

BOOK "X"

MAY 1, 1914

# FIELD NOTES

OF THE SURVEY OF THE

South Boundary of Tp. 14 S. Rg. 23 E.

Of the Gila and Salt River Base and Meridian,

In the State of Arizona

EXECUTED BY

John F. Hesse

In the capacity of U. S. Surveyor, under instructions dated *May 22nd, 1912*, issued by the United States Surveyor General to govern surveys included in Group No. *18*, which were approved by the Commissioner of the General Land Office, *June 20th, 1912*, pursuant to authority contained in the Act of Congress dated *June 23rd, 1913*.

Survey commenced *August 13, 1913*

Survey completed *August 19, 1913*

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# INDEX DIAGRAM.

Township 14 South, Range 23 East

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South boundary of Tp. 14 S. Rg. 23 E.

Chains.

Survey commenced August 13, 1913, and executed with a W. and L. E. Gurley transit, not numbered, with solar attachment. The horizontal limb is provided with one double vernier reading to single minutes of arc; which is also the least count of the verniers of the latitude and declination arcs.

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

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

At the cor. of Tps. 14 and 15 S. Rgs. 23 and 24 E.; latitude  $32^{\circ} 09' 24''$  N., longitude  $109^{\circ} 57' 06''$  W.; I set off  $32^{\circ} 09\frac{1}{2}'$  N. on the lat. arc;  $14^{\circ} 39'$  N. on the decl. arc; and, at 5h. 00m. p.m., l.m.t., determine with the solar a meridian and mark a point thereof, on a stone firmly set in the ground, 5 chs. N. of my station.

At 10h 06m. p.m., by my watch, which has correct l.m.t., I observe Polaris at eastern elongation, in accordance with Manual of Instructions, and mark a point in the line thus determined, on a peg driven in the ground, 5 chs. N. of my station.

August 13, 1913.

August 14<sup>1913</sup> At 6h. 30m. a.m., l.m.t., I lay off the azimuth of Polaris,  $1^{\circ} 22'$  to the west, and mark the meridian thus determined, by cutting a small groove in the stone set August 13, on which the meridian falls 0.4 ins. east of the mark determined by the solar.

At 7h. 00m. a.m., l.m.t., I set off  $32^{\circ} 09\frac{1}{2}'$  N. on the lat. arc;  $14^{\circ} 28\frac{1}{2}'$  N. on the decl. arc; and mark a point in the meridian determined with the solar, by a cross on the stone already set 5 chs. N. of my station; this mark falls 0.3 ins. east of the meridian established by the Polaris observation.

The solar apparatus, by p.m., and a.m., observations, defines positions for meridians, respectively about  $0' 21''$  west and  $0' 16''$  east of the meridian established by the Polaris observations; therefore I conclude that the adjustments of the instrument are satisfactory.

The magnetic bearing of the true meridian, at 7h. 15m. a.m., is N.  $13^{\circ} 15'$  E.; the angle thus determined gives the mag. decl.  $13^{\circ} 15'$  E.

From the cor. of Tps. 14 and 15 S. Rgs. 23 and 24 E. which is an iron post marked and witnessed as described by the surveyor general

I run

West, on a random line, along the south boundary of Tp. 14 S. Rg. 23 E., setting temp.  $\frac{1}{4}$  sec. and sec. cors. at intervals of 40.00 chs. and, at 476.26 chs., intersect the east boundary of Tp. 15 S. Rg. 22 E. 263 lks. S. of the cor. of Tps. 14 and 15 S. Rgs. 22 and 23 E. which is a porphyry stone 9 x 9 x 5 ins. above ground firmly set, marked with 6 notches on west and S. edges, and CC on S. face; with a mound of stone 2 ft. base  $1\frac{1}{2}$  ft. high; W. of cor. By running lines west and south from this cor. I determine that, although erroneously marked it is the cor. of Tps. 14 and 15 S. Rgs. 22 and 23 E. therefore I obliterate the CC on the S. face; and mark 6 notches on N. and E. edges.

August 14 and 15, 1913.

August 19<sup>1913</sup> At 7h. 00m. a.m., I set off  $32^{\circ} 09\frac{1}{2}'$  N. on

## South boundary of Tp. 14 S. Rg. 23 E.

## Chains.

the lat. arc;  $12^{\circ} 53\frac{1}{2}'$  N. on the decl. arc; and determine a meridian with the solar at the cor. of Tps. 14 and 15 S. Rgs. 22 and 23 E. and as the falling answers to a correction of  $0^{\circ} 19'$  S. per mile counting from the S. E. cor. of Tp. 14 S. Rg. 23 E.; therefore I run S.  $89^{\circ} 41'$  E. bet. secs. 6 and 31, marking and blazing true line.

