

Book K

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BOOK 2321

FIELD NOTES

OF THE SURVEY OF THE

West boundary of Tp. 12 N. Rg. 2 East.

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Of the Gila and Salt River Meridian,

Territory of Arizona

AS SURVEYED BY

John F. Hesse, United States Deputy Surveyor,

Under his Contract No. 158, dated June 4th. 1909., 19

Survey commenced September 22, 1910., 19

Survey completed September 24, 1910., 19

2321

2321

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BOOK 2321

NAMES AND DUTIES OF ASSISTANTS.

Len Hall

Chairman

R. A. Coombs

Chairman

A. N. Oliver

Axman

A. E. Lyon

Flagman

83
13

BOOK 2321
INDEX DIAGRAM.

Township 12 N, Range 2 E

3	6	5	4	3	2	1
3	7	8	9	10	11	12
3	18	17	16	15	14	13
2	19	20	21	22	23	24
2	30	29	28	27	26	25
1	31	32	33	34	35	36

Meanders Page

8410
BOOK 2321

PRELIMINARY OATHS OF ASSISTANTS.

WE, Len Hall and R. A. Coombs
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 the west boundary of Tp. 13 N. Rg. 3 E.

Len Hall, Chainman.
R. A. Coombs, Chainman.

Subscribed and sworn to before me this 22nd.
day of September, 1910, 19



John P. Hesse
U.S. Deputy Surveyor

WE, _____ and _____
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 _____

_____, Moundman.
_____, Moundman.

Subscribed and sworn to before me this _____
day of _____, 19



WE, I. A. N. Oliver and _____
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 the west boundary of Tp. 13 N. Rg. 3 E.

I. A. N. Oliver, Axman.
_____, Axman.

Subscribed and sworn to before me this 22nd.
day of September, 1910, 19



John P. Hesse
U.S. Deputy Surveyor

I, A. E. Lyon, 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 survey of the west boundary of Tp. 13 N. Rg. 3 E.

A. E. Lyon, Flagman.

Subscribed and sworn to before me this 22nd.
day of September, 1910, 19



John P. Hesse
U.S. Deputy Surveyor

No notary available without loss of time and great expense.

West boundary of Tp. 12 N. Rg. 2 E.

Chains.

Survey commenced September 22, 1910 and executed with an A. Lietz Co. light mountain transit No. 5631, with solar attachment. The horizontal limb is provided with two double verniers placed opposite to each other reading to single minutes of arc, which is also the least count of the verniers of the latitude and declination arcs. The instrument was examined, tested on the true meridian at Phoenix, found correct, and was approved by the surveyor general for Arizona.

I examine the adjustments of the transit, and find them correct, then, to test the solar apparatus, by comparing its indications, resulting from solar observations made during a.m., and p.m. hours, with a meridian determined by observations on Polaris, I proceed as follows: At the cor. of Tps. 11 and 12 N. Rgs. 1 and 2 E. latitude $34^{\circ} 22' 56''$ N., longitude $112^{\circ} 12' 06''$ W.; I set off $34^{\circ} 23' N.$ on the latitude arc; $0^{\circ} 24' N.$ 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 the cor. At 7h. 28m. 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.

September 22, 1910.

September 23: At 6h. 30m. a.m., l.m.t., I lay off the azimuth of Polaris, $1^{\circ} 25'$ to the west, and mark the meridian thus determined, by cutting a small groove in the stone set September 22, on which the meridian coincides with the mark determined by the solar.

At 7h. 00m. a.m., l.m.t., I set off $34^{\circ} 23' N.$ on the lat. arc; $0^{\circ} 10' N.$ 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 coincides with the meridian established by the Polaris observation.

The solar apparatus, by p.m. and a.m. observations, defines positions for meridians, which coincide with 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. $14^{\circ} 30'$ W.; the angle thus determined gives the mag. decl. $14^{\circ} 30'$ E.

I commence at the cor. of Tps. 11 and 12 N. Rgs. 1 and 2 E. which is a most badly rotted with marks nearly obliterated, I destroy this cor and re-establish it in the same place as follows:

Set a malpais stone 24 X 12 X 8 ins. 12 ins. in the ground for cor. of Tps. 11 and 12 N. Rgs. 1 and 2 E. marked 12N on N. E., 2E on S. E., 11N on S. W. and 1E on N. W. face; with 6 notches on each edge, and raise a mound of stone 3 ft. base $1\frac{1}{2}$ ft. high S. of cor. Pits impracticable. Thence I run

North bet. secs. 31 and 36

Over rolling land through scattering underbrush.

