land, brs. NW. and SE.
 37.80 Wash, 25 lks. wide, course SE.
 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
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S31 in E. and
 S36 in W. 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.

63.80 Wash, 20 lks. wide, course SE. Leave level land, brs. NW. and SE. Thence over broken land,
 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
 1915 on S. rim;
 T14N in N. half;
 R18W S25 in NW.,
 R17W S30 in NE.,
 S31 in SE. and
 S36 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, level and rolling.
 Soil, rocky, decomposed granite; 3rd rate.
 No timber.
 Undergrowth, greasewood, ocatilla, palo verde, sage brush, cacti and scattering yucca.

Mar. 18, 1915.

Mar. 19, 1915: At 8 hrs. 32 m., a.m., l.m.t., I set off 34° 31 $\frac{1}{2}$ ' N. on the lat. arc; 0° 47' S. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 25, 30, 31 and 36.

Thence I run
 North, bet. secs. 25 and 30.
 Over rolling land, through scattering undergrowth.

1.00 Wash, 20 lks. wide, 20 ft. deep, course SE. Asc. S. slope, 25 ft. to
 13.30 Low spur, slopes SE. Thence along E. slope.
 22.00 Gulch, course SE. Thence along W. slope.
 27.00 Same gulch, course SW. Asc. S. slope, 100 ft. to
 36.80 Spur, brs. E. Desc. N. slope 35 ft. to
 40.00 Point for $\frac{1}{4}$ sec. cor. falls in wash, where it would be destroyed. I return to
 39.80 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for witness cor. to $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 WC N. of center;
 $\frac{1}{4}$ in N.,
 S30 in E. and
 S25 in W. half;

Chains.

and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

40.50 Wash, 20 lks. wide, course E. Asc. S. slope, 25 ft. to

42.20 Low spur, brs. E. Desc. N. slope, 20 ft. to

45.50 Gulch, course E. Asc. S. slope, 60 ft. to

51.90 Spur, slopes SE. Desc. broken NE. slope, 35 ft. to

58.80 Wash, 15 lks. wide, course E. Asc. S. slope, 30 ft. to

64.80 Spur, slopes E. Desc. N. slope, 75 ft. to

72.20 Head of gulch, course E. Thence a long broken E. slope to

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

1915 on S. rim;
 T14N. in N. half;
 R18W S24 in NW.,
 R17W S19 in NE.,
 S30 in SE. and
 S25 in SW. quadrant;.

and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, rolling.

Soil, decomposed granite, rocky; 3rd rate.

No timber.

Undergrowth, greasewood, cacti, palo verde, ocatilla, sage brush and scattering yucca.

A. S.
 Mar. 19, 1915.

Mar. 28, 1915: J. M. M.

At 8 hrs. a.m., 1.m.t., I set off 34° 32' N. on the lat. arc; 2° 45' N. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 19, 24, 25 and 30.

Thence I run

North, bet. secs. 19 and 24.

Over rolling hills, through scattering undergrowth.

10.80 Wash, 40 lks. wide, course SE.

25.00 Enter mountainous land, brs. NW. and SE. Asc. broken SW. slope, 425 ft.

40.00 Impracticable to set an iron post at this point. Set a granite stone, 18 X 10 X 8 ins., 10 ins. in the ground, on solid rock, in a mound of stone, for ¼ sec. cor., marked ¼ on W. face; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

42.40 Rocky spur, brs. SE. Desc. broken NE. slope, 150 ft. to

53.50 Head of gulch, course SE. Asc. S. slope, 245 ft. to

61.10 Rocky spur, brs. NE. Desc. broken NW. slope, 410 ft. to

80.00 Impracticable to set an iron post at this point. Set a granite stone, 18 X 8 X 6 ins., 12 ins. in the ground, for cor. of secs. 13, 18, 19 and 24, marked with 3 notches on N. and S. edges; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, rolling and mountainous.

Soil, shallow, rocky, decomposed granite and lava; 4th rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla and cacti.

North, bet. secs. 13 and 18.

Over mountainous land, through scattering undergrowth.

13.60 Desc. broken NW. slope, 140 ft. to

20.00 Wash, 30 lks. wide, course NE.

20.00 Leave mountainous land, brs. NW. and SE. Thence over rolling land.

23.60 Wash, 30 lks. wide, course E. Joins other wash about 1 ch.

Chains.

E.

32.80 Wash, 30 lks. wide, course E. Asc.

40.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 12 X 8 ins., 11 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Mar. 28, 1915: At this cor., I set off $2^{\circ} 48\frac{1}{2}'$ N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 33\frac{1}{2}'$ N.

45.00 Divide, between Williams and Colorado Rivers, brs. NE. and SW. Desc. to

60.00 Wash, 70 lks. wide, course NE.

69.80 Wash, 20 lks. wide, course E.

80.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 10 X 8 ins., 10 ins. in the ground, for cor. of secs. 7, 12, 13 and 18, marked with 2 notches on N. and 4 notches on S. edge; 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, shallow, rocky, decomposed granite and lava; 3rd and 4th rate.
No timber.
Undergrowth, greasewood, palo verde, ocatilla and cacti.

North, bet. secs. 7 and 12.
Over rolling land, through scattering undergrowth.

17.600 Wash, 60 lks. wide, course NE.

33.50 Wash, 20 lks. wide, course NE.

40.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 12 X 8 ins., 10 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

44.20 Wash, 20 lks. wide, course NE.

54.10 Wash, 20 lks. wide, course NE.

74.50 Wash, 20 lks. wide, course NE.

80.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 8 X 6 ins., 10 ins. in the ground, for cor. of secs. 1, 6, 7 and 12, marked with 1 notch on N. and 5 notches on S. edge; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, rolling.
Soil, shallow, rocky, 3rd rate.
No timber.
Undergrowth, scattering yucca, greasewood, palo verde, and cacti.

Mar. 28, 1915.

Mar. 27, 1915:
North, bet. secs. 1 and 6.
Over rolling land, through scattering undergrowth.

40.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 8 X 6 ins., 10 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

48.34 Wash, 30 lks. wide, course NE.

65.34 Wash, 20 lks. wide, course NE.

80.00 Impracticable to set an iron post at this point. Set a granite stone, 24 X 10 X 8 ins., 18 ins. in the ground, for cor. of Tps. 14 and 15 N., Rs. 17 and 18 W., marked

Chains.

with 6 notches on each edge; and raise a mound of stone,
2 ft. base, 1½ ft. high, S. of cor. Pits impracticable.

Land, rolling.

Soil, shallow, sandy; 3rd rate.

No timber.

Undergrowth, scattering yucca, cat claw and cacti.

Mar. 27, 1915.

J. M. M.

Chains	J.M.M.
	Mar. 27, 1915.
	From the cor. of Ts. 14 and 15 N., Rs. 16 and 17 W., which is an iron post, established by me, as hereinbefore described, I run
	West on a random line, along the N. bdy. of T. 14 N., R. 17 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs.; and at 478.76 chs., intersect the W. bdy of T. 15 N., R. 17 W., 14 lks. N. of the cor. of Tps. 14 and 15 N., Rs. 17 and 18 W., which is a stone, established by me, as hereinbefore described. The falling answers to a correction of $0^{\circ} 1'$ or 2 lks. S. per mile, counting from the NE. cor. of the Tp.; therefore I run
	N. $89^{\circ} 59'$ E., on a true line, bet. secs. 6 and 31. Over level land, through scattering undergrowth.
9.86	Wash, 50 lks. wide, course NE.
38.76	Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; S31 in N., S6 in S. and $\frac{1}{4}$ in W. half;
	and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
56.26	Wash, 20 lks. wide, course NE.
78.46	Wash, 20 lks. wide, course NE.
78.76	Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 5, 6, 31 and 32, marked on brass cap T15N R17W in N. and T14N in S. half; S31 in NW., S32 in NE., S5 in SE. and S6 in SW. quadrant;
	and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
	Land, level.
	Soil, shallow, sandy, 3rd rate.
	No timber.
	Undergrowth, scattering yucca, cat claw and cacti.
	N. $89^{\circ} 59'$ E., on a true line, bet. secs. 5 and 32. Over level land, through scattering undergrowth.
7.80	Road, brs. N. to Yucca, and S. to Standard Mine.
27.50	Wash, 60 lks. wide, course NE.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{2}$ sec. cor., marked on brass cap 1915 on S. rim; S32 in N., S5 in S. and $\frac{1}{2}$ in W. half;
	and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
63.50	Wash, 40 lks. wide, course NE.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 4, 5, 32 and 33, marked on brass cap T15N R17W in N., and T14N in S. half; S32 in NW., S33 in NE., S4 in SE. and S5 in SW. quadrant;
	and dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Chains.	<p>Land, level. Soil, sandy loam, 3rd and 2nd rate. No timber. Undergrowth, scattering yucca, cat claw and cacti.</p>
40.00	<p>N.89° 59' E., on a true line, bet. secs. 4 and 33. Over level land, through scattering undergrowth. Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; S33 in N., S4 in S. and $\frac{1}{4}$ in W. 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, $1\frac{1}{2}$ ft. high, N. of cor.</p>
63.00	Wash, 20 lks. wide, course N.
66.60	Old road, brs. NW. and SE. to Castaneta Well.
80.00	<p>Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 3, 4, 33 and 34, marked on brass cap 1915 on S. rim; T15N R17W in N. half; T14N in S. half; S33 in NW., S34 in NE., S3 in SE. and S4 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.</p>
	<p>Land, level. Soil, sandy loam, 2nd and 3rd rate. No timber. Undergrowth, scattering yucca, cacti and cat claw. Mar. 27, 1915: At this cor., I set off 2° 25' N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 35$\frac{1}{2}$' N.</p>
40.00	<p>N.89° 59' E., on a true line, bet. secs. 3 and 34. Over rolling land, through scattering undergrowth. Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; S34 in N., S3 in S. and $\frac{1}{4}$ in W. 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, $1\frac{1}{2}$ ft. high, N. of cor.</p>
50.00	Divide between Williams and Colorado Rivers, brs. NE. and SW. Asc. slightly to
80.00	<p>Desc. slightly to Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 2, 3, 34 and 35, marked on brass cap 1915 on S. rim; T15N R17W in N. and T14N in S. half; S34 in NW., S35 in NE., S2 in SE. and S3 in SW. quadrant; dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high,</p>

North Boundary of T. 14 N., R. 17 W.

Chains

W. of cor.
 Land, rolling.
 Soil, sandy loam, 2nd and 3rd rate.
 No timber.
 Undergrowth, scattering yucca, greasewood, and cacti.

40.00 N.89° 59' E., on a true line, bet. secs. 2 and 35.
 Over level land, through scattering undergrowth.
 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 S35 in N.,
 S2 in S. and
 $\frac{1}{4}$ in W. 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, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 1, 2, 35 and 36, marked on brass cap
 1915 on S. rim;
 T15N R17W in N. and
 T14N in S. half;
 S35 in NW.,
 S36 in NE.,
 S1 in SE. and
 S2 in SW. quadrant;
 dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
 Land, level.
 Soil, sandy loam, 2nd and 3rd rate.
 No timber.
 Undergrowth, greasewood, palo verde, yucca and cacti.

31.30 N.89° 59' E., on a true line, bet. secs. 1 and 36.
 Over level land, through scattering undergrowth.
 Old road, brs. NE. and SW.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 S36 in N.,
 S1 in S. and
 $\frac{1}{4}$ in W. 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, $1\frac{1}{2}$ ft. high, N. of cor.

80.00 The cor. of Tps. 14 and 15 N., Rs. 16 and 17 W.
 Land, level.
 Soil, 2nd and 3rd rate; sandy loam.
 No timber.
 Undergrowth, greasewood, yucca, palo verde and cacti.
 J. M. M.
 Mar. 27, 1915.

Boundaries of T. 14 N., R. 17 W.
Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South boundary	S. 89° 56' W.	479.36		.56		479.36
West boundary	North.	480.00	480.00			
North boundary	N. 89° 59' E.	478.76	.14		478.76	
East boundary	South.	480.00		480.00		
Convergency.					.50	
<i>Totals.</i>			480.14	480.56	479.26	479.36
				480.14		479.26
Error in lat.				.42		
Error in dep.						.10

North Boundary of Fractional T. 13 N., R. 20 W. 69

Chains.

Survey commenced Apr. 9, 1915, and executed by Albert Smith, Jr., U. S. Surveyor, with Young and Sons' light mountain transit No. 8540, with Smith solar attachment. For description of instrument, and certificate of a approval, see page 1 of this book.

In the following field notes, the initials A. S. and J. M. M. refer to Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, respectively.

Knowing from recent and repeated tests of this instrument on a meridian established by observations on Polaris at elongation, that it is in adjustment, I proceed to the survey of the North Bdy. of Fractional T. 13 N., R. 20 W.

At 7 hrs., 4 m., a.m., l.m.t., I set off 34° 30½' N. on the lat. arc; 7° 21' N. on the decl. arc; and determine a meridian with the solar, 3½ lks. S. of the cor. of Tps. 13 and 14 N., Rs. 19 and 20 W., which is an iron post, established by J. M. M., as hereinbefore described.

Thence I run N.89° 58' W., on the secant, S. of sec. 36.

Over rolling land, through dense undergrowth.

- 8.50 Wash, 20 lks. wide, course SW.
- 12.20 Wash, 1 ch. wide, 30 ft. deep, course SW.
- 30.00 Desc. NW. slope, 35 ft. to
- 31.70 Gulch, course SW. Asc. SE. slope, to
- 38.00 Low ridge, brs. SW. Desc. NW. slope to
- 40.00 Point for ¼ sec. cor. falls in wash, 75 lks. wide, course SW.
- 41.70 N. 2 lks. from the secant,
Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for witness cor. to ¼ sec. cor., marked on brass cap

1915 on S. rim;
S36 in N.,
S1 in S. and
WC ¼ in W. half;

and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.

- 50.00 Gulch, 50 ft. deep, course SW. Asc. SE. slope, 30 ft. to
- 53.00 Spur, brs. SW.
- 58.00 Desc. NW. slope, 30 ft. to
- 59.85 Gulch, 60 ft. deep, course SW. Asc. SE. slope, 30 ft. to
- 62.40 Low ridge, brs. SW. Desc. NW. slope, 40 ft. to
- 68.35 Gulch, 40 ft. deep, course SW. Thence along S. slope.
- 72.40 Low spur, brs. SW. Desc. broken NW. slope, 80 ft. to
- 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 1, 2, 35 and 36, marked on brass cap

1915 on S. rim;
T14N R20W in N. and
T13N in S. half;
S35 in NW.,
S36 in NE.,
S1 in SE. and
S2 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, rolling and hilly.

Soil, rocky, 3rd rate.

No timber.

Undergrowth, greasewood, ocatilla, palo verde and cacti.

N.89° 59' W., on the secant, through sec. 35.
Over hilly land, through dense undergrowth.

- 60 Gulch, course SW. Asc. SE. slope, 40 ft. to
- 5.00 Low ridge, brs. SW. Desc. broken NW. slope, 70 ft. to
- 18.40 Gulch, course SW. Asc. SE. slope, 50 ft. to
- 28.85 Low hill, brs. SW. Desc. NW. slope, 40 ft. to

Chains	
37.00	Wash, 4 chs. wide, course SW.
40.00	S. 1 lk. from the secant, Set an iron post, 3 ft. long, 1 in. diam., 22 ins. in the ground, on solid rock, for $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; S35 in N., S2 in S. and $\frac{1}{4}$ in W. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
55.00	Asc. SE. slope, to
57.00	Low ridge, brs. SW. Desc. NW. slope, 65 ft. to
63.90	Wash, 5 chs. wide, course SW.
80.00	S. 2 lks. from the secant, Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 2, 3, 34 and 35, marked on brass cap 1915 on S. rim; T14N R20W in N. and T13N in S. half; S34 in NW., S35 in NE., S2 in SE. and S3 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, hilly. Soil, rocky, 3rd rate. No timber. Undergrowth, greasewood, palo verde, ocatilla and cacti.
	West on the secant, through sec. 34. Over hilly land, through dense undergrowth.
19.50	Wash, 25 lks. wide, 20 ft. deep, course SW.
30.00	Enter wash, course W.; comes from NE.
40.00	S. 3 lks. from the secant, 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 1915 on S. rim; S34 in N., S3 in S. and $\frac{1}{4}$ in W. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
73.00	Leave wash, course SW.
80.00	S. 3 lks. from the secant, Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 3, 4, 33 and 34, marked on brass cap 1915 on S. rim; T14N R20W in N. and T13N in S. half; S33 in NW., S34 in NE., S3 in SE. and S4 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, hilly. Soil, rocky, 3rd rate. No timber. Undergrowth, greasewood, palo verde, ocatilla and cacti. Apr. 9, 1915: At this cor., I set off $7^{\circ} 24'$ N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 30\frac{1}{2}'$ N.

North boundary of Fractional Township 13 North, Range 20 West. 71.

Chains.

West on the secant, through sec. 33.
 Over rolling land, through dense undergrowth.
 10.00 Wash, 25 lks. wide, 35 ft. deep, course SW.
 40.00 South 3 lks. from the secant.
 Set an iron post, 3 ft. long, 1 in. in diam., 26 ins. in
 the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 S 33 in N.,
 S 4 in S., and
 $\frac{1}{4}$ in S. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N.
 of cor. Pits impracticable.
 71.90 Arthur Barta's house brs. S. 5° E., 12 chs. dist.
 76.00 Enter scattering timber and dense mesquite, willow and
 arrow-weed brush, brs. N. and S.
 78.70 Road brs. N. and S. Thence across land subject to over-
 flow, 3 to 7 ft. deep.
 80.00 S. 2 lks. from the secant,
 Set an iron post 3 ft. long, 3 ins. diam., 26 ins. in the
 ground, for cor. of secs. 4 and 33, and fractional secs.
 5 and 32, marked on brass cap
 1915 on S. rim,
 T 14 N R 20 W in N., and
 T 13 N. in S. half;
 S 32 in NW.,
 S 33 in NE.,
 S 4 in SE., and
 S 5 in SW. quadrant; from which
 A mesquite, 8 ins. diam., brs. S. 44° W., 13 lks.
 dist., marked T 13 N R 20 W S 5 B T.
 No other trees available; dig pits 18x18x12 ins. in each
 sec. $5\frac{1}{2}$ ft. dist., and raise a mound of earth 4 ft.
 base, 2 ft. high, W. of cor.
 Land, hilly and rolling.
 Soil, rocky, 3rd rate.
 Timber, cottonwood.
 Undergrowth, greasewood, palo verde, mesquite, willow, arrow-
 weed and cacti.

April 9, 1915.

 April 18, 1915.
 At 7h. 2m., a.m., 1.m.t., I set off $34^{\circ}30\frac{1}{2}'$ N. on the lat.
 arc; $10^{\circ}36\frac{1}{2}'$ N. on the decl. arc; and determine a meri-
 dian with the solar on the secant, 2 lks. N. of cor. of
 secs. 4 and 33, and fractional secs. 5 and 32.
 Thence I run,
 S. $89^{\circ}59'$ W., on the secant, through fractional sec. 32.
 Over bottom land, subject to overflow, 3 to 7 ft. deep,
 through dense undergrowth.
 25.00 Enter heavy timber, brs. N. and S.
 30.07 S. 1 lk. from the secant,
 Set an iron post, 3 ft. long, 1 in. in diam., 26 ins. in
 the ground, on the left bank of the Colorado River, at
 mean high water mark, for meander cor. of fractional
 secs. 5 and 32, marked on brass cap
 1915 on S. rim;
 MC W. of center;
 T 14 N in N.,
 T 13 N in S., and
 R 20 W in E. half;
 S 32 in NE., and
 S 5 in SE. sector; from which
 A cottonwood, 7 ins. diam., brs. N. $4\frac{1}{2}^{\circ}$ W., 46 lks.
 dist., marked T 14 N R 20 W S 32 M C B T.
 A black willow, 6 ins. diam., brs. S. $29\frac{1}{2}^{\circ}$ E., 24 lks.
 dist., marked T 13 N R 20 W S 5 M C B T.
 Land, level.
 Soil, alluvial; 2nd rate.

72. North boundary of Fractional Township 13 N., R. 20 W.

Chains.

Timber, cottonwood.
Undergrowth, mesquite, arrow-weed.

A.S.
April 18, 1915.

Boundaries of Fractional T. 13 N., R. 20 W.
Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
S. and W. bdrs. (Left bank Colorado River)	Meanders		421.95			350.84
North boundary	East	350.07			350.07	
East boundary	South	421.30		421.30		
Convergency					.25	
Totals -----			421.95	421.30	350.32	350.84
			421.30			350.32
Error in latitude -----			.65			
Error in departure -----					.52	

East Boundary of Fractional T. 14 N., R. 20 W. 73

Chains.

Survey commenced Apr. 14, 1915, and executed by Otis Ross, U. S. Surveyor, with Young and Sons' light mountain transit No. 8487, with Smith solar attachment. For description of instrument, tests of adjustment, and certificate of approval, see subdivision of this Tp. In the following field notes, the initials O. R. and J. G. refer to Otis Ross, U. S. Surveyor, and John Gonin, U. S. Transitman, respectively.

At 8 hrs. 0 m., a.m., l.m.t., I set off 34° 30 1/2' N. on the lat. arc; 9° 12' N. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 13 and 14 N., Rs. 19 and 20 W., which is an iron post, established by J. M. McKinney, Jr., U. S. Transitman, and hereinafter described.

Thence I run North bet. secs. 31 and 36. Over broken W. slope, through scattering undergrowth.

- 28.19 Center of wash, 1 ch. wide, course SW.
- 34.00 Center of wash, 75 lks. wide, course SW.
- 40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap
 - 1915 on S. rim;
 - 1/4 in N.,
 - S31 in E. and
 - S36 in W. half;
 and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable.

Asc. 35 ft. to

- 52.87 Spur, slopes SW. Desc. slightly to
- 59.67 Center of wash, 3 chs. wide, course SW. Asc. 30 ft. to
- 66.82 Spur, slopes SW. Desc. 20 ft. to
- 70.35 Center of wash, 1 ch. wide, course SW. Thence over level land.
- 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
 - 1915 on S. rim;
 - T14N in N. half;
 - R20W S25 in NW.,
 - R19W S30 in NE.,
 - S31 in SE. and
 - S36 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable.

Land, level, rolling and broken. Soil, rocky and gravelly; 4th rate. No timber. Undergrowth, greasewood, ocatilla, palo verde and cacti. No grass.

North bet. secs. 25 and 30. Over rolling land, through scattering undergrowth.

- 40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap
 - 1915 on S. rim;
 - 1/4 in N.,
 - S30 in E. and
 - S25 in W. half;
 and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable.

Apr. 14, 1915: At this cor., I set off 9° 14 1/2' N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 32' N.

- 53.60 Center of wash, 3 chs. wide, course SW.
- 64.18 Center of wash, 50 lks. wide, course W.
- 67.68 Road, brs. NE. and SW.
- 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the

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East Boundary of Fractional T. 14 N., R. 20 W.

Chains.

ground, for cor. of secs. 19, 24, 25 and 30, marked on brass cap

1915 on S. rim;
T14N in N. half;
R20W S24 in NW.,
R19W S19 in NE.,
S30 in SE. and
S25 in SW. quadrant;

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

Land, rolling and broken.

Soil, rocky, 3rd rate.

No timber.

Undergrowth, greasewood, palo verde and cacti.

No grass.

North bet. secs. 19 and 24.

Over rolling land, through scattering undergrowth.

5.00 Center of wash, 3 chs. wide, course W. Asc. 40 ft. to

16.66 Spur, slopes SW. Desc. 25 ft. to

38.92 Center of wash, 3 chs. wide, course SW.

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

1915 on S. rim;
 $\frac{1}{4}$ in N.,
S19 in E. and
S24 in W. half;

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

41.57 Center of wash, 2 chs. wide, course SW. Thence along
broken W. slope.

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

1915 on S. rim;
T14N in N. half;
R20W S13 in NW.,
R19W S18 in NE.,
S19 in SE. and
S24 in SW. quadrant;

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

Land, rolling and broken.

Soil, rocky, 4th rate.

No timber.

Undergrowth, greasewood, palo verde and cacti.

No grass.

Apr. 14, 1915.

Apr. 15, 1915: At 9 hrs. 0 m., a.m., l.m.t., I set off 34°
 $33'$ N. on the lat. arc; $9^{\circ} 33\frac{1}{2}'$ N. on the decl. arc;
and determine a meridian with the solar at the cor. of
secs. 13, 18, 19 and 24.

Thence I run

North bet. secs. 13 and 18.

Over rolling land, through scattering undergrowth.

Asc. gradual slope to

32.07 Spur, slopes SW. Desc. slightly to

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

1915 on S. rim;
 $\frac{1}{4}$ in N.,
S18 in E. and
S13 in W. half;

East Boundary of Fractional T. 14 N., R. 20 W. 75

Chains.

and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

47.70 Center of wash, 1 ch. wide, course SW. Asc. 25 ft. to
 53.60 Desc. 35 ft. to
 59.86 Center of wash, 1 ch. wide, course SSW. Asc. 45 ft. to
 65.00 Desc. 35 ft. to
 69.75 Asc. 40 ft. to
 73.00 Thence over level land.
 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

1915 on S. rim;
 T14N in N. half;
 R20W S12 in NW.,
 R19W S7 in NE.,
 S18 in SE. and
 S13 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
 Land, level, rolling and broken.
 Soil, rocky, 4th rate.
 No timber.
 Undergrowth, palo verde, greasewood and cacti.

North bet. secs. 7 and 12.
 Over broken land, through scattering undergrowth.
 Asc. 25 ft. to
 2.10 Desc. 20 ft. to
 13.05 Center of wash, 1 ch. wide, course SW.
 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

1915 on S. rim;
 ¼ in N.,
 S7 in E. and
 S12 in W. half;

and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

54.01 Center of wash, 1 ch. wide, course SW.
 63.15 Center of wash, 1 ch. wide, course SW.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 1, 6, 7 and 12, marked on brass cap

1915 on S. rim;
 T14N in N. half;
 R20W S1 in NW.,
 R19W S6 in NE.,
 S7 in SE. and
 S12 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
 Land, broken.
 Soil, rocky, 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.
 No grass.
 Apr. 15, 1915: At this cor., I set off 9° 36' N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 35' N.

North bet. secs. 1 and 6.
 Over broken land, through scattering undergrowth.

19.08 Center of wash, 3 ch. wide, course SW. Asc. 40 ft. to
 26.41 Spur, slopes SW. Desc. N. slope, 20 ft. to
 33.06 Center of wash, 2 chs. wide, course SW. Asc. 20 ft. to

Chains.
 37.00 Desc. 25 ft. to
 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
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S6 in E. and
 S1 in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 W. of cor. Pits impracticable.
 45.00 Asc. 80 ft. to
 67.75 Spur, slopes SW. Desc. NW. slope, 50 ft. to
 75.87 Center of gulch, 20 lks. wide, course SW. Asc. S. slope
 50 ft. to
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
 ground, for cor. of Tps. 14 and 15 N., Rs. 19 and 20
 W., marked on brass cap
 1915 on S. rim;
 T15N in N.,
 R19W in E.,
 T14N in S. and
 R20W in W. half;
 S36 in NW.,
 S31 in NE.,
 S6 in SE. and
 S1 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 S. of cor. Pits impracticable.
 Land, broken.
 Soil, rocky, 4th rate.
 No timber.
 Undergrowth, palo verde, ocotillo and cacti.
 No grass.

O. R. Apr. 15, 1915.

North Boundary of Fractional T. 14 N., R. 20 W.

Chains.	
	<p>Apr. 15, 1915. O. R. From the cor. of Tps. 14 and 15 N., Rs. 19 and 20 W., which is an iron post, established by me, as hereinbe- fore described, I run West on a true line, bet. secs. 1 and 36. Over broken land, through scattering undergrowth. Asc. SE. slope, 35 ft. to Desc. 30 ft. to Asc. 115 ft. to Top of spur, slopes SW. Desc. 45 ft. to Asc. 25 ft. to Desc. 100 ft. to Center of wash, 5 chs. wide, course SW. Asc. 80 ft. to Impracticable to set an iron post at this point. Set a granite stone, 18 X 12 X 6 ins., 12 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p> <p style="text-align: right;">Apr. 15, 1915.</p> <p>Apr. 19, 1915: At 8 hrs. 55 m., a.m., l.m.t., I set off $34^{\circ} 35\frac{1}{2}'$ N. on the lat. arc; $10^{\circ} 58\frac{1}{2}'$ N. on the decl. arc; and determine a meridian with the solar at the $\frac{1}{4}$ sec. cor. bet. secs. 1 and 36. Thence I continue West on a true line, bet. secs. 1 and 36. Asc. to Spur, slopes SW. Desc. 175 ft. to Center of wash, 20 lks. wide, course SW. Asc. E. slope, 160 ft. to Spur, slopes S. Desc. SW. slope, 180 ft. to Foot of desc.; Asc. SE. slope 50 ft. to Spur, slopes S. Desc. SW. slope, 45 ft. to Impracticable to set an iron post at this point. Set a granite stone, 16 X 10 X 6 ins., 12 ins. in the ground, for cor. of secs. 1, 2, 35 and 36, marked with 1 notch on E. and 5 notches on W. edge; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.</p> <p>Land, broken and mountainous. Soil, rocky, 4th rate. No timber. Undergrowth, palo verde, greasewood and cacti. No grass.</p>
	<p>West on a true line, bet. secs. 2 and 35. Over mountainous land, through scattering undergrowth. Desc. NW. slope, 180 ft. to Center of wash, 50 lks. wide, course SW. Asc. E. slope, 25 ft. to Spur, slopes S. Desc. 20 ft. to Asc. 20 ft. to Thence over gently rolling land. 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 1915 on S. rim; S35 in N., S2 in S. and $\frac{1}{4}$ in W. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p>
9.50	
20.57	
24.47	
25.70	
40.00	
65.00	
80.00	<p>Center of wash, 1 ch. wide, course SW. Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 2, 3, 34 and 35, marked on brass cap 1915 on S. rim; T15N in N., T14N in S. and</p>

Chains.