Ascend.

- 6.00 Ridge bears N. E. and S. W. descend through dense brush.  
 36.26 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for  $\frac{1}{4}$  sec. cor., marked on brass cap  $\frac{1}{4}$ S31 in N. and S6<sup>1913</sup> 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.  
 37.65 Cross wash 15 lks. wide course S. E.  
 43.00 Cross wash 15 lks. wide course S. E. ascend.  
 51.00 Cross wash 20 lks. wide course S. E.  
 76.26 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

T14S in N.  
 T15S<sup>1913</sup> in S., and  
 R23E in W. half;  
 S31 in N. W.  
 S32 in N. E.  
 S5 in S. E. and  
 S6 in S. W. quadrant; and raise a mound of stone 2 ft.

base  $1\frac{1}{2}$  ft. high, W. of cor. Pits impracticable.

Land, mountainous.

Soil, rocky, 4th. rate.

No timber.

Undergrowth, oak and mesquite.

S.  $89^{\circ} 41'$  E. bet. secs. 5 and 32.

Ascending along S. slope through scattering brush.

- 24.00 Ridge bears N. and S. descend.  
 40.00 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for  $\frac{1}{4}$  sec. cor., marked on brass cap  $\frac{1}{4}$ S32 in N. and S5, 1913 in S. half; and raise a mound of stone 2 ft. base  $1\frac{1}{2}$  ft. high, N. of cor. Pits impracticable.  
 41.50m Cross wash 15 lks. wide course N. E.  
 48.70 Cross wash 18 lks. wide course S. E.  
 61.60 Cross wash 20 lks. wide course S. E. ascend.  
 78.60 Ridge bears N. and S. descend.  
 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,  
 T14S in N.  
 T15S 1913 in S. and  
 R23E in W. half;  
 S32 in N. W.  
 S33 in N. E.  
 S4 in S. E. and  
 S5 in S. W. quadrant; and raise a mound of stone 2 ft. base  $1\frac{1}{2}$  ft. high, W. of cor. Pits impracticable.  
 Land, mountainous.  
 Soil, rocky, 4th. rate.  
 No timber.  
 Undergrowth, mesquite.

S.  $89^{\circ} 41'$  E. bet. secs. 4 and 33.

Descend through scattering brush.

- 6.80 Cross wash 8 lks. wide course S. ascend.  
 15.90 Ridge bears N. E. and S. W.  
 25.60 Ridge bears N. and S. descend.  
 40.00 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for  $\frac{1}{4}$  sec. cor., marked on brass cap  $\frac{1}{4}$ S33 in N.

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South boundary of Tp. 14 S. Rg. 23 E.

Chains.	
54.50	and S4 1913 in S. half; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Cross wash 8 lks. wide course N. E. and over level land, through dense brush.
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 T14S in N. T15S 1913 in S. and R23E in W. half; S33 in N. W. S34 in N. E. S3 in S. E. and S4 in S. W. quadrant; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, level and mountainous. Soil, rocky; 4th. rate. No timber. Undergrowth, Mesquite.
40.00	S. 89° 41' E. bet. secs. 3 and 34 Over nearly level land through dense brush. Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for $\frac{1}{4}$ sec. cor., marked on brass cap $\frac{1}{4}$ S34 in N. and S3 1913 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., 24 ins. in the ground for cor. of secs. 2, 3, 34 and 35 marked on brass cap T14S in N. T15S 1913 in S. and R23E in W. half; S34 in N. W. S35 in N. E. S2 in S. E. and S3 in S. W. 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. Soil, sandy loam mixed with gravel, dry, coarse texture, 2nd. rate. No timber. Undergrowth, mesquite.
40.00	S. 89° 41' E. bet. secs. 2 and 35. Over nearly level land, through dense brush. Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for $\frac{1}{4}$ sec. cor., marked on brass cap $\frac{1}{4}$ S35 in N. and S2 1913 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., 24 ins. in the ground for cor. of secs. 1, 2, 35 and 36, marked on brass cap T14S in N. T15S 1913 in S. and R23E in W. half; S35 in N. W. S36 in N. E. S1 in S. E. and S2 in S. W. 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 mixed with gravel, dry, medium texture 1st. rate.

South boundary of Tp. 14 S. Rg. 23 E.

Chains. No timber.  
Undergrowth, mesquite.

