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{Book A}  
1893

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BOOK 1893

# FIELD NOTES

OF THE SURVEY OF THE

East and South boundary of Tp. 21 S. Rg. 28 E.

1893-

1893

Of the Gila and Salt River Meridian,

Territory of Arizona

AS SURVEYED BY

John F. Hesse, United States Deputy Surveyor,

Under his Contract No. 135, dated June 16, 1905. 190

Survey commenced August 20, 1905. 190

Survey completed August 25, 1905. 190

NAMES AND DUTIES OF ASSISTANTS.

BOOK 1893

W. W. Oliver Chairman.

R. M. Hyde Chairman.

Frank Robertson Axman.

H. S. Young Flagman.

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# INDEX DIAGRAM.

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BOOK 1893

WE, W. W. Oliver and B. M. Hyde  
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 of the S. <sup>6</sup> bdy of Tp. 21 S. Rg. 28 E.

W. W. Oliver, Chainman.  
B. M. Hyde, Chainman.

Subscribed and sworn to before me this 20 th.  
day of August, 190 5.



John A. Hesse  
U. S. Dep. 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 \_\_\_\_\_, 190 \_\_\_\_\_



W. I. Frank Robertson 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 me to the best of my skill and ability, in the survey of of the S. <sup>and 6</sup> bdy of Tp. 21 S. Rg. 28 E.

Frank Robertson, Axman.  
\_\_\_\_\_, Axman.

Subscribed and sworn to before me this 20th.  
day of August, 190 5.



John A. Hesse  
U. S. Dep. Surveyor

I, H. S. Young, 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 S. <sup>and 6</sup> bdy of Tp. 21 S. Rg. 28 E.

H. S. Young, Flagman.

Subscribed and sworn to before me this 20th.  
day of August, 190 5.



John A. Hesse  
U. S. Dep. Surveyor

No notary available without great expense and loss of time.

Survey commenced August 20, 1905, and executed with a Young and Sons light mountain transit, No. 7532 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. 21 and 22 S. Rgs. 28 and 29 E.: latitude  $31^{\circ}33'07''$  N., longitude  $109^{\circ}24'48''$  W.; I set off  $31^{\circ}33'$  N. on the lat. arc;  $12^{\circ}27'1/2'$  N. on the dec'l. arc; and, at 3h. 00' 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 9h. 35M. 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 20, 1905.

August 21: At 6 a.m., l.m.t., I lay off the azimuth of Polaris,  $1^{\circ}24.5'$  to the west, and mark the meridian thus determined, by cutting a small groove in the stone set August 20, on which the meridian falls on the mark determined by the solar.

At 7h. 00m. a.m., l.m.t., I set off  $31^{\circ}33'$  N. on the lat. arc;  $12^{\circ}15'$  N. on the dec'l. 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 observation; 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.  $12^{\circ}30'$  W.; the angle thus determined gives the mag. dec'l.  $12^{\circ}30'$  E.

The cor. of Tps. 21 and 22 S. Rgs. 28 and 29 E. is a granite stone 20 x 8 x 8 ins. poorly set, marked with 6 notches on each edge; with a mound of stone S. W. of cor. I reset the stone 15 ins. in the ground and in addition to the notches I mark 21S on N. E., 29E on S. E., 22S on S. W. and 28E on N. W. faces of the stone; and obliterate the old mound of stone and raise a mound of stone 3 ft base 2 ft. high, S. of cor. Pits impracticable.

From this cor. I now run

West on a random line, along the S. bdy. of Tp. 21 S. Rg. 28 E. setting temp.  $\frac{1}{4}$  sec. and sec. cors. at intervals of 40.00 chs.; and, at 493.39 chs., intersect the west bdy. of Tp. 22 S. Rg. 27 E. 6.93 chs. S. of the cor. of Tps. 21 and 22 S. Rgs. 27 and 28 E. and set a granite stone 18 x 10 x 7 ins. 12 ins. in the ground for closing cor. of Tps. 21 and 22 S. Rg. 28 E., marked CC on E.; with 6 grooves on N., S., and E. faces; dig pits, 30 x 24 x 12 ins., crosswise on each line, N., and S. 4 ft. and E. of stone, 8 ft. dist.; and raise a mound of earth 5 ft. base, 2 1/2 ft. high, E. of cor.

