

1878

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Surveyed by
S 1

Book "A"
FIELD NOTES

BOOK 1878

OF THE SURVEY OF THE

East, West and North boundaries of
Township 1 North Range 31 East

1878

1878

Of the Gila and Salt River Meridian,

Territory of Arizona

AS SURVEYED BY

John P. Hesse, United States Deputy Surveyor,

Under his Contract No. 121, dated June 17th 1904, 189

Survey commenced August 1st 1904, 189

Survey completed August 11th 1904, 189

NAMES AND DUTIES OF ASSISTANTS.

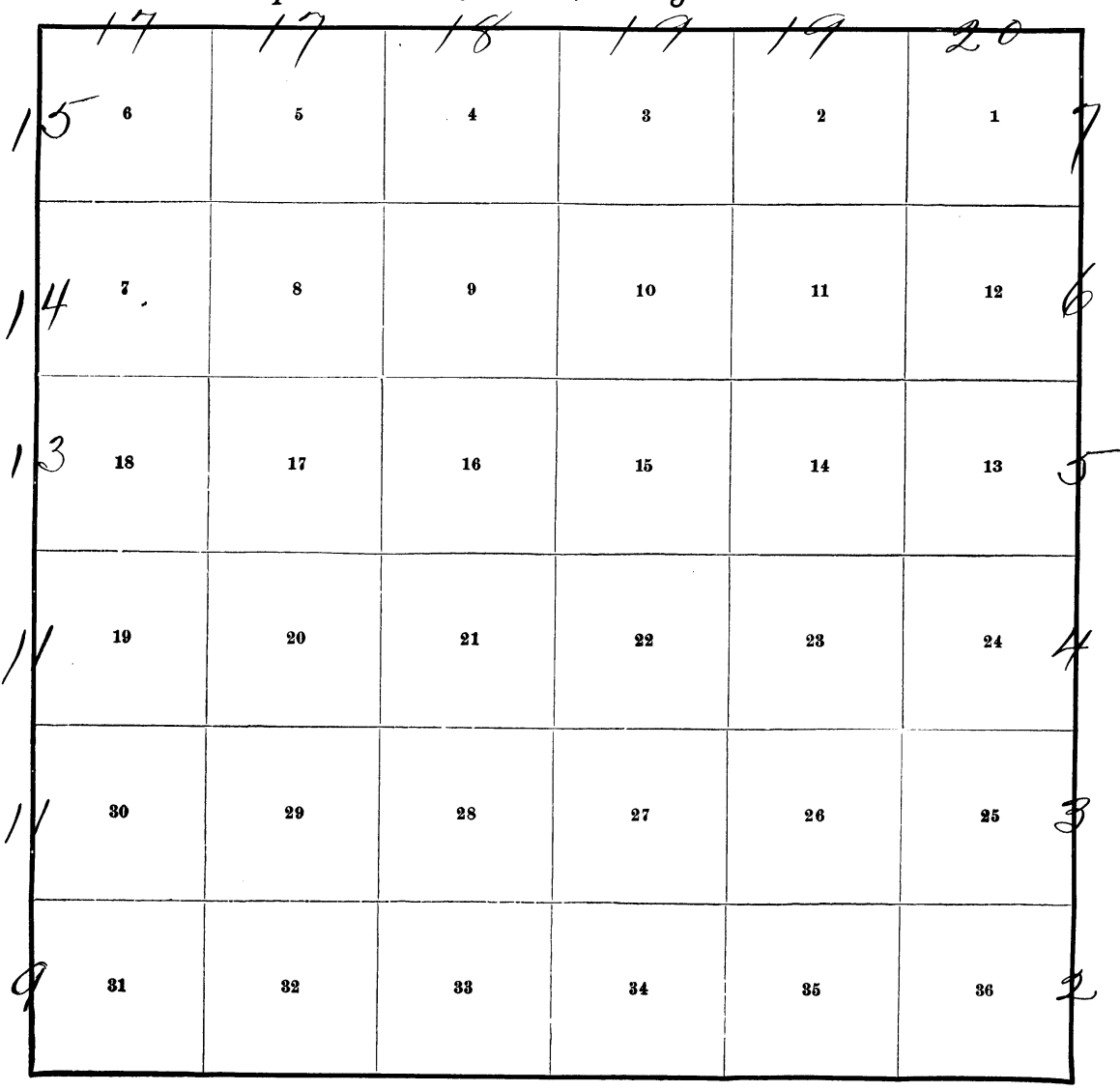
George W. Cassidy	Chairman
A. A. Snyder	Chairman
W. W. Oliver	Assn
G. E. Wiswell	Assn
W. H. Post	Flagman

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BOOK 1878

INDEX DIAGRAM.