S. 89° 41' E. bet. secs. 1 and 36.  
Over nearly level land, through dense brush.

8.30 Cross road bears N. W. and S. E.  
30.90 Cross road bears N. E. and S. W.  
40.00 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for  $\frac{1}{4}$  sec. cor., marked on brass cap  $\frac{1}{4}$ S36 in N. and S1 1913. in S. half; and raise a mound of stone 2 ft. base  $1\frac{1}{2}$  ft. high, N. of cor. Pits impracticable.  
40.90 Cross wash 100 lks. wide course N. E.  
57.86 Cross road bears N. E. and S. W.  
80.00 The cor. of Sps. 14 and 15 S. Rgs. 23 and 24 E. which has been previously described.

NOTE: ~~August 19.~~ At this cor. I set off 12° 48 $\frac{1}{2}$ ' N. on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is 32° 09 $\frac{1}{2}$ ' N.

August 19, 1913.

BOUNDARIES OF TOWNSHIP 14 SOUTH, RANGE 23 EAST  
Latitude, Departures and Closing Errors.

Lines designated.	Bearing.	Dist.	Latitudes		Departures.	
			N	S	E	W
		Chs.	Chs.	Chs.	Chs.	Chs.
West boundary	South.	472.44		472.44		
South boundary	S89° 41' E	476.26		2.63	476.26	
East boundary	N. O. 12' E.	360.90	360.90		.21	
	N. O. 4' E.	79.92	79.92		.09	
	N. O. 9' E.	40.00	40.00		.10	
bet. secs. 3608	S89° 16' W	40.10		0.51		40.10
	S89° 28' W	40.18		0.37		40.18
	S89° 14' W	40.18		0.53		40.18
	S89° 23' W	40.16		0.43		40.16
	S89° 15' W	40.08		0.52		40.08
North boundary	N89° 55' W	40.00	0.06			40.00
	S87° 56' W	40.36		1.45		40.33
	S89° 36' W	40.15		0.28		40.15
	S88° 43' W	39.96		0.90		39.95
	S89° 20' W	38.20		0.44		38.20
	N89° 26' W	40.25	0.39			40.25
	S89° 42' W	36.54		0.20		36.54
Convergency						0.45
Totals			481.27	480.70	476.66	476.57
			480.70		476.57	
Error in latitude			0.57			
						0.09
Error in dep.						

General Description

The southwestern and northwestern portions of this township are mountainous, the remainder of the township being nearly level land and generally fertile soil. There is no water or timber in the township.

*John P. Heese*  
U. S. Surveyor.

CERTIFICATE OF ASSISTANTS.

We, the undersigned, hereby certify upon honor that we assisted, to the best of our skill and ability,  
John F. Hesse, U. S. Surveyor, during the periods and in the capacities  
 stated opposite our several signatures, in surveying all those parts or portions of the South  
boundary of Tp. 14 S. Rg. 23 E.

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

NAME.	PERIOD OF SERVICE.		CAPACITY.
	BEGUN.	ENDED.	
<i>C. T. Robinson</i>	June 7, 1913	Sept. 5, 1913	Axman
<i>F. G. Ayers</i>	August 10, 1913	Sept. 5, 1913	Chainman
<i>C. C. Keehey</i>	March 18, 1913	Sept. 5, 1913	Chainman
<i>J. S. Hughes</i>	Feb. 9, 1913	Sept. 5, 1913	Flagman
<i>J. B. Gardner</i>	August 12, 1913	Sept 5, 1913	Cornerman

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

*John F. Hesse*  
 U. S. Surveyor.

FINAL OATH OF UNITED STATES SURVEYOR.

I, John F. Hesse, U. S. Surveyor, do solemnly swear that, in pursuance of special instructions received from the U. S. Surveyor General for Arizona, for Group 18 bearing date of the 22nd day of May, 1912, I have well, faithfully, and truly, in my own proper person, and in strict conformity with said instructions, the Manual of Surveying Instructions, and the laws of the United States, surveyed all those parts or portions of the South boundary of Tp. 14 S. Rg. 23 E.

of the Gila and Salt River Base and Meridian, in the State of Arizona, which are represented in the foregoing field notes as having been executed by me, and under my direction; and I do further solemnly swear that all the corners of said survey have been established and perpetuated in strict accordance with the Manual of Surveying Instructions, and the special written instructions of the U. S. Surveyor General for Arizona and in the specific manner described in the field notes, and that the foregoing are the original field notes of such survey.

*John F. Hesse*  
U. S. Surveyor.

Subscribed by said John F. Hesse, and sworn to before me }  
this 11th day of May, 1914



*Frank S. Ingalls*  
Surveyor General of Arizona.

APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,

Phoenix, Arizona, July 21, 1914

The foregoing field notes of the survey of the South boundary of Township N° 14 South, Range N° 23 East of the Gila and Salt River Base and Meridian, Arizona.

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

*Frank S. Ingalls*  
U. S. Surveyor General of Arizona.

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