The old cor. of Tps. 21 and 22 S. Rgs. 27 and 28 E. is a granite stone 10 x 6 x 6 ins. marked with 6 notches on each edge with pits obliterated. I destroy this old cor. and in the same place set a limestone 18 x 10 x 6 ins. 12 ins. in the ground, for cor. of Tps. 21 and 22 S. Rg. 27 E., on W. bdy. of Tp. 21 S. Rg. 28 E., marked with 6 notches on N. and W. edges; dig pits 30 x 24 x 12 ins.

Chains on each line, N. and S. 4 ft. and W. of stone 8 ft. dist. and raise a mound of earth, 5 ft. base, 2 1/2 ft. high, W. of cor.

August 21, 1905.

August 22: At 7h. 00m. a.m. l.m.t. I set off 31° 33' N. on the lat. arc; 11° 55' N. on the dec'l. arc; and determine a meridian with the solar at the closing cor. of Tps. 21 and 22 S. Rg. 28 E.

Thence I run

East bet. secs. 6 and 31

Over level land through dense brush.

53. 39 Set a limestone 18 x 12 x 7 ins. 12 ins. in the ground for 1/4 sec. cor. marked 1/4 on N. face; dig pits 18 x 18 x 12 ins. E. and W. of stone 3 ft. dist. and raise a mound of earth 3 1/2 ft. base 1 1/2 ft. high N. of cor.

56. 25 Cross road bears N. W. and S.E.

93. 39 Set a limestone 18 x 8 x 5 ins. 12 ins. in the ground for cor. of secs. 5, 6 31 and 32 marked with 5 notches on E. and 1 notch on W. edges; and raise a mound of stone 2 ft. base 1 1/2 ft. high W. of cor. Pits impracticable.

Land level.

Soil, rocky and sandy; 1 st. and 3 rd. rate.

No timber.

Undergrowth, greasewood.

Land covered with dense undergrowth 93.39 chs.

East bet. secs. 5 and 32.

Over level land through dense brush.

22.25 Cross wash 20 lks. wide course S. W.

40.00 Set a limestone 18 x 7 x 5 ins. 12 ins. in the ground for 1/4 sec. cor. marked 1/4 on N. face; and raise a mound of stone 2 ft. base 1 1/2 ft. high, N. of cor. Pits impracticable.

41.00 Cross wash 10 lks. wide course S. E.

56.75 Cross wash 10 ks. wide course S. W.

80.00 Set a limestone 18 x 10 x 5 ins. 12 ins. in the ground for cor. of secs. 4, 5, 32 and 33, marked with 4 notches on E. and 2 notches on W. edges; and raise a mound of stone 2 ft. base 1 1/2 ft. high, W. of cor. Pits impracticable.

Land level.

Soil, sandy and rocky; 1st. and 4th. rate.

No timber.

Undergrowth, mesquite and greasewood.

Land covered with dense undergrowth 80.00 chs.

August 22; at this cor. I set off 11° 50' N. on the dec'l arc; and observe the sun on the meridian at noon; the resulting lat. is 31° 33' N.

East bet. secs. 4 and 33.

Over rolling land through dense brush.

5.00 Cross wash 25 lks. wide course S. W.

20.50 Cross wash 5 lks. wide course S. W.

30.25 Cross wash 10 lks. wide course S. W.

40.00 Set a granite 18 x 8 x 4 ins. 12 ins. in the ground for 1/4 sec. cor. marked 1/4 on N. face; and raise a mound of stone 2 ft. base 1 1/2 ft. high N. of cor. Pits impracticable.