	<p>R20W in W. half; S34 in NW., S35 in NE., S2 in SE. and S3 in SW. quadrant; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable. Land, rolling and mountainous. Soil, rocky, 4th rate. No timber. Undergrowth, mesquite, palo verde and greasewood. No grass. Apr. 19, 1915: At this cor., I set off 11° ½' N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 35½' N.</p>
26.40	West on a true line, bet. secs. 3 and 34. Over rolling land, through scattering undergrowth. Desc. 40 ft. to
29.92	Center of wash, 1 ch. wide, course SW. Asc. 55 ft.
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 1915 on S. rim; S34 in N., S3 in S. and ¼ in W. half; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.
46.00	Top of asc.; desc. 30 ft. to
55.00	Asc. 55 ft. to
65.00	Saddle in ridge, brs. NE. and SW. Thence along N. slope.
80.00	Impracticable to set an iron post at this point. Set a malpais stone, 15 X 10 X 8 ins., 10 ins. in the ground, for cor. of secs. 3, 4, 33 and 34, marked with 3 notches on E. and W. edges; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable. Land, rolling. Soil, rocky, 4th rate. No timber. Undergrowth, greasewood, palo verde and cacti. No grass.
	West on a true line, bet. secs. 4 and 33. Over mountainous land, through scattering undergrowth. Asc. NE. slope, 135 ft. to
5.82	Spur, slopes N. Desc. SW. slope, 125 ft. to
14.24	Center of wash, 50 lks. wide, course N. Asc. NE. slope, 110 ft. to
25.51	Ridge, brs. NE. and SW. Desc. W. slope, 180 ft. to
33.40	Head of gulch, course SW. Asc. SE. slope, 70 ft.
40.00	Impracticable to set an iron post at this point. Set a malpais stone, 15 X 8 X 6 ins., 10 ins. in the ground, for ¼ sec. cor., marked ¼ on N. face; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.
41.95	Spur, slopes SW. Desc. 90 ft. to
44.60	Foot of desc., brs. NE. and SW. Asc. E. slope, 35 ft. to
46.35	Spur, slopes S. Desc. SW. slope, 175 ft. to
59.20	Center of wash, 50 lks. wide, course SW. Asc. E. slope, 30 ft. to
65.95	Spur, slopes SW. Desc. W. slope, 75 ft. to
80.00	Foot of desc., brs. NE. and SW. Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 4, 5, 32 and 33, marked on brass cap 1915 on S. rim;

North Boundary of Fractional T. 14 N., R. 20 W.

Chains.

T15N in N.,
T14N in S. and
R20W in W. half;
S32 in NW.,
S33 in NE.,
S4 in SE. and
S5 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high,
W. of cor. Pits impracticable.

Land, mountainous.
Soil, rocky, 4th rate.
No timber.
Undergrowth, greasewood, palo verde and sage brush.
No grass.

Apr. 19, 1915.

Apr. 20, 1915: At 10 hrs. a.m., 1.m.t., I set off 34° 35 1/2'
N. on the lat. arc; 11° 20' N. on the decl. arc; and
determine a meridian with the solar at the cor. of
secs. 4, 5, 32 and 33.

Thence I run

West on a true line, bet. secs. 5 and 32.
Over broken land, through scattering undergrowth.

8.00
19.20
40.00

Road, brs. N. and S.
Wash, 50 lks. wide, course SW.
Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the
ground, for 1/4 sec. cor., marked on brass cap
1915 on S. rim;
S32 in N.,
S5 in S. and
1/4 in W. half;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high,
N. of cor. Pits impracticable.

80.00

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

1915 on S. rim;
T15N in N.,
T14N in S. and
R20W in W. half;
S31 in NW.,
S32 in NE.,
S5 in SE. and
S6 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high,
W. of cor. Pits impracticable.

Land, rolling and broken.
Soil, sandy and gravelly, 3rd rate.
No timber.
Undergrowth, greasewood, palo verde and sage brush.
No grass.

West on a true line, bet. secs. 6 and 31.
Over broken land, through scattering undergrowth.

12.70
20.00
30.00
40.00

Wash, 1 ch. wide, course SW.
Center of wash, 2 chs. wide, course NW.
Center of same wash, 2 chs. wide, course SW.
Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the
ground, for 1/4 sec. cor., marked on brass cap
1915 on S. rim;
S31 in N.,
S6 in S. and
1/4 in W. half;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high,

80

North Boundary of Fractional T. 14 N., R. 20 W.

Chains.

N. of cor. Pits impracticable.
 Asc. SE. slope of sandy hill, 85 ft. to
 55.41 Top of hill; Desc. SW. slope, 80 ft. to
 79.04 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
 ground, for cor. of T. 15 N., R. 20 W., and fractional Ts.
 15 N., R. 20 $\frac{1}{2}$ W., 14 N., Rs. 20 and 21 $\frac{1}{2}$ W., marked on brass
 cap,
 1915 on S. rim;
 T15N in N.,
 R20W in E.,
 T14N in S. and
 R20 $\frac{1}{2}$ W in W. half;
 S36 in NW.,
 S31 in NE.,
 S6 in SE and
 S1 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
 S. of cor. Pits impracticable.
 Land, broken.
 Soil, sandy, 3rd rate.
 No timber.
 Undergrowth, greasewood, palo verde and cacti.
 No grass.
 Apr. 20, 1915: At this cor., I set off 11° 21 $\frac{1}{2}$ ' N. on the
 decl. arc; and at apparent noon, I observe the sun on
 the meridian; the resulting lat. is 34° 35 $\frac{1}{2}$ ' N.
 O. R.
 Apr. 20, 1915.

West Boundary of fractional Township 14 N., R. 20 W.

Chains.

April 20, 1915. O.R. From cor. of T. 15 N., R. 20 W., and fractional Ts. 15 N., R. 20 1/2 W., 14 N., Rs. 20 and 20 1/2 W., which is an iron post with brass cap, established by me and hereinbefore described, I run, South, on a true line, bet. sec. 6 and frac. sec. 1. Over rolling land, through scattering undergrowth.

40.00 Set an iron post, 3 ft. long, 1 in. in diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap
 1915 on S. rim;
 1/4 in N.,
 S 6 in E., and
 S 1 in W. half;
 and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable.

70.00 Center of wash, 5 chs. wide, course SW.

78.00 Enter bottom land, brs. NW. and SE.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 6 and fractional secs. 1, 7, and 12, marked on brass cap
 1915 on S. rim,
 T 14 N in N. half;
 R 20 1/2 W S 1 in NW.,
 R 20 W S 6 in NE.,
 S 7 in SE 1/4, and
 S 12 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable.

Land rolling.
 Soil, sandy, 3rd rate.
 No timber.
 Undergrowth, sage brush, greasewood and palo verde.
 Poor grass.

South on a true line, bet. fractional secs. 7 and 12. Over level bottom land, through scattering timber and dense undergrowth.

18.15 Set an iron post, 3 ft. long, 1 in. in diam., 26 ins. in the ground, on the left bank of the Colorado River, at mean high water mark, for meander cor. of fractional secs. 7 and 12, marked on brass cap
 1915 on S. rim;
 MC S. of center,
 R 20 1/2 W S 12 in NW., and
 R 20 W S 7 in NE. sector;
 T 14 N in N. half;
 dig a pit, 36x36x12 ins., 8 ft. N. of post; and raise a mound of earth, 4 ft. base, 2 ft. high, N. of cor.

Land, bottom.
 Soil, sandy, 2nd rate.
 Timber, willow.
 Undergrowth, mesquite, catclaw, willow and arrow-weed.
 Poor grass.

O.R.
April 20, 1915.

Boundaries of fractional T. 14 N., R. 20 W.,
 Latitudes, departures, and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South boundary	West	350.07				350.07
Left bank Colorado River	Meanders		381.42			129.52
West boundary	North	98.15	98.15			
North boundary	East	479.04			479.04	
East boundary	South	480.00		480.00		
Convergency					.43	
Totals,			479.57	480.00	479.47	479.59
				479.57		479.47
Error in latitude-----					.43	
Error in departure-----						.12

Chains.

Survey commenced Apr. 27, 1915, and executed jointly by Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, with Young and Sons' light mountain transits Nos. 8540 and 8483, respectively, with Smith solar attachments. For description of instruments, and certificate of approval, see page 1 of this book and subdivision of T. 13 N., R. 18 W. in Book "C."

In the following field notes, the initials A. S. and J. M. M., refer to Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, respectively.

Knowing from recent and repeated tests of these instruments on a meridian established by observations on Polaris at elongation, that they are in adjustment, we proceed to the survey of the W. and N. bdrs. of T. 14 N., R. 18 W.

A. S. and J. M. M.

J. M. M.

From the cor. of Tps. 13 and 14 N., Rs. 18 and 19 W., which is an iron post, established by me, as hereinbefore described, I run

North, bet. secs. 31 and 36.

Over mountainous land, through scattering undergrowth.

6.60 Head of gulch, course SE. Asc. broken S. slope, 175 ft. to

19.80 Low saddle in spur, brs. SW. Asc. SW. slope, 500 ft.

40.00 Impracticable to set an iron post at this point. Set a granite stone, 16 X 10 X 8 ins., 10 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

57.90 Same spur, brs. SE. Desc. broken NE. slope, 220 ft. to

77.20 Wash, 30 lks. wide, course SE. Asc. S. slope, 70 ft. to

80.00 Impracticable to set an iron post at this point. Set a granite stone, 18 X 12 X 9 ins., 12 ins. in the ground, for cor. of secs. 25, 30, 31 and 36, marked with 5 notches on N. and 1 notch on S. edge; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, mountainous.

Soil, shallow, rocky; 4th rate.

No timber.

Undergrowth, palo verde, ocatilla and cacti.

Apr. 27, 1915: At this cor., I set off $13^{\circ} 41'$ N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 31\frac{1}{2}'$ N.

North bet. secs. 25 and 30.

Over mountainous land, through scattering undergrowth.

Asc. broken S. slope, 405 ft.

15.10 Spur, brs. SE. Continue to asc. SE. slope.

22.30 Desc. broken NE. slope, 170 ft. to

30.10 Wash, 30 lks. wide, course SE. Asc. broken SW. slope, 345 ft.

33.00 Stamp Mill at Blakely's Mine brs. W. about 8 chs. dist.

40.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 12 X 8 ins., on ledge of rock, in a mound of stone, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

51.20 Spur, brs. SE. Continue to asc. SE. slope, 205 ft.

69.50 Pack trail, brs. NE. and SW.

73.20 Same spur, brs. SW. Asc. SW. slope, 70 ft. to

80.00 Impracticable to set an iron post at this point. Set a granite stone, 16 X 11 X 8 ins., 11 ins. in the ground, for cor. of secs. 19, 24, 25 and 30, marked with 4 notches on N. and 2 notches on S. edge; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Chains.

Land, mountainous.
Soil, shallow, rocky, decomposed granite; 4th rate.
No timber.
Undergrowth, palo verde, ocatilla and cacti.
Apr. 27, 1915.

Apr. 28, 1915: At 9 hrs. 32 m., a.m., l.m.t., I set off 34° 32' N. on the lat. arc; 13° 58½' N. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 19, 24, 25 and 30.

Thence I run

North bet. secs. 19 and 24.
Over mountainous land, through scattering undergrowth.
Asc. broken S. slope, 390 ft. to

18.60 Spur, brs. SW. Desc. broken NW. slope, 480 ft.
34.00 Mouth of mine tunnel brs. E. about 7 chs. dist.
38.00 Head of gulch, course W. Asc. broken SE. slope, 330 ft.
40.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 8 X 6 ins., 10 ins. in the ground, for ¼ sec. cor., marked ¼ on W. face; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

40.10 Pack trail, brs. NW. and SE.
59.00 Stamp mill brs. W. about 12 chs. dist.
59.40 Spur, brs. SW. Desc. NW. slope, 140 ft. to
65.80 Gulch, course SW. Asc. SE. slope, 275 ft. to
74.90 Spur, brs. SW. Desc. NW. slope 130 ft.
76.60 Pack trail, brs. NE. and SW.
80.00 Impracticable to set an iron post at this point. Set a granite stone, 18 X 10 X 8 ins., 12 ins. in the ground, for cor. of secs. 13, 18, 19 and 24, marked with 3 notches on N. and S. edge; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, mountainous.
Soil, shallow, rocky; 4th rate.
No timber.
Undergrowth, palo verde, ocatilla and cacti.
Apr. 28, 1915: At this cor., I set off 14° 00' N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 33' N.

North bet. secs. 13 and 18.
Over mountainous land, through scattering undergrowth.
Asc. broken SW. slope, 485 ft.

1.20 Gulch, course W. Continue asc.
2.70 Pack trail, brs. E. and W.
26.90 Main ridge of the Chemehuevis Mts., brs. NW. and SE. Crossman Peak brs. SE. about 20 chs. dist.
U. S. Land Monument No 1429 brs. N. 61° 31' W., 14.19 chs. dist. No claim corners found. Desc. NE. slope, 410 ft.
27.70 Pack trail, brs. NW. and SE.
36.00 Tunnel of mine brs. E. about 1 ch. dist.
40.00 Impracticable to set an iron post at this point. Set a granite stone, 16 X 10 X 8 ins., 11 ins. in the ground, for ¼ sec. cor., marked ¼ on W. face; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
44.80 Pack trail brs. NE. and SW.
73.80 Gulch, course NE.
80.00 Impracticable to set an iron post at this point. Set a granite stone, 18 X 10 X 9 ins., 12 ins. in the ground, for cor. of secs. 7, 12, 13 and 18, marked with 2 notches on N. and 4 notches on S. edge; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor.

2008 2008

West Boundary of T. 14 N., R. 18 W.

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Chains.

Pits impracticable.
Land, mountainous.
Soil, shallow, rocky; 4th rate.
Timber, scattering pinion pine on N. slope of mountains.
Undergrowth, palo verde, ocatilla and cacti.

Apr. 28, 1915.

Apr. 29, 1915: At 9 hrs. 30 m., a.m.; l.m.t., I set off
34° 34' N. on the lat. arc; 14° 17' N. on the decl.
arc; and determine a meridian with the solar at the cor.
of secs. 7, 12, 13 and 18.

Thence I run

North bet. secs. 7 and 12.
Over mountainous land, through scattering undergrowth.
Desc. broken NW. slope, 440 ft.

- 8.10 Pack trail, brs. NE. and SW.
- 28.80 Gulch, course NE. Asc. broken SE. slope, 230 ft.
- 40.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 8 X 6 ins., 10 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
- 41.80 Shaft of mine brs. W. about 30 lks. dist.
- 58.30 NW. cor. of Stone Cabin at Scott's Well brs. S. 59° 44' E., about 23 chs. dist.
- 58.80 Spur, brs. NE. Desc. broken NW. slope, 485 ft. to
- 80.00 Impracticable to set an iron post at this point. Set a granite stone, 18 X 10 X 8 ins., 12 ins. in the ground, for cor. of secs. 1, 6, 7 and 12, marked with 1 notch on N. and 5 notches on S. edge; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, mountainous.

Soil, shallow, rocky, decomposed granite; 4th rate.

No timber.

Undergrowth, palo verde, ocatilla and cacti.

Apr. 29, 1915: The sky was overcast at noon, making an observation for lat. impossible.

North bet. secs. 1 and 6.

Over mountainous land, through scattering undergrowth.
Desc. broken NW. slope, 70 ft. to

- 4.90 Head of gulch, course NW. Asc. SW. slope, 110 ft. to
- 9.60 Spur, brs. NW. Desc. NW. slope, 215 ft. to
- 19.10 Gulch, course NW. Asc. SW. slope, 90 ft. to
- 22.80 Top of knoll. Desc. broken NW. slope, 205 ft.
- 40.00 Impracticable to set an iron post at this point. Set a granite stone, 14 X 10 X 8 ins., on ledge rock, in a mound of stone, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Apr. 29, 1915.

Apr. 30, 1915: At 9 hrs. 54 m., a.m.; l.m.t., I set off
34° 35' N. on the lat. arc; 14° 36 $\frac{1}{2}$ ' N. on the decl.
arc; and determine a meridian with the solar at the
 $\frac{1}{4}$ sec. cor. bet. secs. 1 and 6.

Thence I continue

North, bet. secs. 1 and 6.

- 41.50 Spur, brs. NW. Desc. NE. slope, 135 ft. to
- 53.80 Wash, 20 lks. wide, course NW. Joins other wash about 3 chs. NW. Thence along W. slope.
- 60.00 Desc. NW. slope, 30 ft. to
- 61.20 Wash, 30 lks. wide, course NE.

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West Boundary of T. 14 N., R. 18 W.

Chains.

64.80 Same wash, course NW.

71.20 Same wash, course NE.

80.00 Impracticable to set an iron post at this point. Set a granite stone, 20 X 12 X 10 ins., 15 ins. in the ground, for cor. of Tps. 14 and 15 N., Rs. 18 and 19 W., marked with 6 notches on each edge; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, S. of cor. Pits impracticable.

Land, mountainous.

Soil, shallow, rocky; 4th rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla and cacti.

J. M. M.

Apr. 30, 1915.

North Boundary of T. 14 N., R. 18 W.

Chains

A. S. Apr. 26, 1915: At 7 hrs. 4 m., a.m., l.m.t., I set off 34° 35 1/2' N. on the lat. arc; 13° 19' N. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 14 and 15 N., Rs. 17 and 18 W., which is a stone, established by J.M. M., as hereinbefore described.

Thence I run West on a random line, along the N. bdy. of T14 N., R. 18 W., setting temp. 1/4 sec. and sec. cors. at intervals of 40.00 chs. to the cor. of secs. 5, 6, 31 and 32, where I leave a temp. point.

Apr. 26, 1915.
A. S.

Apr. 30, 1915: J. M. M.
From the temp. point for cor. of secs. 5, 6, 31 and 32, I run

West on a random line, along the N. bdy. of T. 14 N., R. 18 W., setting a temp. 1/4 sec. cor. at 40.00 chs.; and at 78.72 chs., intersect the W. bdy. of T. 15 N., R. 18 W., 11 lks. N. of the cor. of Tps. 14 and 15 N., Rs. 18 and 19 W., which is a stone, established by me, as described hereinbefore. The falling answers to a correction of 0° 1', or 2 lks. S. per mile, counting from the NE. cor. of the Tp.; therefore I run

N.89° 59' E., on a true line, bet. secs. 6 and 31.
Over mountainous land, through scattering undergrowth.

- 3.40 Wash, 30 lks. wide, course NE.
- 17.00 Point of spur, brs. NE. Desc. E. slope 60 ft. to
- 23.10 Wash, 80 lks. wide, course N. Road to Scott's Well follows this wash. Asc. NW. slope, 290 ft.
- 38.72 Impracticable to set an iron post at this point. Set a lava rock, 14 X 10 X 6 ins., 6 ins. in the ground, on solid rock, in a mound of stone, for 1/4 sec. cor., marked 1/4 on N. face; and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, N. of cor. Pits impracticable.

Apr. 30, 1915: Cloudy; impossible to make lat. observation.

- 40.50 Spur, brs. N. Desc. NE. slope, 130 ft. to
- 48.50 Gulch, course NW. Asc. NW. slope, 125 ft. to
- 57.20 Ridge, brs. NE. and SW. Desc. E. slope, 185 ft. to
- 71.40 Gulch, course NE. Asc. NW. slope, 105 ft. to
- 78.40 Spur, brs. NE.

- 78.72 Impracticable to set an iron post at this point. Set a granite stone, 18 X 12 X 6 ins., 14 ins. in the ground, for cor. of secs. 5, 6, 31 and 32, marked with 5 notches on E. and 1 notch on W. edge; and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable.

Land, mountainous.
Soil, shallow, rocky, 4th rate.
No timber.

Undergrowth, greasewood, palo verde, ocatilla and cacti.
J. M.M.
Apr. 30, 1915.

Apr. 26, 1915. A. S.
N.89° 59' E., on a true line, bet. secs. 5 and 32.
Over mountainous land, through dense undergrowth.
Asc. SW. slope, 105 ft. to

- 11.10 Rocky butte, brs. SE. 4 chs. dist. Desc. E. slope, 425 ft. to
- 36.65 Wash, 20 lks. wide, course NE. Asc. NW. slope, 75 ft.

Chains.	
40.00	Impracticable to set an iron post at this point. Set a granite stone, 18 X 10 X 8 ins., 12 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N of cor. Pits impracticable.
42.50	Spur, brs. N. Desc. NE. slope, 105 ft. to
46.15	Wash, 25 lks. wide, course NE. Asc. NW. slope, 175 ft. to
58.10	Spur, brs. NE. Desc. E. slope, 195 ft. to
65.85	Gulch, course NE. Asc. NW. slope, 150 ft. to
73.20	Spur, brs. NE. Desc. E. slope, 115 ft. to
80.00	Impracticable to set an iron post at this point. Set a granite stone, 18 X 10 X 8 ins., 10 ins. in the ground on bed rock, in a mound of stone, for cor. of secs. 4, 5, 32 and 33, marked with 4 notches on E. and 2 notches on W. edge; and 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. No timber. Undergrowth, palo verde, greasewood, ocatilla and cacti.
	N. $89^{\circ} 59'$ E., on a true line, bet. secs. 4 and 33. Over mountainous land, through dense undergrowth.
.80	Gulch, course NE. Asc. NW. slope, 50 ft. to
11.80	Spur, brs. N. Desc. E. slope, 75 ft. to
17.60	Gulch, course NE. Leave mountainous land, thence over rolling land.
27.30	Wash, 15 lks. wide, course N.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 14 ins. in the ground, on solid rock, in a mound of stone, for $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; S33 in N., S4 in S. and $\frac{1}{4}$ in W. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
61.30	Road, brs. NW. and SE.
66.00	Wash, 2 chs. wide, course NW.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 3, 4, 33 and 34, marked on brass cap 1915 on S. rim; T15N R18W in N., and T14N in S. half; S33 in NW., S34 in NE., S3 in SE. and S4 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
	Land, 65 chs. rolling; 15 chs. mountainous. Soil, rocky, 4th rate. No timber. Undergrowth, greasewood, palo verde, ocatilla and cacti. Apr. 26, 1915: At this cor., I set off $13^{\circ} 22'$ N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 35\frac{1}{2}'$ N.
	N. $89^{\circ} 59'$ E., on a true line, bet. secs. 3 and 34. Over rolling land, through scattering undergrowth.
8.40	Road, brs. NE. and SW.
40.00	Impracticable to set an iron post at this point. Set a

North Boundary of T. 14 N., R. 18 W.

Chains

granite stone, 16 X 12 X 6 ins., 12 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

42.30 Gulch, course NE.

64.50 Same gulch, course SE.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 2, 3, 34 and 35, marked on brass cap

1915 on S. rim;
T15N R18W in N. and
T14N in S. half;
S34 in NW.,
S35 in NE.,
S2 in SE. and
S3 in SW. quadrant;

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

Land, rolling.
Soil, rocky, 4th rate.
No timber.
Undergrowth, greasewood, palo verde, cacti and yucca.

N.89° 59' E., on a true line, bet. secs. 2 and 35. Over rolling land, through dense undergrowth.

3.70 Gulch, course NE.

8.20 Same gulch, course SE.

40.00 Impracticable to set an iron post at this point. Set a granite stone, 16 X 10 X 8 ins., 12 ins. in the ground, on bed rock, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

44.50 Wash, 15 lks. wide, course NE.

47.60 Wash, 30 lks. wide, course NE.

71.50 Wash, 20 lks. wide, course NE.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 1, 2, 35 and 36, marked on brass cap

1915 on S. rim;
T15N R18W in N. and
T14N in S. half;
S35 in NW.,
S36 in NE.,
S1 in SE. and
S2 in SW. quadrant;

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

Land, rolling.
Soil, rocky, 3rd rate.
No timber.
Undergrowth, greasewood, palo verde, cacti, yucca and ocatilla.

N.89° 59' E., on a true line, bet. secs. 1 and 36. Over rolling land, through dense undergrowth.

35.30 Wash, 30 lks. wide, course NE.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 14 ins. in the ground, on solid rock, supported by a mound of stone, for $\frac{1}{4}$ sec. cor., marked on brass cap

1915 on S. rim;
S36 in N.,
S1 in S., and
 $\frac{1}{4}$ in W. half;

Chains.
 62.10 and raise a mound of stone, 2 ft. base, 1½ ft. high,
 80.00 N. of cor. Pits impracticable.
 Wash, 20 lks. wide, course NE.
 The cor. of Tps. 14 and 15 N., Rs. 17 and 18 W..
 Land, rolling.
 Soil, rocky, 3rd rate.
 No timber.
 Undergrowth, palo verde, greasewood, cacti and yucca.
 A. S.
 Apr. 26, 1915.

Boundaries of T. 14 N., R.18 W.

Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South boundary	S.89°59'W.	479.53		.14		479.53
West boundary	North.	480.00	480.00			
North boundary	N.89°59'E.	478.72	.14		478.72	
East boundary	South.	480.00		480.00		
Convergency.					.50	
<i>Totals</i>			480.14	480.14	479.22	479.53
				480.14		479.22
Error in lat. -----			.00			
Error in dep., -----					.31	

North Bdy. of Fractional T. 14 N., R. 20 $\frac{1}{2}$ W. 91

Chains.

Survey commenced Apr. 20, 1915, and executed jointly by Otis Ross, U. S. Surveyor, and John Gonin, U. S. Transitman, with Young and Sons' light mountain transits, Nos. 8487 and 7636, respectively, with Smith Solar Attachments. For description of instruments, certificate of approval, and tests of adjustment, see subdivision of fractional T. 14 N., R. 20 W. in Book "H." In the following field notes, the initials O. R. and J. G. refer to Otis Ross, U. S. Surveyor, and John Gonin, U. S. Transitman, respectively. Knowing from recent and repeated tests of these instruments on a meridian established by observations on Polaris at elongation, that they are in adjustment, we proceed to the survey of the N. bdy. of Fractional T. 14 N., R. 20 $\frac{1}{2}$ W.

O. R. and J. G.

O. R. From cor. of T. 15 N., R. 20 W., and fractional Ts. 15 N., R. 20 $\frac{1}{2}$ W., 14 N., Rs. 20 and 20 $\frac{1}{2}$ W., which is an iron post, established by me, as hereinbefore described, I run West on a true line, bet. secs. 1 and 36. Over rolling land, through scattering undergrowth.

5.00 Asc. 60 ft. to
 12.94 Ridge, brs. NE. and SW. Desc. NW. slope, 120 ft. to
 35.00 Thence over rolling land, sloping SW.
 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
 1915 on S. rim;
 S36 in N.,
 S1 in S. and
 $\frac{1}{4}$ in W. half;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

65.00 Asc. NE. slope, 85 ft. to
 74.91 Ridge, brs. NW. and SE. Desc. SW. slope, 30 ft. to
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of frac. secs. 1, 2, 35 and 36, marked on brass cap
 1915 on S. rim;
 T15N in N.,
 T14N in S. and
 R20 $\frac{1}{2}$ W in W. half;
 S35 in NW.,
 S36 in NE.,
 S1 in SE. and
 S2 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, rolling and broken.
 Soil, sandy, 3rd rate.
 No timber.
 Undergrowth, mesquite, greasewood and sage brush.
 Poor grass.

O. R.
Apr. 20, 1915.

May 4, 1915: J. G.
 West on a true line, bet. fractional secs. 2 and 35. Over rolling land, through scattering undergrowth.

5.00 Asc. 45 ft. to
 8.80 Thence over level land.
 20.80 Desc. 75 ft. to
 25.60 Thence over level land.
 34.20 Desc. 125 ft. to
 39.00 Enter bottom land, and dense undergrowth.
 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

92.

North Bdy. of Fractional T. 14 N., R. 20 $\frac{1}{2}$ W.

Chains.

1915 on S. rim;
 S35 in N.,
 S2 in S. and
 $\frac{1}{4}$ in W. half;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
 N. of cor. Pits impracticable.
 42.04 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the
 ground, on the left bank of the Colorado River, at mean
 high water mark, for meander cor. of fractional secs.
 2 and 35, marked on brass cap
 1915 on S. rim;
 MC. W. of center;
 T15N in N.,
 T14N in S. and
 R20 $\frac{1}{2}$ W. in E. half;
 S35 in NE. and
 S2 in SE. sector;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
 E. of cor. Pits impracticable.
 Land, level and broken.
 Soil, 1st and 2nd rate.
 No timber.
 Undergrowth, greasewood, sage brush and arrow-weed.
 J. G.
 May 4, 1915.

Traverse of Fractional T. 14 N., R. 20 $\frac{1}{2}$ W.
 Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
SW. boundary	N.53° W.	30.20	18.17			24.12
(Left bank of Colorado River meandered)	N.54 $\frac{1}{2}$ ° W.	20.40	11.92			16.55
	N.53° 20' W.	49.10	29.32			39.38
	N.44 $\frac{3}{4}$ ° W.	24.80	17.61			17.46
	N.48 $\frac{1}{2}$ ° W.	10.30	6.83			7.71
	N.49° 28' W.	22.30	14.49			16.95
North boundary	East.	122.04			122.04	
East boundary	South.	98.15		98.15		
Convergency.						.01
Totals.			98.34	98.15	122.05	122.17
			98.15			122.05
Error in lat.-----			.19			
Error in dep.-----					.12	

U. S. Surveyor.

U. S. Transitter.

Chains.

Survey commenced Apr. 24, 1915, and executed jointly by Otis Ross, U. S. Surveyor, and John Gonin, U. S. Transitman, with Young and Sons' light mountain transits, Nos. 8487 and 7636, with Smith solar attachments. For description of instruments, certificate of approval, and tests of adjustments, see subdivision of fractional T. 14 N., R. 20 W. in book "H."

In the following field notes, the initials O. R. and J. G. refer to Otis Ross; U. S. Surveyor, and John Gonin, U. S. Transitman, respectively.

Knowing from recent and repeated tests of these instruments on a meridian established by observations on Polaris at elongation, that they are in adjustment, we proceed to the survey of the east, west and north bdrs. of T. 15 N., R. 20 W.

O. R. and J. G.
Apr. 24, 1915.

May 7, 1915: J. G.

I commence at the cor. of Tps. 14 and 15 N., Rs. 19 and 20 W., which is an iron post, established by O. R., as described hereinbefore.