Township / N. , Range 31 E.



Meanders Page.....

PRELIMINARY OATHS OF ASSISTANTS.

WE, George W. Cassidy and A. A. Snyder
do solemnly swear that we will well and faithfully execute the duties of chainmen; that we will level the chain over 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 East, West and North boundaries of Pp. 1 N. Rg. 31 E.

George W. Cassidy, Chainman.
A. A. Snyder, Chainman.

Subscribed and sworn to before me this 1st
day of August, 1904



John P. 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 _____, 189 _____



WE, Will W. Oliver and G. E. Wiswell
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 East, West and North boundaries of Pp. 1 N. Rg. 31 E.

Will W. Oliver, Axman.
G. E. Wiswell, Axman.

Subscribed and sworn to before me this 1st
day of August, 1904



John P. Hesse
U.S. Dep. Surveyor

I, W. H. Fort, 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 East, West and North boundaries of Pp. 1 N. Rg. 31 E.

W. H. Fort, Flagman.

Subscribed and sworn to before me this 1st
day of August, 1904



John P. Hesse
U.S. Dep. Surveyor

No notary available

chains

Survey commenced August 1, 1904 and executed with a W. and L. C. Gurley solar compass. Compass not numbered. 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 vernier of the latitude arc.

The vernier of the declination arc reads to thirty seconds of arc.

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 compass 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. 1 N. Rgs. 31 and 32 E. on the Gila and Salt River Base line; latitude $33^{\circ} 23' N.$; longitude $109^{\circ} 04' 22'' W.$; I set off $33^{\circ} 23' N.$ on the lat. arc; $17^{\circ} 58\frac{1}{2}' N.$ on the decl. arc; and at 3^h 00^m p.m. l.m.t., determine with the solar a meridian and mark a point thereof, on a stone set firmly in the ground 5 chs. N. of the cor.

At 10^h 46.75^m 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

Chains

a peg driven in the ground, 5 chs. N. of my station.

August 1, 1904

August 2: At 7^h 00^m a.m. l. m. t. I lay off the azimuth of Polaris 1° 26' to the west, and mark the meridian thus determined, by cutting a small groove in the stone set August 1, on which the meridian coincides with the mark determined by the solar.

At 8^h 00^m a.m. l. m. t. I set off 33° 23' N. on the lat. arc; 17° 48' 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 8^h 30^m a.m. is N. 17° 05' W.; the angle thus determined gives the mag. decl. 17° 3' E.

I commence at the cor. of Tps. 1 N. Rgs. 31 and 32 E., on the Lila and Salt River Base Line, which is an Iron post marked and witnessed as described by the surveyor general.

Thence I run North bet. sec. 31 and 36.

Over rolling mountains through

Chains

- scattering cedar timber.
- 40.00 Set a malpais stone 18x14x12 ins. 12 ins. in the ground for $\frac{1}{4}$ sec. cor. marked $\frac{1}{4}$ on W. face; from which a juniper 12 ins. diam. bears N. 54° E. 35 lbs. dist. marked $\frac{1}{4}$ S31BT.
- A juniper 8 ins. diam. bears N. 80° W. 133 lbs. dist. marked $\frac{1}{4}$ S36BT.
- 45.00 Top of ridge bears E. and W. and descend.
- 80.00 Set a malpais stone 18x10x6 ins. 12 ins. in the ground for cor. of secs. 25, 30, 31 and 36 marked with 5 notches on N. and 1 notch on S. edges; and raise a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
- Land, mountainous. 80 chains.
Soil, rocky; 4th rate.
Timber, scattering juniper and cedars.
Mountainous land 80.00 chs.
-
- North bet. secs. 25 and 30.
Over rolling mountains through scattering juniper, cedar and piñon timber.
- 6.00 Timber becomes heavy.
- 17.65 Cross gully 10 lbs. wide course N.E.
- 40.00 Set a malpais stone 18x8x6 ins. 12 ins. in the ground for $\frac{1}{4}$ sec. cor. marked $\frac{1}{4}$ on W. face; from which a juniper 8 ins. diam. bears N. 25 $\frac{1}{2}$ ° E. 40 lbs. dist. marked $\frac{1}{4}$ S30BT.
- A cedar 14 ins. diam. bears S. 13° W. 65 lbs. dist. marked $\frac{1}{4}$ S25BT.
- X At this $\frac{1}{4}$ sec. cor. I set off 17° 45' N. on the decl. arc; and observe the sun on the meridian at noon, the resulting lat is 33° 24'
- 65.00 Top of ridge bears E. and W. and descend