40.75 Cross wash 10 lks. wide course S. W.

47.50 Cross wash 10 lks. wide course S. W.

53.00 Cross wash 15 lks. wide course S. W.

80.00 Set a sandstone 20 x 10 x 4 ins. 15 ins. in the ground for cor. of secs. 3, 4, 33, and 34, marked with 3 notches on E. and W. edges; and raise a mound of stone 2 ft. base 1 1/2 ft. high, W. of cor. Pits impracticable.

Land; rolling.

Soil, stony; 4th. rate.

No timber.

Undergrowth, greasewood.

Land covered with dense undergrowth 80.00 chs.

## South boundary of Tp. 21 S. Rg. 28 E.

Chains.

East bet. secs. 3 and 34.  
Over rolling mountainous land.

4.75 Cross wash 15 lks. wide course S. W.  
27.50 Cross wash 10 lks. wide course S. E.  
32.00 Cross wash 8 lks. wide course S.  
40.00 Set a granite stone 18 x 6 x 5 ins. 12 ins. in the ground for  $\frac{1}{4}$  sec. cor. marked  $\frac{1}{4}$  on N. face; dig pits 18 x 18 x 12 ins. E. and W. of stone, 3 ft. dist.; and raise a mound of earth 3 1/2 ft. base 1 1/2 ft. high, N. of cor.

41.50 Cross wash 12 lks. wide course S. E.  
45.50 Cross wash 5 lks. wide course S. W.  
49.00 Cross wash 12 lks. wide course S. E.  
52.00 Cross wash 8 lks. wide course S. E.  
59.25 Cross wash 10 lks. wide course S. E.  
71.00 Cross dry creek 25 lks. wide course S. W.  
80.00 Set a granite stone 18 x 10 x 10 ins. 12 ins. in the ground for cor. of secs. 2, 3, 34, and 35, marked with 2 notches on E. and 4 notches on W. edges; dig pits 18 x 18 x 12 ins. in each sec. 5 1/2 ft. dist.; and raise a mound of earth 4 ft. base 2 ft. high W. of cor.

Land, mountainous.  
Soil, stony 4th. rate.  
No timber.  
Undergrowth greasewood.  
Mountainous land 80.00 chains.

August 22, 1905.

August 23: At 7h. 00m. a.m. l.m.t. I set off  $31^{\circ} 33' N.$  on the lat. arc;  $11^{\circ} 35' N.$  on the decl. arc; and determine a meridian with the solar at the cor. of secs. 2, 3, 34 and 35.  
Thence I run  
East bet. secs. 2 and 35.  
Over rolling mountainous land through dense brush.

5.20 Cross road bears N. W. and S. E.  
22.50 Cross wash 8 lks. wide course S. E.  
30.50 Cross wash 5 lks. wide course S.  
40.00 Set a granite stone 18 x 6 x 6 ins. 12 ins. in the ground for  $\frac{1}{4}$  sec. cor. marked  $\frac{1}{4}$  on N. face; and raise a mound of stone 2 ft. base 1 1/2 ft. high, N. of cor. Pits impracticable.

63.00 Cross wash 12 lks. wide course S. E.  
66.00 Cross wash 8 lks. wide course S. W.  
73.50 Cross wash 4 lks. wide course S. W.  
77.50 Cross wash 5 lks. wide course S. W.  
80.00 Set a granite stone 18 x 12 x 6 ins. 12 ins. in the ground for cor. of secs. 1, 2, 35 and 36 marked with 1 notch on E. and 5 notches on W. edges; and raise a mound of stone 2 ft. base 1 1/2 ft. high W. of cor. Pits impracticable.

Land, mountainous.  
Soil, stony; 4th. rate.  
No timber.  
Undergrowth, mesquite.  
Mountainous land or land covered with dense undergrowth  
80.00 chains.

August 23: At this cor. I set off  $11^{\circ} 30' N.$  on the decl. arc; and observe the sun on the meridian at noon the resulting lat. is  $31^{\circ} 33' N.$

East bet. secs. 1 and 36  
Along rough S. slope of mountain.

