

Book C . BOOK 2319

# FIELD NOTES

2319

NE  
OF THE SURVEY OF THE

*Fifth Standard Parallel North*

*through*

*Ranges 13<sup>rd</sup>, 14<sup>th</sup>, 15<sup>th</sup> and 16<sup>th</sup>.*

2319

Of the *G. S. R.* Meridian,

In the State of *Oregan*

EXECUTED BY

*Jesse B. Wright*

In the capacity of U. S. Surveyor, under instructions dated *September 16*, 1910.,  
issued by the United States Surveyor General to govern surveys included in  
Group No. *10*, which were approved by the Commissioner of the General Land  
Office, *September 28*, 1910., pursuant to authority contained in the Act of  
Congress dated *June 25*, 1910. *and March 4*, 1911.

2319

Survey commenced *January 14*, 1911.

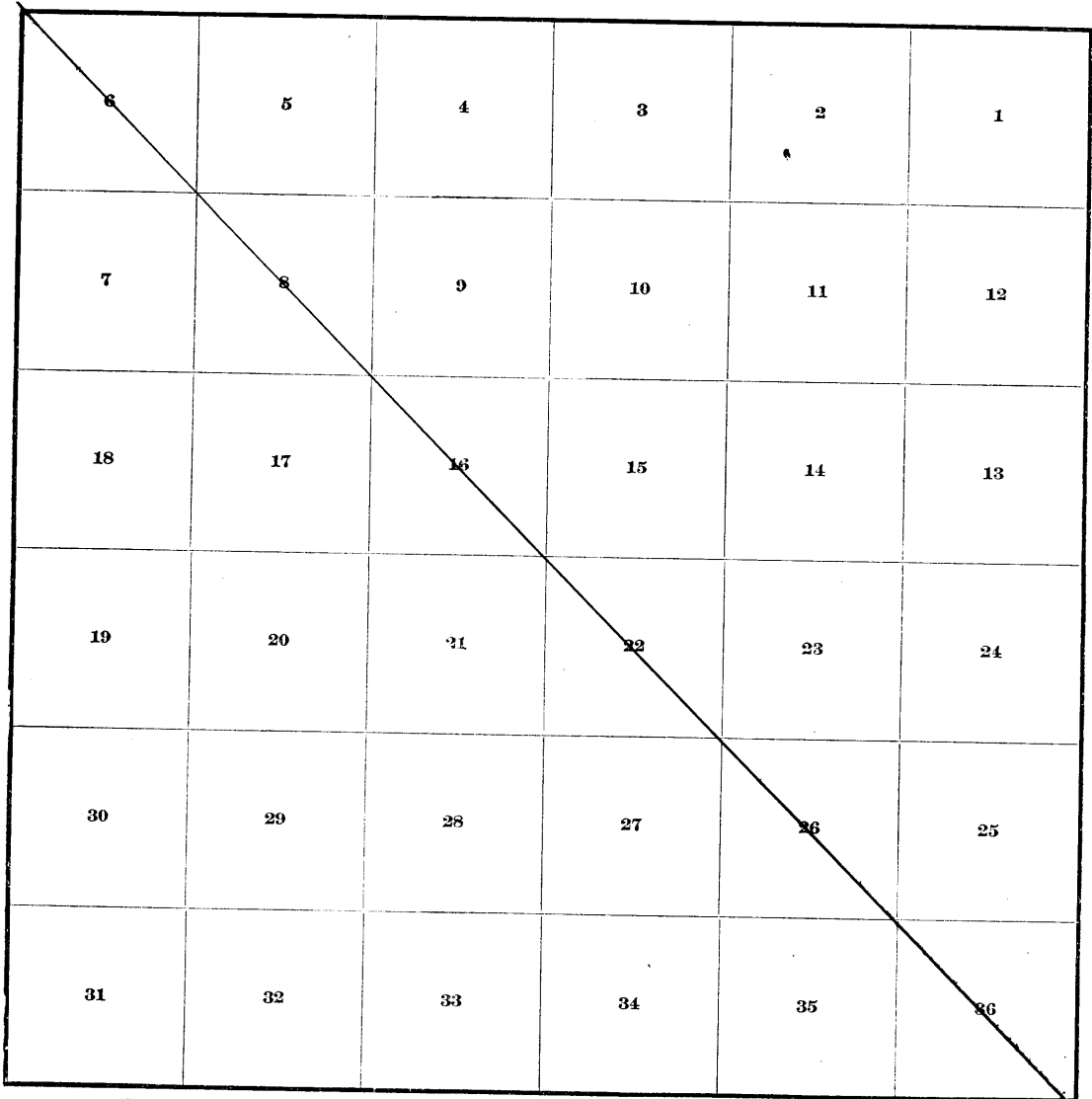
Survey completed *March 22*, 1911.

2319

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# INDEX DIAGRAM.

Township \_\_\_\_\_, Range \_\_\_\_\_



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BOOK 2319

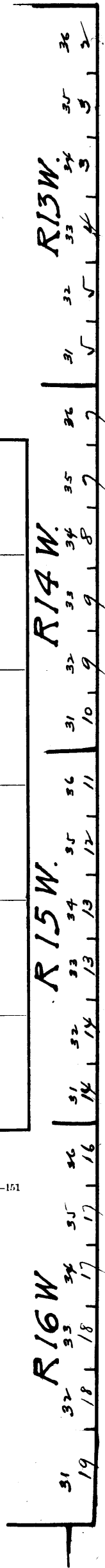
# INDEX DIAGRAM.

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1A  
BOOK 2319

PRELIMINARY OATHS OF ASSISTANTS.

WE, Edgar Morris, Bart Tyson, Walter J. Thompson, Gus Wuetig  
Hubert W. Worcester and Edgar M. Darvall

do solemnly swear that we will well and faithfully execute the duties of chainmen; that we will level the chain upon even and uneven ground, and plumb the tally pins, either by sticking or dropping the same; that we will report the true distances to all notable objects, and the true lengths of all lines that we assist in measuring, to the best of our skill and ability, and in accordance with instructions given us, in the survey of

Fifth Standard Parallel North through Rs 13-16 W. sec.

Edgar Morris  
Bart Tyson  
Hubert Worcester Chainman.  
Walter J. Thompson Chainman.  
Gus Wuetig Chainman.

Subscribed and sworn to before me this 10<sup>th</sup>  
day of January, 1911



Walter J. Thompson  
Edgar M. Darvall  
Gus Wuetig  
Jesse B. Wright  
U. S. Surveyor

WE, James R. Smith and Rex Hooker

do solemnly swear that we will well and truly perform the duties of moundmen in the establishment of corners, according to the instructions given us, to the best of our skill and ability, in the survey of

Re-survey of Fifth Std. Par. N. through Rs. 13-16 W. sec.

James R. Smith, Moundman.  
Rex Hooker, Moundman.

Subscribed and sworn to before me this 10<sup>th</sup>  
day of January, 1911



Jesse B. Wright  
U. S. Surveyor  
Edgar Morris  
Gus Wuetig

WE, Edgar Morris and Gus Wuetig

do solemnly swear that we will well and truly perform the duties of axmen in the establishment of corners and other duties, according to instructions given us, to the best of our skill and ability, in the survey of

Fifth Standard Parallel North through Rs 13-16 W. sec.

Edgar Morris, Axman.  
Gus Wuetig, Axman.

Subscribed and sworn to before me this 10<sup>th</sup>  
day of January, 1911



Jesse B. Wright  
U. S. Surveyor

I, Louie Van Marter, do solemnly swear that I will well and truly perform the duties of flagman according to instructions given me, to the best of my skill and ability, in the

Re-survey of Fifth Std. Par. North through Rs. 13-16 W. sec.

Louie Van Marter, Flagman.

Subscribed and sworn to before me this 10<sup>th</sup>  
day of January, 1911



Jesse B. Wright  
U. S. Surveyor

## Re-survey of Fifth Standard Parallel North, through Range 13 West. 1. B

Chains. Jan. 11 - , 1911.

Preliminary to initiating any subdivision or Tp. lines from the Fifth Standard Parallel North, through Rs. 13-16 W., inclusive, I retrace said line, beginning at the Standard cor. of Tps. 21 N., Rs. 16 & 17 W., thence East, through Ranges 13 - 16 W., inclusive, running as per the field notes furnished me by the Surveyor General. I find nearly all the corners on this line obliterated, and those remaining in a very dilapidated condition, and the markings thereon nearly obliterated.

I also find the alinement and measurement greatly out of allowable limits; there being an excess of from 1 ch. to 10 chs. in each mile; the total excess in the 24 miles being over 48 chs., and the total error in alinement being over 23 chs.; Therefore a re-survey is necessary.