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chains
76.75
80.00

Cross gully, 10 lks. wide, course N. W.
Set a malpais stone 30 x 12 x 10 ins. 22 1/2 ins. in the ground for cor. of secs. 19, 24, 25 and 30 marked with 4 notches on N. and 2 notches on S. edges; from which
A piñon 6 ins. diam. bears N. 72 1/2° E. 18 lks. dist. marked TINR32ES19BT.
A piñon 5 ins. diam. bears S 51 3/4° E. 25 lks. dist. marked TINR32ES30BT
A piñon 6 ins. diam. bears S 31 1/2° W. 103 lks. dist. marked TINR32ES25BT.
A piñon 6 ins. diam. bears N. 57 1/2° W. 40 lks. dist. marked TINR32ES24BT
Land, mountainous; 80 chains,
Soil, rocky; 4th rate.
Timber, piñon, juniper, cedar and oak.
Mountainous or heavily timbered land 80.00 chs.

North bet. secs. 19 and 24

Descending rough N. slope through heavy juniper and cedar timber.

- 6.75 Cross gully, 10 lks. wide, course W.
12.20 Cross gully, 10 lks. wide, course W.
15.60 Cross dry creek 40 lks. wide course W. and ascend
28.10 Cross gully 10 lks. wide course S.W.
40.00 Set a malpais stone 24 x 10 x 8 ins. 18 ins. in the ground for 1/4 sec. cor. marked N. on W. face; from which
A piñon 10 ins. diam. bears S. 64 1/2° E. 36 lks. dist. marked 1/4 S19BT.
A piñon 8 ins. diam. bears N. 39° W. 42 lks. dist. marked 1/4 S24BT.
58.00 Top of mountain and over rolling top of mountain.
80.00 Set a malpais stone 16 x 12 x 10 ins. 11 ins. in the ground for cor. of secs. 13, 18,

Chains

19 and 24 marked with 3 notches on N. and S. edges; from which
 A juniper 28 ins. diam. bears N. $44\frac{1}{2}^{\circ}$ E.
 544 lks. dist. marked TINR32ES18BT.
 A juniper 16 ins. diam. bears S. $51\frac{1}{2}^{\circ}$ E.
 315 lks. dist. marked TINR32ES19BT.
 A juniper 22 ins. diam. bears S. $7\frac{1}{4}^{\circ}$ W.
 316 lks. dist. marked TINR31ES24BT
 A juniper 6 ins. diam. bears N. $64\frac{1}{4}^{\circ}$ W.
 593 lks. dist. marked TINR31ES13BT.
 Land, mountainous. 80 chains.
 Soil, rocky; 4th rate.
 Timber, juniper and cedars.
 Mountainous or heavily timbered
 land 80.00 chs.

BOOK 1678

August 2, 1904.

August 3: At 7^h 00^m a.m. l.m.t. I
 set off $33^{\circ} 25\frac{1}{2}'$ N. on the lat. arc; $17^{\circ} 33\frac{1}{2}'$
 N. on the decl. arc; and determine a
 meridian with the solar at the
 cor. of secs. 13, 18, 19 and 24

Thence I run

North bet. secs. 13 and 18

Over rolling top of mountains
 through scattering juniper timber

40.00 Set a malpais stone 16x8x3 ins. 11
 ins. in the ground for $\frac{1}{4}$ sec. cor.
 marked $\frac{1}{4}$ on W. face; from which
 A juniper 28 ins. diam. bears N. 71° W.
 174 lks. dist. marked $\frac{1}{4}$ S13BT.

No other tree available. Raised
 a mound of stone 2 ft. base $1\frac{1}{2}$ ft.
 high, W. of cor. Pits impracticable.

60.00 Cross gully, 20 lks. wide, course S.E.

80.00 Set a malpais stone 16x10x4 ins.
 11 ins. in the ground for cor. of
 secs. 7, 12, 13 and 18 marked with
 2 notches on N. and 4 notches on
 S. edges; from which
 A juniper 5 ins. diam. bears N. $1\frac{1}{4}^{\circ}$ E.

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560 lks. dist. marked TINR32ES7BT.
A juniper 5 ins. diam. bears N. 24° W.
715 lks. dist. marked TINR31ES12BT.
No other trees available. Raised a mound of stone 2 ft. base 1 1/2 ft. high, W. of cor. Pits impracticable
Land, mountainous.
Soil, rocky; 4th rate.
Timber juniper.
Mountainous land 80.00 chs.

North bet. secs. 7 and 12.
Over rolling top of mountain through very scattering juniper timber.