It being too late in the morning to make a solar observation for meridian, I back sight to the $\frac{1}{4}$ sec. cor. bet. secs. 1 and 6, and run

13.10
18.80
26.00
40.00

North bet. secs. 31 and 36.
Over mountainous land, through scattering undergrowth.
Asc. SW. slope, 180 ft. to
Ridge, brs. E. and W. Thence over level land.
Desc. 120 ft. to
Wash, 50 lks. wide, course W. Asc. 115 ft. to
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
1915 on S. rim;
 $\frac{1}{4}$ in N.,
S31 in E. and
S36 in W. half;
and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

40.90
45.40
50.00
54.10
71.00
78.50
80.00

Asc. 30 ft. to
Desc. 100 ft. to
Asc. 130 ft. to
Long spur, slopes W. Desc. 105 ft. to
Wash, 40 lks. wide, course W. Asc. 95 ft. to
Spur, brs. W. Desc. 40 ft. to
Wash, 50 lks. wide, course W. Asc. slightly to
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
1915 on S. rim;
T15N in N. half;
R20W S25 in NW.,
R19W S30 in NE.,
S31 in SE. and
S36 in SW. quadrant;
and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, level and mountainous.
Soil, rocky, 3rd and 4th rate.
No timber.

Undergrowth, greasewood, palo verde and cacti.
May 7, 1915: At this cor., I set off $16^{\circ} 41'$ N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 36\frac{1}{2}'$ N.

8.40

North bet. secs. 25 and 30.
Over mountainous land, through scattering undergrowth.
Asc. 155 ft. to
Desc. 85 ft. to

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East Boundary of T. 15 N., R. 20 W.

Chains.
 15.75 Asc. 170 ft. to
 22.60 Long spur, slopes W. Desc. 40 ft. to
 27.05 Asc. 100 ft. to
 38.50 Spur, brs. W. Asc. 20 ft.
 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
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S30 in E. and
 S25 in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 42.10 Spur, slopes N. 30° W. Desc. 310 ft. to
 62.00 Wash, 75 lks. wide, course N. 70° W. Asc. 80 ft. to
 67.80 Desc. 35 ft. to
 69.70 Asc. 100 ft. to
 77.55 Spur, slopes N. 20° W. Desc. to
 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
 1915 on S. rim;
 T15N in N. half;
 R20W S24 in NW.,
 R19W S19 in NE.,
 S30 in SE. and
 S25 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 Land, mountainous.
 Soil, 3rd and 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde and cacti.

North bet. secs. 19 and 24.
 Over mountainous land, through scattering undergrowth.
 Desc. 185 ft. to
 17.00 Center of wash, 2 chs. wide, course N. 30° W. Thence over level land.
 23.00 Desc. 25 ft. to
 27.70 Thence over level land.
 37.15 Desc. 15 ft. to
 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
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S19 in E. and
 S24 in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

May 7, 1915.

May 8, 1915: At 8 hrs. 3 m., a.m., l.m.t., I set off 34° $38'$ N. on the lat. arc; $16^\circ 55'$ N. on the decl. arc; and determine a meridian with the solar at the $\frac{1}{4}$ sec. cor. bet. secs. 19 and 24.
 Thence I continue,
 North bet. secs. 19 and 24.
 Over level land, through scattering undergrowth.
 44.20 Desc. 30 ft. to
 47.70 Thence over level land.
 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
 1915 on S. rim;
 T15N in N. half;
 R20W S13 in NW.,
 R19W S18 in NE.,
 S19 in SE. and

Chains.

S24 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1½ ft. high,
 W. of cor. Pits impracticable.
 Land, level and mountainous.
 Soil, 3rd and 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde and cacti.

North bet. secs. 13 and 18.
 Over rolling land, through scattering undergrowth.

4.90 Desc. 40 ft. to
 7.75 Center of wash, 1 ch. wide, course N. 80° W. Asc. 30 ft. to
 16.70 Desc. 30 ft. to
 20.70 Asc. 20 ft. to
 22.95 Desc. 70 ft. to
 35.00 Asc. 20 ft. to
 39.60 Thence over level land.
 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
 1915 on S. rim;
 ¼ in N.,
 S18 in E. and
 S13 in W. half;
 and raise a mound of stone, 2 ft. base, 1½ ft. high,
 W. of cor. Pits impracticable.
 Desc. 45 ft. to
 44.80 Thence over level land.
 60.60 Asc. 15 ft. to
 63.44 Chemehuevis Mountain divide, brs. SE. and W. Desc. slightly
 to
 65.60 Desc. 20 ft. to
 70.00 Thence over level land.
 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
 1915 on S. rim;
 T15N in N. half;
 R20W S12 in NW.,
 R19W S7 in NE.,
 S18 in SE. and
 S13 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1½ ft. high,
 W. of cor. Pits impracticable.

Land, level and rolling.
 Soil, 3rd and 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde and cacti.

North bet. secs. 7 and 12.
 Over level land, through scattering undergrowth.

21.60 Desc. 35 ft. to
 27.25 Center of wash, 75 lks. wide, course N. 70° W. Asc. slightly
 to
 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
 1915 on S. rim;
 ¼ in N.,
 S7 in E. and
 S12 in W. half;
 and raise a mound of stone, 2 ft. base, 1½ ft. high,
 W. of cor. Pits impracticable.
 Thence over level land.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the

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East Boundary of T. 15 N., R. 20 W.

Chains.

ground, for cor. of secs. 1, 6, 7 and 12, marked on brass
brass cap

1915 on S. rim;
T15N in N. half;
R20W S1 in NW.,
R19W S6 in NE.,
S7 in SE. and
S12 in SW. quadrant;

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

Land, level and rolling.

Soil, 3rd and 4th rate.

No timber.

Undergrowth, greasewood, palo verde and cacti.

North bet. secs. 1 and 6.

Over level land, through scattering undergrowth.

20.50 Center of wash, 2 chs. wide, course N. 30° 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

1915 on S. rim;
 $\frac{1}{4}$ in N.,
S1 in E. and
S6 in W. half;

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

63.75 Center of wash, 1 ch. wide, course N. 20° E.

67.30 Same wash, 1 ch. wide, course NW.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
ground, for cor. of Tps. 15 and 16 N., Rs. 19 and 20
W., marked on brass cap

1915 on S. rim;
T16N in N.,
R19W in E.,
T15N in S. and
R20W in W. half;
S36 in NW.,
S31 in NE.,
S6 in SE. and
S1 in SW. quadrant;

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

Land, level, cut by small washes.

Soil, 3rd and 4th rate.

No timber.

Undergrowth, greasewood, palo verde and cacti.

May 8, 1915: At this cor., I set off $16^\circ 57\frac{1}{2}'$ N. on the
lat. arc; and at apparent noon, I observe the sun on
the meridian; the resulting lat. is $34^\circ 41'$ N.

May 8, 1915.

J. G.

West Boundary of T. 15 N., R. 20 W.

Chains.	
	Apr. 24, 1915: O. R.
	At 9 hrs. 0 m., a.m., l.m.t., I set off 34° 35½' N. on the lat. arc; 12° 40' N. on the decl. arc; and determine a meridian with the solar at the cor. of Tp. 15 N., R. 20 W., and fractional Ts. 15 N., R. 20½ W., 14 N., Rs, 20 and 20½ W., established by me and hereinbefore described.
	Thence I run
	North bet. bet. sec. 31 and fractional sec. 36.
	Over broken land, through scattering undergrowth.
15.00	Asc. 15 ft. to
17.99	Ridge, brs. NW. and SE. Desc. slight N. slope to
20.00	Desc. 50 ft. to
24.93	Enter wash, 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 1915 on S. rim; ¼ in N., S31 in E. and S36 in W. half; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
55.00	Leave wash, course W. Asc. broken S. slope, 110 ft. to
61.80	Spur, slopes W. Desc. slight N. slope to
65.50	Desc. 95 ft. to
74.65	Enter wash, course W.
79.65	Leave wash, course W.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 30, and 31 and fractional secs. 25 and 36, marked on brass cap, 1915 on S. rim; T15N in N. half; R20½W S25 in NW., R20W S30 in NE., S31 in SE. and S36 in SW. quadrant; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
	Land, rolling and broken. Soil, sandy, 3rd rate. No timber. Undergrowth, greasewood, palo verde and cacti. No grass.
	North bet. sec. 30 and fractional sec. 25.
	Over mountainous land, through scattering undergrowth.
	Asc. to
.80	Desc. to
5.00	Asc. 15 ft. to
6.45	Spur, slopes W. Desc. N. slope 25 ft. to
10.00	Thence over level land.
13.30	Desc. 10 ft. to
14.90	Enter wash, course W.
29.90	Leave wash, course W. Asc. 55 ft. to
35.00	Thence over level land.
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 1915 on S. rim; ¼ in N., S30 in E. and S25 in W. half; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
	Desc. 65 ft. to
46.88	Center of wash, 1 ch. wide, course SW. Asc. 25 ft. to
54.17	Spur, slopes W. Desc. N. slope 50 ft. to
56.21	Center of wash, 1 ch. wide, course SW. Asc. S. slope, 470 ft. to
80.00	Impracticable to set an iron post at this point. Set a

Chains.

malpais stone, 22 X 18 X 6 ins., 17 ins. in the ground, for cor. of secs. 19, 24, and 30 and fractional sec. 25, marked with 2 notches on S. edge, & 4 notches on N. edge & raise mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor.

Pits impracticable.

Land, mountainous.

Soil, rocky, 4th rate.

No timber.

Undergrowth, greasewood, palo verde and cacti.

No grass.

Apr. 24, 1915: At this cor., I set off $12^{\circ} 42\frac{1}{2}'$ N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 37\frac{1}{2}'$ N.

North bet. secs. 19 and 24.

Over mountainous land, through scattering undergrowth.

Asc. 65 ft. to

4.75 Spur, slopes W. Desc. NW. slope, 105 ft. to

14.48 Head of gulch, course SW. Asc. S. slope, 30 ft. to

19.46 Spur, slopes SE. Desc. NE. slope, 225 ft. to

34.75 Asc. 30 ft. to

35.60 Thence over level land.

37.70 Desc. 100 ft.

40.00 Impracticable to set an iron post at this point. Set a malpais stone, 18 X 10 X 6 ins., 12 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

40.10 Wash, 20 lks. wide, course SE. Asc. 35 ft. to

42.34 Spur, slopes E. Desc. N. slope, 25 ft. to

44.92 Wash, 20 lks. wide, course E. Asc. S. slope, 170 ft. to

57.00 Desc. 15 ft. to

64.30 Asc. 315 ft. to

80.00 Impracticable to set an iron post at this point. Set a malpais stone, 18 X 8 X 8 ins., 12 ins. in the ground, for cor. of secs. 13, 18, 19 and 24, marked with 3 notches on N. and S. edges; and 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.

No timber.

Undergrowth, greasewood, palo verde and cacti.

No grass.

Apr. 24, 1915.

North bet. secs. 13 and 18.

Over mountainous land, through scattering undergrowth.

Asc. 155 ft. to

4.80 Spur, slopes SW. Desc. NE. slope, 285 ft. to

24.19 Center of wash, 50 lks. wide, course NW. Asc. SW. slope, 80 ft. to

31.52 Ridge, brs. E. and W. Desc. NW. slope, 175 ft. to

38.58 Center of wash, 50 lks. wide, course NW. Asc. 145 ft.

40.00 Impracticable to set an iron post at this point. Set a granitic rock, 16 X 10 X 8 ins., 11 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Apr. 24, 1915.

Apr. 26, 1915: At 8 hrs. 0 m., a.m., l.m.t., I set off $34^{\circ} 38\frac{1}{2}'$ N. on the lat. arc; $13^{\circ} 19'$ N. on the decl. arc; and determine a meridian with the solar.

Thence I continue,

North bet. secs. 13 and 18.

West Boundary of T. 15 N., R. 20 W.

Chains.

45.40 Ridge, brs. NW. and SE. Desc. 300 ft. to
 58.73 Center of wash, 2 chs. wide, course W. Asc. SW. slope, 160 ft. to
 72.39 Spur, slopes SW. Desc. NW. slope, 115 ft. to
 78.25 Head of wash, course W. Asc. SW. slope to .
 80.00 Point for cpr. falls on rock in place, 8 X 6 X 8 ft. above ground. Mark a cross (X) at exact point for cor. of secs. 7, 12, 13 and 18, with 2 notches N. and 4 notches S. of same; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
 Land, mountainous.
 Soil, rocky, 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde, cacti.
 No grass.

North bet. secs. 7 and 12.

Over mountainous land, through scattering undergrowth.
 Asc. 20 ft. to
 3.79 Spur, slopes W. Desc. 25 ft. to
 4.43 Wash, course W. Asc. 50 ft. to
 8.17 Spur, slopes W. Desc. N. slope, 60 ft. to
 10.94 Wash, 50 lks. wide, course SW. Asc. S. slope, 240 ft. to
 26.62 Chemehuevis Mountain divide, brs. NW. and SE. Desc. NE. slope, 100 ft. to
 31.84 Center of wash, 1 ch. wide, course E. Asc. 40 ft. to
 32.74 Spur, slopes E. Desc. 30 ft. to
 34.00 Asc. 15 ft. to
 35.20 Desc. 50 ft. to
 38.93 Wash, 20 lks. wide, course SE. Asc. 595 ft.
 40.00 Impracticable to set an iron post at this point. Set a granite stone, 16 X 8 X 6 ins., 11 ins. in the ground, for ¼ sec. cor., marked ¼ on W. face; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
 Apr. 26, 1915: At this cor., I set off 13° 22' N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 39½' N.
 65.25 Spur, slopes SE. Desc. NE. slope, 150 ft. to
 71.86 Saddle in Chemehuevis Mountain divide, brs. NE. and SW. Desc. NW. slope, 250 ft. to
 74.46 Head of wash, course NW. Asc. 65 ft. to
 77.43 Spur, slopes W. Desc. to
 80.00 Impracticable to set an iron post at this point. Set a malpais stone, 16 X 6 X 8 ins., 11 ins. in the ground, for cor. of secs. 1, 6, 7 and 12, marked with 1 notch on N. and 5 notches on S. edge; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
 Land, mountainous.
 Soil, rocky, 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde and cacti.
 No grass.

North bet. secs. 1 and 6.

Over mountainous land, through scattering undergrowth.
 Asc. SW. slope, 85 ft. to
 4.10 Spur, slopes W. Desc. 190 ft. to
 12.81 Center of wash, 50 lks. wide, course W. Asc. 80 ft. to
 18.50 Desc. 15 ft. to
 18.85 Asc. 150 ft. to
 24.35 Spur, slopes W. Desc. NW. slope, 165 ft. to
 29.63 Head of wash, course W. Asc. SW. slope, 40 ft. to

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West Boundary of T. 15 N., R. 20 W.

Chains.

33.30 Desc. 145 ft. to

40.00 Impracticable to set an iron post at this point. Set a malpais stone, 16 X 8 X 8 ins., 11 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Asc. 30 ft. to

41.42 Desc. 110 ft. to

45.04 Gulch, 50 lks. wide, course SW. Asc. 185 ft. to

50.55 Spur, slopes SW. Desc. NW. slope, 145 ft. to

56.83 Center of wash, 40 lks. wide, course SW. Asc. 180 ft. to

63.92 Spur, slopes W. Desc. NW. slope, 55 ft. to

68.81 Head of gulch, course W. Asc. S. slope, 170 ft. to

75.71 Spur, slopes W. Desc. to

80.00 Impracticable to set an iron post at this point. Set a malpais stone, 24x10x10 ins., 18 ins. in ground for cor. of Ts. 15 & 16 N., R. 20 W., and frac. Ts. 15 & 16 N., R. 20 $\frac{1}{2}$ W., marked 16N on NE., 20 W on SE., 15N on SW. and 20 $\frac{1}{2}$ W on NW. face; with 6 notches on each edge; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, S. of cor. Pits impracticable.

Land, mountainous.
Soil, rocky, 4th rate.
No timber.
Undergrowth, greasewood, palo verde and cacti.
No grass.

O. R.
Apr. 26, 1915.

North Boundary of T. 15 N., R. 20 W.

Chains

May 8, 1915: J. G.
 From the cor. of Tps. 15 and 16 N., Rs. 19 and 20 W., which is an iron post, established by me, as described hereinbefore, I run West on a random line, along the N. bdy. of Tp. 15 N., R. 20 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs. to the cor. of secs. 3, 4, 33 and 34, where I leave a temporary point.

May 8, 1915.

May 10, 1915: At 9 hrs. 0 m., a.m., l.m.t., I set off $34^{\circ} 41'$ N. on the lat. arc; $17^{\circ} 28'$ N. on the decl. arc; and determine a meridian with the solar at the temp. cor. of secs. 3, 4, 33 and 34.

Thence I continue West on a random line, along the N. bdy. of Tp. 15 N., R. 20 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs.

May 10, 1915: At the $\frac{1}{4}$ sec. cor. bet. secs. 5 and 32, I set off $17^{\circ} 30'$ N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 41'$ N.

At 478.60 chs., intersect the W. bdy. of T. 16 N., R. 20 W., 84 lks. N. of the cor. of Tps. 15 & 16 N., R. 20 W., and frac. Ts. 15 & 16 N., R. 20 W., established by O. R., as hereinbefore described. The falling answers to a correction of $0^{\circ} 6'$ or 14 lks. S. per mile, counting from the NE. cor. of the Tp.

May 10, 1915.

May 11, 1915.
 $N. 89^{\circ} 54'$ E., on a true line, bet. secs. 6 and 31. Over mountainous land, through scattering undergrowth.

- .50 Asc. 35 ft. to
 - 11.45 Spur, slopes N. Desc. 95 ft. to
 - 17.35 Asc. 65 ft. to
 - 22.60 Desc. 150 ft. to
 - 28.10 Center of wash, 75 lks. wide, course N. Asc. 140 ft. to
 - 35.30 Spur, slopes N. Desc. 50 ft. to
 - 38.60 Center of wash, 75 lks. wide, course N. 30° W. Thence over level land.
 - 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
 - 1915 on S. rim;
 - S31 in N.,
 - S6 in S. and
 - $\frac{1}{4}$ in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 - 44.60 Asc. 440 ft. to
 - 59.60 Ridge, brs. N. and S. Desc. 520 ft. to
 - 73.60 Foot of desc.; thence over level land.
 - 78.60 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 5, 6, 31 and 32, marked on brass cap
 - 1915 on S. rim;
 - T16N in N.,
 - T15N in S. and
 - R20W in W. half;
 - S31 in NW.,
 - S32 in NE.,
 - S 5 in SE. and
 - S 6 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
- Land, level and mountainous.
 Soil, none.
 No timber.
 Undergrowth, greasewood and palo verde.

Chains.	N.89° 54' E., on a true line, bet. secs. 5 and 32. Over level land, through scattering undergrowth.
6.85	Desc. gradual E. slope, 170 ft. to
29.00	Thence over level 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 1915 on S. rim; S32 in N., and S5 in S. and $\frac{1}{4}$ in W. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
54.50	Center of wash, 1 ch. wide, course N. 30° E.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 4, 5, 32 and 33, marked on brass cap 1915 on S. rim; T16N in N., T15N in S. and R20W in W. half; S32 in NW., S33 in NE., S4 in SE. and S5 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, level and rolling. Soil, rocky, 3rd and 4th rate. No timber. Undergrowth, greasewood, palo verde and cacti.
3.00	N.89° 54' E., on a true line, bet. secs. 4 and 33. Over rolling land, through scattering undergrowth. Center of wash, 1 ch. wide, course N. Thence over mountain- ous land. Asc. 125 ft. to
19.50	Thence over rolling land.
26.20	Desc. 50 ft. to
29.70	Asc. broken W. slope, 285 ft. to
37.75	Spur, brs. N. 30° E. Desc. 70 ft. to
40.00	Head of gulch, course S. 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 1915 on S. rim; S33 in N., and S4 in S. and $\frac{1}{4}$ in W. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Asc. 130 ft.
46.90	Mouth of mine tunnel, running about 75 ft. back.
50.53	Top of hill on spur, brs. SE. Desc. 350 ft. to
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 3, 4, 33 and 34, marked on brass cap 1915 on S. rim; T16N in N., T15N in S. and R20W in W. half; S33 in NW., S34 in NE., S 3 in SE. and S 4 in SW. 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, rocky, 4th rate. No timber. Undergrowth, greasewood, palo verde and cacti.

North Boundary of T. 15 N., R. 20 W.

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Chains.

N.89° 54' E. on a true line, bet. secs. 3 and 34.
 Over rolling land, through scattering undergrowth.
 Asc. 65 ft. to
 7.20 Desc. 50 ft. to
 10.00 Thence over level land.
 15.00 Desc. 20 ft. to
 17.50 Center of wash, 1 ch. wide, course N. Asc. 20 ft. to
 21.20 Thence over level 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
 1915 on S. rim;
 S34 in N.,
 S3 in S. and
 $\frac{1}{4}$ in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 N. of cor. Pits impracticable.
 69.50 Enter draw, course N.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
 ground, for cor. of secs. 2, 3, 34 and 35, marked on
 brass cap
 1915 on S. rim;
 T16N in N.,
 T15N in S. and
 R20W in W. half;
 S34 in NW.,
 S35 in NE.,
 S 2 in SE. and
 S 3 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 W. of cor. Pits impracticable.
 Land, level, rolling and broken.
 Soil, rocky, 3rd and 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde and cacti.

N.89° 54' E., on a true line, bet. secs. 2 and 35.
 Over level land, through scattering undergrowth.
 Across draw.
 2.50 Leave draw, drains 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
 1915 on S. rim;
 S35 in N.,
 S 2 in S. and
 $\frac{1}{4}$ in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 N. of cor. Pits impracticable.
 50.00 Desc. 55 ft. to
 58.20 Thence over level land.
 60.50 Enter wash, course N.
 69.32 Road, brs. N. to Yucca, and S. to Parker. Leave wash, course N.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
 ground, for cor. of secs. 1, 2, 35 and 36, marked on
 brass cap
 1915 on S. rim;
 T16N in N.,
 T15N in S. and
 R20W in W. half;
 S35 in NW.,
 S36 in NE.,
 S1 in SE. and
 S2 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 W. of cor. Pits impracticable.
 Land, level and broken.
 Soil, rocky, 3rd and 4th rate.
 No timber.

Chains.

Undergrowth, greasewood, palo verde and cacti.

N.89° 54' E., on a true line, bet. secs. 1 and 36.
 Over level land, through scattering undergrowth.
 .75 Enters wash, course N.
 2.10 Leave wash, course N. Asc. 30 ft. to
 6.60 Thence over level 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
 1915 on S. rim;
 S36 in N.,
 S 1 in S. and
 $\frac{1}{4}$ in W. half;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
 N. of cor. Pits impracticable.
 48.00 Center of wash, 1 ch. wide, course N. 30° W.
 75.00 Center of wash, 1 ch. wide, course N.
 80.00 The cor. of Tps. 15 and 16 N., Rs. 19 and 20 W.
 Land, level.
 Soil, sandy, 3rd and 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde and cacti.

May 11, 1915.
 J. G.

Boundaries of T. 15 N., R. 20 W.

Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	LATITUDES		DEPARTURES	
			N. chs.	S. chs.	E. chs.	W. chs.
South boundary	West.	479.04				479.04
West boundary	North.	480.00	480.00			
North boundary	N.89° 54' E.	478.60	.84		478.60	
East boundary	South.	480.00		480.00		
Convergency.					.50	
Totals.			480.84	480.00	479.10	479.04
			480.00		479.04	
Error in lat.-----			.84			
Error in dep.-----					.06	

J. G. ...

U. S. ...

Chains

Survey commenced Apr. 27, 1915, and executed by Otis Ross, U. S. Surveyor, with Young and Sons' light mountain transit, No. 8487, with Smith Solar attachment. For description of instrument, tests of adjustment, and certificate of approval, see books "H" and "J."

In the following field notes, the initials O.S. and J.G. refer to Otis Ross, U.S. Surveyor, and John Gonin, U.S. Transitman, respectively.

At 8h. a.m., l.m.t., I set off 34°41' N. on the lat. arc; 13°38 $\frac{1}{2}$ ' N. on the decl. arc; and determine a meridian with the solar at the cor. of Ts. 15 and 16 N., R. 20 W., and fractional Ts. 15 and 16 N., R. 20 $\frac{1}{2}$ W., established by me, as hereinbefore described.

Thence I run,
West, on a true line, bet. secs. 1 and 36.
Over mountainous land, through scattering undergrowth.
Descend 175 ft. to
5.37 Head of wash, course NW. Ascend NE. slope, 120 ft. to
11.27 Spur, slopes NW. Descend 295 ft. to
26.49 Center of wash, 1 ch. wide, course NW. Ascend 165 ft. to
34.45 Descend 50 ft. to
38.50 Ascend 45 ft. to
40.00 Set a granite stone, 16x8x8 ins., 11 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

44.50 Spur slopes N. Descend W. slope, 150 ft. to
54.55 Gulch, 20 lks. wide, course N. Ascend NE. slope, 125 ft. to
63.70 Descend 15 ft. to
64.25 Ascend 85 ft. to
67.28 Spur, slopes NW. Descend SW. slope 240 ft. to
78.15 Center of wash, 1 ch. wide, course S. Ascend SE. slope to
80.00 Set a malpais stone, 18x8x8 ins., 12 ins. in the ground for cor. of secs. 1, 2, 35 and 36, marked with 5 notches on W. and 1 notch on E. edges; and 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.
No timber.
Undergrowth, greasewood, palo verde and cacti.
No grass.

April 27, 1915.

Apr. 29, 1915: At 8h. 5m. a.m., l.m.t., I set off 34°41' N. on the lat. arc; 14°16 $\frac{1}{2}$ ' N. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 1, 2, 35 and 36.

Thence I run,
West, on a true line, bet. secs. 2 and 35.
Over mountainous land, through scattering undergrowth.
Ascend 35 ft. to
9.17 Spur, slopes SW. Descend 360 ft. to
37.46 Center of wash, 2 chs. wide, course NW. Ascend NE. slope, 155 ft. to
40.00 Set a granite stone, 16x10x6 ins., 11 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

48.69 Spur, slopes N. Descend 70 ft. to
53.42 Center of wash, 1 ch. wide, course N. Ascend NE. slope, 95 ft. to
60.19 Spur, slopes NW. Descend SW. slope, 110 ft. to
67.80 Wash, 50 lks. wide, course NW. Ascend E. slope, 95 ft. to
72.43 Spur slopes N. Descend NW. slope, 230 ft. to
80.00 Set a malpais stone, 18x16x6 ins., 12 ins. in the ground, for cor. of secs. 2 and 35, and fractional secs. 3 and 34, marked with 4 notches on W. and 2 notches on E. edges; and 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.

106. North boundary of fractional Township 15 N., R. 20 1/2 W.

Chains.

No timber.
Undergrowth, greasewood, palo verde and cacti.
No grass.

April 29, 1915.

May 4, 1915.

It being impracticable to chain measurement west on true line bet. frac. secs. 3 and 34 from the cor. of secs. 2 and 35 and frac. secs. 3 and 34, on account of steep rocky cliffs, I triangulate a portion of the line as follows:

Set a flag at a point west of sec. cor.

Measure a base line from sec. cor., south 7.98 chs.

From S. end of base the flag brs. N. 50° 30' W.

Therefore, dist. from sec. cor. to flag is obtained by

Cotang. 39° 30' x length of base, or
 $1.21310 \times 7.98 = 9.68$ chs.

The angle of elevation from sec. cor. to flag is 32°; therefore the elevation of flag point above sec. cor. is obtained by

Tang. 32° x horizontal dist. or
 $.62487 \times 9.68 = 6.05$ chs. or 399 ft.

9.68

Flag point on line on top of Chemehuevis Mt. Divide, 399 ft. above sec. cor., brs. NW. and SE. Thence continuing measurement by chaining west bet. frac. secs. 3 and 34, descending over cliff, 190 ft. to

15.64

Bottom of cliff, wash, course NW. Ascend perpendicular wall, 185 ft. to

19.79

Top of spur slopes NW. Impracticable to continue chain measurement west from this point on account of precipitous descent; therefore, avoid the impassible portion by offset into frac. sec. 34, as follows:

North, 2.43 chs. Descending NE. slope, thence

West, 19.36 chs. Descend 155 ft. to

4.51 Wash, 20 lks. wide, course NW.

8.67 Ascend over cliffs, 75 ft. to

16.89 Top of spur, slopes NW.

17.72 Descend over cliffs, 310 ft. to

19.36 Wash, 1 ch. wide, course NW.

Ascend 45 ft. to

17.72 Top of spur, slopes NW.

19.36 Descend to

Intersect E. bdy. of frac. T. 15 N. R. 21 W. Thence

South, 2.43 chs. on E. bdy. of frac. T. 15 N. R. 21 W. to the point of intersection with N. bdy. of frac. T. 15 N., R. 20 1/2 W., 2.72 chs. S. of cor. of frac. secs. 13 and 24 of frac. T. 15 N., R. 21 W. hereinafter described.

By the above described offset the length of line bet. frac. secs. 3 and 34 is 19.79 chs. + 19.36 chs. =

39.15

This point falls on a granite rock in place, 8x4x3 ft. above ground, upon the top of which I mark a cross (x) at exact point for closing cor. of fractional Ts. 15 and 16 N., R. 20 1/2 W., and other marks as follows:

CC E of cross,

16 N NE. of cross,

20 1/2 W E. of cross,

15 N SE. of cross; with 6 notches N., E. and

S. of cross; and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, E. of cor. Pits impracticable.

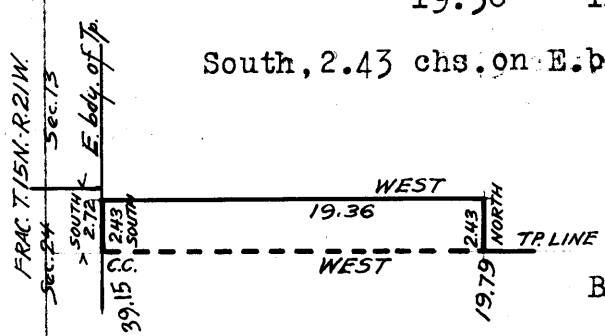
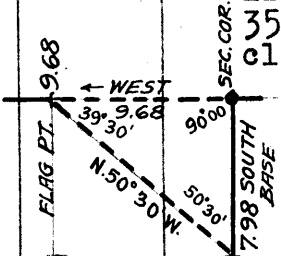
Land, mountainous. Soil, rocky, 4th rate.

No timber.

Undergrowth, greasewood, palo verde and cacti.

O.R.

May 4, 1915.



Chains.