I make a detailed report of my findings on this line to the Surveyor General, and upon instructions,

on Jan. 14, 1911, I proceed as follows:

The old Standard cor. of Tps. 21 N., Rs. 12 & 13 W., is an old post, with faint traces of markings, with a stone 14x14x15 ins. above ground, with mound of stone, and marked as described by the Surveyor General, the old pits having become obliterated.

This corner being in a dilapidated condition, I destroy, and at the identical original position of the old corner, in Lat.  $35^{\circ} 9' 36''$  N., Long.  $113^{\circ} 36' 27''$  W., I

Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in the ground for Standard cor. of Tps. 21 N., Rs. 12 & 13 W. marked on brass cap,

SC. T. 21 N. in N. half,

R. 13 W. S. 36 in NW., and

R. 12 W. S. 31 in NE. quadrants, and

raise a mound of stone 4 ft. base, 3 ft. high N. of cor. No bearings available. Pits impracticable.

At this cor. I examine, and test carefully all the adjustments of my instrument, which is a W. & L.E. Gurley light mountain transit, with Burt's patent solar attachment. The horizontal limb of the instrument is provided with two double verniers, placed opposite to each other, and each reading to 1' of arc, which is also the least reading of the verniers of the latitude and declination arcs.

Finding all parts of my instrument in correct adjustment as to tests, then; in order to test the solar

apparatus, by comparing the results of observations for meridians, on the sun, made during p.m. & a.m. hours, respectively, with a true meridian established by observation of Polaris, I proceed as follows: -

At 3h 30m p.m., l.m.t., at the cor. above described, I set off  $21^{\circ} 20' S.$  on the decl. arc, and  $35^{\circ} 9\frac{1}{2}' N.$  on the lat. arc, and determine a true meridian with the solar, and mark a point in the meridian thus determined by a tack in a stake driven firmly in the ground 6 chs. N. of my station.

At 11h 50m p.m., l.m.t., I observe Polaris at W. elongation in accordance with instructions in the "Manual", and mark a point in the line thus determined by a tack in a stake, driven firmly in the ground 6 chs. N. of my station. Jan. 14, 1911.

Jan. 15, 1911.

At 8h a.m., l.m.t., I set off the azimuth of Polaris,  $1^{\circ} 25\frac{1}{2}'$  to the East, and mark the true meridian thus determined by a tack in the stake 5 chs. N. of my station, which point falls about .25 ins. E. of the point in the meridian as determined by the solar on preceding evening. Then I set off  $21^{\circ} 11\frac{1}{2}' S.$  on the decl. arc, and  $35^{\circ} 9\frac{1}{2}' N.$  on the lat. arc, and determine a meridian with the solar, and mark a point in the meridian thus determined by a tack in the stake 5 chs. N. of my station, which point is identical with the point in the true meridian as determined by Polaris observation.

## Chains.

The solar apparatus, by p.m. & a.m. hours observations, defines positions for meridians, about 10" W., and identical with the true meridian as determined by observation of Polaris.

Therefore, I conclude that my instrument is in satisfactory adjustment.

The magnetic bearing of the true meridian at 8h a.m., is N. 15° 25' W.; the angle thus determined gives the magnetic declination as 15° 25' E.

On this day I re-survey the East Bdy. of T. 21 N., R. 13 W.  
Jan. 15, 1911.

-----  
Jan. 16, 1911.

At 8h a.m., l.m.t., at the Standard cor. of Tps. 21 N., Rs. 12 & 13 W. as heretofore re-established and described, I set off 21° 01' S. on the decl. arc, and 35° 9½' N. on the lat. arc, and determine a true meridian with the solar, which meridian again agrees with the meridian as established by observation of Polaris on Jan. 14.

Thence I run, as per instructions,

West, on S. bdy. secs. 36, var. 15° 25' E.

destroying all traces of old corners on this line.

Over heavily rolling land, desc. gradually through

scattering cedar, palonegro, and cacti, good native grass.

29.08 Wash, 50 lks. wide, course WNW.

36.52 Same wash, course WSW.

38.90 Same wash, course WNW. asc. grad. land drains to NNW.

Difference between measurements of 40.00 chs. by 2 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 Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in

the ground for Std. ¼ sec. cor., marked on brass cap,

S. C ¼ S. 36 in N. half,

dig pits 18x18x12 ins. E. & W. of cor. 3 ft. dist., and raise a mound of earth 3½ ft. base, 1½ ft. high N. of cor. from which,

A cedar tree 12 ins. diam. brs. N. 72° E. 170 lks. dist., marked S. C ¼ S. 36 B.T.

No other bearings available.

68.00 Top of low ridge, brs. NW. & SE., desc.

Difference between measurements of 80.00 chs. by 2 sets of chainmen is 6 lks.; position of middle point,

By 1st set, 79.97 chs.,

By 2nd set, 80.03 chs.; the mean of which is

80.00 Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in

the ground for Std. cor. of secs. 35 & 36,

marked on brass cap,

S. C. T 21 N. R. 13 W. in N. half,

S. 35 in NW., and

S. 36 in NE. quadrants,

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

No bearings available, pits impracticable.

Land, heavily rolling.

Soil, 3rd rate, gravelly.

No timber.

Undergrowth, scattering cedar, palonegro, mesquite, tesseta, cacti. Good native grass in places.

## Re-survey of Fifth Standard Parallel North, through Range 13 West. 3

Chains.	West, on S. bdy. Sec. 35. Over broken rolling land, desc. grad.
20.00	Main wash is about 5 chs. to N. flows W.
37.00	Desc. Difference bet. measurements of 40.00 chs. by 2 sets of chainmen is 2 lks.; position of middle point, By 1st set, 40.01 chs., By 2nd set, 39.99 chs.; the mean of which is
40.00	Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std. $\frac{1}{4}$ sec. cor., marked on brass cap, SC $\frac{1}{4}$ S. 35 in N. half, and raise a mound of stone 2 ft. base, $1\frac{1}{2}$ ft. high N. of cor. No bearings available. Pits impracticable.
44.00	Wash, 50 lks. wide, course WSW. thence down same.
50.00	Leave wash, runs SW. asc.
59.36	Top of point, brs. SW. & NE., overlooking creek bottom, desc. steep.
64.00	Enter creek bottom, brs. N. & S.
75.15	Enter Sandy wash, at turn from S. to SW. Difference bet. measurements of 80.00 chs. by 2 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	Point for Std. cor. of secs. 34 & 35, falls in wash.
81.18	Leave wash, turns SW. for 15 chs. then turns to SSE.
82.00	Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in the ground for witness cor. to Std. cor. of secs. 34 & 35, marked on brass cap, WC. S. of centre, SC. T. 21 N R 13 W in N. half, S. 34 in NW., and S 35 in NE. quadrants, raise a mound of stone 2 ft. base, $1\frac{1}{2}$ ft. high N. of cor. No bearings available. Pits impracticable. Land, broken, rolling. Soil, 3rd & 2nd rate, gravelly, sandy, loose. Scattering mesquite, tesseta, palonegro, cacti. sparse grass. At this cor. at noon, 1. . . ., I set off $21^{\circ}01'$ S. on the decl. arc, and observe the sun on the meridian. The resulting lat. is $35^{\circ}10'$ N. ✓
	West, on S. bdy. Sec. 34. From true point for cor. in wash.
1.18	Leave wash, course SW., thence over rolling land.
5.18	Main road, Hackberry to Signal, brs. SSW. & NNE.
12.00	Leave creek bottom or flat, asc. broken land.
15.80	Isolated knoll, brs. SSW. & NNE., desc.
22.40	Wash, 20 lks. wide, in draw 10 chs. wide, course SSW.
23.84	Road, brs. NNE. & SSW.
32.00	Leave draw, asc.
36.40	Top of long point, brs. S. & N., desc. Difference bet. measurements of 40.00 chs. by 2 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	Foot of slope, brs. NNW. & SE., enter valley. Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std. $\frac{1}{4}$ sec. cor., marked on brass cap, SC. $\frac{1}{4}$ S 34 in N. half, and raise a mound of stone 2 ft. base, $1\frac{1}{2}$ ft. high N. of cor. Thence across N. end of little round valley, extending about 25 chs. to S. and 5 chs. to N. Round hill 20 chs. N.
46.00	Leave valley, brs. NE. & SW., asc. grad. over broken land.
60.53	Wash, 150 lks. wide, course SSE., from canyon $\frac{1}{4}$ mile to NW.
63.00	Leave draw, asc.
68.00	Top of rise, thence over broken land, drains to SE.

## Chains.

Difference bet. measurements of 80.00 chs. by 2 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. in diam. 24 ins. in the ground for standard cor. of secs. 33 & 34, marked on brass cap,  
 S C T 21 N, R 13 W in N. half,  
 S 33 in NW., and  
 S 34 in NE. quadrants,  
 dig pits 24x18x12 ins. crosswise on each line, E. & W. 3 ft. and N. of cor. 7 ft. dist., and  
 raise a mound of earth 4 ft. base, 2 ft. high N. of cor., from which,  
 A cedar tree 10 ins. diam. brs. N. 16° E. 241 lks. dist., marked S C T. 21 N, R 13 W, S 34 B T.  
 A cedar tree 20 ins. diam. brs. N. 22 $\frac{1}{4}$ ° W. 192 lks. dist., marked S C T 21 N, R 13 W, S 33 B T.  
 Land, rolling, broken.  
 Soil, 3rd rate, sandy, gravelly.  
 Scattering palonegro, cedar, cacti. Good grazing.