- 10.75 Descend into deep cañon
- 16.10 Cross wash 20 lks. wide course W. and ascend.
- 27.70 Pop and over top of mountain.
- 40.00 Set a malpais stone 18x12x8 ins. 12 ins. in the ground with mound of stone around it for 1/4 sec. cor. marked 1/4 on W. face; from which
A juniper 28 ins. diam. bears N. 28° E.
254 lks. dist. marked 1/4 S 7BT.
No other tree available. Raised a mound of stone 2 ft. base 1 1/2 ft. high, W. of cor. Pits impracticable.
- 46.00 Cross gully 10 lks. wide, course S. E.
- 65.10 Cross gully 10 lks. wide, course S. E.
- 80.00 Set a malpais stone 18x12x8 ins. 12 ins. in the ground for cor. of secs. 1, 6, 7, and 12 marked with 1 notch on N. and 5 notches on S. edges; from which
A juniper 6 ins. diam. bears S 8 1/2° E.
202 lks. dist. marked TINR32ES7BT.
No other trees available. Raised a mound of stone 2 ft. base 1 1/2 ft. high, W. of cor. Pits impracticable
Land, mountainous

chains

Soil, rocky; 4th rate.
 Timber, juniper.
 Mountainous land 80.00 chs.
 At this cor. I set off 17° 29' N.
 on the decl. arc; and observe the
 sun on the meridian at noon,
 the resulting lat. is 33° 27½'.

North bet. secs. 1 and 6.
 Over rolling top of mountain
 through scattering juniper timber.
 40.00 Set a malpais stone 16 x 8 x 5 ins. 11
 ins. in the ground for ¼ sec. cor.
 marked ¼ on W. face; from which
 A juniper 28 ins. diam. bears S. 41¼° E.
 266 lbs. dist. marked ¼ S 6 BT.
 A juniper 38 ins. diam. bears S. 30¾° W.
 10 lbs. dist. marked ¼ S 1 BT.
 80.00 Set a malpais stone 20 x 14 x 12 ins. 15
 ins. in the ground for cor. of Twp.
 1 and 2 N. Rgs. 31 and 32 E. marked
 with 6 notches on each edge;
 from which
 A juniper 6 ins. diam. bears N. 10¾° E.
 94 lbs. dist. marked T2NR32ES31BT.
 A juniper 8 ins. diam. bears S. 25¾° E.
 108 lbs. dist. marked T1NR32ES6BT.
 A juniper 5 ins. diam. bears S. 26¾° W.
 97 lbs. dist. marked T1NR31ES1BT.
 A juniper 28 ins. diam. bears N. 63¼° W.
 124 lbs. dist. marked T2NR31ES36BT.
 Land, mountainous. 80 chains.
 Soil, rocky; 3rd and 4th rate.
 Timber juniper and a few oaks.

August 3, 1904.

BOOK

chains

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August 4: I examine the adjustments of the compass 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 Pps. 1 N. Rgs. 30 and 31 E. on the Gila and Salt River base line; latitude $33^{\circ} 23' N.$; longitude $109^{\circ} 10' - 20'' W.$; I set off $33^{\circ} 23' N.$ on the lat. arc; $17^{\circ} 11\frac{1}{2}' N.$ on the decl. arc; and at $3^h 00^m$ p.m. l.m.t. determine with the solar a meridian and mark a point thereof, on a stone set firmly in the ground 5 chs. N. of my station.

At $10^h 35'$ 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 4, 1904.

August 5: At $6^h 15^m$ a.m. l.m.t. I lay off the azimuth of Polaris $1^{\circ} 26'$ to the west, and mark the meridian thus determined, by cutting a small groove in the stone set August 4, on which the meridian coincides with the mark determined by the Solar.

At $7^h 00^m$ a.m. l.m.t. I set off $33^{\circ} 23' N.$ on the lat. arc; $17^{\circ} 01\frac{1}{2}' N.$ on the decl. arc; and mark a point in the meridian determined with the solar, by a cross on the stone

chains

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 7^h 15^m a. m. is N. 12° 39' W.; the angle thus determined gives the mag. decl. 12° 39' E.

The cor. of Pps. 1 N. Rgs. 30 and 31 E. is described by the surveyor general as a granite rock, 22 x 14 x 6 ins. witnessed by two bearing trees. I find the two bearing trees but am unable to find any trace of the stone. I therefore re-establish the cor. from the bearing trees as given in the notes as follows;

Set a granite stone 24 x 10 x 4 ins. in a mound of stone for cor. of Pps. 1 N. Rgs. 30 & 31 E. marked BL on N. face; with 6 notches on N., E. and W. edges; from which

A pine 8 ins. diam. bears N. 25° 40' E. 53 lks. dist. marked BL TINR31ES31BT.

A pine 8 ins. diam. bears N. 37° 30' W. 35 lks. dist. marked BL TINR30ES36BT.