Survey commenced May 3, 1915, and executed by Otis Ross, U. S. Surveyor, with Young and Sons' light mountain transit No. 8487, with Smith solar attachment. For description of instrument, and certificate of approval, see subdivision of frac. T. 14 N., R. 20 W. in Book "H". For tests of adjustment, see subdivision of fractional T. 15 N., R. 20 1/2 W. in book "J."

In the following field notes, the initials O. R. and J. G. refer to Otis Ross, U. S. Surveyor and John Gonin, U. S. Transitman, respectively.

At 9 hrs. 7 m., a.m., l.m.t., I set off 34° 42' N. on the lat. arc; 15° 30' N. on the decl. arc; and determine a meridian with the solar at cor. of sec. 12 and frac. sec. 13, on E. bdy. of frac. T. 15 N., R. 21 W., a porphyry stone, 18 X 10 X 8 ins., in a mound of stone, marked and witnessed as described by the Surveyor-General.

39.63

Thence I retrace North along the E. bdy. of sec. 12.

The original 1/4 sec. cor., which is a granite stone, 6 X 10 X 7 ins. above ground, marked and witnessed as described by the Surveyor-General.

The length of this line is therefore 39.63 chs., and the bearing of the line is North.

79.15

I continue my line and measurement.

The cor. of secs. 1 and 12, which is a granite stone, 20 X 12 X 6 ins., in a mound of stone, marked and witnessed as described by the Surveyor-General.

The length of this line is therefore 39.52 chs., and the bearing of the line is North.

May 3, 1915: At this cor., I set off 15° 32' N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 42 1/2' N.

May 3, 1915.

38.96

May 4, 1915: At 8 hrs. 28 m., a.m., l.m.t., I set off 34° 42' N. on the lat. arc; 15° 47 1/2' N. on the decl. arc; and determine a meridian with the solar at the cor. of sec. 12 and fractional sec. 13, hereinbefore described.

Thence I retrace South along the E. bdy. of fractional sec. 13.

The old 1/4 sec. cor., which is a lava stone, 6 X 15 X 10 ins. above ground, marked and witnessed as described by the Surveyor-General.

The length of this line is therefore 38.96 chs., and the bearing of the line is North.

May 4, 1915 .

Resurvey of a portion of the East boundary of
Fractional T. 15 N., R. 21 W.

80.

108

Chains.

May 3, 1915.
From the cor. of secs. 1 and 12, which is a stone, here-
inbefore described, I resurvey
South along the E. bdy. of sec. 12.
Over mountainous land, through scattering undergrowth.
Asc. N. slope, 70 ft. to
5.70 Spur, slopes W. Desc. S. slope, 80 ft. to
10.70 Wash, 20 lks. wide, course W. Asc. N. slope, 80 ft. to
15.55 Spur, slopes W. Desc. S. slope, 85 ft. to
24.40 Wash, 50 lks. wide, course W. Asc. N. slope, 40 ft. to
29.30 Spur, slopes SW. Desc. 65 ft. to
33.10 Wash, 50 lks. wide, course W. Asc. 85 ft.
39.52 The original $\frac{1}{4}$ sec. cor. I destroy all trace of this cor.
40.00 Set a malpais stone, 16 X 6 X 6 ins., in a mound of stone,
for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound
of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits
impracticable.
40.85 Spur, slopes NW. Desc. 85 ft. to
48.00 Wash, 50 lks. wide, course NW. Asc. 95 ft. to
56.15 Spur, slopes NW. Desc. S. slope, 140 ft. to
65.20 Center of wash, 1 ch. wide, course W. Asc. 50 ft. to
67.00 Spur, slopes W. Desc. 50 ft. to
74.30 Wash, 20 lks. wide, course W. Asc. 25 ft. to
75.05 Desc. 30 ft. to
79.15 The original cor. of sec. 12 and frac. sec. 13. I destroy all
trace of this cor.
Desc. to
80.00 Set a granite stone, 16 X 14 X 8 ins., 11 ins. in ground
for cor. of sec. 12 and frac. sec. 13, marked with 2
notches on N. and 4 notches on S. edge; and 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.
No timber.
Undergrowth, greasewood and palo verde.
May 3, 1915.

May 4, 1915. From the reestablished cor. of sec. 12 and
frac. sec. 13 described above, I resurvey
South on the E. bdy. of fractional sec. 13.
Over mountainous land, through scattering undergrowth.
Asc. broken N. slope to
7.65 Ridge, brs. NE. and SW. Desc. 90 ft. to
15.90 Center of wash, 1 ch. wide, course W. Asc. N. slope to
19.40 Spur, slopes SW. Desc. S. slope, 70 ft. to
25.90 Center of wash, 3 chs. wide, course W. Asc. 105 ft. to
35.15 Spur, slopes NW. Desc. 40 ft.
38.11 The original $\frac{1}{4}$ sec. cor. I destroy all trace of this cor.
40.00 Set a granite stone, 16 X 14 X 10 ins., 11 ins. in the
ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise
a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor.
Pits impracticable.
The east boundary of this Tp., as originally survey-
ed by John J. Fisher, U. S. Deputy Surveyor, was
discontinued at the $\frac{1}{4}$ sec. cor. just destroyed, because
of the mountainous nature of the country.
Thence I continue measurement, completing survey of Tp. bdy.
South along the E. bdy. of fractional sec. 13.
42.11 Wash, 50 lks. wide, course NW. Asc. 300 ft. to
50.81 Cliff ridge, brs. NW. and SE. Desc. SW. slope, 150 ft. to
60.46 Head of wash, course NW. Asc. 75 ft. to
63.33 Chemehuevis Mountain Divide, brs. E. and W. Desc. 270 ft.
to
73.61 Wash, 30 lks. wide, course NW. Asc. over cliffs 140 ft. to
80.00 Set a granite stone, 24 X 16 X 8 ins., in a mound of stone,
for cor. of frac. secs. 13 and 24, marked with 3 on
notches on

Completion of survey of E. bdy. of frac. T.15 N., R. 21 W. 109.

Chains.

N. and S. edges; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 Land, cliffs and mountains.
 Soil, rocky, 4th rate.
 No timber.
 Undergrowth, greasewood and palo verde.
 No grass.
 May 4, 1915: The sky was overcast at noon, making an observation for latitude impossible.

May 4, 1915.

May 6, 1915: At 8 hrs. 10m., a.m., l.m.t., I set off $34^{\circ} 41' N.$ on the lat. arc; $16^{\circ} 21\frac{1}{2}' N.$ on the decl. arc; and determine a meridian with the solar at the cor. of frac. secs. 13 and 24, described above.

Thence I run,
 South, along the E. bdy. of fractional sec. 24.
 Over mountainous land, through scattering undergrowth.

Ascend 45 ft. to
 0.86 Spur, slopes NW. Descend 135 ft. to
 4.70 Wash, 20 lks. wide, course NW. Ascend 45 ft. over cliffs to
 6.28 Spur, slopes NW. Descend 10 ft. to
 7.37 Wash, 10 lks. wide, course NW. Ascend over cliffs, 280 ft. to
 15.61 Cliff ridge, brs. E. and W. Impracticable to continue chaining S. on Tp. line from this point owing to steep descent over cliffs; therefore, run on offset line in frac. sec. 24, as follows:

<p>WEST 1.70 15.61 WEST 4.07 27.74 WEST 5.77 40.00 EAST</p> <p>← SOUTH 12.13 ← SOUTH 12.26 ← SOUTH 12.26</p> <p>WEST 4.07 27.74 WEST 5.77 40.00 EAST</p> <p>← SOUTH 12.13 ← SOUTH 12.26 ← SOUTH 12.26</p> <p>WEST 1.70 15.61 WEST 4.07 27.74 WEST 5.77 40.00 EAST</p>	<p>West, 1.70 chs. Along top of ridge, Thence South 12.13 chs. Descending 315 ft. to 11.55 Wash, 50 lks. wide, course SW. Ascend to 12.13 Foot of cliffs, bear NE. & SW. Thence West, 4.07 chs. Descending 10 ft. to 0.60 Wash, 50 lks. wide, course SW. Ascend 30 ft. to 4.07 Top of spur, slopes S. Thence South, 12.26 chs. Descend S. slope of spur, 40 ft. to 2.80 Wash, 50 lks. wide, course SW. Asc. 80 ft. to 10.35 Top of cliff spur, slopes SE. Descend 30 ft. to 12.26 Thence East, 5.77 chs. Descending. Return to Tp. line at</p>
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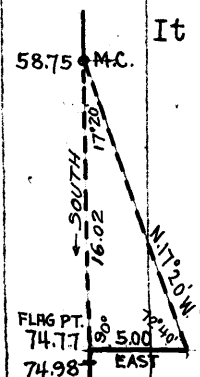
40.00 Foot of slope.
 Set a granite stone, 18x14x10 ins., in a mound of stone, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

May 6, 1915: At this cor. I set off $16^{\circ} 24' N.$ on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 40\frac{1}{2}' N.$
 Thence continue measurement south on Tp. line.

Ascend over cliffs, 35 ft. to
 42.13 Cliff spur, slopes SW. Descend 65 ft. to
 43.24 Wash, course W. Ascend 25 ft. to
 45.63 Spur, slopes SW. Descend over cliffs, 140 ft. to
 56.90 Ascend 15 ft. to
 58.75 Set a granite stone, 24x16x10 ins., in a mound of stone, on the left bank of the Colorado River, at mean high water mark, for northern meander cor. of frac. secs. 3 and 24, marked MC on S. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

It being impracticable to chain measurement on Tp. line across bend in Colorado River, I obtain measurement by triangulation as follows:

Set flag on line on S. side of river bend.
 From flag measure a base E. 5.00 chs.
 From E. end of base the meander cor. on N. side of River bend bears $N. 17^{\circ} 20' W.$
 Distance is obtained by,
 Cotang. $17^{\circ} 20'$ x length of base or
 $3.20406 \times 5.00 = 16.02$ chs.



110 Completion of survey of E. bdy. of frac. T. 15 N., R. 21 W.

58.75 chs. + 16.02 chs. = 74.77 chs. Therefore flag is located on Tp. line at

74.77 This point not being suitable for establishment of meander cor., I run S. on Tp. line a dist. of 21 lks. to

74.98 Where I set an iron post, 3 ft. long, 1 in. in diam., 26 ins. in the ground, on left bank of Colorado River, at mean high water mark, for southern meander cor. of frac. secs. 3 and 24, marked on brass cap

1915 on S. rim;
MC N. of center,
T 15 N in S. half;
R 20 1/2 W S 3 in SE., and
R 21 W S 24 in SW. sector;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, S. of cor. Pits impracticable.

Distance bet. the northern and southern meander cors. of frac. secs. 3 and 24 is therefore: 16.02 + 0.21 chs. = 16.23 chs.

Thence I run,

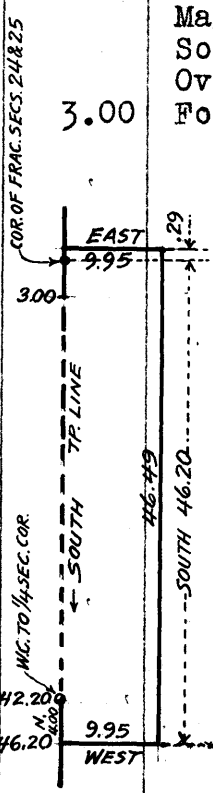
80.00 South, on E. bdy. of frac. sec. 24, continuing measurement Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of frac. secs. 24 and 25, marked on brass cap

1915 on S. rim;
T 15 N in N.,
R 20 1/2 W S 3 S 10 in E. half;
R 21 W S 24 in NW., and
S 25 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable.

Land, mountainous.
Soil, rocky, 4th rate.
No timber.
Undergrowth, greasewood and palo verde.
No grass.

May 6, 1915.



May 8, 1915.

South, along the E. bdy. of fractional sec. 25. Over mountainous land, through scattering undergrowth. Foot of cliff, bears E. and W. As it is impracticable to chain measurement S. from this point, I return on Tp. line to a point 29 lks. N. of cor. of frac. secs. 24 and 25, and run on offset line as follows:

East 9.95 chs. Descend 46 ft. Thence
South 0.29 chs. Descending to point E. of cor. of frac. secs. 24 and 25. Thence
South 46.20 chs. Descending to
5.00 Enter wash, course NW. Thence in bed of wash to
14.00 Leave wash. Enter dense undergrowth, bears NW. and SE.
Ascend 65 ft. to
16.15 Thence descend 50 ft. to
23.70 Thence ascend 130 ft. to
42.95 Thence descend 25 ft. to
46.20 Thence
West 9.95 chs. Returning to Tp. line at 46.20 ch. point. The true point for 1/4 sec. cor. of frac. sec. 25 is inaccessible; therefore I run

North 4.00 chs. on Tp. line to

42.20 Where I set a granite stone, 18x14x10 ins., in a mound of stone, for witness cor. to 1/4 sec. cor., marked 1/4 on W. and WC on N. face; and raise a mound of stone 2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable.

May 8, 1915.

May 10, 1915: At this witness cor., I set off 34° 39 1/2' N. on the lat. arc; 17° 27 1/2' N. on the decl. arc, and determine a meridian with the solar at 8 hrs. 4m. a.m., l.m.t.

Completion of survey of E. bdy. of frac. Township 15 N., R. 21 W. 111.

Chains.

Thence I continue measurement
 South on the east bdy. of fractional sec. 25.
 Ascend 100 ft. to
 45.24 Cliff spur, slopes NW. Descend over cliffs, 300 ft. to
 52.73 Wash, 50 lks. wide, course SW. Ascend slightly to
 55.00 Descend 30 ft. to
 62.95 Point of cliff, brs. NE. and NW. Descend 120 ft. to
 65.98 Foot of cliff; wash, 50 lks. wide, course SW.
 68.80 Set a granite stone, 24x12x8 ins., in a mound of stone, on
 the left bank of the Colorado River, at mean high water
 mark, for meander cor. for frac. secs. 10 and 25, marked
 MC on S. face; and raise a mound of stone, 2 ft. base,
 1 1/2 ft. high, N. of cor. Pits impracticable.

Land, mountainous.
 Soil, rocky, 4th rate.
 No timber.
 Undergrowth, greasewood, catclaw and palo verde.

O. R.
 May 10, 1915.

Boundaries of Fractional T. 15 N., R. 21 W.
Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures	
			N. chs.	S. chs.	E. chs.	W. chs.
SW. bdy. (Left bank Colorado River	Meanders		388.77			158.51
North boundary	East	158.63			158.63	
East boundary	South	388.80		388.80		
Convergency					.06	
<u>Totals</u>			388.77	388.80	158.69	158.51
<u>Error in latitude</u>				388.77	158.51	
<u>Error in departure</u>					.18	

Boundaries of Fractional T. 15 N., R. 20 $\frac{1}{2}$ W.
Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist.	Latitudes		Departures	
			N. chs.	S. chs.	E. chs.	W. chs.
South boundary	West	122.04				122.04
Left bank of Colorado River	Meanders		333.36			77.16
West boundary	North	146.08	146.08			
North boundary	East	199.15			199.15	
East boundary	South	480.00		480.00		
Convergency					.16	
<u>Totals</u>			479.44	480.00	199.31	199.20
<u>Error in latitude</u>				479.44	199.20	
<u>Error in departure</u>					.11	

East Boundary of T. 15 N., R. 17 W.

Chains.

Survey commenced May 7, 1915, and executed jointly by Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, with Young and Sons' light mountain transits Nos. 8540 and 8483, respectively, with Smith solar attachments. For description of instruments, and certificate of approval, see page 106 of this book and subdivision of T. 13 N., R. 18 W. in Book "C."

In the following field notes, the initials A. S. and J. M. M. refer to Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, respectively.

For tests of adjustment of instruments, see subdivision of this Tp. in Book "M."

A. S. and J. M. M.

J. M. M.

At 9 hrs. 0m., a.m., 1.m.t., I set off $34^{\circ} 35\frac{1}{2}'$ N. on the lat. arc; $16^{\circ} 39'$ N. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 14 and 15 N., Rs. 16 and 17 W., which is an iron post, established by me, as hereinbefore described.

Thence I run

North, bet. secs. 31 and 36.

Over level land, through scattering undergrowth.

40.00

Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap

1915 on S. rim;

$\frac{1}{4}$ in N.,

S31 in E. and

S36 in W. 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.

80.00

Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 25, 30, 31 and 36, marked on brass cap

1915 on S. rim;

T15N in N. half;

R17W S25 in NW.,

R16W S30 in NE.,

S31 in SE. and

S36 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, level desert.

Soil, sandy loam, 2nd and 3rd rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla and cacti.

North bet. secs. 25 and 30.

Over level land, through scattering undergrowth.

40.00

Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap

1915 on S. rim;

$\frac{1}{4}$ in N.,

S30 in E. and

S25 in W. 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.

80.00

Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 19, 24, 25 and 30, marked on brass cap

1915 on S. rim;

T15N in N. half;

R17W S24 in NW.,

R16W S19 in NE.,

S30 in SE. and

S25 in SW. quadrant;

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East Boundary of T. 15 N., R. 17 W.

Chains.

	<p>dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, level desert. Soil, sandy loam, 2nd and 3rd rate. No timber. Undergrowth, greasewood, palo verde, ocatilla and cacti.</p>
22.50	North bet. secs. 19 and 24. Over level land, through scattering undergrowth. Old road, brs. NE. and SW.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; $\frac{1}{4}$ in N., S19 in E. and S24 in W. 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.
44.00	Wash, 10 lks. wide, course SW.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 13, 18, 19 and 24, marked on brass cap 1915 on S. rim; T15N in N. half; R17W S13 in NW., R16W S18 in NE., S19 in SE. and S24 in SW. quadrant; dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, level desert. Soil, sandy loam, 2nd and 3rd rate. No timber. Undergrowth, greasewood, palo verde, ocatilla and cacti.
10.25	North bet. secs. 13 and 18. Over level land, through scattering undergrowth. Old road, brs. NE. and W.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; $\frac{1}{4}$ in N., S18 in E. and S13 in W. 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.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 7, 12, 13 and 18, marked on brass cap 1915 on S. rim; T15N in N. half; R17W S12 in NW., R16W S7 in NE., S18 in SE. and S13 in SW. quadrant; dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, level desert. Soil, sandy loam, 2nd and 3rd rate.

Chains.

No timber.
Undergrowth, greasewood, palo verde, ocatilla and cacti.
May 7, 1915: At this cor., I set off $16^{\circ} 41'$ N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 39'$ N.

- North bet. secs. 7 and 12.
Over level land, through scattering undergrowth.
20.00 Wash, 10 lks. wide, course SW.
40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
1915 on S. rim;
 $\frac{1}{4}$ in N.,
S7 in E. and
S12 in W. 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.
80.00 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 1, 6, 7 and 12, marked on brass cap
1915 on S. rim;
T15N in N. half;
R17W S1 in NW.,
R16W S6 in NE.,
S7 in SE. and
S12 in SW. quadrant;
dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Pits impracticable.
Land, level desert.
Soil, sandy loam, 2nd and 3rd rate.
No timber.
Undergrowth, greasewood, palo verde, ocatilla and cacti.

- North bet. secs. 1 and 6.
Over level land, through scattering undergrowth.
5.00 Wash, 10 lks. wide, course SW.
35.75 Wash, 10 lks. wide, course SW.
40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
1915 on S. rim;
 $\frac{1}{4}$ in N.,
S6 in E. and
S1 in W. 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.
80.00 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of Tps. 15 and 16 N., Rs. 16 and 17 W., marked on brass cap
1915 on S. rim;
T16N in N.,
R16W in E.,
T15N in S. and
R17W in W. half;
S36 in NW.,
S31 in NE.,
S6 in SE. and
S1 in SW. quadrant;
dig pits, 24 X 24 X 12 ins., on each line, N., E., and W., 4ft. dist., and S. of post, 8 ft. dist.; and raise a mound of earth, 5 ft. base, $2\frac{1}{2}$ ft. high, S. of cor.

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East boundary of T. 15 N., R. 17 W.

Chains.

Land, level.

Soil, sandy loam, 2nd and 3rd rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla and cacti.

J. M. M.

May 7, 1915.

West Boundary of T. 15 N., R. 17 W.

Chains.

May 4, 1915: A. S.
 At 9 hrs. a.m., l.m.t., I set off $34^{\circ} 35\frac{1}{2}'$ N. on the lat. arc; $15^{\circ} 47\frac{1}{2}'$ N. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 14 and 15 N., Rs. 17 and 18 W., which is an iron post, established by J. M. M., as hereinbefore described.

Thence I run
 North bet. secs. 31 and 36.
 Over rolling desert land, through dense undergrowth.

16.10 Wash, 15 lks. wide, 15 ft. deep, course NE.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 24 ins. in the ground, on solid rock, for $\frac{1}{4}$ sec. cor., marked on brass cap

1915 on S. rim;
 $\frac{1}{4}$ in N. ,
 S31 in E. and
 S36 in W. half;

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

52.40 Wash, 15 lks. wide, course NE.
 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

1915 on S. rim;
 T15N in N. half;
 R18W S25 in NW.,
 R17W S30 in NE.,
 S31 in SE. and
 S36 in SW. quadrant;

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

Land, rolling.
 Soil, rocky, 3rd rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and yucca.

North bet. secs. 25 and 30.
 Over rolling land, through dense undergrowth.

12.00 Wash, 1 ch. wide, course NE.
 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

1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S30 in E. and
 S25 in W. half;

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

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 19, 24, 25 and 30, marked on brass cap

1915 on S. rim;
 T15N in N. half;
 R18W S24 in NW.,
 R17W S19 in NE.,
 S30 in SE. and
 S25 in SW. quadrant;

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

Land, rolling desert.
 Soil, gravelly and rocky; 3rd rate.
 No timber.
 Undergrowth, greasewood, ocatilla, palo verde and yucca.
 May 4, 1915.

Chains.

May 5, 1915.
 North bet. secs. 19 and 24.
 Over rolling land, through dense undergrowth.

8.00 Wash, 50 lks. wide, course NE.
 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
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S19 in E. and
 S24 in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 W. of cor. Pits impracticable.

49.00 Wash, 20 lks. wide, course NE.
 60.00 Wash, 20 lks. wide, course NE.
 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
 1915 on S. rim;
 T15N in N. half;
 R18W S13 in NW.,
 R17W S18 in NE.,
 S19 in SE. and
 S24 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 W. of cor. Pits impracticable.

Land, rolling desert.
 Soil, gravelly and rocky, 3rd rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.

North bet. secs. 13 and 18.
 Over rolling land, through dense undergrowth.

.10 Wash, 20 lks. wide, course NW.
 2.30 Same wash, course NE.
 39.80 Road, brs. NE. and SW.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 22 ins. in the ground, on solid rock, for $\frac{1}{2}$ sec. cor., marked on brass cap
 1915 on S. rim;
 $\frac{1}{2}$ in N.,
 S18 in E., and
 S13 in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 W. of cor. Pits impracticable.

63.20 Road, brs. E. and W.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 7, 12, 13 and 18, marked on brass cap
 1915 on S. rim;
 T15N in N. half;
 R18W S12 in NW.,
 R17W S7 in NE.,
 S18 in SE. and
 S13 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 W. of cor. Pits impracticable.

Land, rolling hills.
 Soil, rocky, 3rd rate.
 No timber.
 Undergrowth, greasewood, palo verde and yucca.

May 5, 1915: At this cor., I set off $16^{\circ} 07'$ N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 39'$ N.

A. S.
 May 5, 1915.

West Boundary of T. 15 N., R. 17 W.

Chains,

May 12, 1915: J. M. M.
 North, bet. secs. 7 and 12.
 Over rolling land, draining NE., through dense undergrowth.

25.80 Wash, 30 lks. wide, course NE.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S7 in E. and
 S12 in W. 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.

69.40 Wash, 60 lks. wide, course NW. Thence over land draining NW.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 1, 6, 7 and 12, marked on brass cap
 1915 on S. rim;
 T15N in N. half;
 R18W S1 in NW.,
 R17W S6 in NE.,
 S7 in SE. and
 S12 in SW. quadrant;
 dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, rolling desert.
 Soil, gravelly, shallow; 3rd rate.
 No timber.
 Undergrowth, cat claw, yucca, greasewood, palo verde and cacti.

North bet. secs. 1 and 6.
 Over rolling land, draining NW., through scattering undergrowth.

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
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S6 in E. and
 S1 in W. 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. Pits impracticable.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of Tps. 15 and 16 N., Rs. 17 and 18 W., marked on brass cap
 1915 on S. rim;
 T16N in N.,
 R17W in E.,
 T15N in S. and
 R18W in W. half;
 S36 in NW.,
 S31 in NE.,
 S6 in SE. and
 S1 in SW. quadrant;
 dig pits, 24 X 24 X 12 ins., N., E., and W., 4 ft. dist. and S. 8 ft. dist.; and raise a mound of earth, 5 ft. base, $2\frac{1}{2}$ ft. high, S. of cor.

Land, rolling desert.
 Soil, sandy loam, gravel subsoil at 22 ins.; 2nd and 3rd rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.
 May 12, 1915: At this cor., I set off $18^{\circ} 1'$ N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 41'$ N.

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North Boundary of T. 15 N., R. 17 W.

Chains

May 7, 1915: J. M. E.

From the cor. of Tps. 15 and 16 N., Rs. 16 and 17 W., which is an iron post, established by me, as hereinbefore described, I run

West on a random line, along the N. bdy. of T. 15 N., R. 17 W., setting temp $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs., to the cor. of secs. 5, 4, 32 and 33, where I leave a temporary point.

May 7, 1915.

May 12, 1915.

From the temp. point for cor. of secs. 4, 5, 32 and 33, I continue

West on a random line, along the N. bdy. of T. 15 N., R. 17 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs.; and at 478.61 chs., intersect the W. bdy. of T. 16 N., R. 17 W., 45 lks. N. of the cor. of Tps. 15 and 16 N., Rs. 17 and 18 W., which is an iron post, established by me, as hereinbefore described. The falling answers to a correction of $0^{\circ}3'$ or 7 lks. S. per mile, counting from the NE. cor. of the Tp., therefore I run

N. $89^{\circ} 57'$ E., on a true line, bet. secs. 6 and 31.

Over rolling desert land, draining W., through scattering undergrowth.

38.61 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
1915 on S. rim;
S31 in N.,
S6 in S. and
 $\frac{1}{4}$ in W. 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, $1\frac{1}{2}$ ft. high, N. of cor.

45.80 Road, brs. N. to Yucca, and S. to Standard Mine.

78.61 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 5, 6, 31 and 32, marked on brass cap

1915 on S. rim;
T16N R17W in N., and
T15N in S. half;
S31 in NW.,
S32 in NE.,
S5 in SE. and
S6 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land rolling desert.

Soil, sandy loam, 2nd and 3rd rate. No timber.

Undergrowth, greasewood, palo verde, ocotillo and cacti.

N. $89^{\circ} 57'$ E., on a true line, bet. secs. 5 and 32.

Over rolling desert land, draining W., through scattering undergrowth.

9.80 Old road, brs. NW. and SE.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
1915 on S. rim;
S32 in N.,
S5 in S. and
 $\frac{1}{4}$ in W. 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, $1\frac{1}{2}$ ft. high, N. of cor.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 4, 5, 32 and 33, marked on brass cap

North Boundary of T. 15 N., R. 17 W. 121

Chains.

- 1915 on S. rim;
- T16N R17W in N. and
- T15N in S. half;
- S32 in NW.,
- S33 in NE.,
- S4 in SE. and
- S5 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., 5½ ft. dist.;
 and raise a mound of earth, 4 ft. base, 2 ft. high,
 W. of cor.

Land, rolling desert.

Soil, sandy loam, 2nd and 3rd rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla and cacti.
 May 12, 1915.

May 7, 1915.

N.89° 57' E., on a true line, bet. secs. 4 and 33.

Over level land, through dense undergrowth.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the
 ground, for ¼ sec. cor., marked on brass cap

- 1915 on S. rim;
- S33 in N.,
- S4 in S. and
- ¼ in W. half;

dig pits, 18 X 18 X 12 ins., E. and W. of post, 3 ft.
 dist.; and raise a mound of earth, 3½ ft. base, 1½ ft.
 high, N. of cor.

59.00 Road, brs. NW. and SE.

60.00 Wash, 10 lks. wide, course SW.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the
 ground, for cor. of secs. 3, 4, 33 and 34, marked on
 brass cap

- 1915 on S. rim;
- T16N R17W in N. and
- T15N in S. half;
- S33 in NW.,
- S34 in NE.,
- S3 in SE. and
- S4 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., 5½ ft. dist.;
 and raise a mound of earth, 4 ft. base, 2 ft. high,
 W. of cor.

Land, level desert.

Soil, sandy loam, 2nd and 3rd rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla and cacti.

N.89° 57' E., on a true line, bet. secs. 3 and 34.

Over level land, through dense undergrowth.

7.50 Wash, 10 lks. wide, course SW.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the
 ground, for ¼ sec. cor., marked on brass cap

- 1915 on S. rim;
- S34 in N.,
- S3 in S. and
- ¼ in W. half;

dig pits, 18 X 18 X 12 ins., E. and W. of post, 3 ft.
 dist.; and raise a mound of earth, 3½ ft. base, 1½ ft.
 high, N. of cor.

74.25 Wash, 10 lks. wide, course SW.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the
 ground, for cor. of secs. 2, 3, 34 and 35, marked on

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North Boundary of T. 15 N., R. 17 W.

Chains.

brass cap

1915 on S. rim;
 T16N R17W in N. and
 T15N in S. half;
 S34 in NW.,
 S35 in NE.,
 S2 in SE. and
 S3 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.;
 and raise a mound of earth, 4 ft. base, 2 ft. high,
 W. of cor.

Land, level desert.

Soil, sandy loam, 2nd and 3rd rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla and cacti.

N.89° 57' E., on a true line, bet. secs. 2 and 35.

Over level land, through dense undergrowth.

31.00 Wash, 15 lks. wide, course SW.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the
ground, for $\frac{1}{4}$ sec. cor., marked on brass cap

1915 on S. rim;
 S35 in N.,
 S2 in S. and
 $\frac{1}{4}$ in W. 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, 1 $\frac{1}{2}$ ft.
 high, N. of cor.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the
ground, for cor. of secs. 1, 2, 35 and 36, marked on
brass cap

1915 on S. rim;
 T16N R17W in N. and
 T15N in S. half;
 S35 in NW.,
 S36 in NE.,
 S1 in SE. and
 S2 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.;
 and raise a mound of earth, 4 ft. base, 2 ft. high,
 W. of cor.