12.90 Cross drain 5 lks. wide course S. E.

16.35 Cross drain 5 lks. wide course S. E.

30.00 Cross drain 5 lks. wide course S. E.

40.00 Set a malpais 18 x 14 x 8 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 3 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

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

57.70 Cross road bears E. and W.

59.24 Cross Big Bug Creek 40 lks. wide course E. Clear running water.

West boundary of T1. 12 N. Rg. 3 E.

Chains.	
61.82	Cross drain 5 lks. wide course S. E.
79.65	Cross drain 5 lks. wide course S. E.
80.00	Point for cor. falls in open cut 15 ft. long 4 ft. wide where the cor. would be destroyed if established scpt
80.21	Set a schist stone 20 x 10 x 4 ins. 15 ins. in the ground for witness cor. of secs. 25, 30, 31 and 36, marked W C on N. E. face; with 1 notch on S. and 5 notches on N. edges; 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, catclaw and oak brush.

	North bet. secs. 25 and 30 From true point for cor. Ascend through underbrush.
.31	The witness cor. of secs. 25, 30, 31 and 36.
12.72	Ridge bears E. and W. descend.
31.06	Cross telephone line bears S. W. and N. E.
21.28	Cross wash 15 lks. wide course E. and along E. slope of mountain.
40.00	Set a quartzite stone 20 x 10 x 8 ins. 15 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.
57.29	Cross wash 20 lks. wide course S. E. and ascend.
37.12	Ridge bears E. and W. descend.
77.00	Cross wash 15 lks. wide course S. E.
79.10	Cross road bears N. E. and S. W.
80.00	Set a granite stone 18 x 8 x 8 ins. 12 ins. in the ground for cor. of secs. 19, 24, 25 and 30, marked with 2 notches on S. and 4 notches on N. edges; 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, catclaw and oak brush. Mountainous land 80.00 chs. September 23; At this cor. I set off 0° 04' N. on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is 34° 24½' N.

	North bet. secs. 19 and 24 Descend through dense brush.
8.40	Cross wash 25 lks. wide course S. E. over rolling land
40.00	Set a slate stone 20 x 12 x 4 ins. 15 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.
43.64	Ridge bears S. W. and N. E.
58.34	Cross drain 5 lks. wide course W.
68.65	Ridge bears E. and W.
80.00	Set a quartz stone 20 x 6 x 6 ins. 15 ins. in the ground for cor. of secs. 13, 18, 19 and 24, marked with 3 notches on S. and N. edges; 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, catclaw and oak brush. Mountainous land or land covered with dense undergrowth 80.00 chs.

September 23, 1910.

West boundary of Tp. 12 N. Rg. 3 E.

Chains.	September 24: At 8h. 00m. a.m., l.m.t., I set off $34^{\circ} 25\frac{1}{2}'$ N. on the lat. arc; $0^{\circ} 15'$ 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. Descend N. E. slope through dense brush.
3.55	Cross wash 15 lks. wide course N. W. ascend S. W. slope.
18.18	Ridge bears E. and W.
24.24	Cross wash 30 lks. wide course S. W.
29.55	Ridge bears N. W. and S. E.
31.10	Road bears N. W. and S. E.
40.00	Set a white Quartz stone 18 x 6 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.
76.40	West side of malpais butte 300 ft. high.
80.00	Set a malpais stone 18 x 10 x 6 ins. 12 ins. in the ground for cor. of secs. 7, 12, 13 and 18, marked with 4 notches on S. and 2 notches on N. 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, catclaw and oak brush. Mountainous land and land covered with dense undergrowth 80.00 chs.
	—————
	North bet. secs. 7 and 12 Descend N. W. slope through dense brush
7.20	Cross drain 5 lks. wide course N. W.
11.35	Cross drain 5 lks. wide course N. W.
24.50	Cross wash 35 lks. wide course E. ascend.
25.08	Road bears E. and W.
29.08	Cross drain 5 lks. wide course S. E.
29.55	Cross telephone line bears N. W. and S. E.
32.85	Road bears N. W. and S. E.
33.94	Cross power line N. W. and S. E.
38.00	Cross wash 10 lks. wide course S. E.
40.00	Set a quartz stone 20 x 8 x 8 ins. 15 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.
48.50	Rocky point. Descend.
53.65	Cross wash 15 lks. wide course N. W.
80.00	Set a quartz 20 x 6 x 6 ins. 15 ins. in the ground for cor. of secs. 1, 6, 7 and 12, marked with 5 notches on S. and 1 notch on N. 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, catclaw and oak brush. Mountainous land and land covered with dense undergrowth 80.00 chs. September 24: At this cor. I set off $0^{\circ} 19\frac{1}{2}'$ S. on the decl. arc; and observe the sun on the meridian at noon; the resulting lat. is $34^{\circ} 27'$ N. ✓
	—————
	North bet. secs. 1 and 6 Descend through dense brush.
12.35	Road bears N. W. and S. E.
15.91	Cross Agua Fria River 50 lks. wide course E. clear running water 10 lks. wide 3 ins. deep. Ascend.
16.70	Enter wash course SW. 30 lks. wide and along in wash.