West, on S. bdy. secs. 33.  
 Over rolling broken land, drains to SE. asc. grad. through scattering cedar, palonegro, cacti.  
 35.13 Top of bluff, brs. N. & S., 50 ft. high. desc. steep.  
 38.00 Foot, brs. N. & S., enter valley.  
 Difference bet. measurements of 40.00 chs. by 2 sets of chainmen is 2 lks.; position of middle point,  
 By 1st set, 39.99 chs.,  
 By 2nd set, 40.01 chs.; the mean of which is  
 40.00 Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std.  $\frac{1}{4}$  sec. cor., marked on brass cap,  
 S.C.  $\frac{1}{4}$  S. 33 in N. half, and raise a mound of stone 2 ft. base, 1 $\frac{1}{2}$  ft. high N. of cor.  
 44.15 Dim old road, middle of draw, brs. SE. & NW.  
 60.00 Leave draw, asc.  
 65.64 Top of point, brs. SE. & NW., near S. end, desc.  
 72.00 Enter flat, brs. SE. & NW., dense chollas cacti.  
 Difference bet. measurements of 80.00 chs. by 2 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. in diam. 24 ins. in the ground for Std. cor. of secs. 32 & 33, marked on brass cap,  
 S.C. T. 21 N., R. 13 W. in N. half,  
 S. 32 in NW.,  
 S. 33 in NE. quadrants,  
 Raise a mound of stone 2 ft. base, 1 $\frac{1}{2}$  ft. high N. of cor.  
 No bearings available. Pits impracticable.  
 Land, rolling, broken.  
 Soil, 3rd rate, gravelly.  
 Scattering cedars, palonegro. Dense cacti in draws.  
 Good native grass.

Jan. 16, 1911.



## Re-survey of Fifth Standard Parallel North, through Range 13 West. 5

## Chains.

- Jan. 17, 1911.  
 At 8h a.m., l.m.t., at the Std. cor. of secs. 32 & 33,  
 I set off  $20^{\circ}49'S$  on the decl. arc, and  $35^{\circ}9\frac{1}{2}'N$  on the  
 lat. arc, and determine a true meridian with the solar.  
 Thence I run,  
 West, on S. bdy. sec. 32.  
 Over rolling land, ascend gradually in draw, through dense  
 cholla cacti.
- 18.60 Wash, 50 lks. wide, course SSE.  
 23.40 Wash, 80 lks. wide, course SE.  
 Difference bet. measurements of 40.00 chs. by 2 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 Point for Std.  $\frac{1}{4}$  sec. cor. falls in wash, 20 lks. wide,  
 course NE., therefore at  
 40.50 Set an iron post 3 ft. long, 1 ins. in diam. 26 ins. in  
 the ground for witness cor. to  $\frac{1}{4}$  sec. cor.,  
 marked on brass cap,  
 S.C. in N. half,  
 W.C. W. of centre, in W. half, and  
 S. 32 in NE. quadrants,  
 dig pits 18x18x12 ins. E. & W. of cor. 3 ft. dist., and  
 raise a mound of earth  $3\frac{1}{2}$  ft. base,  $1\frac{1}{2}$  ft. high N. of cor.
- 43.40 Wash, 30 lks. wide, course ENE.  
 Difference bet. measurements of 80.00 chs. by 2 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. in diam. 24 ins. in  
 the ground for Std. cor. of secs. 31 & 32,  
 marked on brass cap,  
 S.C., T. 21 N., R. 13 W. in N. half,  
 S. 31 in NW., and  
 S. 32 in NE. quadrants,  
 dig pits 24x18x12 ins. crosswise on each line, E. & W. 3  
 ft., and N. of cor. 7 ft. dist., and  
 raise a mound of earth 4 ft. base, 2 ft. high N. of cor.  
 Land, Gently rolling. Soil, 2nd & 3rd rate, loose, gravelly.  
 Dense cacti 1st  $\frac{1}{2}$  mile. palonegro, few cedar. Fair grass.
- 
- West, on S. bdy. sec. 31.  
 Over gently rolling land, asc. grad. dense cacti.
- 14.30 Enter wash, 80 lks. wide, course ESE.  
 17.50 Leave wash, course ENE.  
 30.00 Leave cacti, enter cedar timber, brs. N. & S.  
 Difference bet. measurements of 40.00 chs. by 2 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 Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in  
 the ground for Std.  $\frac{1}{4}$  sec. cor., marked on brass cap,  
 S.C.  $\frac{1}{4}$  S. 31 in N. half, from which,  
 A cedar tree 20 ins. diam. brs. N.  $44\frac{1}{2}^{\circ}E$ . 206 lks. dist.,  
 marked S.C.  $\frac{1}{4}$  S. 31 B.T.  
 A cedar tree 10 ins. diam. brs. N.  $89\frac{1}{2}^{\circ}W$ . 279 lks. dist.,  
 marked S.C.  $\frac{1}{4}$  S. 31 B.T.  
 Enter low rolling ridges, trend to NE.  
 Difference bet. measurement of 80.00 chs. by 2 sets of  
 chainmen is 6 lks.; position of middle point,  
 By 1st set, 80.03 chs.,  
 By 2nd set, 79.97 chs.; the mean of which is
- 80.00 Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in  
 the ground for Std. cor. of Tps. 21 N., Rs. 13 & 14 W.,  
 marked on brass cap,  
 S.C., T. 21 N. in N. half,  
 R. 14 W. S. 36 in NW., and  
 R. 13 W. S. 31 in NE. quadrants, from which,

## Chains.

A cedar tree 10 ins. diam. brs. N.72°E. 103 lks. dist.,  
marked S.C. T. 21 N., R. 13 W. S. 31 B.T.

A cedar tree, 10 ins. diam. brs. N.60°W. 325 lks. dist.,  
marked S.C. T. 21 N., R. 14 W. S. 36 B.T.

Land, rolling.

Soil, 3rd rate, loose, gravelly.

Timber, cedar.

Undergrowth, scrub oak, cedar, palonegro, cacti.

At this cor. at noon, . . . ., I set off 20°49' S. on the  
decl. arc, and observe the sun on the meridian,

The resulting lat. is 35° 9½' N.

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General Description.

The Fifth Standard Parallel North, through Range 13 West,  
runs over a broken valley, draining to the Sandy wash.

The soil is in general loose, dry, and sandy or gravelly,  
and of little value except in the narrow valley or bottom  
of Big Sandy wash, which is a fertile sandy loam.

*Jesse B. Wright*  
U.S. Surveyor.

## Re-survey of Fifth Standard Parallel North, through Range 14 West. 7

- Chains.**
- West, on S. bdy. sec. 36.  
Over rolling, broken land, asc. grad., through scattering cedar timber.
- 8.75 Wash, 50 lks. wide, course ENE.  
10.80 Same wash, course ESE.  
30.00 Same wash, course ENE.  
Difference bet. measurements of 40.00 chs. by 2 sets of chainmen is 2 lks.; position of middle point,  
By 1st set, 39.99 chs.,  
By 2nd set, 40.01 chs.; the mean of which is
- 40.00 Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std.  $\frac{1}{4}$  sec. cor., marked on brass cap, S.C.  $\frac{1}{4}$  S. 36 in N. half, from which,  
A cedar tree 18 ins. diam. brs. N.65°E. 65 lks. dist., marked S.C.  $\frac{1}{4}$  S. 36 B.T.  
A cedar tree 6 ins. diam. brs. N.20°W. 17 lks. dist., marked S.C.  $\frac{1}{4}$  S. 36 B.T.  
thence through dense clumps of cedar and scrub oak.
- 47.20 Wash, 20 lks. wide, course NE.  
Difference bet. measurements of 80.00 chs. by 2 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. in diam. 24 ins. in the ground for Std. cor. of secs. 35 & 36, marked on brass cap,  
S.C. T. 21 N., R. 14 W. in N. half,  
S. 35 in NW., and  
S. 36 in NE. quadrants,  
from which,  
A cedar tree 15 ins. diam. brs. N.30°E. 96 lks. dist., marked S.C. T. 21 N., R. 14 W. S. 36 B.T.  
A cedar tree 10 ins. diam. brs. N.11°W. 92 lks. dist., marked S.C., T. 21 N., R. 14 W. S. 35 B.T.  
Land, broken, rolling. Soil, 3rd rate, gravelly.  
Some cedar timber.  
Undergrowth, scrub oak, cedar, cacti. Good grass.
- 
- West, on S. bdy. secs. 35.  
Over broken, rolling land, asc. grad., through clumps of cedar and scrub oak. Wash, parallels line 5 chs. to N.
- 25.55 Wash, 15 lks. wide, course NE.  
Difference bet. measurements of 40.00 chs. by 2 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 Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std.  $\frac{1}{4}$  sec. cor., marked on brass cap, S.C.  $\frac{1}{4}$  S. 35 in N. half, from which,  
A cedar tree 10 ins. diam. brs. N. 5° E. 146 lks. dist., marked  $\frac{1}{4}$  S. 35 S.C.B.T.  
No other bearings available.  
Dig pits 18x18x12 ins. E. & W. of cor. 3 ft. dist., and raise a mound of earth  $3\frac{1}{2}$  ft. base,  $1\frac{1}{2}$  ft. high N. of cor.
- 44.55 Wash, 30 lks. wide, course ENE.  
54.20 Enter wash, 80 lks. wide, course ENE. thence in same, asc.  
56.20 Leave wash, runs ENE., asc. grad.  
Difference bet. measurements of 80.00 chs. by 2 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. in diam. 24 ins. in the ground for Std. cor. of secs. 34 & 35, marked on brass cap,  
S.C. T. 21 N., R. 13 W. in N. half,  
S. 34 in NW., and  
S. 35 in NE. quadrants, from which,