Land, level desert.

Soil, sandy loam, 2nd and 3rd rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla and cacti.

N.89° 57' E., on a true line, bet. secs. 1 and 36.

Over level land, through dense undergrowth.

36.00 Wash, 10 lks. wide, course SW.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the
ground, for $\frac{1}{4}$ sec. cor., marked on brass cap

1915 on S. rim;
 S36 in N.,
 S1 in S. and
 $\frac{1}{4}$ in W. 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, 1 $\frac{1}{2}$ ft.
 high, N. of cor.

80.00 The cor. of Tps. 15 and 16 N., Rs. 16 and 17 W.

Land, level desert.

Soil, sandy loam, 2nd and 3rd rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla and cacti.

J. M. M.

May 7, 1915.

Boundaries of T. 15 N., R. 17 W.

Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South boundary	S. 89° 59' W.	478.76		.14		478.76
West boundary	North.	480.00	480.00			
North boundary	N. 89° 57' E.	478.61	.42		478.61	
East boundary	South.	480.00		480.00		
Convergency.					.50	
Totals.			480.42	480.14	479.11	478.76
			480.14		478.76	

Error in lat. .28 .35 Error dep.

U. S. Surveyors

W. T. Harrison.

West Boundary of T. 15 N., R. 18 W.

Chains.	
	<p>Survey commenced May 5, 1915, and executed by J. M. McKinney, Jr., U. S. Transitman, with Young and Sons' light mountain transit No. 8483 with Smith solar attachment. For description of instrument and certificate of approval, see subdivision of T. 13 N., R. 18 W. in book "C." In the following field notes, the initials A. S. and J. M. M. refer to Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, respectively. Knowing from recent and repeated tests of this instrument on a meridian established by observations on Polaris at elongation, that it is in adjustment, I proceed to the survey of the W. and N. Bdrs. of T. 15 N., R. 18 W.</p> <p>At 7 hrs. 53. m., a.m., l.m.t., I set off 34° 35$\frac{1}{2}$' N. on the lat. arc; 16° 4$\frac{1}{2}$' N. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 14 and 15 N., Rs. 18 and 19 W., which is a stone, established by me, as hereinbefore described.</p> <p>Thence I run North bet. secs. 31 and 36. Over mountainous land, through scattering undergrowth. Desc. NE. slope to 2.36 Wash, 50 lks. wide, course NE. Road to Arrastie Wells. follows this wash. Asc. broken SE. slope, 110 ft. to 16.16 Spur, brs. E. Desc. NE. slope, 40 ft. to 24.56 Wash, 20 lks. wide, course E. Asc. broken SE. slope, 355 ft. 40.00 Impracticable to set iron post at this point. Set a granite stone, 16 X 8 X 6 ins., 11 ins. in the ground, on solid rock, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound of stone, 2 ft. base, 1$\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. 43.06 Spur, brs. NE. Desc. broken N. slope, 590 ft. to 80.00 Impracticable to set an iron post at this point. Set a granite stone, 16 X 12 X 10 ins., 11 ins. in the ground, for cor. of secs. 25, 30, 31 and 36, marked with 5 notches on N. and 1 notch on S. edge; and raise a mound of stone, 2 ft. base, 1$\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, mountainous. Soil, shallow, rocky; 4th rate. No timber. Undergrowth, greasewood, palo verde, ocatilla and cacti.</p>
	<p>North bet. secs. 25 and 30. Over broken land, through scattering undergrowth. Desc. N. slope, 220 ft. 13.50 Prospect hole brs. E. about 6 chs. dist. 30.40 Wash, 30 lks. wide, course NW. Thence along broken W. slope. 40.00 Impracticable to set iron post at this point. Set a granite stone, 14 X 10 X 5 ins., 8 ins. in the ground, on rock ledge, in a mound of stone, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound of stone, 2 ft. base 1$\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. May 5, 1915: At this cor., I set off 16° 07' N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 37' N. 40.20 Wash, 20 lks. wide, course W. Continue along broken W. slope. 59.20 Wash, 20 lks. wide, course NW. Asc. S W. slope, 75 ft. to 64.60 Spur, brs. NW. Desc. NE. slope, 115 ft. to 75.40 Wash, 20 lks. wide, course NW. Asc. SW. slope to 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 19, 24, 25 and 30, marked on brass cap</p>

Chains.

	<p>1915 on S. rim; T15N in N. half; R19W S24 in NW., R18W S19 in NE., S30 in SE. and S25 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, mountainous. Soil, shallow, rocky, decomposed granite and lava; 3rd and 4th rate. No timber. Undergrowth, greasewood, palo verde, ocatilla and cacti. May 5, 1915.</p>
	<p>May 23, 1915: At 7 hrs. 58 m., a.m., l.m.t., I set off 34° $37\frac{1}{2}'$ N. on the lat. arc; $20^{\circ} 28'$ N. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 19, 24, 25 and 30. Thence I run North bet. secs. 19 and 24. Over rolling land, through scattering undergrowth. Spur, brs. NW.</p>
2.80	
40.00	<p>Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1915 on S. rim; $\frac{1}{4}$ in N., S19 in E., and S24 in W. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.</p>
42.80	Wash, 70 lks. wide, course NW.
80.00	<p>Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 13, 18, 19 and 24, marked on brass cap 1915 on S. rim; T15N in N. half; R19W S13 in NW., R18W S18 in NE., S19 in SE. and S24 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, rolling. Soil, shallow, rocky; 3rd rate. No timber. Undergrowth, greasewood, palo verde, ocatilla and cacti.</p>
	<p>North bet. secs. 13 and 18. Over rolling land, through scattering undergrowth.</p>
40.00	<p>Impracticable to set iron post at this point. Set a gran- ite stone, 18 X 10 X 6 ins., 12 ins. in the ground, on solid rock, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.</p>
47.80	Road, brs. NW. and SE.
66.80	Wash, 20 lks. wide, course NW.
80.00	<p>Impracticable to set iron post at this point. Set a lime- stone, 16 X 8 X 6 ins., 11 ins. in the ground, on solid rock, for cor. of secs. 7, 12, 13 and 18, marked with 2 notches on N. and 4 notches on S. edge; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, rolling. Soil, shallow, rocky, 3rd rate.</p>

West Boundary of T. 15 N., R. 18 W.

Chains.

No timber.
Undergrowth, greasewood, palo verde, ocatilla and cacti.

40.00 North bet. secs. 7 and 12.
Over rolling land, through scattering undergrowth.
Impracticable to set an iron post at this point. Set a granite stone, 16 X 12 X 8 ins., 11 ins. in the ground, for $\frac{1}{2}$ sec. cor., marked $\frac{1}{2}$ on W. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

73.80 Wash, 3 chs. wide, course NW.
80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 1, 6, 7 and 12, marked on brass cap

1915 on S. rim;
T15N in N. half;
R19W S1 in NW.,
R18W S6 in NE.,
S7 in SE. and
S12 in SW. quadrant;

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

Land, rolling.
Soil, shallow, rocky; 3rd rate.
No timber.
Undergrowth, greasewood, palo verde, ocatilla and cacti.
May 23, 1915.

40.00 May 22, 1915.
North bet. secs. 1 and 6.
Over rolling land, through scattering undergrowth.
Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{2}$ sec. cor., marked on brass cap

1915 on S. rim;
 $\frac{1}{2}$ in N.,
S6 in E. and
S1 in W. half;

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

76.80 Road, brs. NW. and SE. to James Ross' place.
80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of Tps. 15 and 16 N., Rs. 18 and 19 W., marked on brass cap

1915 on S. rim;
T16N in N.,
R18W in E.,
T15N in S. and
R19W in W. half;
S36 in NW.,
S31 in NE.,
S6 in SE. and
S1 in SW. quadrant;

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

Land, rolling.
Soil, shallow, rocky; 3rd rate.
No timber.
Undergrowth, greasewood, palo verde, ocatilla and cacti.
J. M. M.
May 22, 1915.

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North Boundary of T. 15 N., R. 18 W.

Chains.	<p>May 22, 1915. J. M. M.</p> <p>At 7 hrs. 53 m., a.m., l.m.t., I set off $34^{\circ} 41'$ N. on the lat. arc; $20^{\circ} 16'$ N. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 15 and 16 N., Rs. 17 and 18 W., which is an iron post, established by me, and hereinbefore described.</p> <p>Thence I run</p> <p>West on a random line, along the N. bdy. of Tp. 15 N., R. 18 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs.; and, at 478.20 chs., intersect the W. bdy. of Tp. 16 N., R. 18 W., 81 lks. N. of the cor. of Tps. 15 and 16 W., Rs. 18 and 19 W., which is an iron post, established by me, as hereinbefore described.</p> <p>The falling answers to a correction of $0^{\circ} 6'$, or 13 lks. S. per mile, counting from the NE. cor. of the Tp.; therefore I run</p> <p>N. $89^{\circ} 54'$ E., on a true line, bet. secs. 6 and 31.</p> <p>Over rolling land, through scattering undergrowth.</p> <p>5.20 Wash, 6 chs. wide, course NW.</p> <p>38.20 Impracticable to set iron post at this point. Set a granite stone, 14 X 12 X 5 ins., 10 ins. in the ground, on solid rock, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p> <p>48.20 Enter mountainous land, brs. NW. and SE. Asc. W. slope, 60 ft. to</p> <p>73.00 Desc. 17 ft. to</p> <p>78.20 Impracticable to set iron post at this point. Set a granite stone, 12 X 9 X 6 ins., 10 ins. in the ground, on solid rock, for cors. of secs. 5, 6, 31 and 32, marked with 5 notches on E. and 1 notch on W. edge; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.</p> <p>Land, rolling and mountainous.</p> <p>Soil, shallow, rocky, decomposed granite formation; 4th rate.</p> <p>No timber.</p> <p>Undergrowth, greasewood, palo verde, ocatilla and cacti.</p>
15.20	<p>N. $89^{\circ} 54'$ E., on a true line, bet. secs. 5 and 32.</p> <p>Over rolling land, through scattering undergrowth.</p> <p>Wash, 20 lks. wide, course SW. Thence over mountainous land. Asc. 190 ft. to</p>
39.50	Top of hill. Descend.
40.00	<p>Impracticable to set iron post at this point. Set a lava rock, 14 X 12 X 5 ins., 10 ins. in the ground, on solid rock, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.</p>
54.20	Wash, 20 lks. wide, course NW. Thence over rolling land.
80.00	<p>Impracticable to set iron post at this point. Set a granite stone, 14 X 12 X 6 ins., 10 ins. in the ground, on solid rock, for cor. of secs. 4, 5, 32 and 33, marked with 4 notches on E. and 2 notches on W. edge; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.</p> <p>Land, rolling and mountainous.</p> <p>Soil, shallow, rocky, granite formation; 4th rate.</p> <p>No timber.</p> <p>Undergrowth, greasewood, palo verde, ocatilla and cacti.</p> <p>May 22, 1915: At this cor., I set off $20^{\circ} 17\frac{1}{2}'$ N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 41'$ N.</p>

North Boundary of T. 15 N., R. 18 W.

Chains. N.89° 54' E., on a true line, bet. secs. 4 and 33.
 Over rolling land, through scattering undergrowth.
 9.00 Wash, 20 lks. wide, course SW.
 25.00 Asc. NW. slope, 90 ft. to
 30.00 Spur, brs. SW. Desc. SE. slope, 55 ft. to
 35.40 Wash, 20 lks. wide. course SW. Asc. 155 ft. to
 40.00 Impracticable to set iron post at this point. Set a granite stone, 16 X 14 X 10 ins., 11 ins. in the ground, on solid rock, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
 74.20 Spur, brs. S. Desc. 60 ft. to
 80.00 Impracticable to set iron post at this point. Set a granite stone, 16 X 12 X 5 ins., 10 ins. in the ground, on solid rock, for cor. of secs. 3, 4, 33 and 34, marked with 3 notches on E. and W. edges; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 Land, rolling and broken.
 Soil, shallow, rocky, granite formation; 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.

N.89° 54' E., on a true line, bet. secs. 3 and 34.
 Over rolling land, through scattering undergrowth.
 17.00 Asc. broken SW. slope, 85 ft. to
 26.10 Spur, brs. SE. Desc. 85 ft.
 40.00 Impracticable to set iron post at this point. Set a granite stone, 14 X 12 X 6 ins., 10 ins. in the ground, on solid rock, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
 42.00 Wash, 20 lks. wide, course SW. Asc. W. slope, 90 ft. to
 53.20 Spur, brs. SE. Desc. E. slope, 100 ft. to
 61.80 Gulch, course SE. Thence along S. slope.
 71.00 Low saddle in spur, brs. SE. Desc. NE. slope to
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 2, 3, 34 and 35, marked on brass cap
 1915 on S. rim;
 T16N R18W in N. and
 T15N in S. half;
 S34 in NW.,
 S35 in NE.,
 S2 in SE. and
 S3 in SW. 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, shallow, rocky, granite formation; 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde, ocatilla and cacti.

N.89° 54' E., on a true line, bet. secs. 2 and 35.
 Over rolling land, through scattering undergrowth.
 Desc. NE. slope, 140 ft. to
 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
 1915 on S. rim;
 S35 in N.,
 S2 in S. and
 $\frac{1}{4}$ in W. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the

Chains.

ground, for cor. of secs. 1, 2, 35 and 36, marked on brass cap

- 1915 on S. rim;
- T16N R18W in N., and
- T15N in S. half;
- S35 in NW.,
- S36 in NE.,
- S1 in SE. and
- S2 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., 5½ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, rolling.

Soil, shallow, rocky, granite formation; 3rd rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla and cacti.

N.89° 54' E., on a true line, bet. secs. 1 and 36.

Over rolling land, through scattering undergrowth.

5.60 Wash, 20 lks. wide, course NE.

30.00 Leave rolling land, thence over level land,

40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for ¼ sec. cor., marked on brass cap

- 1915 on S. rim;
- S36 in N.,
- S1 in S. and
- ¼ in W. half;

dig pits, 18 X 18 X 12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, 3½ ft. base, 1½ ft. high, N. of cor.

41.40 Wash, 50 lks. wide, course NW.

80.00 The cor. of Tps. 15 and 16 N., Rs. 17 and 18 W.

Land, rolling and level.

Soil, on rolling land, shallow, rocky, 3rd rate; on level land, sandy loam, 2nd and 3rd rate.

No timber.

Undergrowth, greasewood, palo verde, ocatilla and cacti.

J. M. M.

May 22, 1915.

Boundaries of T. 15 N., R. 18 W.

Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South boundary	S.89° 59'W.	478.72		.14		478.72
West boundary	North.	480.00	480.00			
North boundary	N.89° 54'E.	478.20	.84		478.20	
East boundary	South.	480.00		480.00		
Convergency.					.50	
Totals.			480.84	480.14	478.70	478.72
			480.14			478.70
Error in lat.			.70		Error in dep. .02	

East Boundary of T. 16 N., R. 17 W.

Chains.

Survey commenced May 11, 1915, and executed jointly by Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, with Young and Sons' light mountain transits Nos. 8540 and 8483, respectively, with Smith solar attachments. For description of instruments, and certificate of approval, see page I of this book and subdivision of T. 13 N., R. 18 W. in book "C."

In the following field notes, the initials A. S. and J. M. M. refer to Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, respectively.

Knowing from recent and repeated tests of these instruments on a meridian established by observations on Polaris at elongation, that they are in adjustment, we proceed to the survey of the E., W., and N. bdrs. of T. 16 N., R. 17 W.

A. S. and J. M. M.

J. M. M.

At 8 hrs. a.m., l.m.t., I set off 34° 41' N. on the lat. arc; 17° 43' N. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 15 and 16 N., Rs. 16 and 17 W., which is an iron post, established by me, and hereinbefore described.

Thence I run

North bet. secs. 31 and 36.

Over rolling desert land, through scattering undergrowth.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S31 in E. and
 S36 in W. 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.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 25, 30, 31 and 36, marked on brass cap
 1915 on S. rim;
 T16N in N., half;
 R17W S25 in NW.,
 R16W S30 in NE.,
 S31 in SE. and
 S36 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, rolling desert.

Soil, sandy loam, 2nd and 3rd rate. Depth unknown.

No timber.

Undergrowth, scattering yucca, greasewood and cacti.

North bet. secs. 25 and 30.

Over rolling desert land, through dense undergrowth.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S30 in E. and
 S25 in W. 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.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 19, 24, 25 and 30, marked on brass cap
 1915 on S. rim;
 T16N in N. half;
 R17W S24 in NW.

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Chains.

R16W S19 in NE.,
 S30 in SE. and
 S25 in SW. quadrant;
 dig pits, 18 X 18 X 12 ins., in each sec., 5½ ft. dist.;
 and raise a mound of earth, 4 ft. base, 2 ft. high,
 W. of cor.
 Land, rolling desert, draining SW.
 No timber.
 Soil, sandy loam, 2nd and 3rd rate; gravel subsoil at 22
 ins.
 Undergrowth, scattering yucca, greasewood, and cacti.

40.00

North bet. secs. 19 and 24.
 Over rolling desert land, through scattering undergrowth.
 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the
 ground, for ¼ sec. cor., marked on brass cap
 1915 on S. rim;
 ¼ in N.,
 S19 in E. and
 S24 in W. half;

80.00

dig pits, 18 X 18 X 12 ins., N. and S. of post, 3 ft.
 dist.; and raise a mound of earth, 3½ ft. base, 1½ ft.
 high, W. of cor.
 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the
 ground, for cor. of secs. 13, 18, 19 and 24, marked on
 brass cap
 1915 on S. rim;
 T16N in N. half;
 R17W S13 in NW.,
 R16W S18 in NE.,
 S19 in SE. and
 S24 in SW. quadrant;
 dig pits, 18 X 18 X 12 ins., in each sec., 5½ ft. dist.;
 and raise a mound of earth, 4 ft. base, 2 ft. high,
 W. of cor.
 Land, rolling desert, draining SW.
 Soil, sandy loam, depth unknown; 2nd and 3rd rate.
 No timber.
 Undergrowth, greasewood, yucca and cacti.
 May 11, 1915: At this cor., I set off 17° 45½' N. on the
 decl. arc; and at apparent noon, I observe the sun on
 the meridian; the resulting lat. is 34° 43½' N.

9.80
31.60
40.00

North bet. secs. 13 and 18.
 Over rolling desert, through scattering undergrowth.
 Wash, 40 lks. wide, course W.

80.00

Road, brs. NW. and SE.
 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the
 ground, for ¼ sec. cor., marked on brass cap
 1915 on S. rim;
 ¼ in N.,
 S18 in E. and
 S13 in W. half;
 dig pits, 18 X 18 X 12 ins., N. and S. of post, 3 ft.
 dist.; and raise a mound of earth, 3½ ft. base, 1½ ft.
 high, W. of cor.
 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the
 ground, for cor. of secs. 7, 12, 13 and 18, marked on
 brass cap
 1915 on S. rim;
 T16N in N. half;
 R17W S12 in NW.,
 R16W S7 in NE.,
 S18 in SE. and
 S13 in SW. quadrant;
 dig pits, 18 X 18 X 12 ins., in each sec., 5½ ft. dist.;

Chains.

and raise a mound of earth, 4 ft. base, 2 ft. high,
W. of cor.

Land, rolling desert; drains SW.

Soil, sandy loam, 2nd and 3rd rate.

No timber.

Undergrowth, greasewood, yucca and cacti.

North bet. secs. 7 and 12.

Over rolling desert land, through scattering undergrowth.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the
ground, for $\frac{1}{4}$ sec. cor., marked on brass cap

1915 on S. rim;

$\frac{1}{4}$ in N.,

S7 in E. and

S12 in W. 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.

50.40 Wash, 2 chs. wide, course SW.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the
ground, for cor. of secs. 1, 6, 7 and 12, marked on
brass cap

1915 on S. rim;

T16N in N. half;

R17W S1 in NW.,

R16W S6 in NE.,

S7 in SE. and

S12 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.;
and raise a mound of earth, 4 ft. base, 2 ft. high,
W. of cor.

Land, rolling desert; drains SW.

Soil, sandy loam, depth unknown; 2nd and 3rd rate.

No timber.

Undergrowth, greasewood, yucca and cacti.

North bet. secs. 1 and 6.

Over rolling desert land, through scattering undergrowth.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the
ground, for $\frac{1}{4}$ sec. cor., marked on brass cap

1915 on S. rim;

$\frac{1}{4}$ in N.,

S6 in E. and

S1 in W. 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.

61.40 Old road, brs. NW. and SE.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the
ground, for cor. of Tps. 16 N., Rs. 16 and 17 W., and frac-
tional Ts. 16 $\frac{1}{2}$ N., Rs. 16 and 17 W., marked on brass cap

1915 on S. rim;

T16 $\frac{1}{2}$ N in N.,

R16W in E.,

T16N in S. and

R17W in W. half;

S36 in NW.,

S31 in NE.,

S6 in SE. and

S1 in SW. quadrant;

dig pits, 24 X 24 X 12 ins., on each line, N., E., and
W.. 4 ft. dist.; and S. of cor., 8 ft. dist.; and raise
a mound of earth, 5 ft. base, $2\frac{1}{2}$ ft. high, S. of cor.

Land, rolling desert; drains SW.

Soil, sandy loam, depth unknown; 2nd and 3rd rate.

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East Boundary of T. 16 N., R. 17 W.

Chains.

No timber.
Undergrowth, greasewood, cat claw, yucca and cacti.
Some bunch grass.

J. M. M.
May 11, 1915.

Chains.

May 12, 1915. A. S.

At 2 hrs. 3 m., p.m., l.m.t., I set off $34^{\circ} 41'$ N. on the lat. arc; $18^{\circ} 2'$ N. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 15 and 16 N., Rs. 17 and 18 W., which is an iron post, established by J. M. M., as described hereinbefore.

Thence I run

North bet. secs. 31 and 36,

Over rolling, desert land, through dense undergrowth.

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

1915 on S. rim;

$\frac{1}{4}$ in N.,

S31 in E. and

S36 in W. 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.

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

1915 on S. rim;

T16N in N. half;

R18W S25 in NW.,

R17W S30 in NE.,

S31 in SE. and

S36 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, rolling desert.

Soil, sandy loam, 2nd rate.

No timber.

Undergrowth, greasewood and yucca.

North bet. secs. 25 and 30.

Over rolling desert land, through dense undergrowth.

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

1915 on S. rim;

$\frac{1}{4}$ in N.,

S30 in E. and

S25 in W. 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.

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

1915 on S. rim;

T16N in N. half;

R18W S24 in NW.,

R17W S19 in NE.,

S30 in SE. and

S25 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, rolling desert.

Soil, sandy loam, 2nd rate.

No timber.

Undergrowth, greasewood and yucca.

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West Boundary of T. 16 N., R. 17 W.

Chains.

North bet. secs. 19 and 24.
Over rolling desert land, through dense undergrowth.

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
1915 on S. rim;
 $\frac{1}{4}$ in N.,
S19 in E. and
S24 in W. 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.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 13, 18, 19 and 24, marked on brass cap
1915 on S. rim;
T16N in N. half;
R18W S13 in NW.,
R17W S18 in NE.,
S19 in SE. and
S24 in SW. quadrant;
dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, rolling desert.
Soil, sandy loam, 2nd rate.
No timber.
Undergrowth, greasewood and yucca.

May 12, 1915.

May 14, 1915.
North bet. secs. 13 and 18.
Over rolling, desert land, through dense undergrowth.

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
1915 on S. rim;
 $\frac{1}{4}$ in N.,
S18 in E. and
S13 in W. 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.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 30 ins. in the ground, for cor. of secs. 7, 12, 13 and 18, marked on brass cap
1915 on S. rim;
T16N in N. half;
R18W S12 in NW.,
R17W S7 in NE.,
S18 in SE. and
S13 in SW. quadrant;
dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, rolling desert.
Soil, sandy loam, 26 ins. deep; lime subsoil; 2nd rate.
No timber.
Undergrowth, greasewood, yucca and cacti.

May 14, 1915.

May 17, 1915.
North bet. secs. 7 and 12.
Over rolling, desert land, through dense undergrowth.

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
1915 on S. rim;

Chains.

$\frac{1}{4}$ in N.,
 S7 in E. and
 S12 in W. 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.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the
 ground, for cor. of secs. 1, 6, 7 and 12, marked on
 brass cap
 1915 on S. rim;
 T16N in N. half;
 R18W S1 in NW.,
 R17W S6 in NE.,
 S7 in SE. and
 S12 in SW. quadrant;
 dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.;
 and raise a mound of earth, 4 ft. base, 2 ft. high,
 W. of cor.
 Land, rolling desert.
 Soil, sandy loam, 2nd rate.
 No timber.
 Undergrowth, greasewood, yucca, ocatilla and cacti.

North bet. secs. 1 and 6.
 Over rolling desert land, through dense undergrowth.
 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
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S6 in E. and
 S1 in W. 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.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
 ground, for cor. of Tps. 16 N., Rs. 17 and 18 W., and frac.
 Ts. 16 $\frac{1}{2}$ N., Rs. 17 and 18 W., marked on brass cap,
 1915 on S. rim;
 T16 $\frac{1}{2}$ N in N.,
 R17W in E.,
 T16N in S. and
 R18W in W. half;
 S36 in NW.,
 S31 in NE.,
 S6 in SE. and
 S1 in SW. quadrant;
 dig pits, 24 X 24 X 12 ins., on each line, N., E., and
 W., 4 ft., and S. of post, 8 ft. dist.; and raise a
 mound of earth, 5 ft. base, $2\frac{1}{2}$ ft. high, S. of cor.
 Land, rolling desert.
 Soil, sandy loam, 2nd rate.
 No timber.
 Undergrowth, greasewood, yucca and cacti.
 May 17, 1915: At this cor., I set off $19^{\circ} 13\frac{1}{2}'$ N. on the
 decl. arc; and at apparent noon, I observe the sun on
 the meridian; the resulting lat. is $34^{\circ} 46'$ N.
 A. S.
 May 17, 1915.

Chains.

May 17, 1915. J.M.M. From cor. of Ts. 16 N., Rs. 16 and 17 W., and fractional Ts. 16 $\frac{1}{2}$ N., Rs. 16 and 17 W., which is an iron post, established by me, as hereinbefore described, I run West on a random line, along the N. bdy. of T. 16 N., R. 17 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs. to the cor. of secs. 3, 4, 33 and 34, where I leave a temp. point.

J. M. M.

A. S.

From the temp. point for cor. of secs. 3, 4, 33 and 34, I continue

West on a random line, along the N. bdy. of T. 16 N., R. 17 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs.; and at 478.41 chs., intersect W. bdy. of Frac. T. 16 $\frac{1}{2}$ N., R. 17 W., 46 lks. N. of cor. of Ts. 16 N., Rs. 17 and 18 W., and frac. Ts. 16 $\frac{1}{2}$ N., Rs. 17 and 18 W., established by me, as described hereinbefore. The falling answers to a correction of 0° 03', or 8 lks. S. per mile, counting from the NE. cor. of the Tp.; therefore I run

N. 89° 57' E., on a true line, bet. secs. 6 and 31. Over rolling, desert land, through dense undergrowth.

34.00

Road, brs. N. and S.

38.41

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

1915 on S. rim;

S31 in N.,

S6 in S. and

$\frac{1}{4}$ in W. 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, 1 $\frac{1}{2}$ ft. high, N. of cor.

78.41

Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 5, 6, 31 and 32, marked on brass cap

1915 on S. rim;

T16 $\frac{1}{2}$ N R17W in N. and

T16N in S. half;

S31 in NW.,

S32 in NE.,

S5 in SE. and

S6 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, rolling desert.

Soil, sandy loam, 2nd rate.

No timber.

Undergrowth, greasewood, cacti, ocatilla and yucca.

N. 89° 57' E., on a true line, bet. secs. 5 and 32.

Over rolling desert land, through dense undergrowth.

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

1915 on S. rim;

S32 in N.,

S5 in S. and

$\frac{1}{4}$ in W. 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, 1 $\frac{1}{2}$ ft. high, N. of cor.

46.70

Road, brs. NW. and SE.

80.00

Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 4, 5, 32 and 33, marked on brass cap

North Boundary of T. 16 N., R. 17 W.

Chains.

- 1915 on S. rim;
- T16 $\frac{1}{2}$ N R17W in N. and
- T16N in S. half;
- S32 in NW.,
- S33 in NE.,
- S4 in SE. and
- S5 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, rolling desert.
Soil, sandy loam, 2nd rate.
No timber.
Undergrowth, greasewood, ocatilla and cacti.

40.00 N.89° 57' E., on a true line, bet. secs. 4 and 33. Over rolling, desert land, through dense undergrowth. 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
1915 on S. rim;
S33 in N.,
S4 in S. and
 $\frac{1}{4}$ in W. 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, 1 $\frac{1}{2}$ ft. high, N. of cor.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 3, 4, 33 and 34, marked on brass cap

- 1915 on S. rim;
- T16 $\frac{1}{2}$ N R17W in N. and
- T16N in S. half;
- S33 in NW.,
- S34 in NE.,
- S3 in SE. and
- S4 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, rolling desert.
Soil, sandy loam, 2nd rate.
No timber.
Undergrowth, greasewood, yucca and cacti.

A. S.

40.00 J. M. M.
N.89° 57' E., on a true line, bet. secs. 3 and 34. Over rolling, desert land, through dense undergrowth. Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap

- 1915 on S. rim;
- S34 in N.,
- S3 in S. and
- $\frac{1}{4}$ in W. 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, 1 $\frac{1}{2}$ ft. high, N. of cor.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 2, 3, 34 and 35, marked on brass cap

- 1915 on S. rim;
- T16 $\frac{1}{2}$ N R17W in N. and
- T16N in S. half;
- S34 in NW.,
- S35 in NE.,
- S2 in SE. and
- S3 in SW. quadrant;

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North Boundary of T. 16 N., R. 17 W.