West boundary of Tp. 13 N. Rg. 2 E.

Chains.
 40.00 Point for $\frac{1}{4}$ sec. cor. fallen in wash.
 40.15 Leave wash bears N. W.
 41.90 Set a malpais stone 20 x 10 x 4 ins. 15 ins. in the ground for W. C. $\frac{1}{4}$ sec. cor. mkd. W. C. $\frac{1}{4}$ on W. face; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 59.10 Cross wash 10 lks. wide course S. W.
 78.72 Intersect 3rd. standard parallel N. 1.35 chs. E. of the standard cor. of Tps. 13 N. Rgs. 1 and 2 E. and set a quartz stone 18 x 8 x 8 ins. 12 ins. in the ground for closing cor. of Tps. 13 N. Rgs. 1 and 2 E. marked C C 13N on S., 3E on E., 1E on W. faces; with 6 grooves on S., E., and W. faces; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, S. of cor. Pits impracticable.
 The standard cor. of Tps. 13 N. Rgs. 1 and 2 E. is a white quartz rock marked and witnessed as described by the surveyor general but poorly set. I re-set stone firmly in the ground and re-mark the notches and in addition mark the stone SC13N on N., 3E on E., and 1E on W. faces; and rebuild 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, catclaw and oak brush.
 Mountainous land and land covered with dense undergrowth 78.72 chs.

September 24, 1910.

Latitudes, departures and closing errors.

Line Designated.	True bearing.	Distance.	Latitudes.		Departures.	
			N.	S.	E.	W.
W. bdy.	North,	478.72	478.72			
N. "	East,	158.29			158.29	
	N. 89° 42' E.	40.48	.21		40.48	
	N. 89° 00' E.	39.59	.70		39.58	
Subs.	South,	480.00		480.00		
S. bdy.	West,	238.53				238.53
Convergency,						.25
			479.63	480.00	238.60	238.53
				479.63	238.53	
Error in lat.				.37	.07	
					Error in dep.	

GENERAL DESCRIPTION.

This township is rough and mountainous. There is no timber. The Agua Fria River runs through the township from N. W. to S. E.

John P. Hesse
U.S. Deputy Surveyor.

FINAL OATHS OF DEPUTY SURVEYOR AND HIS ASSISTANTS.

BOOK 2321

89
5

LIST OF NAMES.

A list of the names of the individuals employed by John F. Hesse

....., 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 the west boundary of Tp. 13 N. Rg. 3 E. showing the respective capacities in which they acted:

Len Hall , *Chainman.*

R. A. Coombs , *Chainman.*

..... , *Moundman.*

..... , *Moundman.*

A. N. Oliver , *Axman.*

..... , *Axman.*

A. E. Lyon , *Flagman.*

FINAL OATH OF ASSISTANTS.

We hereby certify that we assisted John F. Hesse

....., United States Deputy Surveyor, in surveying all those parts or portions of the west boundary of Tp. 13 N. Rg. 3 E.

..... of the Gila and Salt River 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

Len Hall , *Chainman.*

R. A. Coombs , *Chainman.*

..... , *Moundman.*

..... , *Moundman.*

A. N. Oliver , *Axman.*

..... , *Axman.*

A. E. Lyon , *Flagman.*

Subscribed and sworn to before me this 24th. day of September, 1910., 19



John F. Hesse
U. S. Deputy Surveyor

704
BOOK 2321

FINAL OATH OF UNITED STATES DEPUTY SURVEYOR.

I, John F. Hesse, United States Deputy Surveyor, do solemnly swear that, in pursuance of a contract received from Frank S. Ingalls United States Surveyor General for Arizona, bearing date of the 4th day of June, 1909, 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 west boundary of Tp. 13 N. Rg. 3 E.

of the Gila and Salt River 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.

John F. Hesse
United States Deputy Surveyor.

Subscribed by said John F. Hesse, and sworn to before me }
this 17th day of November, 1910

Frank S. Ingalls
U. S. SURVEYOR GENERAL
for Arizona.



APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,

Shreveport, La. March 18, 1912

The foregoing field notes of the survey of the West Boundary of Tp. 13 N. Rg. 3 E. Gila and Salt River Base and Meridian, Arizona

executed by John F. Hesse, U.S. Dep. Sur. under his contract No. 158, dated June 4, 1909 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.