## Chains.

A cedar tree 10 ins. diam. brs. N.23°E. 51 lks. dist.,  
marked S.C. T. 21 N., R. 14 W. S. 35 B.T.  
A cedar tree 10 ins. diam. brs. N.78°W. 149 lks. dist.,  
marked S.C. T. 21 N., R. 14 W. S. 34 B.T.  
No other bearings available, Pits impracticable.  
Land, heavily rolling. drains to NE.  
Soil, 3rd rate, gravelly, dry.  
No timber.  
Undergrowth, cedar, scrub oak, cacti, palonegro.  
Good native grass. Jan. 17, 1911.

Jan. 18, 1911.

At 8h a.m., l.m.t., at the Std. cor. of secs. 34 & 35,  
I set off 20°37' S. on the decl. arc, and 35°9½' N. on the  
lat. arc, and determine a true meridian with the solar.  
Thence I run,

West, on S. bdy. sec. 34.

Over heavily rolling land, through dense cedar, and  
scrub oak, asc. grad.

5.00 Dim road, top of flat ridge, brs. ENE. & WSW.

Difference bet. measurements of 40.00 chs. by 2 sets of  
chainmen is 4 lks.; position of middle point,

By 1st set, 40.02 chs.,

By 2nd set, 39.98 chs.; the mean of which is

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

S.C. ¼ S. 34 in N. half,

raise a mound of stone 2 ft. base, 1½ ft. high N. of cor.  
from which,

A cedar tree 10 ins. diam. brs. N.10°E. 111 lks. dist.,  
marked S.C. ¼ S. 34 B.T.

No other bearings available. Pits impracticable.

44.20 Wash, 20 lks. wide, course NE.

58.10 Old road, on flat ridge, brs. NE. & SW.

Leave dense cedar, brs. N. & S., desc. grad. through  
scattering cedar and scrub oak.

64.20 Wash, 40 lks. wide, course NE., 10 chs. thence runs ENE.  
asc. grad.

Difference bet. measurements of 80.00 chs. by 2 sets of  
chainmen is 6 lks.; position of middle point,

By 1st set, 80.03 chs.,

By 2nd set, 79.97 chs.; the mean of which is

80.00 Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in  
the ground for Std. cor. of secs. 33 & 34,

marked on brass cap,

S.C. T. 21 N., R. 14 W. in N. half,

S. 33 in NW., and

S. 34 in NE. quadrants,

from which,

A cedar tree 14 ins. diam. brs. N.64°E. 163 lks. dist.,  
marked S.C. T. 21 N., R. 14 W. S. 34 B.T.

A cedar tree 10 ins. diam. brs. N.10°W. 164 lks. dist.,  
marked S.C. T. 21 N., R. 14 W. S. 33 B.T.

Land, heavily rolling.

Soil, 3rd rate, gravelly, dry.

Cedar, scrub oak, cacti, good native grass in places.

## Re-survey of Fifth Standard Parallel North, through Range 14 West. 9

Chains.	
	<p>West, on S. bdy. Sec. 33. Over heavily rolling land, ascending over succession of small ridges, trend to NE., scattering cedar &amp; scrub oak. Difference bet. measurements of 40.00 chs. by 2 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</p>
40.00	<p>Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std. <math>\frac{1}{4}</math> sec. cor., marked on brass cap, S.C. <math>\frac{1}{4}</math> S. 33 in N. half, dig pits 18x18x12 ins. E. &amp; W. of cor. 3 ft. dist., and raise a mound of stone 2 ft. base, 1<math>\frac{1}{2}</math> ft. high N. of cor.</p>
54.70	Wash, 30 lks. wide, course NE.
66.70	<p>Wash, 30 lks. wide, course NE., asc. Difference bet. measurements of 80.00 chs. by 2 sets of chainmen is 8 lks.; position of middle point, By 1st set, 79.96 chs., By 2nd set, 80.04 chs.; the mean of which is</p>
80.00	<p>Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in the ground for Std. cor. of secs. 32 &amp; 33, marked on brass cap, S.C. T. 21 N., R. 14 W. in N. half, S. 32 in NW., and S. 33 in NE. quadrants, raise a mound of stone 2 ft. base, 1<math>\frac{1}{2}</math> ft. high N. of cor., from which, A cedar tree 10 ins. diam. brs. N.60°E. 174 lks. dist., marked S.C. T. 21 N., R. 14 W. S. 33 B.T. No other bearings available. Pits impracticable. Land, broken, heavily rolling. Soil, 3rd rate, dry, gravelly. Cedar, palonegro, scrub oak, cacti. Good native grass. At this cor. at noon, l.m.t., clouds obscure the sun. Impracticable to observe the latitude.</p>
	<p>West, on S. bdy. sec. 32. Over rolling land, asc. grad., through dense scrub oak, and scattering cedar.</p>
3.50	Wash, 30 lks. wide, course NE.
31.60	<p>Wash, 50 lks. wide, course ENE. A round butte, with one large lone cedar on top, brs. N. about 25 chs. dist. Difference bet. measurements of 40.00 chs. by 2 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</p>
40.00	<p>Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std. <math>\frac{1}{4}</math> sec. cor., marked on brass cap, S.C. <math>\frac{1}{4}</math> S. 32 in N. half, from which cor., A cedar tree 10 ins. diam. brs. N.26°E. 226 lks. dist., marked S.C. <math>\frac{1}{4}</math> S. 32 B.T. A cedar tree 6 ins. diam. brs. N. 77°W. 115 lks. dist., marked S.C. <math>\frac{1}{4}</math> S. 32 B.T.</p>
43.15	Main road, Kingman to Sandy, brs. WNW. & ESE.
75.45	<p>On E. side of main road, for witness point, I set a cedar post 4x4 ins. x 5 ft. long, in large mound of stone, marked W.P. T. 21 N. on N. face.</p>
75.65	<p>Main road, Kingman to Sandy, brs. WSW. &amp; ENE. Difference bet. measurements of 80.00 chs. by 2 sets of chainmen is .00 lks., measurements being identical, therefore at</p>
80.00	<p>Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in the ground for Std. cor. of secs. 31 &amp; 32, marked on brass cap, S.C. T. 21 N., R. 14 W. in N. half, S. 31 in NW., and S. 32 in NE. quadrants, and raise a mound of stone 2 ft. base, 1<math>\frac{1}{2}</math> ft. high N. of cor. No bearings available. Pits impracticable. Land, rolling. Soil, 3rd rate, gravelly, dry. Undergrowth, scrub oak, scattering cedar. Good grazing.</p>

## 10 Re-survey of Fifth Standard Parallel North, through Range 14 West.

## Chains.

- West, on S. bdy. Sec. 31.  
Over heavily rolling land, desc. grad.
- 7.64 Wash, 30 lks. wide, course NE., asc. grad.
- 37.62 Dim road, on flat ridge, brs. NE. & SW.  
Difference bet. measurements of 40.00 chs. by 2 sets of chainmen is 4 lks.; position of middle point,  
By 1st set, 40.02 chs.,  
By 2nd set, 39.98 chs.; the mean of which is
- 40.00 Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std.  $\frac{1}{4}$  sec. cor., marked on brass cap, S.C.  $\frac{1}{4}$  S. 31 in N. half,  
raise a mound of stone 2 ft. base, 1 $\frac{1}{2}$  ft. high N. of cor.
- 45.60 Wash, 20 lks. wide, course NNE.
- 47.06 Old road, brs. NE. & SW.
- 52.00 Flat ridge, brs. N. & S. dividing drainage to E. & W.
- 53.07 Same old road as above, brs. WNW. & ESE. desc. grad.
- 63.26 Main road, Kingman to Sandy, brs. NW. & SE.
- 69.20 Wash, 30 lks. wide, course NNW. runs into Hualpai valley.  
Leave foot hills or valley, begin ascent NE. slope of Hualpai Mountains.  
Difference bet. measurements of 80.00 chs. by 2 sets of chainmen is 6 lks.; position of middle point,  
By 1st set, 79.97 chs.,  
By 2nd set, 80.03 chs.; the mean of which is
- 80.00 Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in the ground for Std. cor. of Tps. 21 N., Rs. 14 & 15 W., marked on brass cap,  
S.C. T. 21 N. in N. half,  
R. 15 W. S. 36 in NW., and  
R. 14 W. S. 31 in NE. quadrants,  
dig pits 30x24x12 ins., crosswise on each line, E. & W. 4 ft. and N. of cor. 8 ft. dist., and raise a mound of stone covered with earth 4 ft. base, 2 ft. high N. of cor.  
No bearings available. Pits impracticable.  
Land, heavily rolling.  
Soil, 3rd rate, gravelly, dry.  
Scrub oak, cedar, palonegro. Good native grass.  
Jan. 18, 1911.