Chains.	<p>dig pits, 18 X 18 X 12 ins., in each sec., 5½ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, rolling desert. Soil, sandy loam, depth unknown; 2nd and 3rd rate. No timber. Undergrowth, greasewood, yucca and cacti.</p>
40.00	<p>N.89° 57' E., on a true line, bet. secs. 2 and 35. Over rolling, desert land, through dense undergrowth. Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for ¼ sec.cor., marked on brass cap 1915 on S. rim; S35 in N., S2 in S. and ¼ in W. half;</p>
60.00	<p>dig pits, 18 X 18 X 12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, 3½ ft. base, 1½ ft. high, N. of cor.</p>
80.00	<p>Wash, 30 lks. wide, course SW.</p>
80.00	<p>Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 1, 2, 35 and 36, marked on brass cap 1915 on S. rim; T16½N R17W in N. and T16N in S. half; S35 in NW., S36 in NE., S1 in SE. and S2 in SW. quadrant; dig pits, 18 X 18 X 12 ins., in each sec., 5½ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, rolling desert. Soil, sandy loam, depth unknown; 2nd and 3rd rate. No timber. Undergrowth, greasewood, yucca, cat claw and cacti. May 17, 1915: At this cor., I set off 19° 13½' N. on the decl. arc; and at apparent noon. I observe the sun on the meridian; the resulting lat. is 34° 46' N.</p>
10.00	<p>N.89° 57' E., on a true line, bet. secs. 1 and 36. Over rolling, desert land, through dense undergrowth. Leave rolling, enter mountainous land, brs. N. and S.</p>
31.90	<p>Asc. W. slope, 615 ft. to Top of butte, extends 45 chs. S. and 35 chs. N. Desc. E. slope, 490 ft.</p>
40.00	<p>Impracticable to set an iron post at this point. Set a granite stone, 14 X 10 X 6 ins., on rock ledge, in a mound of stone, for ¼ sec. cor., marked ¼ on N. face; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.</p>
45.20	<p>Foot of desc., brs. N. and S. Thence over rolling land.</p>
70.30	<p>Old road, brs. NW. and SE.</p>
80.00	<p>Cor. of Ts. 16 N., Rs. 16 and 17 W. & frac. Ts. 16½ N., Rs. 16 & 17 W. Land, 45 chs. rolling desert; 35 chs. mountainous. Soil, on desert land, sandy loam, cemented gravel subsoil at 16 ins. depth; 2nd and 3rd rate; on the mountains, rocky, decomposed granite; 4th rate. No timber. Undergrowth, greasewood, yucca, and cacti.</p>

J. M. M.
May 17, 1915.

Boundaries of T. 16 N., R. 17 W.
 Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South boundary	S.89° 57' W.	478.61		.42		478.61
West boundary	North.	480.00	480.00			
North boundary	N.89° 57' E.	478.41	.42		478.41	
East boundary	South.	480.00		480.00		
Convergency.					.50	
<u>Totals.</u>			480.42	480.42	478.91	478.61
			480.42		478.61	
Error in lat.			.00		.30 Error in dep.	

East Boundary of Fractional T. 16 $\frac{1}{2}$ N., R. 17 W. 143.

Chains.

Survey commenced May 11, 1915, and executed jointly by Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, with Young and Sons' light mountain transits Bos. 8540 and 8483, respectively, with Smith Solar attachments. For description of instruments, and certificate of approval, see page 1 of this book and subdivision of T. 13 $\frac{1}{2}$ N., R. 18 W., in Book "C."

In the following field notes, the initials A. S. and J. M. M. refer to Albert Smith, Jr., U. S. Surveyor, and J. M. McKinney, Jr., U. S. Transitman, respectively.

Knowing from recent and repeated tests of these instruments on a meridian established by observations on Polaris at elongation, that they are in adjustment, we proceed to the survey of the E. and W. bdrs. of fractional T. 16 $\frac{1}{2}$ N., R. 17 W.

J. M. M. From the cor. of Ts. 16 N., Ts. 16 and 17 W., and fractional Ts. 16 $\frac{1}{2}$ N., Rs. 16 and 17 W., which is an iron post, established by me, as described hereinbefore, I run

- North bet. secs. 31, and 36.
- Over rolling, desert land, through scattering undergrowth.
- 26.40 Telephone line, brs. about N. 40° W. to Yucca, and S. 40° E. to Seneca Ranch.
- 27.90 Road, brs. NW. to Yucca, and SE. to Signal.
- 29.90 Wash, 40 lks. wide, course W.
- 40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 - 1915 on S. rim;
 - $\frac{1}{4}$ in N.,
 - S31 in E. and
 - S36 in W. 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.
- 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 25, 30, 31 and 36, marked on brass cap
 - 1915 on S. rim;
 - T16 $\frac{1}{2}$ N in N. half;
 - R17W S25 in NW.,
 - R16W S30 in NE.,
 - S31 in SE. and
 - S36 in SW. quadrant;
 dig pits, 18 X 18 X 12 ins., in each sec., 5 $\frac{1}{4}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
- Land, rolling desert; drains W.
- Soil, sandy loam, depth unknown; 1st and 2nd rate.
- No timber.
- Undergrowth, greasewood, yucca, cat claw and cacti.
- Some bunch grass.

- 40.00 North bet. secs. 25 and 30.
- Over rolling, desert land, through scattering undergrowth.
- Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 - 1915 on S. rim;
 - $\frac{1}{4}$ in N.,
 - S30 in E. and
 - S25 in W. 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.
- 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 25, and 30 and fractional secs. 19 and 24, marked on brass cap

Chains.

1915 on S. rim;
 T16 $\frac{1}{2}$ N in N. half;
 R17W S24 in NW.,
 R16W S19 in NE.,
 S30 in SE. and
 S25 in SW. quadrant;

dig pits, 18 X 18 X 12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.;
 and raise a mound of earth, 4 ft. base, 2 ft. high,
 W. of cor.

Land, rolling desert.

Soil, sandy loam, 2nd and 3rd rate; gravel subsoil at 20
 ins.

No timber.

Undergrowth, cat claw, yucca and cacti.

May 11, 1915.

May 18, 1915.

North, bet. fractional secs. 19 and 24..

Over rolling, desert land, through scattering undergrowth.

28.50 Wash, 70 lks. wide, course SW.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the
 ground, for $\frac{1}{4}$ sec. cor., marked on brass cap

1915 on S. rim;

$\frac{1}{4}$ in N.,

S19 in E. and

S24 in W. 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.

40.80 Wash, 50 lks. wide, course SW.

63.00 Wash, 20 lks. wide, course SW.

64.51 Intersect the Fourth Standard Parallel North, 8.82 chs.

E. of the standard cor. of secs. 32 and 33, T. 17 N.,
 R. 16 W., which is an iron post, properly set, marked
 and witnessed as described by the Surveyor-General.

At the point of intersection, I set an iron post, 3 ft.
 long, 3 ins. diam., 26 ins. in the ground, for closing
 cor. of Fractional Tps. 16 $\frac{1}{2}$ N., Rs. 16 and 17 W., mark-
 ed on brass cap

1915 on S. rim;

CC S. of center;

T17N R16W, S32, S33 in N. and

T16 $\frac{1}{2}$ N in S. half;

S19, R16W in SE. and

S24, R17W in SW. quadrant;

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

Land, rolling desert.

Soil, shallow, rocky; 3rd rate.

No timber.

Undergrowth, greasewood, yucca, cat claw and cacti.

J. M. M.

May 18, 1915.

Chains.

May 18, 1915. A. S. From cor. of Ts. 16 N., Rs. 17 and 18 W., and frac. Ts. 16 $\frac{1}{2}$ N., Rs. 17 and 18 W., which is an iron post, established by me, as described hereinbefore, I run
 North bet. secs. 31 and 36.
 Over rolling, desert land, through dense undergrowth.
 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
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S31 in E. and
 S36 in W. 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.
 71.70 Road, brs. NW. and SE.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 25, 30, 31 and 36, marked on brass cap
 1915 on S. rim;
 T16 $\frac{1}{2}$ N in N. half;
 R18W S25 in NW.,
 R17W S30 in NE.,
 S31 in SE. and
 S36 in SW. quadrant;
 dig pits, 18 X 18 X 12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
 Land, rolling desert.
 Soil, sandy loam, 2nd rate.
 No timber.
 Undergrowth, greasewood, yucca and cacti.

North bet. secs. 25 and 30.
 Over rolling, desert land, through dense undergrowth.
 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
 1915 on S. rim;
 $\frac{1}{4}$ in N.,
 S30 in E. and
 S25 in W. 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.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 25, and 30 and fractional secs. 19 and 24, marked on brass cap,
 1915 on S. rim;
 T16 $\frac{1}{2}$ N in N. half;
 R18W S24 in NW.,
 R17W S19 in NE.,
 S30 in SE. and
 S25 in SW. quadrant;
 dig pits, 18 X 18 X 12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
 Land, rolling desert.
 Soil, sandy and gravelly; 2nd rate.
 No timber.
 Undergrowth, greasewood, yucca and cacti.

North bet. fractional secs. 19 and 24.
 Over rolling, desert land, through dense undergrowth.
 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
 1915 on S. rim;
 $\frac{1}{4}$ in N.,

146 West Boundary of Fractional T. 16 $\frac{1}{2}$ N., R. 17 W.

Chains.

S19 in E. and
S24 in W. 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.
43.90 Wash, 50 lks. wide, course W.
64.91 Intersect the Fourth Standard Parallel North, 11.49 chs. E. of the standard cor. of secs. 32, and 33, T. 17 N., R. 17 W., which is an iron post, properly set, marked and witnessed as described by the Surveyor-General.
At the point of intersection, I set an iron post, 3 ft. long, 2 ins. diam., 28 ins. in the ground, for closing cor. of Fractional Tps. 16 $\frac{1}{2}$ N., Rs. 17 and 18 W., marked on brass cap
1915 on S. rim;
CC S. of center;
T17N R17W. S32, S33 in N. and
T16 $\frac{1}{2}$ N in S. half;
S19 R17W in SE. and
S24 R18W in SW. quadrant;
dig pits, 30 X 24 X 12 ins., crosswise on each line, E. and W., 4 ft., and S. of post, 8 ft. dist.; and raise a mound of earth, 5 ft. base, 2 $\frac{1}{2}$ ft. high, S. of cor.
Land, rolling desert.
Soil, sandy and gravelly; 2nd and 3rd rate.
No timber.
Undergrowth, greasewood, yucca and cacti.
Note: A three inch iron post was not available for this Tp. closing cor.

A. S.
May 18, 1915.

Boundaries of Fractional T. 16 $\frac{1}{2}$ N., R. 17 W.

Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South boundary	S. 89° 57' E.	478.41		.42		478.41
West boundary	North.	224.91	224.91			
North boundary (4th St. Bar. N)	East.	477.33			477.33	
East boundary	South	224.51		224.51	.83	
Convergency					.23	
Totals.			224.91	224.93	477.56	478.41
Error in lat.				224.91		477.56
Error in dep.					.02	.85

North Boundry of T. 14 N. R. 19 W.

Chains.

Survey commenced Feb. 5, 1916, and executed jointly by Albert Smith Jr., U. S. Surveyor and D. J. Wolff, U. S. Transitman, with Young and Sons light mountain transits, Nos. 8583 and 8396 respectively, with Smith solar attachments. For description and test of instruments and certificate of approval see subdivision of T. 13 N. R. 19 W. in book "F."

In the following field notes the initials A. S. and D. J. W. refer to Albert Smith Jr., U. S. Surveyor and D. J. Wolff, U. S. Transitman, respectively

Feb. 5, 1916, A. S.

From the corner of Tps. 13 and 14 N., Rs. 18 and 19 W., which is an iron post established by J. M. McKinney, as hereinbefore described, I run West on a random line along the N. bdy. of T. 14 N. R. 19 W., setting temp. 1/4 sec. cor. at 40.00 chs. to the cor of secs. 1, 2, 35 and 36 where I leave a temp point.

Feb. 5, 1916.

Feb. 7, 1916.

From the temp point for the cor of secs. 1, 2, 35 and 36 I continue West on a random line along the N. bdy. of T. 14 N. R. 19 W., setting temp. 1/4 sec. cor. at 40.00 chs. to the cor of secs. 2, 3, 34 and 35, where I leave a temp. point.

Feb. 7, 1916.

Feb. 8, 1916.

At 8 hrs. 0 m., a.m., 1.m.t., I set off 34° 35' N. on the lat. arc, 15° 13 1/2' S. on the decl. arc and determine a meridian with the solar at the temp. point for the cor. of secs. of 2, 3, 34 and 35,

Thence I continue

West on a random line along the N. bdy of T. 14 N. R. 19 W., setting temp. 1/4 sec. cor. at 40.00 chs., to the cor. of secs. 3, 4, 33 and 34, where I leave a temp. point.

Feb. 8, 1916.

Feb. 9, 1916.

From the temp. point for the cor of secs. 3, 4, 33 and 34 I continue

West on a random line along the N. bdy. of T. 14 N. R. 19 W., setting temp 1/4 sec. cor. at 40.00 chs., to the cor. of secs. 4, 5 32 and 33 where I leave a temp. point.

A.S.

Feb. 9, 1916. D. J. W.

From the temp. point for the cor. of secs. 4, 5, 32 and 33 I continue

West on a random line along the N. bdy. of T. 14 N. R. 19 W., setting temp. 1/4 sec. and sec. cors. at intervals of 40:00 chs.; and at 159.24 chs., intersect W. bdy. of T. 15 N., R. 19 W., 30 1/2 lks. N. of the cor. of T. 14 and 15 N., R. 19 W.; T. 15 N., R. 20 W., and fractional Tp. 14 N., R. 20 W., an iron post established by Otis Ross as hereinbefore described: The falling answers to a correction of 0° 02' or 5 lks S. per mile, counting from the NE cor: of the Tp. Therefore I run

N. 89° 58' E. on a true line between secs. 6 and 31. Over rolling broken land, through scattering undergrowth.

16.80
25.44
32.07
39.24

Wash, 15 lks. wide, course S.
Wash, 15 lks. wide, course SW., asc W. slope 135 ft. to Hill, bears SW., desc SE. slope 55 ft. to

Impracticable to set iron post at this point. Set a granite stone, 15 X 10 X 8 ins., 11 ins. in the ground, for 1/4 sec. cor., marked 1/4 on N. face; and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, N. of cor. Pits impracticable;

43.24
48.04
60.00

Wash, 2.00 chs. wide, course S. 50° W., asc. 75 ft. to Point of hill, bears N. desc. 45 ft. to

Wash, 20 lks. wide, course NW. asc. 65 ft. to

Chains

73.30
78.24
79.24

Low hill, bears SW. desc. 40 ft. to Wash, 20 lks. wide, course SW. asc. 5 ft. to Impracticable to set an iron post at this point. Set a granite stone 18 X 10 X 9 ins., 13 ins. in the ground, for the cor. of secs. 5, 6, 31 and 32, marked with 5 notches on E. and 1 notch on the W. edge; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
Land, rolling mountainous.
Soil, rocky, 4th rate.
Undergrowth, palo verde, ocatilla, greasewood and cacti.
No timber.

N. 89° 58' E. on a true line bet. secs. 5 and 32. Over sharply broken ridges, through scattering undergrowth. Asc. NW. slope 105 ft. to

5.25
10.00
20.90
24.40
32.25
40.00
41.25

Low rocky hill, bears NW. desc. 40 ft. Gulch, course NW. asc. W. slope 130 ft. to Rocky hill, bears N. desc. NE. slope 40 ft. to Gulch, course NW. asc. W. slope 85 ft. to Low hill, bears NE. and SW. desc E. slope 30 ft. to Point for ¼ sec. cor falls in wash, 1.00 ch. wide, course SW. Impracticable to set an iron post at this point. Set a granite stone 16 X 10 X 6 ins., 12 ins. in the ground, for witness cor. to ¼ sec. cor, marked ¼ W C on N. face; and raise a mound of stone 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.

60.55
64.50
80.00

Asc. rocky SW. slope 300 ft. to Rocky spur, falls to the N. desc. 30 ft. to Ravine, course NW. asc. broken NW. slope 380 ft. to Impracticable to set an iron post at this point. Set a granite stone 20 X 12 X 10 ins., 16 ins. in the ground, for the cor. of secs. 4, 5, 32, and 33, marked with 4 notches on E. and 2 notches on W. edge; and raise a mound of stone 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, rough mountainous.
Soil, rocky, 4th rate.
Undergrowth, palo verde, ocatilla, greasewood and cacti.

D. J. W. Feb. 2, 1916.

A. S.
N. 89° 58' E. on a true line bet. secs. 4 and 33. Over mountainous land through scattering undergrowth. Asc. along N. slope to

2.50
19.50
29.75
37.10
40.00

Spur, falls to SW., asc. 190 ft. along S. slope to Crest of main ridge, Chemehuevis mountains, bears NW. and SE., desc. along N. slope 125 ft. to Draw, course NW. asc. SW. slope 270 ft. to Spur, falls to NW., desc. along N. slope 30 ft. to Impracticable to set an iron post at this point. Set a granite stone 18 X 16 X 6 ins. in a mound of stone, for ¼ sec. cor., marked ¼ on N. face; and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.

43.00
55.00
80.00

Spur, falls to N. desc. NE. slope 300 ft. to Ravine, course N. asc. NW. slope 350 ft. to Impracticable to set an iron post at this point. Set a granite stone 18 X 8 X 6 ins., 12 ins. in the ground for the cor of secs. 3, 4, 33 and 34, marked with 3 notches on E. and 3 notches on W. edge; and raise a mound of stone 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, very rough mountainous, cliffs and slides.
Soil, rocky, 4th rate.

North Boundry. of T.. 14. N. R. 19 W.

Chains

Undergrowth, sage, greasewood and cacti.
No timber.

Feb. 9, 1916.

Feb. 8, 1916.

N. 89° 58' E. on a true line bet. secs. 3 and 34.
Over mountainous land through scattering undergrowth.
Asc. W. slope 70 ft. to

2.25 Ridge, bears N. and S. desc. broken E. slope 800 ft. to
 31.10 Draw, 60 lks wide, course NE. asc. W. slope 275 ft. to
 40.00 Impracticable to set an iron post at this point. Set a
 granite stone 18 X 8 X 8 ins., 15 ins. in the ground
 for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a
 mound of stone, 2ft. base, $1\frac{1}{2}$ ft. high, N. of cor.
 Pits impracticable.

40.20 Spur, falls to N. desc. NE. slope 25 ft. to
 44.60 Draw, course NW. asc. W. slope 106 ft. to
 46.10 Spur, falls to NE. desc. E. slope 176 ft. to
 56.60 Draw, course NE. asc. W. slope 130 ft. to
 60.35 Spur, falls to NE. desc. NE. slope 72 ft. to
 65.70 Draw, 20 lks. wide, course NW. asc. W. slope 250 ft. to
 71.50 Spur, falls to NE. desc. NE. slope 167 ft. to
 80.00 Impracticable to set an iron post at this point. Set a
 granite stone 22 X 12 X 12 ins. in a mound of stone
 for the cor. of secs. 2, 3, 34 and 35, marked with 2
 notches on E. and 4 notches on W. edge;; and raise a
 mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor.
 Pits impracticable.

Land, mountainous, with cliffs and slides.

Soil, rocky, 4th rate.

Undergrowth, sage, greasewood and cacti.

No timber.

Feb. 8, 1916.

Feb. 7, 1916.

N. 89° 58' E. on a true line bet. secs. 2 and 35.
Over mountainous land, through scattering undergrowth.
Desc. NE slope to

4.10 Draw, course NW, asc. W. slope 158 ft. to
 9.20 Spur, falls to NW. desc. NE. slope 20ft. to
 16.80 Draw, course NW. asc. broken W. slope 220 ft. to
 22.40 Ridge, bears N. and S. desc. E. slope 500 ft. to
 33.50 Ravine, course N. asc. 40 ft. to
 40.00 Spur, falls to N.
 Impracticable to set iron post at this point. Set a
 granite stone 20 X 12 X 8 ins., 17 ins. in a mound of
 stone, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and
 raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N.
 of cor. Pits impracticable.

47.00 Desc. along broken N. slope 95 ft. to
 56.07 Ravine, course N. asc. along NW. slope 136 ft. to
 65.70 Ridge, bears NE and SW. desc. E. slope 200 ft. to
 70.30 Head of draw, course SE. along S. slope to
 72.47 Spur, falls to SE. desc. 45 ft. to
 76.70 Draw, course SE. asc. 40 ft. to
 80.00 Spur, falls to S. desc. 18 ft. to
 Impracticable to set an iron post at this point. Set a
 granite stone 18 X 9 X 8 ins., 15 ins. in the ground,
 for the cor. of secs. 1, 2 35 and 36, marked with 1
 notch on the E. and 5 notches on the W. edge;; and raise
 mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor.
 Pits Impracticable.

Land, rough mountainous

Soil, rocky, 4th rate.

Undergrowth, sage, cacti, palo verde, and greasewood.

No timber.

Feb. 7, 1916.

Chains Feb 5 1916.
 N. 89° 58' E. on a true line bet. secs. 1 and 36.
 Over mountainous land, through scattering undergrowth.
 Asc. along broken S. slope 46ft. to
 4.95 Spur, falls to S. 10.00 chs. desc. 90 ft. to
 13.30 Draw, course S. asc. SW. slope 245 ft. to
 22.30 Spur, falls to SE. desc. NE. slope 345 ft. to
 33.10 Draw, 30 lks wide, course SE. asc. SW. slope 24 ft. to
 36.60 Spur, falls to SE. 15.00 chs. desc. NE. slope 70 ft. to
 40.00 Impracticable to set an iron post at this point. Set a
 granite stone 20 X 12X 10 ins., 16 ins. in the ground
 for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on N. face; and raise a
 mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor.
 Pits impracticable.
 Continue to desc. NE. slope 320 ft. to
 60.30 Wash, course NE. along N. slope to
 69.60 Spur, falls to NE. desc. SE. slope 74 ft. to
 74.50 Wash, 2.50 chs. wide, course N.
 74.70 Wagon road, bears NE. and SW. asc. slightly to
 80.00 The cor. of Tps. 14 and 15 N. Rs. 18 and 19 W.
 Land, rough mountainous.
 Soil, rocky, 4th rate.
 Undergrowth, sage, cacti, ocatilla, and greasewood.
 No timber.

A. S.
 Feb. 5, 1916.

Boundries of T. 14 N. R. 19 W. .
 Latitudes, departures, and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes		Departures	
			N. chs.	S. chs.	E. chs.	W. chs.
South boundary	West.	479.50				479.50
West boundary	North	480.00	480.00			
North boundary	N. 89° 58' E.	479.24	.28		479.24	
East boundary	South	480.00		480.00		
Convergency						.50
Totals			480.28	480.00	479.74	479.50
			480.00		479.50	
Error in lat.			.28		Error dep. .24	

Chains

Survey commenced Feb. 21, 1916, and executed by R. D. Armstrong, U. S. Transitman, with Young and Sons' light mountain transit No. 8396, with Smith solar attachment. For description of instrument and certificate of approval, see book "P."

Knowing from recent and repeated tests of this instrument on a meridian established by observation on Polaris at elongation, that it is in adjustment, I proceed to the survey of the N. bdy. of T. 15 N. R. 19 W.

At 8h. 0m., a.m., l.m.t., I set off $34^{\circ} 41'$ N. on the lat. arc, $10^{\circ} 50'$ S. on the decl. arc, and determine a meridian with the solar at the cor. of Tps. 15 and 16 N., Rs. 18 and 19 W., which is an iron post established by J. M. McKinney, Jr. as described hereinbefore.

Thence I run West on a random line, along the N. bdy. of T. 15 N. R. 19 W., setting temp. $\frac{1}{4}$ sec. cors. and sec. cors. at intervals of 40.00 chs., to the $\frac{1}{4}$ sec. cor. bet. secs. 4 and 33, where I leave a temp. point.

Feb. 21, 1916.

Feb. 22, 1916.
From temp. point for $\frac{1}{4}$ sec. cor. bet. secs. 4 and 33 I continue

West along the N. bdy. of T. 15 N. R. 19 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs; and at 478.40 chs., intersect the W. bdy. of T. 15 N. R. 19 W., 24 lks. S. of the cor. of Tps. 15 and 16 N., Rs. 19 and 20 W., which is an iron post established by John Gonin as hereinbefore described. The falling answers to a correction of $0^{\circ} 02'$, or 4 lks. N. per mile, counting from the NE. cor. of the Tp; therefore I run

38.40

S. $89^{\circ} 58'$ E. on a true line bet. secs. 6 and 31. Over rolling land, through scattering undergrowth. Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in ground for $\frac{1}{4}$ sec. cor., marked on brass cap

- 1916 on S. rim;
- S31 in N.,
- S6 in S. and
- $\frac{1}{4}$ in W. 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, $1\frac{1}{2}$ ft. high, N. of cor.

53.00
78.40

Wash, 3.00 chs. wide, 20 ft. deep, course N. Set an iron post, 3 ft. long, 3 ins. in diam., 24 ins. in ground, for the cor. of secs. 5, 6, 31 and 32, marked on brass cap

- 1916 on S. rim;
- T16N R19W in N. and
- T15N in S. half;
- S31 in NW.,
- S32 in NE.,
- S5 in SE. and
- S6 in SW. 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 gravel, 4th. rate.
Undergrowth, greasewood, ocatillo, palo verde and cacti.
No timber.

1.50
31.00
40.00

S. $89^{\circ} 58'$ E. on a true line bet. secs. 5 and 32. Over rolling land, through scattering undergrowth, Wash, 70 lks. wide, 10 ft. deep, course N. 15° E. Wash, 50 lks. wide, 15 ft. deep, course N. Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in ground, for $\frac{1}{4}$ sec. cor., marked on brass cap

- 1916 on S. rim;
- S32 in N.,
- S5 in S. and

Chains.

76.00
80.00

$\frac{1}{4}$ in W. half;
and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
N. of cor. Pits impracticable.
Wash, 60 lks. wide, 40 ft. deep, course N.
Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in
ground, for the cor. of secs. 4, 5, 32 and 33, marked
on brass cap
1916 on S. rim;
T16N R19W in N. and
T15N in S. half;
S32 in NW.,
S33 in NE.,
S4 in SE. and
S5 in SW. 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 gravel, 4th. rate.
Undergrowth, greasewood, ocatillo, palo verde and cacti.
No timber.

19.95
40.00

S. $89^{\circ} 58'$ E. on a true line bet, secs. 4 and 33.
Over rolling land, through scattering undergrowth.
Wash, 75 lks. wide, 15 ft. deep, course N. 10° W.
Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in
ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
1916 on S. rim;
S33 in N.,
S4 in S. and
 $\frac{1}{4}$ in W. half;
and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
N. of cor. Pits impracticable.

Feb. 22, 1916.

Feb. 21, 1916.

80.00

From $\frac{1}{4}$ sec. cor. bet. secs. 4 and 33 I continue
S. $89^{\circ} 58'$ E. on a true line bet. secs. 4 and 33.
Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in
ground, for the cor. of secs. 3, 4, 33 and 34, marked
on brass cap
1916 on S. rim;
T16N R19W in N. and
T15N in S. half;
S33 in NW.,
S34 in NE.,
S3 in SE. and
S4 in SW. quadrant;
raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
W. of cor. Pits impracticable.
Land, rolling.
Soil, sandy gravel, 4th. rate.
Undergrowth, greasewood, ocatillo, palo verde and cacti.
No timber.

6.60
40.00

S. $89^{\circ} 58'$ E. on a true line bet. secs. 3 and 34.
Over rolling land, through scattering undergrowth.
Wash, 2.00 chs. wide, course N. 30° W.
Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in
ground, for $\frac{1}{4}$ sec. cor., marked on brass cap

1916 on S. rim;
S34 in N.,
S3 in S. and
 $\frac{1}{4}$ in W. half;

and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
N. of cor. Pits impracticable.

79.80
80.00

Wash, 40 lks. wide, course NW.
Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in
ground, for the cor. of secs. 2, 3, 34 and 35, marked
on brass cap

Chains

1916 on S. rim;
T16N R19W in N. and
T15N in S. half;
S34 in NW.;
S35 in NE.,
S2 in SE. and
S3 in SW. quadrant;

raise a mound of stone, 2 ft. base, 1 1/2 ft. high,
W. of cor. Pits impracticable.

Land, rolling.

Soil, sandy gravel, 4th. rate.

Undergrowth, greasewood, ocatillo, palo verde and cacti.

No timber.

40.00

S. 89° 58' E. on a true line bet. secs. 2 and 35.

Over rolling land, through scattering undergrowth.

Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in
ground, for 1/4 sec. cor., marked on brass cap

1916 on S. rim;
S35 in N.,
S2 in S. and
1/4 in W. half;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high,
N. of cor. Pits impracticable.

80.00

Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in
ground, for the cor. of secs. 1, 2, 35 and 36, marked
on brass cap

1916 on S. rim;
T16N R19W in N., and
T15N in S. half;
S35 in NW.,
S36 in NE.,
S1 in SE. and
S2 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high,
W. of cor. Pits impracticable.

Land, rolling.

Soil, sandy gravel, 4th. rate.

Undergrowth, Greasewood, ocatillo, palo verde and cacti.

No timber.

2.40

15.00

40.00

S. 89° 58' E. on a true line bet. secs. 1 and 36.

Over rolling land, through scattering undergrowth.

Wagon road, bears NW. and SE.

Wash, 5.00 chs. wide, course NW.

Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in
ground, for 1/4 sec. cor., marked on brass cap

1916 on S. rim;
S36 in N.,
S1 in S. and
1/4 in W. half;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high,
N. of cor. Pits impracticable.

79.40

80.00

Wagon road, Arrastre Wells to Franconia, bears N. and S.
The cor. of Tps. 15 and 16 N., Rs. 18 and 19 W.

Land, rolling.

Soil, sandy gravel, 4th. rate.

Undergrowth, greasewood, ocatillo, palo verde and cacti.

No timber.

Feb. 21, 1916. R. D. A.

Chains

Boundries of T. 15 N. R. 19 W.
 Latitudes, departures, and closing errors.

Line designated	True bearing	Dist. chs.	Latitudes		Departures	
			N. chs.	S. chs.	E. chs.	W. chs.
South boundary	S. 89° 58' W.	479.24		.28		479.24
West boundary	North	480.00	480.00	.		
North boundary	S. 89° 58' E.	478.40		.28	478.40	
East boundary	South	480.00		480.00		
Convergency					.50	
Totals			480.00	480.56	478.90	479.24
				480.00		478.90
Error in lat.				.56	Error dep. .34	

West Boundary of T. 16 N., R. 18 W.

Chains.

Survey commenced Feb. 26, 1916, and executed by Albert Smith, Jr., U. S. Surveyor, with Young and Sons' light mountain transit No. 8583, with Smith solar attachment. For description of instruments and certificate of approval, see subdivision of T. 13 N., R. 19 W. in book "F." For tests of adjustment, see subdivision of T. 16 N., R. 19 W. in book "S."