23.25 Cross wash 12 lks. wide course S.  
28.00 Cross wash 10 lks. wide course S. W.  
37.00 Cross wash 12 lks. wide course S. W.  
39.00 Cross wash 8 lks. wide course S. E.  
40.00 Set a granite stone 18 x 14 x 8 ins. 12 ins. in the ground for  $\frac{1}{4}$  sec. cor. marked  $\frac{1}{4}$  on N. face; and raise a mound of stone 2 ft. base 1 1/2 ft. high N. of cor. Pits impracticable.

53.00 Cross wash 15 lks. wide course S.

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South boundary of Tp. 21 S. Rg. 28 E.

chains

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73.25 Cross wash 10 lks. wide course S. E.  
 75.00 Cross wash 10 lks wide course S.  
 79.25 Cross wash 15 lks. wide course S. W.  
 80.00 The cor. of Tps. 21 and 22 S. Rgs. 28 and 29 E.  
 Land, mountainous.  
 Soil, rocky; 4th. rate.  
 No timber.  
 Mountainous land 80.00 chains.

August 23, 1905.



chains.

August 24: At 7h. 00m. a.m. l.m.t. I set off  $31^{\circ} 33' N.$  on the lat. arc;  $11^{\circ} 15' N.$  on the dec'l. arc; and determine a meridian with the solar at the cor. of Tps. 21 and 22 S. Rgs. 28 and 29 E.

Thence I run

North bet. secs. 31 and 36.

Ascending S. slope of mountain.

1.00

Cross wash 15 lks. wide course S. W.

1.75

Cross same wash 15 lks. wide course SE.

2.50

Cross same wash 15 lks. wide course SW.

8.70

Cross wash 8 lks. wide course S. W.

15.00

Cross wash 12 lks. wide course S. W.

21.25

Cross wash 8 lks. wide course S. W. and cross and re-cross same to

35.50

Leave wash bears N. W. and ascent becomes very steep.

40.00

Set a porphyry stone  $24 \times 12 \times 8$  ins. 18 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.

50.50

Top of main ridge bears E. and W. and descend.

60.25

Cross wash 10 lks. wide course N. E..

80.00

Set a granite stone  $28 \times 10 \times 4$  ins. 21 ins. in the ground for cor. of secs. 25, 30, 31 and 36, marked with 1 notch on S. and 5 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, stony 4th. rate.

No timber.

Mountainous land 80.00 chains.

North bet. secs. 25 and 30.

Descending N. slope of mountain.

20.75

Cross wash 3 lks. wide course N. W.

25.00

Cross wash 8 lks. wide course N. W.

30.75

Cross wash 15 lks. wide course N. W.

40.00

Set a granite stone  $18 \times 10 \times 8$  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 2 ft. base  $1 \frac{1}{2}$  ft. high W. of cor. Pits impracticable.

48.00

Cross wash 10 lks. wide course N. W.

80.00

Set a sandstone  $18 \times 10 \times 5$  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; dig pits  $18 \times 18 \times 12$  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, mountainous.

Soil, rocky, 4th. rate.

No timber.

Mountainous land 80.00 chains.

At this cor. I set off  $11^{\circ} 09' \frac{1}{2} N.$  on the dec'l. arc; and observe the sun on the meridian at noon, the resulting lat. is  $31^{\circ} 35' N.$

North bet. secs. 19 and 24.

Over rolling mountainous land.

11.45

Cross road bears E. and W.

19.00

Cross wash 20 lks. course W.

40.00

set a granite stone  $20 \times 20 \times 6$  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.

74.00

Cross wash 10 lks. wide course W.

80.00

Set a granite stone  $18 \times 10 \times 6$  ins. 12 ins. in the ground for cor. of secs. 13, 18, 19 and 24, marked with 3 notches on N. and S. edges; and raise a mound of stone 2 ft. base  $1 \frac{1}{2}$  ft. high W. of cor. Pits impracticable.

Land mountainous.

Soil, sandy and stony; 2nd. and 4th. rate.

No timber.

Mountainous land 80.00 chains.