These bearing trees are the trees as found on the ground and from which the cor. was re-established.

Thence I run North bet. secs. 31 and 36. Along rough N. E. slope of mountain descending through dense oak brush and very scattering cedar timber.

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Chains	
22.00	Over creek bottom.
23.10	Cross road bears N.W. and S.E.
40.00	Set a sandstone 18x10x6 ins. 12 ins. in the ground for $\frac{1}{4}$ sec. cor. marked $\frac{1}{4}$ on W. face; from which A cottonwood 12 ins. diam. bears S. $23\frac{3}{4}^{\circ}$ E. 415 lks. dist. marked $\frac{1}{4}$ S 31 BT. A willow 4 ins. diam. S. $65\frac{1}{2}^{\circ}$ W. 137 lks. dist. marked $\frac{1}{4}$ S 36 BT. From this $\frac{1}{4}$ sec. cor. the S.E. cor. of Bell's house bears N. $85\frac{1}{2}^{\circ}$ W. 11.08 chs. dist.
41.24	Cross Blue River 12 lks. wide, course S.E. running water.
42.37	Cross fence bears E. and W.
44.00	Ascend steep rocky S. slope of mountain.
44.40	Cross ditch, course S.E. 4 lks. wide.
56.00	Pop mountain and along W. slope of mountains.
80.00	Set a malpais stone 18x10x8 ins. in a large mound of stone for cor. of secs. 25, 30, 31 and 36 marked with 5 notches on N. and 1 notch on S. edges; from which A cedar 14 ins. diam. bears N. $64\frac{3}{4}^{\circ}$ E. 153 lks. dist. marked TINR31ES30BT. A cedar 10 ins. diam. bears S. $55\frac{3}{4}^{\circ}$ E. 258 lks. dist. marked TINR31ES31BT No other trees available. Raised a mound of stone 2 ft. base $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, mountainous. Soil, rocky and sandy; 2 nd and 4 th rate. Timber, cedar and a few cottonwoods and willows along Blue River. Under brush, oak. Mountainous land or land covered with dense undergrowth 80.00 chs. At this cor. I set off $16^{\circ}57'$ N. on the decl. arc; and observe the

Chains

sun on the meridian at noon,
the resulting lat. is $33^{\circ} 24'$

BOOK 1878

North bet. secs. 25 and 30

Over rough mountains along general
W. slope through cedar timber and
dense oak brush.

- 3.75 Cross wash, 10 lks. wide, course W.
25.75 Cross wash, 25 lks. wide, course W.
40.00 ✓ Set a malpais stone $18 \times 12 \times 10$ ins. 12
ins. in the ground for $\frac{1}{4}$ sec. cor.
marked $\frac{1}{4}$ on W. face; from which
A juniper 6 ins. diam. bears $N. 57\frac{1}{2}^{\circ} E.$
209 lks. dist. marked $\frac{1}{4} S 30 BT.$
A cedar 15 ins. diam. bears $S. 11^{\circ} W.$
142 lks. dist. marked $\frac{1}{4} S 25 BT.$
62.75 Cross ravine 20 lks. wide, course W.
74.90 Cross ravine, 20 lks. wide, course W.
77.80 Cross wash, 40 lks. wide, course W.
80.00 ✓ Set a malpais stone $30 \times 16 \times 7$ ins. ²³ ~~22~~ ins.
in ground and large mound of stone,
for cor. of secs. 19, 24, 25 and 30, marked
with 4 notches on N. and 2 notches
on S. edges; from which
A piñon 8 ins. diam. bears $N. 33^{\circ} E.$
48 lks. dist. marked TINR31ES19BT
A cedar 7 ins. diam. bears $S. 40^{\circ} E.$
36 lks. dist. marked TINR31ES30BT.
A cedar 10 ins. diam. bears $S. 36\frac{1}{2}^{\circ} W.$
52 lks. dist. marked TINR30ES25BT.
A cedar 9 ins. diam. bears $N. 33^{\circ} W.$
55 lks. dist. marked TINR30ES24BT.
Land, mountainous.
Soil, rocky; 4th rate.
Timber, cedar.
Mountainous land 80.00 chs.

August 5, 1904

North bet. secs. 19 and 24

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August 6: At 7^h 00^m a.m. l.m. t. I set off 33° 25' N. on the lat. arc; 16° 45' N. on the decl. arc; and determine a meridian with the solar at the cor. of secs 19, 24 25 and 30

Thence I run

North bet. secs. 19 and 24.