## General Description.

The Fifth Standard Parallel North, through Range 14 West, runs over a series of broken rolling small ridges, ascending gradually, from the East to the West, trending or draining to the NE.

The soil is a granite gravel, of little value.

The land is covered with a good growth of native grass, which is very profuse in places, and extends to the North of the line for four or five miles, and also to the south for several miles, making this land of some value for grazing purposes.

There is some cedar timber along the line in places, which grows heavier and denser to the north.

T. 21 N., R. 14 W. should be subdivided.

*Jesse B. Wright*  
U. S. Surveyor.

## Chains.

March 17, 1911.

The weather at this season being somewhat cloudy during the days, and delaying the work when operating by a solar instrument, I proceed as follows;

At 7h 46m p.m., l.m.t., I set up my instrument at the standard cor. of Tps. 21 N., Rs. 14 & 15 W., as heretofore established and described by me, and observe Polaris at W. elongation, in accordance with instructions in the "Manual", and mark the line thus determined by a tack in a stake driven firmly in the ground 6 chs. N. of my station.

March 17, 1911 .

March 18, 1911.

At 8h a.m., l. m.t., I set off the azimuth of Polaris,  $1^{\circ} 25\frac{1}{2}'$  to the East, and mark the true meridian thus determined by a tack in a stake driven firmly in the ground 5 chs. N. of my station.

On this meridian projected North, I note a large white quartz boulder precisely on the line near the top of the mountains some 20 miles to the north, which boulder I use as a foresight and test of the meridional line to the North from this cor. through Tps. 21, 22, 23 & 24 N. The magnetic bearing of the true meridian at 8h a.m., is N.  $15^{\circ} 20'$  W.; the angle thus determined gives the magnetic declination as  $15^{\circ} 20'$  E.

From the true meridian now established, I deflect carefully by numerous repetitions, an angle of  $90^{\circ}$  to the right or East, and note that the flag on the Std. cor. of Tps. 21 N., Rs. 12 & 13 W., as re-established by me on an eminence 12 mile to the East, is plainly visible, and bears N.  $89^{\circ} 53'$  E. The calculated bearing to this corner is N.  $89^{\circ} 52' 40''$  E. The cumulative error of alinement of my solar apparatus for the 12 miles is therefore  $20''$ . This error being perhaps only the usual personal errors of observation, I consider the Fifth Standard Parallel North, through Rs. 13 & 14 W., as satisfactorily re-established. At an angle of  $90^{\circ}$  East, I note also a large lone tree on a high sharp divide about 20 miles to the East, on my tangential line to the East, which tree I use as a check on my projection of my tangential line to the West.

Then I set off carefully by repetition an angle of  $90^{\circ}$  from my meridian to the left or West, and leaving a large flag on the Std. cor. of Tps. 21 N., Rs. 14 & 15 W., I run, by back and foresight,

West, on the tangent, S. of sec. 36.

Over mts. land, asc. along N. foothills of Hualpai mts. through dense scrub oak.

- 5.10 Gulch, 40 lks. wide, course N., asc. steep.  
 20.00 Top of spur, brs. N. & S., ends 20 chs. to N., desc. steep.  
 27.37 Gulch, 50 lks. wide, course NNW., asc. steep.  
 Difference bet. measurements of 40.00 chs. by 2 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 N.  $\frac{1}{4}$  lk. from the tangent,  
 Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std.  $\frac{1}{4}$  sec. cor., marked on brass cap, S.C.  $\frac{1}{4}$  S. 36 in N. half, and raise a mound of stone 2 ft. base,  $1\frac{1}{2}$  ft. high N. of cor. No bearings available. Pits impracticable.  
 45.00 Gulch, 50 lks. wide, course N., asc. prec.  
 53.45 Top of rocky spur, brs. NW. & SE., ends 15 chs. NW. desc. prec.  
 63.60 Gulch, 150 lks. wide, course NNW., asc.  
 70.00 Spur, brs. N. & S., ends 10 chs. to N. desc. prec.  
 79.50 Gulch, 150 lks. wide, course NNE., small stream of water in same, 3 lks. wide, 2 ins. deep.  
 asc. prec.

Chains.

Difference bet. measurements of 80.00 chs. by 2 sets of chainmen is 8 lks.; position of middle point;  
 By 1st set, 79.96 chs.,  
 By 2nd set, 80.04 chs.; the mean of which is

80.00 N.  $\frac{3}{4}$  lk. from the tangent,  
 Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in the ground for Std. cor. of secs. 35 & 36, marked on brass cap,  
 S.C. T. 21 N., R. 15 W. in N. half,  
 S. 35 in NW., and  
 S. 36 in NE. quadrants,  
 raise a mound of stone 2 ft. base,  $1\frac{1}{2}$  ft. high N. of cor.  
 No bearings available. Pits impracticable.

Land, mts. broken.  
 Soil, 3rd rate, gravelly, stony.  
 No timber.  
 Undergrowth, dense scrub oak, palonegro, few cedars.  
 Good native grass in smoother places near line.  
 At this cor. at noon, I set off  $1^{\circ} 8\frac{1}{2}'$  S. on the decl. arc, and observe the sun on the meridian.  
 The resulting lat. is  $35^{\circ} 10'$  N. Sky slightly overcast.

S.  $89^{\circ} 59\frac{1}{2}'$  W  
 on the tangent, S. of sec. 35.

15.00 Over mts. land, asc. SE. slope, through dense scrub oak.  
 A spring is in the canyon to the south, 3 chs. dist.

27.70 Top of a point, on rocky spur, brs. SE.  
 thence along S. slope., descending.

36.00 Head of gulch, course SE., asc.

Difference bet. measurements of 40.00 chs. by 2 sets of chainmen is 6 lks.; position of middle point,  
 By 1st set, 40.03 chs.,  
 By 2nd set, 39.97 chs.; the mean of which is

40.00 N.  $1\frac{1}{2}$  lks. from the tangent,  
 Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std.  $\frac{1}{4}$  sec. cor., marked on brass cap,  
 S.C.  $\frac{1}{4}$  S. 35 in N. half,  
 raise a mound of stone 2 ft. base,  $1\frac{1}{2}$  ft. high N. of cor.  
 No bearings available. Pits impracticable.

Asc. steep from cor.

59.00 Top of high rocky spur, brs. N. & S. ends 25 chs. to N.,  
 desc. along NNW. slope.

63.00 Head of gulch, course NNW. asc.

70.20 Top of high rocky spur, brs. NW. & SE., ends 20 chs. to NW.  
 desc. steep.

Difference bet. measurements of 80.00 chs. by 2 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 N.  $2\frac{1}{4}$  lks. from the tangent,  
 Set an iron post 3 ft. long, 3 ins. in diam. 10 ins. in the ground to bed-rock, in mound of stone for Std. cor. of secs. 34 & 35, marked on brass cap,  
 S.C. T. 21 N., R. 15 W. in N. half,  
 S. 34 in NW., and  
 S. 35 in NE. quadrants,  
 raise a mound of stone 2 ft. base,  $1\frac{1}{2}$  ft. high N. of cor.  
 No bearings available. Pits impracticable.

Land, very rough, mts.

Soil, 3rd & 4th rate, gravelly, stony.

No timber.

Undergrowth, scrub oak, palonegro, cacti, and other brush.  
 Sparse grass.

March 18, 1911.

Sky overcast and cloudy this night. Impracticable to observe Polaris.