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chains

August 24, 1905.

August 25; At 7h. 00m. a.m. l.m.t. I set off  $31^{\circ} 36' N.$  on the lat. arc;  $10^{\circ} 54' N.$  on the dec'l. 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.  
 Along rolling W. slope of foothills through dense brush.  
 40.00 Set a limestone  $18 \times 10 \times 8$  ins. 12 ins. in the ground for  $\frac{1}{4}$  sec. cor. marked  $\frac{1}{4}$  on W. face; dig pits  $18 \times 18 \times 12$  ins. N. and S. of stone 3 ft. dist., and raise a mound of earth  $3 \frac{1}{2}$  ft. base  $1 \frac{1}{2}$  ft. high W. of cor.  
 66.45 Cross dim road bears N. E. and S. W.  
 70.40 Cross wash 20 lks. wide course S. W.  
 78.85 Cross dim road bears N. E. and S. W.  
 80.00 Set a granite stone  $18 \times 10 \times 4$  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; dig pits  $18 \times 18 \times 12$  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 mountainous.  
 Soil, sandy; 2nd. rate.  
 No timber.  
 Undergrowth, mesquite.  
 Mountainous land or land covered with dense undergrowth  
 80.00 chains.

North bet. secs. 7 and 12.  
 Over rolling land through dense brush.  
 7.70 Cross road bears N. E. and S. W.  
 35.55 Cross road bears E. and W.  
 40.00 Set a granite stone  $18 \times 10 \times 8$  ins. 12 ins. in the ground for  $\frac{1}{4}$  sec. cor. marked  $\frac{1}{4}$  on W. face; dig pits  $18 \times 18 \times 12$  ins. N. and S. of stone 3 ft. dist. and raise a mound of earth  $3 \frac{1}{2}$  ft. base  $1 \frac{1}{2}$  ft. high W. of cor.  
 65.70 Cross wash 30 lks. wide course W.  
 80.00 Set a granite stone  $18 \times 8 \times 6$  ins. 12 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.  
 August 25; At this cor. I set off  $10^{\circ} 49' N.$  on the dec'l. arc; and observe the sun on the meridian at noon; the resulting lat. is  $31^{\circ} 37 \frac{1}{2}' N.$   
 Land, mountainous.  
 Soil, stony 3rd. and 4th. rate.  
 No timber.  
 Undergrowth, mesquite.  
 Land covered with dense undergrowth 80.00 chains.

North bet. secs. 1 and 6.  
 Ascending rough S. slope of mountain.  
 5.47 Cross fence bears N. W. and S. E.  
 35.52 Cross fence bears N. W. and S. E.  
 40.00 Set a granite stone  $18 \times 12 \times 6$  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.  
 67.50 Top of mountain and descend.  
 81.22 Intersect 4th. Standard Parallel South 47.36 chs. W. of the Standard cor. of Tps. 20 S. Rgs. 28 and 29 E. and set a granite stone  $18 \times 12 \times 12$  ins. 12 ins. in the ground for closing cor. of Tps. 21 S. Rgs. 28 and 29 E., marked C C on S.; with 6 grooves on S., E., and W. faces; from which  
 An oak 10 ins. diam bears S.  $30^{\circ} E.$  38 lks. dist. marked CCT21SR29ES6BT  
 An oak 4 ins. diam. bears S.  $8 \frac{1}{2}^{\circ} W.$  49 lks. dist. marked CCT21SR28ES1BT

East boundary of Tp. 21 S. Rg. 28 E.

Chains.

Land, mountainous.  
Soil, rocky, 4th. rate.  
No timber.  
Mountainous land 81.22 chains.  
Note: I was unable to find the Standard  $\frac{1}{4}$  sec. cor. on the south boundary of sec. 36, although careful and diligent search was made for the cor., and therefore was compelled to run my closing line to the Standard Tp. cor.

August 25, 1905.