Over broken mountains along general W. slope through scattering cedar timber

- 3.00 Cross ravine 20 lks. wide, course W.
 5.45 A point from which
 N. McKeen's house bears N. 30° W.
 M.A. Balke's house bears N. 32° W.
 12.60 Cross ravine, 20 lks. wide, course W.
 22.65 Cross ravine, 40 lks. wide, course W.
 32.00 Cross gully, 10 lks. wide, course W.
 39.75 Cross dry creek, 40 lks. wide, course W.
 40.00 Set a malpais stone 16 x 12 x 6 ins. 11 ins. in the ground for $\frac{1}{4}$ sec. cor. marked $\frac{1}{4}$ on W. face; from which
 A cedar 16 ins. diam. bears S. 29° E.
 42 lks. dist. marked $\frac{1}{4}$ S 19 BT.
 A cedar 6 ins. diam. bears S. 84° W.
 11 lks. dist. marked $\frac{1}{4}$ S 24 BT.
 55.60 A point from which
 McKeen's house bears S. 37° W.
 Balke's house bears S. 35° W.
 80.00 Set a malpais stone 18 x 12 x 8 ins. 12 ins. in the ground for cor. of secs. 13, 18, 19 and 24 marked with 3 notches on N. and S. edges; from which
 An oak 8 ins. diam. bears N. 30 $\frac{3}{4}$ ° E.
 216 lks. dist. marked TINR31ES18BT.
 A cedar 5 ins. diam. bears S. 28 $\frac{1}{2}$ ° E.
 101 lks. dist. marked TINR31ES19BT
 A cedar 16 ins. diam. bears S. 86° W.
 83 lks. dist. marked TINR30ES24BT.
 No other tree available. Raised a mound of stone 2 ft. base 1 $\frac{1}{2}$ ft. high, W. of cor. Pits impracticable
 Land, mountainous

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Soil, rocky; 4th rate.

Timber, cedar.

Mountainous land, 80.00 chs.

At this cor. I set off $16^{\circ} 41' N.$ on the decl. arc; and observe the sun on the meridian at noon the resulting lat. is $33^{\circ} 25\frac{1}{2}' N.$

North bet. secs. 13 and 18.

Descend over rolling mountains through scattering cedars.

- 1.75 Cross brush fence bears N.E. and S.W.
 9.30 Cross wash, 20 lks. wide, course W.
 11.25 Cross road, bears N.E. and S.W.
 13.50 Cross Blue River, running stream 70 lks. wide, course S.W. and ascend.
 24.00 Cross dry creek 80 lks. wide, course E.
 40.00 Set a malpais stone $24 \times 18 \times 10$ ins. 18 ins. in the ground for $\frac{1}{4}$ sec. cor. marked $\frac{1}{4}$ on W. face; from which
 An oak 6 ins. diam. bears N. $22\frac{1}{4}^{\circ} E.$
 81 lks. dist. marked $\frac{1}{4} S 18 BT.$
 A cedar 5 ins. diam. bears N. $31\frac{3}{4}^{\circ} W.$
 90 lks. dist. marked $\frac{1}{4} S 13 BT.$
 42.80 Cross ravine 20 lks. wide, course E.
 54.60 Top of ridge bears N.E. and S.W. and along general E. slope.
 61.20 Cross ravine 10 lks. wide, course E.
 65.30 Cross ravine, 20 lks. wide, course E.
 69.80 Cross ravine, 30 lks. wide, course S.E.
 80.00 Set a malpais stone $16 \times 10 \times 6$ ins. 11 ins. in the ground for cor. of secs. 7, 12, 13 and 18, marked with 2 notches on N. and 4 notches on S. edges; from which
 A piñon 5 ins. diam. bears N. $18\frac{1}{4}^{\circ} E.$
 41 lks. dist. marked TINR31ES7BT.
 A cedar 12 ins. diam. bears S. $75^{\circ} E.$
 72 lks. dist. marked TINR31ES18BT.

West boundary of Twp. 1 N. Rg. 31 E.

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chains

An oak 4 ins. diam. bears S. 35° W.
 24 lks. dist. marked TINR30ES13BT.
 A piñon 14 ins. diam. bears N. 31 3/4° W.
 39 lks. dist. marked TINR30ES12BT
 Land, mountainous.
 Soil, 3rd and 4th rate; rocky.
 Timber, cedar and piñon
 Mountainous land 80.00 chs.

August 6, 1904

August 7: At 7^h00^m a.m. l.m.t. I
 set off 33° 26 1/2' N. on the lat. arc; 16° 28 1/2'
 N. on the decl. arc; and determine a
 meridian with the solar at the cor. of
 secs. 7, 12, 13 and 18

Thence I run

North bet. secs. 7 and 12

Over rolling mountains along on
 general E. slope through cedar
 timber.