## Re-survey of Fifth Standard Parallel North, through Range 15 West. 13

Chains.	
	March 20, 1911.
	S. 89°59' W., on the tangent, S. of sec. 34.
4.00	Over mts. land, desc. through dense scub oak. very rough.
20.00	Canyon, 180 lks. wide, 200 ft. deep, course NNW., asc. prec.
25.00	Spur, brs. N. & S., ends 12 chs. to N., desc.
28.00	Canyon, 80 lks. wide, course NW., near head, asc. steep.
32.00	Point of spur, brs. N. & S., desc.
	Canyon 3 chs. wide, 200 ft. deep, course N., asc. prec.
	Difference bet. measurements of 40.00 chs. by 2 sets of chainmen is 8 lks.; position of middle point,
	By 1st set, 39.96 chs.,
	By 2nd set, 40.04 chs.; the mean of which is
40.00	N. 4½ lks. from the tangent,
	Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std. ¼ sec. cor., marked on brass cap,
	S.C. ¼ S. 34 in N. half,
	raise a mound of stone 2 ft. base, 1½ ft. high N. of cor.
52.10	Top of highest rocky spur, brs. N. & S. Set a large flag on line. Desc. prec. W. slope.
74.20	On spur, brs. NW. & SE., cross same, and desc. SW. slope.
	Difference bet. measurements of 80.00 chs. by 2 sets of chainmen is 12 lks.; position of middle point,
	By 1st set, 79.94 chs.,
	By 2nd set, 80.06 chs.; the mean of which is
80.00	N. 6½ lks. from the tangent,
	Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in the ground for Std. cor. of secs. 33 & 34, marked on brass cap,
	S.C. T. 21 N., R. 15 W. in N. half,
	S. 33 in NW., and
	S. 34 in NE. quadrants,
	raise a mound of stone 2 ft. base, 1½ ft. high N. of cor.
	No bearings available. Pits impracticable.
	Land, mts., very rough.
	Soil, 3rd rate, stony.
	No timber. Undergrowth, scrub oak, few cedar. Sparse grass
	S. 89°58' W., on the tangent, S. of sec. 33,
	Over mts. land, desc. SW. slope, through dense scub oak.
4.00	Head of gulch, course SW., desc. along S. slope.
19.00	Gulch, 50 lks. wide, course NW.
28.00	Foot of main slope, brs. N. & S., desc. grad.
37.00	Wash, 50 lks. wide, course NW.
38.40	Old road, brs. N. & S.
	Difference bet. measurements of 40.00 chs. by 2 sets of chainmen is 10 lks.; position of middle point,
	By 1st set, 40.05 chs.,
	By 2nd set, 39.95 chs.; the mean of which is
40.00	N. 8¾ lks. from the tangent,
	Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std. ¼ sec. cor., marked on brass cap,
	S.C. ¼ S. 33 in N. half,
	raise a mound of stone 2 ft. base, 1½ ft. high N. of cor.
44.85	Sandy Wash, 120 lks. wide, stream of clear running water, 8 lks. wide, 3 ins. deep, course NNW., asc. SE. slope.
70.00	Top of S. end of hill, brs. N. & S., desc.
	Difference bet. measurements of 80.00 chs. by 2 sets of chainmen is 12 lks.; position of middle point,
	By 1st set, 80.06 chs.,
	By 2nd set, 79.94 chs.; the mean of which is
80.00	Foot of slope, brs. NW. & SE.,
	N. 11 lks. from the tangent,
	Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in the ground for Std. cor. of secs. 32 & 33, marked on brass cap; S.C. T. 21 N., R. 15 W. in N. half,
	S. 32 in NW., and S. 33 in NE. quadrants.
	raise a mound of stone 2 ft. base, 1½ ft. high N. of cor.
	Land, mts., broken. Soil, 3rd rate, gravelly, stony.
	No timber. Undergrowth, scrub oak, palonegro. Fair grass.
	Cloudy at noon, Impracticable to observe the latitude.

Chains.	
	S. 89°57' W., on the tangent, S. of sec. 32. Over stony, hilly land, through scattering cedar.
3.70	Stony wash, 30 lks. wide, course NNW.
5.80	Wash, 40 lks. wide, course N.
9.06	Wash, 40 lks. wide, course NNE., asc. E. slope of hill.
22.00	Top of hill, brs. N. & S., desc. Difference bet. measurements of 40.00 chs. by 2 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	Cor. point in wash, 40 lks. wide, course N.
42.00	N. 14½ lks. from the tangent, Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for witness cor. to Std. ¼ sec. cor., marked on brass cap, S.C. in N. half, W.C. ¼ W. of centre and S. 32 in NE. quadrant, and raise a mound of stone 2 ft. base, 1½ ft. high N. of cor.
45.44	Road, brs. NNE. & SSW.
46.58	Wash, 30 lks. wide, course NNE., asc.
61.15	Road, brs. NE. & SW., asc. grad. Difference bet. measurements of 80.00 chs. by 2 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	N. 18 lks. from the tangent, Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in the ground for Std. cor. of secs. 31 & 32, marked on brass cap, S.C., T. 21 N., R. 15 W. in N. half, S. 31 in NW., and S. 32 in NE. quadrants, raise a mound of stone 2 ft. base, 1½ ft. high N. of cor. from which, A cedar tree 10 ins. diam. brs. N. 31° E. 148 lks. dist., marked S.C. T. 21 N., R. 15 W. S. 32 B.T. No other bearings available. Pits impracticable. Land, broken, hilly. Soil, 3rd rate, gravelly. No timber. Undergrowth, scattering cedar, scrub oak, Good grass.
	S. 89°57' W., on the tangent, S. of sec. 31. Over rolling, broken valley, through scattering cedar.
1.00	Old road, brs. NE. & SW.
13.80	Wash, 50 lks. wide, course NE., asc.
21.00	Knoll, brs. N. & S., desc.
26.00	Granite wash, 50 lks. wide, course NNE., asc. SE. slope of main ridge from Hualpai mts. Difference bet. measurements of 40.00 chs. by 2 sets of chainmen is 8 lks.; position of middle point, By 1st set, 40.04 chs., By 2nd set, 39.96 chs.; the mean is
40.00	N. 21½ lks. from the tangent, Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for std. ¼ sec. cor., marked on brass cap, S.C. ¼ S. 31 in N. half, from which, a pinon tree 6 ins. diam. brs. N. 4½° W. 129 lks. dist., marked S.C. ¼ S. 31 B.T. No other bearings available. Pits impracticable. Raise a mound of stone 2 ft. base, 1½ ft. high N. of cor.
75.45	Top of high rocky ridge, about 800 ft. above broken valley to East, brs. N. & S. Leave flag in pinon, on line. Desc. steep W. slope, through dense pinon.

Chains.

Difference bet. measurements of 80.00 chs. By 2 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 N. 25 lks. from the tangent,  
 Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in the ground, for Std. cor. of Tps. 21 N., Rs. 15 & 16 W., marked on brass cap,  
 S.C. T. 21 N. in N. half,  
 R. 16 W. S. 36 in NW., and  
 R. 15 W. S. 31 in NE. quadrants,  
 raise a mound of stone 3 ft. base, 2 ft. high N. of cor. from which,  
 A pinon tree 10 ins. diam. brs. N. 51° E. 29 lks. dist., marked S.C. T. 21 N., R. 15 W. S. 31 B.T.  
 A pinon tree 8 ins. diam. brs. N. 25° W. 20 lks. dist., marked S.C. T. 21 N., R. 16 W. S. 36 B.T.  
 Land, rolling, mts.  
 Soil, 3rd rate, gravelly, stony.  
 Timber, some cedar, pinon.  
 Undergrowth, cedar, pinon, scrub oak, cacti.  
 Good native grass in valley.  
 At this cor., at 7h 34m. p.m., l.m.t., I observe Polaris at W. elongation, in accordance with instructions in the Manual, and mark the line thus determined by a nail driven in a small pinon tree about 10 chs. N. of my station.  
 March 20, 1911.

General Description.

The Fifth Standard Parallel North, through Range 15 West, runs over a very rough, broken and mountainous country across numerous sharp, rocky spurs from the Hualpai mts. on the south.  
 The land is of little value for any purpose.  
 To the south of the line the land rises very steeply over high ridges and bluffs to an altitude of 8,000 ft. and in some parts is heavily timbered with pine, oak, cedar, and pinon.  
 The land is somewhat mineral in character, and has been prospected in places, but no extensive work done anywhere. Along the line of the Standard, there is some cedar and pinon, but nothing of value for timber.  
 There is some water in several of the deeper gulches and washes, which has been located and is used for watering stock.  
 March 20, 1911.

*Jesse B. Wright*  
 U. S. Surveyor.

## Chains.

March 21, 1911.

At 8h a.m., l.m.t., at the Std. cor. of Tps. 21 N., Rs. 15 & 16 W., as re-established by me,

I set off the azimuth of Polaris,  $1^{\circ} 25\frac{1}{2}'$  to the East, and mark the true meridian thus determined by a nail driven in a pinon tree about 6 chs. N. of my station.