I commence at the cor. of Tps. 15 and 16 N., Rs. 18 and 19 W., which is an iron post, established by J. H. McKinney, Jr., U. S. Transitman, and hereinbefore described.

The sky being cloudy, I run back and foresight line, from line previously established.

North, bet. secs. 31 and 36.
Over rolling land, through dense undergrowth.

7.80 Center of wash, 1.50 chs. wide, course NW.
15.00 Center of wash, 2 chs. wide, course N.65° W.
40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap

1916 on S. rim;
1/4 S36 in W. and
S31 in E. half;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.

70.00 Center of wash, 70 lks. wide, course N.60° W.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 25, 30, 31 and 36, marked on brass cap

1916 on S. rim;
T16N in N. half;
R19W S25 in NW.,
R18W S30 in NE.,
S31 in SE. and
S36 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.

Land, rolling.
Soil, rocky; 3rd rate.
No timber.

Undergrowth, greasewood, palo verde and ocotillo.

North bet. secs. 25 and 30.
Over rolling and broken land, through dense undergrowth.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap

1916 on S. rim;
1/4 S25 in W. and
S30 in E. half;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 19, 24, 25 and 30, marked on brass cap

1916 on S. rim;
T16N in N. half;
R19W S24 in NW.,
R18W S19 in NE.,
S30 in SE. and
S25 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.

Land, rolling.
Soil, 3rd rate.
No timber.

Undergrowth, greasewood and ocotillo.

North bet. secs. 19 and 24.
Over rolling land, through dense undergrowth.

156.

West Boundary of T. 16 N., R. 18 W.

Chains.

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
 1916 on S. rim;
 $\frac{1}{4}$ S24 in W. and
 S19 in E. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor.

40.90 Wash, 50 lks. wide, course NW.

77.00 Wash, 50 lks. wide, course NW.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 13, 18, 19 and 24, marked on brass cap
 1916 on S. rim;
 T16N in N. half;
 R19 W S13 in NW.,
 R18W S18 in NE.,
 S19 in SE. and
 S24 in SW. quadrant;
 dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.;
 and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, rolling.
 Soil, 3rd rate.
 No timber.
 Undergrowth, greasewood.

North bet. secs. 13 and 18.
 Over rolling land, through dense undergrowth.

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
 1916 on S. rim;
 $\frac{1}{4}$ S13 in W. and
 S18 in E. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor.

70.90 "Old Trails" Highway, brs. N.15° E. and S.15° W.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 7, 12, 13 and 18, marked on brass cap
 1916 on S. rim;
 T16N in N. half;
 R19W S12 in NW.,
 R18W S7 in NE.,
 S18 in SE. and
 S13 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor.

Land, rolling desert.
 Soil, gravel; 3rd rate.
 No timber.
 Undergrowth, greasewood.
 Feb 26, 1916: The sky was overcast at noon, making an observation for lat. impossible.

North bet. secs. 7 and 12.
 Over rolling land, through dense undergrowth.

15.00 Center of wash, 2 chs. wide, course NW.

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
 1916 on S. rim;
 $\frac{1}{4}$ S12 in W. and
 S7 in E. 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.

Chains.

80.00 high, W. of cor.
 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 1, 6, 7 and 12, marked on brass cap
 1916 on S. rim;
 T16N in N. half;
 R19W S1 in NW,
 R18W S6 in NE.,
 S7 in SE. and
 S12 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor.
 Land, rolling desert.
 Soil, 3rd rate.
 No timber.
 Undergrowth, greasewood.

40.00 North bet. secs. 1 and 6.
 Over rolling land, through dense undergrowth.
 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for ¼ sec. cor., marked on brass cap
 1916 on S. rim;
 ¼S1 in W. and
 S6 in E. half;
 and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of Ts. 16 N., Rs. 18 and 19 W., and fract. Ts. 16½ N., Rs. 18 and 19 W., marked on brass cap,
 1916 on S. rim;
 T16½N in N.,
 R18W in E.,
 T16N in S. and
 R19W in W. half;
 S36 in NW.,
 S31 in NE.,
 S6 in SE. and
 S1 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1½ ft. high, S. of cor.
 Land, rolling.
 Soil, gravel; 3rd rate.
 No timber.
 Undergrowth, greasewood.

Feb. 26, 1916.
A. S.

Chains.	<p>A. S. Mar. 30, 1916: At 8 hrs. 8 m., a.m., l.m.t., I set off $34^{\circ} 46'$ N. on the lat. arc; $3^{\circ} 49\frac{1}{2}'$ N. on the decl. arc; and determine a meridian with the solar at the cor. of Ts. 16 N., Rs. 17 & 18 W., and frac. Ts. 16$\frac{1}{2}$ N., Rs. 17 & 18 W., established by me and hereinbefore described. Thence I run West on a random line, along the N. bdy. of T. 16 N., R. 18 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs.; and at 477.67 chs., intersect the W. bdy. of frac. T. 16$\frac{1}{2}$ N. R. 18 W., 42 lks. N. of the cor. of Tps. 16 N., Rs. 18 and 19 W. & frac. Ts. 16$\frac{1}{2}$ N., Rs. 18 and 19 W. established by me, as hereinbefore described. The falling answers to a correction of $0^{\circ} 03'$, or 7 lks. S. per mile, counting from the NE. cor. of the Tp. Mar. 30, 1916: At the temp. cor. of secs. 3, 4, 33 and 34, I set off $3^{\circ} 53'$ N. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 46'$ N. Mar. 30, 1916.</p>
37.67 77.67	<p>Mar. 31, 1916. From cor. of Ts. 16 N., Rs. 18 and 19 W., and frac. Ts. 16$\frac{1}{2}$ N., Rs. 18 and 19 W., I run, N. $89^{\circ} 57'$ E., on a true line, bet. secs. 6 and 31. Over rolling land, through dense undergrowth. 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 1916 on S. rim; $\frac{1}{4}$S31 in N. and S6 in S. half; and raise a mound of stone, 2 ft. base, 1$\frac{1}{2}$ ft. high, N. of cor. Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 5, 6, 31 and 32, marked on brass cap 1916 on S. rim; T16$\frac{1}{2}$N R18W in N. and T16N in S. half; S31 in NW., S32 in NE., S5 in SE. and S6 in SW. quadrant; and raise a mound of stone, 2 ft. base, 1$\frac{1}{2}$ ft. high, W. of cor. Land, rolling desert. Soil, sandy; 2nd rate. No timber. Undergrowth, greasewood, ocotillo and cacti.</p>
40.00 45.45 80.00	<p>N. $89^{\circ} 57'$ E., on a true line, bet. secs. 5 and 32. Over level land, through dense undergrowth. 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 1916 on S. rim; $\frac{1}{4}$S32 in N. and S5 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, 1$\frac{1}{2}$ ft. high, N. of cor. Road, brs. N. and S. Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 4, 5, 32 and 33, marked on brass cap 1916 on S. rim;</p>

North Boundary of T. 16 N., R. 18 W.

Chains.

T16 $\frac{1}{2}$ N R18W. in N. and
 T16N in S. half;
 S32 in NW.,
 S33 in NE.,
 S4 in SE. and
 S5 in SW. quadrant;
 dig pits, 18 X 18 X 12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.;
 and raise a mound of earth, 4 ft. base, 2 ft. high,
 W. of cor.
 Land, level desert.
 Soil, sandy; 2nd rate.
 No timber.
 Undergrowth, greasewood, ocotillo and cacti.

40.00

N.89° 57' E., on a true line, bet. secs. 4 and 33.
 Over level land, through dense undergrowth.
 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
 1916 on S. rim;
 $\frac{1}{4}$ S33 in N. and
 S4 in S. half;

80.00

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, 1 $\frac{1}{2}$ ft.
 high, N. of cor.
 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the
 ground, for cor. of secs. 3, 4, 33 and 34, marked on
 brass cap
 1916 on S. rim;
 T16 $\frac{1}{2}$ N R18W. in N. and
 T16N in S. half;
 S33 in NW.,
 S34 in NE.,
 S3 in SE. and
 S4 in SW. quadrant;
 dig pits, 18 X 18 X 12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.;
 and raise a mound of earth, 4 ft. base, 2 ft. high,
 W. of cor.
 Land, level desert.
 Soil, sandy; 2nd rate.
 No timber.
 Undergrowth, greasewood, ocotillo, yucca and cacti.

1.25
39.35
40.00

N.89° 57' E., on a true line, bet. secs. 3 and 34.
 Over level land, through dense undergrowth.
 "Old Trails" Highway, brs. N. and SW.
 Wash, 50 lks. wide, 5 ft. deep, course SW.
 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the
 ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1916 on S. rim;
 $\frac{1}{4}$ S34 in N. and
 S3 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, 1 $\frac{1}{2}$ ft.
 high, N. of cor.

80.00

Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the
 ground, for cor. of secs. 2, 3, 34 and 35, marked on
 brass cap
 1916 on S. rim;
 T16 $\frac{1}{2}$ N R18W in N. and
 T16N in S. half;
 S34 in NW.,
 S35 in NE.,
 S2 in SE. and
 S3 in SW. quadrant;

Chains.	<p>dig pits, 18 X 18 X 12 ins., in each sec., 5½ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, level desert. Soil, sandy and gravelly; 3rd rate. No timber. Undergrowth, greasewood, ocotillo, yucca and cacti.</p>
37.35 40.00	<p>N.89° 57' E., on a true line, bet. secs. 2 and 35. Over level land, through dense undergrowth. Center of wash, 1 ch. wide, course SW. Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for ¼ sec. cor., marked on brass cap 1916 on S. rim; ¼S35 in N. and S2 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, 3½ ft. base, 1½ ft. high, N. of cor. Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 1, 2, 35 and 36, marked on brass cap</p>
80.00	<p>1916 on S. rim; T16½N R18W in N. and T16N in S. half; S35 in NW., E36 in NE., S1 in SE. and S2 in SW. quadrant; dig pits, 18 X 18 X 12 ins., in each sec., 5½ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, level. Soil, sand and gravel; 3rd rate. No timber. Undergrowth, greasewood, ocotillo, yucca and cacti.</p>
40.00	<p>N.89° 57' E., on a true line, bet. secs. 1 and 36. Over level land, through dense undergrowth. Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for ¼ sec. cor., marked on brass cap 1916 on S. rim; ¼S36 in N. and S1 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, 3½ ft. base, 1½ ft. high, N. of cor.</p>
80.00	<p>Cor. of Ts. 16 N., Rs. 17 & 18 W. & frac 1. Ts. 16½ N., Rs. 17 & 18 W. Land, level desert. Soil, sand and gravel; 3rd rate. No timber. Undergrowth, greasewood, ocotillo, sagebrush, yucca and cacti.</p>

A. S.
Mar. 31, 1916.

Boundaries of T. 16 N., R. 18 W.
 Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South Boundary.	S.89° 54' W.	478.20		.84		478.20
West Boundary.	North.	480.00	480.00			
North Boundary.	N.89° 57' E.	477.67	.42		477.67	
East Boundary.	South.	480.00		480.00		
Convergency.					.50	
Totals.			480.42	480.84	478.17	478.20
				480.42		478.17
Error in latitude.				.42		
Error in departure.						.03

West Boundary of T. 16 N., R. 19 W.

Chains.

Survey commenced Mar. 3, 1916, and executed by Albert Smith, Jr., U. S. Surveyor, with Young and Sons' light mountain transit No. 8583, with Smith solar attachment. For description of instrument and certificate of approval, see subdivision of T. 13 N., R. 19 W. in Book "F." For tests of adjustment, see subdivision of T. 16 N., R. 19 W. in Book "S."

At 8 hrs. 15 m., a.m., l.m.t., I set off 34° 41' N. on the lat. arc; 6° 45' S. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 15 and 16 N., Rs. 19 and 20 W., which is an iron post, established by John Gonin, U. S. Transitman, hereinbefore described.

Thence I run

North bet. secs. 31 and 36.

Over rolling land, through dense undergrowth.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap
1916 on S. rim;
1/4 S36 in W. and
S31 in E. half;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.

68.30 Center of wash, 70 lks. wide, course NE.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 25, 30, 31 and 36, marked on brass cap

1916 on S. rim;
T16N in N. half;
R20W S25 in NW.,
R19W S30 in NE.,
S31 in SE. and
S36 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.

Land, rolling desert.

Soil, gravel; 3rd rate.

No timber.

Undergrowth, greasewood and palo verde.

North, bet. secs. 25 and 30.

Over rolling land, through dense undergrowth.

10.60 Wash, 50 lks. wide, course NW.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap

1916 on S. rim;
1/4 S25 in W. and
S30 in E. half;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.

60.00 Center of wash, 1 ch. wide, course NW.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 19, 24, 25 and 30, marked on brass cap

1916 on S. rim;
T16N in N. half;
R20W S24 in NW.,
R19W S19 in NE.,
S30 in SE. and
S25 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.

Land, rolling desert.

Soil, sandy and gravelly; 3rd rate.

No timber.

Undergrowth, greasewood, palo verde, sagebrush and cacti.

Chains.	
40.00	<p>North bet. secs. 19 and 24. Over rolling land, through dense undergrowth. 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 1916 on S. rim; $\frac{1}{4}$S24 in W. and S19 in E. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor.</p>
60.00	<p>Wash, 25 lks. wide, course NW.</p>
75.00	<p>Center of wash, 70 lks. wide, course NW.</p>
80.00	<p>Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 13, 18, 19 and 24, marked on brass cap 1916 on S. rim; T16N in N. half; R20W S13 in NW., R19W S18 in NE., S19 in SE. and S24 in SW. quadrant; dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, rolling. Soil, sand and gravel; 3rd rate. No timber. Undergrowth, greasewood, palo verde, ocotillo and cacti.</p>
5.00	<p>North bet. secs. 13 and 18. Over rolling land, through dense undergrowth.</p>
35.00	<p>Center of wash, 60 lks. wide, course NW.</p>
40.00	<p>Center of wash, 80 lks. wide, course NW. 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 1916 on S. rim; $\frac{1}{4}$S13 in W. and S18 in E. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor.</p>
50.60	<p>"Old Trails" Highway, brs. E. and W.</p>
75.00	<p>Wash, 30 lks. wide, course W.</p>
80.00	<p>Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 7, 12, 13 and 18, marked on brass cap 1916 on S. rim; T16N in N. half; R20W S12 in NW., R19W S7 in NE., S18 in SE. and S13 in SW. quadrant; dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, rolling desert. Soil, sand and gravel; 3rd rate. No timber. Undergrowth, greasewood. Mar. 3, 1916: At this cor., I set off $6^{\circ} 42'$ S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is $34^{\circ} 44\frac{1}{2}'$ N.</p>
4.70	<p>North bet. secs. 7 and 12. Over rolling land, through dense undergrowth. Enter bed of wash, course W.</p>
12.16	<p>Main track of A. T. and S. F. R. R. brs. $N.84^{\circ} 17'$ E. and</p>

West Boundary of T. 16 N., R. 19 W.

Chains.

S.84° 17' W.
 13.14 Telegraph line, brs. N.84° 17' E., and S.84° 17' W.
 13.70 Telegraph line, brs. N.84° 17' E., and S.84° 17' W.
 17.50 Leave bed of wash, course 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
 1916 on S. rim;
 $\frac{1}{4}$ S12 in W. and
 S7 in E. 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.
 46.00 Wash, 50 lks. wide, course W.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 1, 6, 7 and 12, marked on brass cap
 1916 on S. rim;
 T16N in N. half;
 R20W S1 in NW.,
 R19W S6 in SW.,
 S7 in SE. and
 S12 in SW. quadrant;
 dig pits, 18 X 18 X 12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
 Land, rolling desert.
 Soil, sandy; 3rd rate.
 No timber.
 Undergrowth, greasewood.

North bet. secs. 1 and 6.
 Over rolling land, through dense undergrowth.
 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
 1916 on S. rim;
 $\frac{1}{4}$ S1 in W. and
 S6 in E. 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.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of Tps. 16 N., Rs. 19 and 20 W. and fract. Ts. 16 $\frac{1}{2}$ N., Rs. 19 and 20 W., marked on brass cap,
 1916 on S. rim;
 T16 $\frac{1}{2}$ N in N.,
 R19W in E.,
 T16N in S. and
 R20W in W. half;
 S36 in NW.,
 S31 in NE.,
 S6 in SE. and
 S1 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, S. of cor.
 Land, rolling desert.
 Soil, gravel and sand ; 3rd rate.
 No timber.
 Undergrowth, greasewood.

A. S.
Mar. 3, 1916.

Chains.

A. S.

Feb. 26, 1916: From the cor. of Ts. 16 N., Rs. 18 & 19 W., and
fracl. Ts. 16 $\frac{1}{2}$ N., Rs. 18 and 19 W., hereinbefore described, I run
West on a random line, along the N. bdy. of T. 16 N., R.
19 W., setting a temp. $\frac{1}{4}$ sec. cor. at 40 chs., and a
temp. sec. cor. at 80.00 chs.

Feb. 26, 1916.

Mar. 2, 1916: At 8 hrs. 0 m., a.m., l.m.t., I set off
34° 46' N. on the lat. arc; 7° 8' S. on the decl. arc;
and determine a meridian with the solar at the temp.
cor. of secs. 1, 2, 35 and 36.

Thence I continue,

West on a random line, along the N. bdy. of T. 16 N., R.
19 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals
of 40.00 chs.; to the temp. cor. of secs. 5, 6, 31 and
32.

Mar. 2, 1916: At the temp. cor. of secs. 3, 4, 33 and 34,
I set off 7° 5' S. on the decl. arc; and at apparent
noon, I observe the sun on the meridian; the result-
ing lat. is 34° 46' N.

Mar. 3, 1916: From the temp. cor. of secs. 5, 6, 31 and
32, I continue

West on a random line, along the N. bdy. of T. 16 N., R.
19 W., setting a temp. cor. at 40.00 chs.; and at
478.03 chs. from the NE. cor. of the Tp., intersect W.
bdy. of fracl. T. 16 $\frac{1}{2}$ N., R. 19 W., 2 lks. N. of cor. of Ts. 16 N.,
Rs. 19 and 20 W., and fracl. Ts. 16 $\frac{1}{2}$ N., Rs. 19 and 20 W. here-
inbefore described. This falling answers to a bearing
of due west, counting from the NE. cor. of the Tp., there-
fore,

I run,

East on a true line, bet. secs. 6 and 31.

Over rolling land, through dense undergrowth.

38.03 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

1916 on S. rim;

 $\frac{1}{4}$ S31 in N. and

S6 in S. half;

and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
N. of cor.

67.00 Wash, 50 lks. wide, course SW. Asc. 60 ft. to

77.20 Butte, Desc. to

78.03 Set an iron post, 3 ft. long, 3 ins. diam., on bed rock,
28 ins. in a mound of stone, for cor. of secs. 5, 6, 31
and 32, marked on brass cap

1916 on S. rim;

T16 $\frac{1}{2}$ N R19W in N. and;

T16N in S. half;

S31 in NW.,

S32 in NE.,

S5 in SE. and

S6 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
W. of cor.

Land, rolling desert.

Soil, 3rd rate.

No timber.

Undergrowth, greasewood.

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

Over rolling land, through scattering undergrowth.

40.00 Wash, 20 lks. wide, course S.

Set an iron post, 3 ft. long, 1 in. diam., 24 ins. in the
ground, for $\frac{1}{4}$ sec. cor., marked on brass cap

1916 on S. rim;

 $\frac{1}{4}$ S32 in N. and

S5 in S. half;

North Boundary of T. 16 N., R. 19 W.

Chains.

and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor.
 52.50 Road, brs. N. and S. to Franconia.
 55.00 Center of wash, 2 chs. wide, course S.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 4, 5, 32 and 33, marked on brass cap
 1916 on S. rim;
 T16½N R19W in N. and
 T16N in S. half;
 S32 in NW.,
 S33 in NE.,
 S4 in SE. and
 S5 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor.
 Land, rolling desert.
 Soil, sand and gravel; 3rd rate.
 No timber.
 Undergrowth, greasewood.
 Mar. 3, 1916.

Mar. 8, 1916.
 East on a true line, bet. secs. 4 and 33.
 7.40 Wash, 40 lks. wide, course S.
 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
 1916 on S. rim;
 ¼S33 in N. and
 S4 in S. half;
 and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor.
 60.00 Center of wash, 1.00 chs. wide, course S.
 66.70 Center of wash, 1 ch. wide, course S.
 76.90 Center of wash, 1.60 chs. wide, course S.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 15 ins. in the ground, 12 ins. in a mound of stone, for cor. of secs. 3, 4, 33 and 34, marked on brass cap
 1916 on S. rim;
 T16½N R19W in N. and
 T16N in S. half;
 S33 in NW.,
 S34 in NE.,
 S3 in SE. and
 S4 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor.
 Land, rolling.
 Soil, sand and gravel; 3rd rate.
 No timber.
 Undergrowth, greasewood and ocotillo.

East on a true line, bet. secs. 3 and 34.
 Over rolling land, through dense undergrowth.
 7.60 Center of wash, 1 ch. wide, course S.
 23.50 Center of wash, 1 ch. wide, course S.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 18 ins. in the ground, 10 ins. in a mound of stone, for ¼ sec. cor., marked on brass cap
 1916 on S. rim;
 ¼S34 in N. and
 S3 in S. half;
 and raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor.
 49.00 Wash, 35 lks. wide, course S.
 60.00 Wash, 30 lks. wide, course S.

Chains.

80.00

Set an iron post, 3 ft. long, 3 ins. diam., 20 ins. in the ground, 8 ins. in a mound of stone, for cor. of secs. 2, 3, 34 and 35, marked on brass cap
 1916 on S. rim;
 T16 $\frac{1}{2}$ N R19W in N. and
 T16N in S. half;
 S34 in NW.,
 S35 in NE.,
 S2 in SE. and
 S3 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, W. of cor.
 Land, rolling desert.
 Soil, sand and gravel; 3rd rate.
 No timber.
 Undergrowth, greasewood, palo verde and ocotillo.

12.55

40.00

East on a true line, bet. secs. 2 and 35.
 Over rolling land, through dense undergrowth.
 Wash, 50 lks. wide, course SW.
 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
 1916 on S. rim;
 $\frac{1}{4}$ S35 in N. and
 S2 in S. half;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor.

45.00

46.55

47.80

49.38

Thence over level land.
 Telegraph line, brs. N.52° 42' E. and S.52° 42' W.
 Telegraph line, brs. N.52° 42' E. and S.52° 42' W.
 Main track A. T. and S. F. R. R. brs. N.52° 42' E. and S.52° 42' W.

59.00

64.25

80.00

Enter bed of Sacramento Wash, course SW.
 Leave bed of Sacramento Wash, course SW.
 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 1, 2, 35 and 36, marked on brass cap.
 1916 on S. rim;
 T16 $\frac{1}{2}$ N R19W in N. and
 T16N in S. half;
 S35 in NW.,
 S36 in NE.,
 S1 in SE. and
 S2 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, W. of cor.
 Land, level and rolling desert.
 Soil, sandy; 3rd rate.
 No timber.
 Undergrowth, greasewood and palo verde.

40.00

East on a true line, bet. secs. 1 and 36.
 Over rolling land, through dense undergrowth.
 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
 1916 on S. rim;
 $\frac{1}{4}$ S36 in N. and
 S1 in S. half;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor.

80.00

Cor. of Ts. 16 N., Rs. 18 and 19 W., & fract. Ts. 16 $\frac{1}{2}$ N., Rs. 18 & 19 W.
 Land, rolling desert.
 Soil, sandy; 3rd rate.
 No timber.
 Undergrowth, greasewood and palo verde.

Boundaries of T. 16 N., R. 19 W.
 Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South Boundary.	N. 89° 58' W.	478.40	.28			478.40
West Boundary.	North.	480.00	480.00			
North Boundary.	East.	478.03			478.03	
East Boundary.	South.	480.00		480.00		
Convergency.					.50	
Totals.			480.28	480.00	478.53	478.40
			480.00		478.40	
Error in latitude.			.28			
Error in departure.					.13	

West Boundary of Fractional T. 16 1/2 N., R. 18 W.

Chains.

Survey commenced Mar. 6, 1916, and executed by Ray D. Armstrong, U. S. Transitman, with Young and Sons' light mountain transit No. 8396, with Smith solar attachment. For description of instrument and certificate of approval, see subdivision T. 13 N., R. 19 W. in Book "F." For tests of adjustment, see subdivision of T. 16 N., R. 19 W. in Book "S."

In the following field notes, the initials A. S. and R. D. A. refer to Albert Smith, Jr., U. S. Surveyor, and Ray D. Armstrong, U. S. Transitman, respectively.

At 9 hrs. 0 m., a.m., l.m.t., I set off $34^{\circ} 46'$ N. on the lat. arc; $5^{\circ} 35'$ S. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 16 N. Rs. 18 & 19 W. & frac. Ts. 16 1/2 N. Rs. 18 & 19 W. established by A. S., as described hereinbefore.

Thence I run
 North bet. secs. 31 and 36.
 Over rolling land, through dense undergrowth.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap
 1916 on S. rim;
 1/4 S36 in W. and
 S31 in E. half;
 dig pits, 18 X 18 X 12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3 1/2 ft. base, 1 1/2 ft. high, W. of cor.

75.00 Center of wash, 1.50 chs. wide, course SW.
 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
 1916 on S. rim;
 T16 1/2 N in N. half;
 R19W S25 in NW.,
 R18W S30 in NE.,
 S31 in SE. and
 S36 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.

Land, rolling desert.
 Soil, sand and gravel; 2nd and 3rd rate.
 No timber.
 Undergrowth, greasewood and palo verde.

North bet. secs. 25 and 30.
 Over rolling land, through dense undergrowth.

10.00 Center of wash, 1.50 chs. wide, course SW.
 31.70 Main line A. T. and S. F. R. R. brs. N. $34\frac{1}{2}^{\circ}$ E. and S. $34\frac{1}{2}^{\circ}$ W.
 34.30 Telegraph line, brs. N. $34\frac{1}{2}^{\circ}$ E. and S. $34\frac{1}{2}^{\circ}$ W.
 36.10 Telegraph line, brs. N. $34\frac{1}{2}^{\circ}$ E. and S. $34\frac{1}{2}^{\circ}$ W.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap
 1916 on S. rim;
 1/4 S25 in W. and
 S30 in E. half;
 and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.

43.00 Center of wash, 60 lks. wide, course SE.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 10 ins. in the ground, on bed rock, 20 ins. in a mound of stone, for cor. of secs. 19, 24, 25 and 30, marked on brass cap
 1916 on S. rim;
 T16 1/2 N in N. half;
 R19W S24 in NW.,
 R18W S19 in NE.,
 S30 in SE. and
 S25 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.

Land, rolling desert.

Chains.	Soil, gravel; 3rd rate. No timber. Undergrowth, greasewood and palo verde.
14.00 40.00	North bet. secs. 19 and 24. Over rolling land, through dense undergrowth. Gulch, course SE. Set an iron post, 3 ft. long, 1 in. diam., 12 ins. in the ground, on bed rock, 16 ins. in a mound of stone, for $\frac{1}{4}$ sec. cor., marked on brass cap 1916 on S. rim; S24 in W. and S19 in E. half; and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, W. of cor.
83.40	Intersect Fourth Standard Parallel North, 5.55 chs. W. of the standard cor. of secs. 33 and 34, T. 17 N., R. 18 W., which is a malpais stone, 10 X 10 X 10 ins. above ground, marked and witnessed as described by the Surveyor-General. At the point of intersection, set an iron post, 3 ft. long, 3 ins. diam., 12 ins. in the ground, on bed rock, 14 ins. in a mound of stone, for closing cor. of fractional Ts. 16 $\frac{1}{2}$ N., Rs. 18 and 19 W., marked on brass cap, 1916 on S. rim; S33 in N. and CC T16 $\frac{1}{2}$ N in S. half; S19 R18W in SE. and S24 R19W in SW. quadrant; and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, S. of cor. Land, rolling. Soil, rocky; 4th rate. No timber. Undergrowth, greasewood, palo verde and ocotillo. Mar. 6, 1916: At this cor., I set off 5° 32 $\frac{1}{2}$ ' S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 48 $\frac{1}{2}$ ' N. R. D. A. Mar. 6, 1916.

Boundaries of Fractional T. 16 $\frac{1}{2}$ N., R. 18 W.

Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South Boundary	S. 89° 57' W.	477.67		.42		477.67
West Boundary.	North.	243.40	243.40			
North Boundary, (4th Std. Par. N.)	East.	245.55			245.55	
	South.	18.28		18.28		
	East.	231.47			231.47	
East Boundary.	South.	224.91		224.91		
Convergency.					.24	
Totals.			243.40	243.61	477.25	477.67
				243.40		477.26
Error in latitude.				.21		
Error in departure.						.41

U. S. Surveyor.

W. S. Johnston.

West Boundary of Fractional T. 16 $\frac{1}{2}$ N., R. 19 W. 173

Chains.

Survey commenced Mar. 4, 1916, and executed by Albert Smith, Jr., U. S. Surveyor, with Young and Sons' light mountain transit No. 8583, with Smith solar attachment. For description of instrument, and certificate of approval, see subdivision of T.13 N., R.19 W. in Book "F." ... For tests of adjustment, see subdivision of T. 16 N., R. 19 W. in Book "S."

40.00

From the cor. of Ts. 16 N., Rs. 19 & 20 W., and fracl. Ts. 16 $\frac{1}{2}$ N., Rs. 19 & 20 W., established by me, as hereinbefore described, I run North bet. secs. 31 and 36. Over rolling land, through scattering undergrowth. Set an iron post, 3 ft. long, 1 in. diam., 22 ins. in the ground, 8 ins. in a mound of stone, for $\frac{1}{4}$ sec. cor., marked on brass cap
1916 on S. rim;
 $\frac{1}{4}$ S36 in W. and
S31 in E. half;
and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, W. of cor.

51.00

Asc. 60 ft. to Hill, brs. E. and W. Desc. 50 ft. to

54.40

Center of wash, 75 lks. wide, course SW.

79.00

Wash, 15 lks. wide, course SW.

80.00

Set an iron post, 3 ft. long, 3 ins. diam., on bed rock, 28 ins. in a mound of stone, for cor. of secs. 25, 30, 31 and 36, marked on brass cap
1916 on S. rim;
T16 $\frac{1}{2}$ N in N. half;
R20W S25 in NW.,
R19W S30 in NE.,
S31 in SE. and
S36 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, W. of cor.