- 12.25 Cross dry creek 40 lks. wide, course E.
- 30.50 Cross dry creek 60 lks. wide, course S.E.
- 40.00 Set a malpais stone 16 x 8 x 7 ins. 11
 ins. in the ground for 1/4 sec. cor.
 marked 1/4 on W. face; from which
 A cedar 4 ins. diam. bears N 61° E.
 169 lks. dist. marked 1/4 S 7 BT.
 A piñon 5 ins. diam. bears S. 75 3/4° W.
 126 lks. dist. marked 1/4 S 12 BT.
- 48.00 Cross ravine 10 lks. wide, course S.E.
- 80.00 Set a malpais stone 30 x 16 x 12 ins. 22 1/2
 ins. in the ground and mound of
 stone for cor. of secs. 16, 7 and 12,
 marked with 1 notch on N. and
 5 notches on S. edges; from which
 A cedar 10 ins. diam. bears N. 39 1/4° E.
 422 lks. dist. marked TINR31ES6BT.
 A piñon 6 ins. diam. bears S. 59 1/4° E.
 88 lks. dist. marked TINR31ES7BT.
 A piñon 4 ins. diam. bears S. 17 1/4° W.
 131 lks. dist. marked TINR30ES12BT.
 A piñon 4 ins. diam. bears N. 2 1/2° W.

Chains

BOOK 1878

201 lks. dist. marked T1NR30ES1BT
 Land, mountainous.
 Soil, rocky; 4th rate.
 Timber, cedar, juniper and piñon.
 Mountainous land 80.00 chs.
 August 7: At this cor. I set off
 16° 24' N. on the decl. arc. and
 observe the sun on the meridian
 at noon, the resulting lat is
 33° 27' 1/2"

North bet. secs. 1 and 6

Over rolling mountains through
 scattering cedar timber.

19.00 Cross ravine 25 lks. wide course E.

31.85 Cross ravine 20 lks. wide course N.E.

40.00 Set a malpais stone 18 x 10 x 5 ins 12
 ins. in the ground for 1/4 sec. cor.
 marked 1/4 on W. face; from which
 A piñon 5 ins. diam. bears N. 43 1/4° E.
 48 lks. dist. marked 1/4 S 6 BT.
 A piñon 5 ins. diam. bears N. 52 1/2° W.
 39 lks. dist. marked 1/4 S 1 BT.

51.50 Cross ravine 25 lks. wide course E.

63.25 Cross ravine, 30 lks. wide, course E.

80.00 Set a malpais stone 30 x 18 x 14 ins.
 22 ins. in the ground for cor. of Pps.
 1 and 2 N. Rgs. 30 and 31 E. marked
 with 6 notches on each edge; from
 which

A piñon 8 ins. diam. bears N. 33 1/2° E.

32 lks. dist. marked T2NR31ES31BT

A piñon 7 ins. diam. bears S. 49° E.

55 lks. dist. marked T1NR31ES6BT.

A piñon 5 ins. diam bears S. 19° W.

41 lks. dist. marked T1NR30ES1BT.

A piñon 9 ins. diam. bears N. 84° W.

64 lks. dist. marked T2NR30ES36BT.

Land, mountainous.

Soil, rocky; 4th rate.

16
~~43~~

West boundary of Pp. 1 N. Rg. 31 E.

chains

Timber, cedar and pinon.
Mountainous land 80.00 chs.

BOOK 1878

August 7, 1904

17.

North boundary of T. 1 N., R. 31 E., Arizona.

Chs.

August 8th, 1904, at 10h.00' a. m., l. m. t., I set of 33° 28' N., on the lat. arc. 16° 55' 50" N., on the decl. arc. and determine a true meridian with the Solar at the Cor. of Tps. 1 and 2 N., Rs. 31 & 32 E.

Thence I run, WEST, on a random line along the north boundary of Tp. 1 N., R. 31 E., setting temporary 1/4 and sec. cos. at intervals of 40. chs. and at 480.90 chs. Int. the range line bet. Rs. 30 and 31 E., 138 lks. N. of the Cor. of Tps. 1 and 2 N., Rs. 31 and 32 E., previously established by me.

The falling answers to a correction of 0° 10' or 23 lks. S. per mile, counting from the N. E. Cor. of the Tp.

August 8-9, 1904.

August 10; At 7h. 00' l. m. t., I set off 33° 28' N., on the lat. arc. 15° 37 1/2' N., on the decl. arc and determine a true meridian with the Solar at the Cor. of Tps. 1 and 2 N., Rs. 30 and 31 E.,

Thence I run, N. 89° 50' E., bet. secs. 6 and 31 marking and blazing true line.

Over mountainous land through heavy pine and cedar timber.