From my true meridian thus established I deflect carefully by repeated observations, an angle of  $90^{\circ}$ , from the North to the West,

Thence I run, as per instructions,

West, on the tangent, S. of sec. 36,

Variation  $15^{\circ} 20'$  E.

Over mts. land, desc. steep, through dense pinon, scrub oak and manzanita.

- 4.00 Head of gulch, course NW. thence along NW. slope.  
 8.00 Top of spur, brs. WSW. & ESE. in turn of same. thence along N. slope of same, descending.  
 9.50 Desc. NW. slope.  
 14.00 Head of gulch, course NNW., 14 chs. to main canyon to N. thence along N. slope.  
 32.00 Top of same spur, as above, brs. WNW. & ESE., desc. Leave pinon, brs. N. & S. Difference bet. measurements of 40.00 chs. by 2 sets of chainmen is 8 lks.; position of middle point, By 1st set, 39.96 chs., By 2nd set, 40.04 chs.; the mean of which is  
 40.00 Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std.  $\frac{1}{4}$  sec. cor.,  $\frac{1}{4}$  lk. N. of tangent, marked on brass cap, S.C.  $\frac{1}{4}$  S. 36 in N. half. raise a mound of stone 2 ft. base,  $1\frac{1}{2}$  ft. high N. of cor. No bearings available. Pits impracticable.  
 41.00 Head of gulch, course SW.  
 46.00 W. point of spur, brs. WNW. & ESE., desc. steep.  
 52.00 Foot of main W. slope of Hualpai mts., continue to desc. gradually along S. of gulch A low saddle extending E. & W., brs. S. 4 chs.  
 61.80 Wash, 30 lks. wide, course WNW.  
 65.00 Asc. NNE. slope of butte. A high butte brs. S. 14 chs. dist. Difference bet. measurements of 80.00 chs. by 2 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 Set an iron post 3 ft. long, 2 ins. in diam. 24 ins. in the ground for Std. cor. of secs. 35 & 36.,  $\frac{3}{4}$  lk. N. of tangent, marked on brass cap, S.C. T. 21 N., R. 16 W. in N. half, S. 35 in NW., and S. 36 in NE. quadrants, raise a mound of stone 2 ft. base,  $1\frac{1}{2}$  ft. high N. of cor., from which, A pinon tree 6 ins. diam. brs. N.  $72^{\circ}$  E. 68 lks. dist., marked S.C. T. 21 N., R. 16 W. S. 35 B.T. A pinon tree 6 ins. diam. brs. N.  $35^{\circ}$  W. 56 lks. dist., marked S.C. T. 21 N., R. 16 W. S. 35 B.T.  
 Land, mts. rough.  
 Soil, 3rd rate, stony, gravelly.  
 Timber, some pinon, few cedars.  
 Undergrowth, pinon, cedar, scrub oak, manzanita, cacti.  
 Good grass in places.

Re-survey of Fifth Standard Parallel North, through Range 16 West. 17

Chains.	S. 89°59' W., on the tangent, S. of sec. 35. Over mts. stony land, along N. slope of spur.
12.00	Desc. NW. slope.
26.68	Road, brs. NW. & SE.
29.35	Wash, 40 lks. wide, course NW.
33.14	Main road, Kingman to Beale Springs, brs. NW. & SE. Difference bet. measurement of 40.00 chs. by 2 sets of chainmen is 6 lks.; position of middle point, By 1st set, 40.03 chs., By 2nd set, 39.97 chs.; the mean of which is
40.00	N. 1½ lks. from the tangent,
40.00	Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std. ¼ sec. cor., marked on brass cap, S.C. ¼ S. 35 in N. half, raise a mound of stone 2 ft. base, 1½ ft. high N. of cor. No bearings available. Pits impracticable.
46.00	Canyon, 450 lks. wide, 100 ft. deep, course NW., asc. NE. slope.
50.00	Enter volcanic stony area, brs. N. & S., leave granite.
75.00	Top of rocky ridge, brs. NNW. & SSE. desc. steep NW. slope. Difference bet. measurements of 80.00 chs. by 2 sets of chainmen is 8 lks.; position of middle point, By 1st set, 79.96 chs., By 2nd set, 80.04 chs.; the mean of which is
80.00	N. 2½ lks. from the tangent, Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in the ground for Std. cor. of secs. 34 & 35, marked on brass cap, S.C. T. 21 N., R. 16 W. in N. half, S. 34 in NW., and S. 35 in NE. quadrants, raise a mound of stone 2 ft. base, 1½ ft. high N. of cor. No bearings available. Pits impracticable. Land, mts., broken. Soil, 3rd rate, gravelly, stony. Few cedars, palonegro, cacti. Sparse grass. At this cor. at noon, clouds overcast the sky. Impracticable to observe the latitude. Rained in afternoon. No work. March 21, 1911.
March 22, 1911.	
	S. 89°59' W., on the tangent S. of sec. 34. Over mts. land, desc. steep, stony NW. slope.
18.00	Canyon, 4 chs. wide, 200 ft. deep, course NNW., asc. prec.
28.00	Top of W. rim of canyon. asc. grad.
32.00	Flat mesa or ridge, brs. NW. & SE., desc. grad. Difference bet. measurements of 40.00 chs. by 2 sets of chainmen is 8 lks.; position of middle point, By 1st set, 39.96 chs., By 2nd set, 40.04 chs.; the mean of which is
40.00	N. 4½ lks. from the tangent
	Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std. ¼ sec. cor., marked on brass cap, S.C. ¼ S. 34 in N. half, and raise a mound of stone 2 ft. base, 1½ ft. high N. of cor.
44.00	Gulch, 50 lks. wide, course N., near head, asc. steep.
53.00	Top of W. rim, asc. grad.
60.00	Top of flat ridge, or mesa, brs. NW. & SE., desc. grad.
76.00	Wash, 50 lks. wide, course NNW., near head, asc. steep. Difference bet. measurements of 80.00 chs. by 2 sets of chainmen is 8 lks.; position of middle point; By 1st set, 79.96 chs., By 2nd set, 80.04 chs.; the mean on which is
80.00	N. 6½ lks. from the tangent,
80.00	Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in the ground for Std. cor. of secs. 33 & 34, marked on brass cap, S.C. T. 21 N., R. 16 W. in N. half, S. 33 in NW., and S. 34 in NE. quadrants, and raise a mound of stone 3 ft. base, 2 ft. high N. of cor. No bearings available. Pits impracticable. Land, mts., rough. Soil, 3rd rate, stony. No timber. Undergrowth, few cedars, palonegro, cacti. Sparse native grass.

Chains.	S. 89°58' W., on the tangent, S. of sec. 33. Over mts. land, desc. grad.
4.00	Desc. abrupt 50 ft., thence desc. steep.
10.00	Canyon 250 lks. wide, 150 ft. deep, course NW., asc. steep.
25.00	Ridge, brs. NW. & SE., desc. steep.
35.00	Middle of canyon, 4 chs. wide, course NW., asc. NE. slope. Difference bet. measurements of 40.00 chs. by 2 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	N. 8 $\frac{1}{2}$ lks. from the tangent, Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std. $\frac{1}{4}$ sec. cor., marked on brass cap, S.C. $\frac{1}{4}$ S. 33 in N. half, raise a mound of stone 3 ft. base, 2 ft. high N. of cor.
44.00	Cross head of gulch 50 lks. wide, course N., asc. prec.
53.00	Top of W. rim, brs. NW. & SE. asc. gradually.
60.00	Top of flat mesa ridge, brs. NW. & SE., desc.
76.00	Wash, 50 lks. wide, course NNW., near head, asc. Difference bet. measurements of 80.00 chs. by 2 sets of chainmen is 12 lks.; position of middle point, By 1st set, 79.94 chs., By 2nd set, 80.06 chs.; the mean of which is
80.00	N. 11 lks. from the tangent, Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in the ground for Std. cor. of secs. 32 & 33., marked on brass cap, S.C. T. 21 N., R. 16 W. in N. half, S. 32 in NW., and S. 33 in NE. quadrants, raise a mound of stone 2 ft. base, 1 $\frac{1}{2}$ ft. high N. of cor. No bearings available. Pits impracticable. Land, mts., broken. Soil, 3rd rate, gravelly, stony. Few cedars. Palonegro, cacti, greasewood. Sparse grass. At this cor., at noon, I set off 0°26' N. on the decl. arc, and observe the sun on the meridian. The resulting lat. is 35° 9 $\frac{1}{2}$ ' N.
	S. 89°57 $\frac{1}{2}$ ' W., on the tangent, S. of sec. 32. Over mts. land, asc. NE. slope.
15.00	Top of ridge, brs. NW. & SE. desc. grad.
26.00	Desc. prec.
34.00	Canyon 180 lks. wide, 100 ft. deep, course NW., asc. steep. Difference bet. measurements of 40.00 chs. by 2 sets of chainmen is 10 lks.; position of middle point, By 1st set, 39.95 chs., By 2nd set, 40.05 chs.; the mean of which is
40.00	N. 14 $\frac{1}{4}$ lks. from the tangent, Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std. $\frac{1}{4}$ sec. cor., marked on brass cap, S.C. $\frac{1}{4}$ S. 32 in N. half, raise a mound of stone 2 ft. base, 1 $\frac{1}{2}$ ft. high N. of cor.
60.00	Top of flat ridge, brs. NW. & SE., desc. grad.
75.00	Gulch 40 lks. wide, course NNW., near head, asc. Difference bet. measurements of 80.00 chs. by 2 sets of chainmen is 14 lks.; position of middle point, By 1st set, 80.07 chs., By 2nd set, 79.93 chs.; the mean of which is
80.00	N. 18 lks. from the tangent, Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in the ground for Std. cor. of secs. 31 & 32, marked on brass cap, S.C. T. 21 N., R. 16 W. in N. half, S. 31 in NW., and S. 32 in NE. quadrants, raise a mound of stone 3 ft. base, 2 ft. high N. of cor. No bearings available. Pits impracticable. Land, mts., broken. Soil, 3rd rate, stony. Scattering palonegro, greasewood, cacti. Sparse grass.