Land, rolling.
Soil, sandy; 3rd rate.
No timber.

Undergrowth, greasewood.

Mar. 4, 1916; At this cor., I set off 6° 42' S. on the decl. arc; and at apparent noon, I observe the sun on the meridian; the resulting lat. is 34° 47' N.

North bet. secs. 25 and 30. Over hilly land, through scattering undergrowth.

7.30

Asc. 50 ft. to Desc. 15 ft. to

10.00

Asc. 35 ft. to

13.40

Hill, brs. E. and W. Desc. 45 ft. to

22.30

Wash, 15 lks. wide, course SW. Asc. 55 ft. to

27.70

Hill, brs. NE. and SW. Desc. 25 ft.

35.00

From this point, rocky butte, 120 ft. high, brs. E. about 7 chs. dist.

40.00

Set an iron post, 3 ft. long, 1 in. diam., 27 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
1916 on S. rim;
 $\frac{1}{4}$ S25 in W. and
S30 in E. 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.

46.80

Wash, 15 lks. wide, 15 ft. deep, course SW. Asc. 45 ft. to

60.00

Hill, brs. NW. and SE. Desc. 30 ft. to

70.00

Asc. 30 ft. to

80.00

Set an iron post, 3 ft. long, 3 ins. diam., 21 ins. in the ground, on bed rock, 7 ins. in a mound of stone, for cor. of secs. 19, 24, 25 and 30, marked on brass cap
1916 on S. rim;

174. West Boundary of Fractional T. 16 $\frac{1}{2}$ N., R. 19 W.

Chains. T16 $\frac{1}{2}$ N in N. half;
R20W S24 in NW.,
R19W S19 in NE.,
S30 in SE. and
S25 in SW. quadrant;
and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
W. of cor.
Land, hilly;
Soil, stone and gravel; 4th rate.
No timber.
Undergrowth, greasewood and sagebrush.

15.80 North bet. secs. 19 and 24.
40.00 Over broken, hilly land, through scattering undergrowth.
Asc. 60 ft. to
Hill, brs. E. and W. Desc. 105 ft.
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
1916 on S. rim;
 $\frac{1}{4}$ S24 in W. and
S19 in E. half;
and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
W. of cor.
45.00 Foot of desc.; asc. 130 ft. to
57.50 Top of asc.; thence over mesa.
83.65 Intersect Fourth Standard Parallel North, 3.79 chs. W. of
the standard cor. of secs. 33 and 34, T. 17 N., R. 19
W., which is a malpais stone, 12 X 14 X 12 ins. above
ground, marked and witnessed as described by the Survey-
or-General.
At the point of intersection, set an iron post, 3 ft. long,
3 ins. diam., 26 ins. in the ground, for closing cor.
of fractional Ts. 16 $\frac{1}{2}$ N., Rs. 19 and 20 W., marked on
brass cap
1916 on S. rim;
S33 in N., and
CC T16 $\frac{1}{2}$ N. in S. half;
R19W S19 in SE. and
R20W S24 in SW. quadrant;
and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
E. of cor.
Land, hilly;
Soil, rocky; 4th rate.
No timber.
Undergrowth, greasewood, sagebrush and ocotillo.
A. S.
Mar. 4, 1916.

Boundaries of Fractional T. 16 $\frac{1}{2}$ N., R. 19 W.
Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South Boundary.	West.	478.03				478.03
West Boundary.	North.	243.65	243.65			
North Boundary. (Fourth Std. Par.)	East.	478.24			478.24	
East Boundary.	South.	243.40		243.40		
Convergency.					.25	
Totals.			243.65	243.40	478.49	478.03
			243.40		478.03	
Error in latitude.			.25			
Error in departure.					.46.	

Chains.

Survey commenced Mar. 13, 1916, and executed by Ray D. Armstrong, U. S. Transitman, with Young and Sons' light mountain transit No. 8396, with Smith solar attachment. For description of instrument and certificate of approval, see subdivision of T. 13 N. R. 19 W. in book "F." For tests of adjustment, see subdivision of T. 16 N., R. 19 W. in Book "S."

From the cor. of Tps. 15 & 16 N., R. 20 W. and frac. Ts. 15 & 16 N. R. 20 1/2 W., a stone, 8 X 8 X 10 ins. above ground, established by John Gonin, U. S. Transitman, as hereinbefore described, I run

North bet. secs. 31 and 36.

Over mountainous land, through dense undergrowth.

Desc. 75 ft. to

6.80 Asc. 65 ft. to

8.30 Desc. 105 ft. to

16.50 Gulch, course W. Asc. 170 ft. to

24.95 Spur, slopes NW. Desc. 135 ft. to

35.10 Gulch, 15 ft. deep, course NW. Asc. to

39.20 Desc. 25 ft. to

40.00 Set an iron post, 3 ft. long, 1 in. diam., on bed rock, 28 ins. in a mound of stone, for 1/4 sec. cor., marked on brass cap

1916 on S. rim;
1/2 S36 in W. and
S31 in E. half;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable.

Asc. 35 ft. to

41.80 Low spur, slopes NW. Desc. 125 ft. to

50.25 Asc. 40 ft. to

60.25 Desc. 105 ft. to

80.00 Set an iron post, 3 ft. long, 3 ins. diam., on bed rock, 28 ins. in a mound of stone, for cor. of secs. 25, 30, 31 and 36, marked on brass cap

1916 on S. rim;
T16N in N. half;
R20 1/2 W S25 in NW.,
R20 W S30 in NE.,
S31 in SE. and
S36 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor. Pits, impracticable.

Land, mountainous.

Soil, rocky; 4th rate.

No timber.

Undergrowth, greasewood, palo verde and ocotillo.

Mar. 13, 1916.

Mar. 14, 1916: At 8 hrs. 0 m., a.m., l.m.t., I set off 34° 42' N. on the lat. arc; 2° 28' S. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 25, 30, 31 and 36.

Thence I run

North bet. secs. 25 and 30.

Over broken land, through dense undergrowth.

2.00 Wash, 50 lks. wide, course NW.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 12 ins. in the ground, on bed rock, 20 ins. in a mound of stone, for 1/4 sec. cor., marked on brass cap

1916 on S. rim;
1/2 S25 in W. and
S30 in E. half;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.

40.60 Wash, 30 lks. wide, 15 ft. deep, course NW.

77.30 Wash, 25 lks. wide, 10 ft. deep, course NW.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the

Chains.

ground, for cor. of secs. 19, 24, 25 and 30, marked on brass cap
 1916 on S. rim;
 T16N in N. half;
 R20 $\frac{1}{2}$ W S24 in NW.,
 R20W S19 in NE.,
 S30 in SE. and
 S25 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
 W. of cor.
 Land, broken.
 Soil, rocky; 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde and ocotillo.

40.00 North bet. secs. 19 and 24.
 Over broken land, through dense undergrowth.
 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
 1916 on S. rim;
 $\frac{1}{4}$ S24 in W. and
 S19 in E. half;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
 W. of cor.
 Desc. 20 ft. to
 52.00 Center of wash, 1 ch. wide, course NW. Asc. 80 ft. to
 56.55 Desc. 55 ft. to
 59.80 Asc. 15 ft. to
 60.80 Desc. 95 ft. to
 67.80 S. edge of box canyon, 50 lks. wide, 100 ft. deep, course
 NW.
 68.30 N. edge of canyon. Asc. 75 ft. to
 72.35 Desc. 60 ft. to
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the
 ground, for cor. of secs. 13, 18, 19 and 24, marked on
 brass cap
 1916 on S. rim;
 T16N in N. half;
 R20 $\frac{1}{2}$ W S13 in NW.,
 R20W S18 in NE.,
 S19 in SE. and
 S24 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
 W. of cor.
 Land, broken hills.
 Soil, rocky; 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde and ocotillo.
 Mar. 14, 1916: At this cor., I set off 2° 24 $\frac{1}{2}$ ' S. on the
 decl. arc; and at apparent noon, I observe the sun on
 the meridian; the resulting lat. is 34° 43 $\frac{1}{2}$ ' N.

North bet. secs. 13 and 18.
 Over broken land, through dense undergrowth.
 Asc. 65 ft. to
 4.35 Desc. 10 ft. to
 4.80 Asc. 45 ft. to
 9.75 Desc. 200 ft. to
 34.30 Wash, 50 lks. wide, course NW.
 39.40 Wash, 25 lks. wide, course NW.
 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
 1916 on S. rim;
 $\frac{1}{4}$ S13 in W. and
 S18 in E. half;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,

1000 2833

Chains.

W. of cor.
 44.40 "Old Trails" Highway, brs. E. and W. Asc. 75 ft. to
 48.40 Desc. 90 ft. to
 54.60 Asc. 15 ft. to
 55.60 Desc. 45 ft. to
 59.50 Asc. 15 ft. to
 62.00 Desc. 25 ft. to
 69.50 Center of wash, 1 ch. wide, course W.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the
 ground, for cor. of secs. 7, 12, 13 and 18, marked on
 brass cap
 1916 on S. rim;
 T16N in N. half;
 R20 $\frac{1}{2}$ W S12 in NW.,
 R20W S7 in NE.,
 S18 in SE. and
 S13 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
 W. of cor.
 Land, broken.
 Soil, rocky and gravelly; 4th rate.
 No timber.
 Undergrowth, greasewood, palo verde and ocotillo.

North bet. secs. 7 and 12.
 Over rolling land, through dense undergrowth.
 2.00 Wash, 20 lks. wide, course W.
 11.00 Center of wash, 1.50 chs. wide, course W.
 14.30 Center of wash, 70 lks. wide, course W.
 15.98 Main track A. T. and S. F. R. R. brs. N.76 $\frac{1}{4}$ ° W. and S.76 $\frac{1}{4}$ °
 E.
 16.70 Telegraph line, brs. N.76 $\frac{1}{4}$ ° W. and S.76 $\frac{1}{4}$ ° E.
 17.83 Telegraph line, brs. N.76 $\frac{1}{4}$ ° W. and S.76 $\frac{1}{4}$ ° 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
 1916 on S. rim;
 $\frac{1}{4}$ S12 in W. and
 S7 in E. half;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
 W. of cor.
 54.70 Wash, 30 lks. wide, 25 ft. deep, course SW.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
 ground, for cor. of secs. 1, 6, 7 and 12, marked on
 brass cap
 1916 on S. rim;
 T16N in N. half;
 R20 $\frac{1}{2}$ W S1 in NW.,
 R20W S6 in NE.,
 S7 in SE. and
 S12 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
 W. of cor.
 Land, rolling desert.
 Soil, sandy and gravelly; 3rd rate.
 No timber.
 Undergrowth, greasewood, palo verde and ocotillo.
 Mar. 14, 1916.

Mar. 16, 1916.
 North bet. secs. 1 and 6.
 Over rolling land, through dense undergrowth
 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
 1916 on S. rim;

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West Boundary of T. 16 N., R. 20 W.

Chains.

41.00
80.00

$\frac{1}{4}$ S1 in W. and
 S6 in E. half;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 W. of cor.
 Center of wash, 1 ch. wide, course SW.
 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
 ground, for cor. of T.16 N., R.20 W., frac1. Ts.16 & 16 $\frac{1}{2}$ N.,
 R.20 $\frac{1}{2}$ W. and frac1. T.16 $\frac{1}{2}$ N., R.20 W., marked on brass cap,
 T16 $\frac{1}{2}$ N in N.,
 R20W in E.,
 T16N in S. and
 R20 $\frac{1}{2}$ W in W. half;
 S36 in NW.,
 S31 in NE.,
 S6 in SE. and
 S1 in SW. quadrant;
 and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high,
 S. of cor.
 Land, rolling desert.
 Soil, sand; 4th rate.
 No timber.
 Undergrowth, greasewood and cacti.

R. D. A
Mar. 16, 1916.

Chains.

Survey commenced Mar. 10, 1916, and executed jointly by Albert Smith, Jr., U. S. Surveyor, and Ray D. Armstrong, U. S. Transitman, with Young and Sons' light mountain transits Nos. 8583 and 8396, respectively, with Smith solar attachments. For description of instruments and certificate of approval, see subdivision of T. 13 N. R. 19 W. in book "F.". For tests of adjustment, see subdivision of T. 16 N., R. 19 W. in book "S."

In the following field notes, the initials A. S. and R. D. A. refer to Albert Smith, Jr., U. S. Surveyor, and Ray D. Armstrong, U. S. Transitman, respectively.

A. S. and R. D. A.
Mar.

A. S.

From the cor. of Tps. 16 N., Rs. 19 & 20 W., and fractional Ts. 16 $\frac{1}{2}$ N., Rs. 19 and 20 W., established by me, as herein-

before described, I run

West on a random line, along the N. bdy. of T. 16 N., R. 20 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs. to the cor. of secs. 2, 3, 34 and 35, where I leave a temporary point.

Mar. 10, 1916.

Mar. 13, 1916:

From the temporary cor. of secs. 2, 3, 34 and 35, I continue West on a random line, along the N. bdy. of T. 16 N., R. 20 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs. to the cor. of secs. 4, 5, 32 and 33, where I leave a temporary point.

Mar. 13, 1916.

A. S.

Mar. 16, 1916: R. D. A.

From the temporary cor. of secs. 4, 5, 32 and 33, I continue West on a random line, along the N. bdy. of T. 16 N., R. 20 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs.; and at 477.20 chs. intersect W. bdy. of frac. T. 16 $\frac{1}{2}$ N., R. 20 W., 1.16 chs. N. of cor. of T. 16 N., R. 20 W., fracl. Ts. 16 and 16 $\frac{1}{2}$ N., R. 20 $\frac{1}{2}$ W., and fracl. T. 16 $\frac{1}{2}$ N., R. 20 W. This falling answers to a correction of 0°08' or 19 lks. S. per mile counting from NE. cor. of the Tp.

Mar. 16, 1916.

R. D. A.

Mar. 17, 1916: A. S. From cor. of T. 16 N., R. 20 W., fracl. Ts. 16 and 16 $\frac{1}{2}$ N., R. 20 $\frac{1}{2}$ W., and fracl. T. 16 $\frac{1}{2}$ N., R. 20 W.,

I run

N. 89° 52' E., on a true line, bet. secs. 6 and 31.

Over rolling land, through dense undergrowth.

37.20

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

1916 on S. rim;

1831 in N. and

86 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, 1 $\frac{1}{2}$ ft. high, N. of cor.

64.00

Center of wash, 1 ch. wide, course SW.

77.20

Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 5, 6, 31 and 32, marked on brass cap

1916 on S. rim;

T16 $\frac{1}{2}$ N R20W in N. and

T16N in S. half;

S31 in NW.,

S32 in NE.,

S5 in SE. and

S6 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, W. of cor.

Land, rolling desert.

Soil, shifting sand; 4th rate.

No timber.

Chains.	
	Undergrowth, greasewood and cacti.
40.00 80.00	<p>N.89° 52' E., on a true line, bet. secs. 5 and 32. Over rolling land, through dense undergrowth. Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1916 on S. rim; $\frac{1}{4}$S32 in N. and S5 in S. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor.</p> <p>Set an iron post, 3 ft. long, 3 ins. diam., 28 ins. in the ground, for cor. of secs. 4, 5, 32 and 33, marked on brass cap 1916 on S. rim; T16$\frac{1}{2}$N R20W in N. and T16N in S. half; S32 in NW., S33 in NE., S4 in SE. and S5 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Land, rolling. Soil, gravel; 3rd rate. No timber. Undergrowth, greasewood and sagebrush.</p>
17.60 39.50 40.00 68.30 80.00	<p>N.89° 52' E., on a true line, bet. secs. 4 and 33. Over level land, through dense undergrowth. Wash, 40 lks. wide, course SW. Wash, 10 lks. wide, 5 ft. deep, course S. Set an iron post, 3 ft. long, 1 in. diam., 15 ins. in the ground, 15 ins. in a mound of stone, for $\frac{1}{4}$ sec. cor., marked on brass cap 1916 on S. rim; $\frac{1}{4}$S33 in N. and S4 in S. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor.</p> <p>Wash, 40 lks. wide, course SW. Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 3, 4, 33 and 34, marked on brass cap 1916 on S. rim; T16$\frac{1}{2}$N R20W in N. and T16N in S. half; S33 in NW., S34 in NE., S3 in SE. and S4 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Land, level. Soil, gravel; 3rd rate. No timber. Undergrowth, greasewood.</p>
40.00	<p>N.89° 52' E., on a true line, bet. secs. 3 and 34. Over level land, through dense undergrowth. Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1916 on S. rim;</p>

North Boundary of T. 16 N., R. 20 W.

Chains.		
80.00	<p> $\frac{1}{4}$S34 in N. and $\frac{1}{2}$S3 in S. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 2, 3, 34 and 35, marked on brass cap 1916 on S. rim; T16$\frac{1}{2}$N R20W in N. and T16N in S. half; S34 in NW., S35 in NE., S2 in SE. and S3 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Land, level desert. Soil, sand and gravel; 3rd rate. No timber. Undergrowth, greasewood and sagebrush. </p>	
<p>6.00 40.00 41.00 60.00 79.00 80.00</p>	<p> N.89° 52' E., on a true line, bet. secs. 2 and 35. Over rolling land, through dense undergrowth. Wash, 40 lks. wide, course SW. 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 1916 on S. rim; $\frac{1}{4}$S35 in N. and S2 in S. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Wash, 20 lks. wide, course SW. Formerly old road bed. Wash, 20 lks. wide, course SW. Wash, 20 lks. wide, course SW. Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 1, 2, 35 and 36, marked on brass cap 1916 on S. rim; T16$\frac{1}{2}$N R20W in N. and T16N in S. half; S35 in NW., S36 in NE., S1 in SE. and S2 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Land, rolling desert. Soil, sand and gravel; 3rd rate. No timber. Undergrowth, greasewood and sagebrush. </p>	
<p>16.20 40.00 65.00 80.00</p>	<p> N.89° 52' E., on a true line, bet. secs. 1 and 36. Over rolling land, through dense undergrowth. Wash, 25 lks. wide, course SW. 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 1916 on S. rim; $\frac{1}{4}$S36 in N. and S1 in S. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Wash, 30 lks. wide, course SW. The cor. of Ts.16 N.,Rs.19 & 20 W.& frac1.Ts.16$\frac{1}{2}$N.,Rs.19&20W. Land, rolling desert. Soil, sand and gravel; 3rd rate. No timber. </p>	

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North Boundary of T. 16 N., R. 20 W.

Chains.

Undergrowth, greasewood and sagebrush.

A. S.
 Mar. 17, 1916.

Boundaries of T. 16 N., R. 20 W.

Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South Boundary.	S. 89° 54' W.	478.60		.84		478.60
West Boundary.	North.	480.00	480.00			
North Boundary.	N. 89° 52' E.	477.20	1.11		477.20	
East Boundary.	South.	480.00		480.00		
Convergency.					.50	
Totals.			481.11	480.84	477.70	478.60
			480.84			477.70
Error in latitude.			.27			
Error in departure.					.90	

North Boundary of Fractional T. 16 N., R. 20 1/2 W. 183

Chains.

Survey commenced Mar. 21, 1916, and executed jointly by Albert Smith, Jr., U. S. Surveyor, and Ray D. Armstrong, U. S. Transitman, with Young and Sons' light mountain transits Nos. 8583 and 8396, respectively, with Smith solar attachments. For description of instruments and certificate of approval, see subdivision of T. 13 N., R. 19 W., in book "F.". For tests of adjustment, see subdivision of T. 16 N., R. 19 W. in book "S."

In the following field notes, the initials A. S. and R. D. A. refer to Albert Smith, Jr., U. S. Surveyor, and Ray D. Armstrong, U. S. Transitman, respectively.

A. S. and R. D. A.

40.00 A. S. From cor. of T. 16 N., R. 20 W., frac. T. 16 N., R. 20 1/2 W., and frac. T. 16 1/2 N., R. 20 and 20 1/2 W., which is an iron post, established by R. D. A., as hereinbefore described, I run West on a true line, bet. secs. 1 and 36. Over rolling land, through dense undergrowth. Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for 1/4 sec. cor., marked on brass cap
 1916 on S. rim;
 1/4 S36 in N. and
 S1 in S. half;
 and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, N. of cor.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 1, 2, 35 and 36, marked on brass cap
 1916 on S. rim;
 T16 1/2 N R20 1/2 W in N. and
 T16 N in S. half;
 S35 in NW.,
 S36 in NE.,
 S1 in SE. and
 S2 in SW. quadrant;
 dig pits, 18 X 18 X 12 ins., in each sec., 5 1/2 ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, rolling desert.
 Soil, sandy; 3rd rate.
 No timber.
 Undergrowth, greasewood.

Mar. 21, 1916.

40.00 Mar. 22, 1916: At 7 hrs 54 m., a.m., l.m.t., I set off 34° 46' N. on the lat. arc; 0° 41 1/2' N. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 1, 2, 35 and 36. Thence I run West on a true line, bet. secs. 2 and 35. Over rolling land, through dense undergrowth. Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for 1/4 sec. cor., marked on brass cap
 1916 on S. rim;
 1/4 S35 in N. and
 S2 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 1/2 ft. base, 1 1/2 ft. high, N. of cor.

A. S.
 Mar. 22, 1916.

80.00 Mar. 23, 1916: R. D. A. From the 1/4 sec. cor. bet. secs. 2 and 35, I continue West on a true line, bet. secs. 2 and 35. Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 2, and 35, and frac. secs. 3 and 34, marked on brass cap

Chains.

1916 on S. rim;
 T16 1/2 N R20 1/2 W in N. and
 T16N in S. half;
 S34 in NW.,
 S35 in NE.,
 S2 in SE. and
 S3 in SW. quadrant;
 dig pits, 18 X 18 X 12 ins., in each sec., 5 1/2 ft. dist.;
 and raise a mound of earth, 4 ft. base, 2 ft. high,
 W. of cor.
 Land, rolling.
 Soil, sandy; 3rd rate.
 No timber.
 Undergrowth, greasewood.

39.15

West on a true line, bet. fractional secs. 3 and 34.
 Over rolling land, through dense undergrowth.
 Intersect E. bdy. of fracl., T. 16 N., R. 21 W., 3.36
 chs. S. of the cor. of secs. 13 and 24, which is a
 lava stone, 8 X 6 X 6 ins. above ground, marked and
 witnessed as described by the Surveyor-General.
 At the point of intersection, set an iron post, 3 ft.
 long, 3 ins. diam., 24 ins. in the ground, for closing
 cor. of fracl. Ts. 16 and 16 1/2 N., R. 20 1/2 W., marked on
 brass cap
 1916 on S. rim;
 T16 1/2 N R20 1/2 W in N.,
 CC in E., and
 T16N in S. half;
 S34 in NE. and
 S3 in SE. quadrant;
 dig pits, 30 X 24 X 12 ins., crosswise on each line,
 N. and S., 4 ft., and E. of post, 8 ft. dist.; and
 raise a mound of earth, 5 ft. base, 2 1/2 ft. high, E.
 of cor.
 Land, rolling desert.
 Soil, sandy; 3rd rate.
 No timber.
 Undergrowth, greasewood.

R. D. A.
 Mar. 23, 1916.

Boundaries of Fractional T. 16 N., R. 20 1/2 W.

Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South Boundary.	West.	199.15				199.15
West Boundary.	North.	479.36	479.36			
North Boundary.	East.	199.15			199.15	
East Boundary.	South.	480.00		480.00		
Convergency.					.21	
<u>Totals.</u>			479.36	480.00	199.36	199.15
				479.36	199.15	
<u>Error in latitude.</u>				.64		
<u>Error in departure.</u>					.21	

West Boundary of Fractional T. 16 1/2 N., R. 20 W. 185

Chains.

Survey commenced Mar. 22, 1916, and executed jointly by Albert Smith, Jr., U. S. Surveyor, and Ray D. Armstrong, U. S. Transitman, with Young and Sons' light mountain transits Nos. 8583 and 8396, respectively, with Smith solar attachments. For description of instruments and certificate of approval, see subdivision of T. 13 N., R. 19 W. in book "F." For tests of adjustment, see subdivision of T. 16 N., R. 19 W. in book "S."

In the following field notes, the initials A. S. and R. D. A. refer to Albert Smith, Jr., U. S. Surveyor, and Ray D. Armstrong, U. S. Transitman, respectively.
A. S. and R. D. A.

A. S. From cor. of T. 16 N., R. 20 W. fractional T. 16 N., R. 20 1/2 W. and fractional Ts. 16 1/2 N., Rs. 20 and 20 1/2 W., which is an iron post, established by me, and hereinbefore described, 1 run

North bet. secs. 36 and 31.

Over rolling land, through dense undergrowth.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 28 ins. in the ground, for 1/4 sec. cor., marked on brass cap

1916 on S. rim;
1/4 S36 in W. and
S31 in E. half;

dig pits, 18 X 18 X 12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3 1/2 ft. base, 1 1/2 ft. high, W. of cor.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 26 ins. in the ground, for cor. of secs. 25, 30, 31 and 36, marked on brass cap

1916 on S. rim;
T16 1/2 N in N. half;
R20 1/2 W S25 in NW.,
R20W S30 in NE.,
S31 in SE. and
S36 in SW. quadrant;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.

Land, rolling desert.
Soil, sandy; 3rd rate.
No timber.
Undergrowth, greasewood.

A. S.
Mar. 22, 1916.

Mar. 27, 1916: R. D. A.

At 8 hrs. 53 m., a.m., l.m.t., I set off 34° 47' N. on the lat. arc; 2° 40' N. on the decl. arc; and determine a meridian with the solar at the cor. of secs. 25, 30, 31 and 36.

Thence I run

North bet. secs. 25 and 30.

Over level land, through scattering undergrowth.

3.80 Center of wash, 1.30 chs. wide, course W.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 18 ins. in the ground, 8 ins. in a mound of stone, for 1/4 sec. cor., marked on brass cap

1916 on S. rim;
1/4 S25 in W. and
S30 in E. half;

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 20 ins. in the ground, 8 ins. in a mound of stone, for cor. of secs. 19, 24, 25 and 30, marked on brass cap

1916 on S. rim;
T16 1/2 N in N. half;
R20 1/2 W S24 in NW.,
R20W S19 in NE.,
S30 in SE. and

186 West Boundary of Fractional T. 16 $\frac{1}{2}$ N., R. 20 W.

Chains.

S25 in SW. quadrant;
and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
W. of cor.
Land, level.
Soil, rocky; 4th rate.
No timber.
Undergrowth, greasewood.

40.00 North bet. secs. 19 and 24.
Over level land, through scattering undergrowth.
Set an iron post, 3 ft. long, 1 in. diam., 16 ins. in the
ground, 10 ins. in a mound of stone, for $\frac{1}{4}$ sec. cor.,
marked on brass cap
1916 on S. rim;
 $\frac{1}{4}$ S24 in W. and
S19 in E. half;
and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
W. of cor.

46.10 Center of wash, 1 ch. wide, course SW.

84.05 Intersect Fourth Standard Parallel North, 0.22 chs. E.
of the standard cor. of secs. 33 and 34, T. 17 N., R.
20 W., which is a stone, 10 X 12 X 6 ins., above ground,
marked and witnessed as described by the Surveyor-General.
At the point of intersection, set an iron post, 3 ft. long,
3 ins. diam., 18 ins. in the ground, 10 ins. in a mound
of stone, for closing cor. of fractional Ts. 16 $\frac{1}{2}$ N., Rs.
20 and 20 $\frac{1}{2}$ W., marked on brass cap
1916 on S. rim;
S34 in N. and
CC T16 $\frac{1}{2}$ N in S. half;
R20W S19 in SE. and
R20 $\frac{1}{2}$ W S24 in SW. quadrant;
and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high,
S. of cor.
Land, level.
Soil, rocky; 3rd and 4th rate.
No timber.
Undergrowth, greasewood.
Note: This cor. was in the field incorrectly marked S33
instead of S34. Mar. 27, 1916.
R. D. A.

Boundaries of Fractional T. 16 $\frac{1}{2}$ N., R. 20 W.
Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South Boundary.	S.89° 52' W.	477.20		1.11		477.20
West Boundary.	North.	244.05	244.05			
North Boundary. (Fourth Std. Par. N.)	East.	475.99			475.99	
East Boundary.	South.	243.65		243.65		
Convergency.					.25	
Totals.			244.05	244.76	176.24	477.20
				244.05		476.24
Error in latitude.				.71		
Error in departure						.96

Boundaries of Fractional T. 16 $\frac{1}{2}$ N., R. 20 $\frac{1}{2}$ W.
 Latitudes, departures and closing errors.

Line designated.	True bearing.	Dist. chs.	Latitudes.		Departures.	
			N. chs.	S. chs.	E. chs.	W. chs.
South Boundary.	West.	199.15				199.15
West Boundary.	North.	243.36	243.36			
North Boundary. (4th Std. Par. N.)	East.	199.50			199.50	
East Boundary.	South.			244.05		
Convergency.					.25	
Totals.			243.36	244.05	199.75	199.15
				243.36	199.15	
Error in latitude.				.69		
Error in departure.					.60	

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For Certificate of U.S. Surveyors and U.S. Transitmen
see page IV of this book

FINAL OATH OF UNITED STATES SURVEYOR.

I, _____, U. S. Surveyor, do solemnly swear that, in pursuance of special instructions received from the U. S. Surveyor General for _____ bearing date of the _____ day of _____, 191 _____, 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 _____ of the _____ Meridian, in the State of _____, 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 _____ and in the specific manner described in the field notes, and that the foregoing are the original field notes of such survey.

U. S. Surveyor.

Subscribed by said _____, and sworn to before me }
this _____ day of _____, 191 _____



APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,
Phoenix Arizona April 10 _____, 1917.

The foregoing field notes of the survey of Standard Lines and Township Exterior lines, under Group 42, Arizona, which are shown by red lines on Index Diagram on page I hereof

executed by Albert Smith Jr. and Otis Ross, U.S. Surveyors and J.M. McKinney Jr., John Gonin, Deane J. Wolff and Ray D. Armstrong, U.S. Transitmen

under special instructions dated December 28, 1914 & January 29, 1915, having been critically examined, and the necessary corrections and explanations made, the said field notes, and the surveys they describe, are hereby approved.

Frank A. Frost
Surveyor General
of Arizona

~~I certify that the foregoing transcript of the field notes of the above described surveys in Book 4411 Group 42, has been correctly copied from the original notes on file in this office.~~