*Boundaries, T. 21 S. R. 28 E.*

*Latitudes, departures and closing errors.*

Line designated	True bearing	Distance	Latitudes		Departures	
			N	S	E	W.
East bdy. T. 21 S. R. 28 E	North	481.22	481.22			
4th Standard						
S. bdy. sec 36	West	32.64				32.64
S. bdy. sec 35	West.	80.00				80.00
S. bdy. sec 34	West.	47.20				47.20
Bet. secs. 24 & 3	S. 0° 01' E.	81.09		81.09	02	
Bet. secs. 9 & 10	S. 89° 57' W.	80.16		.07		80.16
Bet. secs 9 & 10	S 0° 02' E	80.00		80.00	.05	
Bet. secs 15 & 16	S 0° 02' E	80.00		80.00	.05	
Bet. secs. 21 & 22	S 0° 02' E	80.00		80.00	.05	
Bet. secs. 27 & 28	S 0° 02' E	80.00		80.00	.05	
Bet. secs. 33 & 34	S 0° 02' E	80.00		80.00	.05	
E. 1/2 S. bdy. T. 21 S. R. 28 E	East	240.00				240.00
Convergence.						.22
Totals			481.22	481.16	240.27	240.22
			481.16		240.22	
	Error in lat.		.06	Error in dep.	.05	

General description.

This Township is rough and mountainous. There is a small creek unnamed running through a narrow gorge in the S.W. cor. of the Tp. There is no timber in the township

*John F. Kesse*  
U. S. Deputy Surveyor.

My surveys were limited to the agricultural lands in this township, in view of which I surveyed only the East half of the township in which are located all the land available for agricultural purposes. My surveys were made carefully and accurately and close well within the allowable limit; thus proving them to be correct. The West half of this township lies upon the Swiss-helm Mountains and is rocky, barren and extremely rough and mountainous and almost unsurveyable and will never be surveyed, as it is all mineral land and is not even of any value for grazing purposes, and consequently there will be no lines to close upon the West boundary of the township. The West boundary of the township runs over the summit of the Swiss-helm Mountains, and would be very difficult to survey as the slopes are very precipitous and broken by deep canyons. The township West of this line has been surveyed. In view of these facts, knowing that my work is correct and that the error is in the West

boundary on account of its extreme roughness, I did not resurvey this line; as I considered that it would cause needless expense which would be incurred for the re-establishment of a line for which there will be no use in the future, and it seemed to me that such expense should be avoided.

Inasmuch as my work will be examined by an Examiner of Surveys, I see no reason for re-running these lines at an additional expense to the Government.

Very respectfully,

*John D. Hesse*  
U. S. Deputy Surveyor.

LIST OF NAMES.

BOOK 1893

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 <sup>and E.</sup> the S. bdy. of Tp. 21 S. Rg. 28 E.

showing the respective capacities in which they acted:

W. W. Oliver ..... Chainman.

B. M. Hyde ..... Chainman.

..... Moundman.

..... Moundman.

Frank Robertson ..... Axman.

~~H. S. Young~~ ..... Axman.

H. S. Young ..... 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 <sup>and E.</sup> S. bdy. of Tp. 21 S. Rg. 28 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.

W. W. Oliver ✓, Chainman.

B. M. Hyde ✓, Chainman.

..... Moundman.

..... Moundman.

Frank Robertson ✓, Axman.

..... Axman.

H. S. Young ✓, Flagman.

Subscribed and sworn to before me this 25th.

day of August, 190 5.

John F. Hesse

U. S. Dep. Surveyor.



*All notary available without great expense and loss of time.*

10  
BOOK 1893

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 16th. day of June, 1905, 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 S. <sup>and E.</sup> bdy. of Tp. 21 S. Rg. 28 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 24<sup>th</sup> day of November, 1905

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



APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,

Phoenix, Ar., Sept. 22 1906

The foregoing field notes of the survey of the South bdy. of T. 21 S. R. 28 E. of the Gila Salt River Base and Meridian in the territory of Arizona

executed by John F. Hesse, U. S. deputy surveyor under his contract No. 135, dated June 16, 1905, 1905, 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.