## Re-survey of Fifth Standard Parallel North, through Range 16 West. 19

Chains.	S. 89°57' W., on the tangent, S. of sec. 31. Over mts., broken, stony land, asc.
4.20	Top of flat ridge, brs. NW. & SE.
15.00	Desc. steep.
20.46	Canyon, 150 lks. wide, 100 ft. deep, course NW., asc. steep.
38.00	Top of steep slope, thence across flat ridge or mesa. Difference bet. measurements of 40.00 chs. by 2 sets of chainmen is 10 lks.; position of middle point, By 1st set, 39.95 chs., By 2nd set, 40.05 chs.; the mean on which is
40.00	N. 21½ lks. from the tangent, Set an iron post 3 ft. long, 1 in. in diam. 26 ins. in the ground for Std. ¼ sec. cor., marked on brass cap, S.C. ¼ S. 31 in N. half, raise a mound of stone 3 ft. base, 2 ft. high N. of cor. No bearings available. Pits impracticable. Desc. grad.
80.00	Build mound of stone 25 lks. N. of tangent. Desc. prec.
84.00	Canyon, 400 lks. wide, 250 ft. deep, course NW. asc. prec.
97.50	Top of SE. end of isolated mesa, brs. NW. & SE. desc.
110.00	Canyon, 250 lks. wide, 100 ft. deep, course NW., asc. prec.
120.00	Top of mesa, brs. NW. & SE. Difference bet. measurements of 128.64 chs. by 2 sets of chainmen is 16 lks.; position of middle point, By 1st set, 128.56 chs., By 2nd set, 128.72 chs.; the mean of which is
128.65	To a point 23.80 chs. S. of original Std. cor. of Tps. 21 N., Rs. 16 & 17 W., which is a granite stone, 10x8x6 ins. above ground, marked and witnessed as described by the Surveyor General. I change the markings and accessories of this cor. to refer to T. 21 N., R. 17 W. only, and at a point 23.80 chs. South of this cor. and 30 lks. N. of my tangent line, I Set an iron post 3 ft. long, 3 ins. in diam. 24 ins. in the ground for Standard closing cor. of Tp. 21 N., R. 16 W., marked on brass cap, C.C. W. of centre, S.C. T. 21 N. in N. half, R. 17 W. S. 36 in NW., and R. 16 W. S. 31 in NE. quadrants, raise a mound of stone 4 ft. base, 3 ft. high, NE. of cor. No bearings available. Pits impracticable. Land, mts., broken. Soil, 3rd rate, gravelly, stony. Scattering palonegro, greasewood, cacti. Sparse grass.
For the purpose of connecting topography, from the above described closing cor., I run, North, on W. bdy. of sec. 31, T. 21 N., R. 16 W. Over rough, mts. land, desc. grad.	
2.97	N. rim of mesa, brs. E. & W., desc. prec.
8.00	Canyon, 150 lks. wide, course WNW., asc. prec.
12.00	Sharp ridge, brs. W. & E., desc. prec.
20.00	Wash, 150 lks. wide, in canyon, course W.,
22.00	Asc. steep.
23.80	To original old cor. of Tps. 21 N., Rs. 16 & 17 W., changed as above described.

March 22, 1911.

## General Description.

The Fifth Standard Parallel North, through Range 16 West, runs over a very rough, broken land, descending continually, from the East to the West. The soil in general is stony, or gravelly, and of little value except for graxing. There is some little pinon timber to the East portion of the line. There is no water on or near the line. A part of the land to the N. & S. along the line is covered with a fair growth of native grass.

*Jose B. Wright*  
U.S. Surveyor

FINAL OATHS OF DEPUTY SURVEYOR AND HIS ASSISTANTS.

LIST OF NAMES.

BOOK 2319

A list of the names of the individuals employed by Jesse B Wright

....., United States Deputy Surveyor, to assist in running, measuring, and marking the lines and corners described in the foregoing field notes of the survey of Re. Fifth

Standard Parallel North, through Rs. 13-16 West, inc

showing the respective capacities in which they acted:

NAME.	DUTY.	BOOK 2319	TIME.	an.
Herbert W. Worcester,	Chainman,	Jan. 11-	Mch. 22.	an.
Edgar Morris,	"	Jan. 14-	Jan. 18.	an.
Walter J. Thompson,	"	Jan. 11-	Jan. 18.	
Edgar M. Darnall,	"	Jan. 14-	Mch. 22.	an.
Bart Tyson,	"	Mch. 17-	Mch. 22.	
Gus Wuetig,	"	Mch. 17-	Mch. 22.	an.
James R. Smith,	Moundman,	Jan. 11-	Jan. 18.	
Rex Haskins,	"	Mch. 17-	Mch. 22.	
Edgar Morris,	Axeman,	Jan. 11-	Jan. 18.	
Gus Wuetig,	"	Mch. 17-	Mch. 22.	
Lanie Van Marter,	Flagman,	Jan. 11-	Mch. 22.	

FINAL OATH OF ASSISTANTS.

We hereby certify that we assisted Jesse B Wright

....., United States Deputy Surveyor, in surveying all

those parts or portions of the Resurvey of the Fifth Standard Parallel North through Ranges 13-16 West, inclusive

..... of the Great Salt River Basin meridian, Territory of Arizona, which are represented in the foregoing field notes as having been surveyed by him and under his direction; and that said survey has been in all respects, to the best of our knowledge and belief, well and faithfully surveyed, and the corner monuments established, according to the instructions furnished by the United States Surveyor

General for Arizona  
Bart Tyson, Herbert W. Worcester, Chainman.  
Edgar M. Darnall, Walter J. Thompson, Chainman.  
Gus Wuetig, James R. Smith, Moundman.  
Rex Haskins, Moundman.  
....., Axman.  
Gus Wuetig, Axman.  
Lanie Van Marter, Flagman.

Subscribed and sworn to before me this 28th day of March, 1911

Jesse B Wright  
U. S. Surveyor





BOOK 231 FINAL OATH OF UNITED STATES ~~DEPUTY~~ SURVEYOR.

I, Jesse B. Wright, United States ~~Deputy~~ Surveyor, do solemnly swear that, in pursuance of a ~~contract~~ <sup>instructions</sup> received from Frank S. Ingalls, United States Surveyor General for Arizona, bearing date of the 16 day of Sept, 1910, I have well, faithfully, and truly, in my own proper person, and in strict conformity with the instructions furnished by the United States Surveyor General for Arizona, the Manual of Surveying Instructions, and the laws of the United States, surveyed all those parts or portions of

The Re-survey of Fifth Standard Parallel North through Ranges 13-16 West inclusive

of the Gila and Salt River Basins meridian, in the Territory of Arizona, which are represented in the foregoing field notes as having been surveyed 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 United States Surveyor General for Arizona and in the specific manner described in the field notes, and that the foregoing are the original field notes of such survey.

Jesse B. Wright  
United States ~~Deputy~~ Surveyor.

Subscribed by said Jesse B. Wright and sworn to before me }  
this 7th day of August, 1911

Frank S. Ingalls  
U.S. Surveyor Gen. for Arizona



APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,

Phoenix, Ariz. March 25, 1912.

The foregoing field notes of the survey of <sup>re</sup> the Fifth Standard Parallel North through Ranges 13, 14, 15 and 16 West, G. & S. R. Meridian, Arizona

executed by Jesse B. Wright M.D. Janssman under his ~~contract~~ <sup>instructions</sup> No. 10, dated September 16, 1910, having been critically examined, and the necessary corrections and explanations made, the said field notes, and the surveys they describe, are hereby approved.

Frank S. Ingalls  
United States Surveyor General.

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

United States Surveyor General.