11.50 Wagon road bears N. and S.

16.40 Cross the Blue River 50 lks. wide, running water, course S. and ascended.

33.74 Top of spur bears S. E. and N. W.

40.90 Set a malpais stone 16 x 10 x 8 ins., 10 ins., in the ground for 1/4 sec. cor. marked 1/4 on the N. face from which

A pinon, 8 ins., in diam. brs. N. 4 and 3/4° E, 93 lks. dist. marked 1/4 S., 31 B. T.

A pinon, 7 ins., in diam. brs. S. 18 3/4° W., 62 lks. dist. marked 1/4 S., 36 B. T.

Descend.

41.60 Ravine 10 lks. wide, course N. W. and begin ascent.

50.80 Top of ridge and begin descent. Ridge bears N and S.

68.60 Cross Ladrone creek, dry 60 lks. wide, course S. W. and begin steep ascent.

71.00 Top and descend.

76.40 Cross ravine 10 lks. wide, course S. W. dry.

80.90 Set a Malpais stone, 20 x 12 x 10 ins., 16 ins., in the ground for the corner of sections 5, 6, 31 and 32, marked with 5 grooves on the E and 1 groove on the W. edges, from which,

A pinon, 8 ins., in diam. brs. N. 34 1/2° E., 53 lks. dist. marked 1/4 S. E., 31 E., 33 B. T.

A pinon, 8 ins., in diam. brs. S. 49° E., 66 lks. dist. marked T. 1 N., R. 31 E., S. 5 B. T.

A Cedar, 4 ins., in diam. brs. S. 81 1/2° W., 52 lks. dist. marked T. 1 N., R. 31 E., S. 6 B. T.

A pinon, 14 ins., in diam. brs. N. 85 1/2° W., 24 lks. dist. marked T. 2 N., R. 31 E., S. 31 B. T.

Land rough and mountainous 80.90 chs. Soil, rocky and 4th rate. Timber pine, pinon and cedar 80.90 chs.

N. 89°50' E., bet. secs. 5 and 32. Over east slope of rough mountain through heavy pinon and cedar timber. Ascending.

12.04 Top of ridge bears N. and S. and descend.

Chs.	
22.40	Dry creek 40 lks. wide, course S. and ascend.
35.00	Top of ridge bears N. and S. and descend into canon.
40.00	Set a malpais stone 28 x 16 x 10 ins., 21 ins., in the ground for 1/4 sec. cor. marked 1/4 marked 1/4 on the N. face; from which, A pinon, 4 ins., in diam. brs. N. 3 1/2° E., 69 lks. dist. marked 1/4 S., 32 B. T. A Juniper 7 ins., in diam. brs. S. 81° W., 37 lks. dist. marked 1/4 1/4 , S. 5 B. T. Descending.
43.90	Ravine 10 lks. wide, course S. and ascend.
44.50	Top of rise and descend.
45.05	Bottom and ravine 10 lks. wide, course S. W. Begin ascent.
55.10	Top of ridge bears N. and S. and descend.
80.00	The Cor. of secs. 4, 5, 32 and 33, for which I set a malpais stone, 30 x 15 x 8 ins., 23 ins., in the ground marked with 4 grooves on the E. and 2 grooves on the W edges, from which, A cedar, 28 ins. in diam. brs. N. 25 1/2° E., 26 lks. dist. marked T. 2 N., R. 31 E., S. 33 B. T. A cedar, 5 ins., in diam. brs. S. 25° E., 45 lks. dist. marked T. 1 N., R. 31 E., S. 4 B. T. A Cedar 6 ins., in diam. brs. S. 48 1/2° W., 64 lks. dist. marked T. 1 N., R. 31 E., S. 5 B. T. A Cedar, 11 ins., in diam. brs. N. 61° W., 20 lks. dist. marked T. 2 N., R. 31 E., S. 32 B. T. Land rough broken mountains 80 chs. Soil rocky and 4th rate. Timber Heavy cedar, oak pinon, juniper 80.00 chs.
	N. 89° 50' E., on a true line bet. secs. 4 and 33. Along S. slope of rough mountains through scattering timber.
11.30	Dry creek 35 lks. wide, course S. W.
10.60	Ravine 15 lks. wide, course S.
23.00	Ravine 14 lks. wide, course S.
40.00	Set a malpais 24 x 12 x 10 ins., 18 ins., in the ground for 1/4 sec. cor. marked 1/4 on the N. face, from which, A pinon, 5 ins., in diam. brs. N. 7 1/4 ° W., 55 lks. dist. marked 1/4 S. 33 B. T. A pinon, 12 ins., in diam. brs. S. 42° E., 60 lks. dist. marked 1/4 S., 4 B. T. August 10th, At this 1/4 sec. cor. at 12 o'clock noon I set off ^{15° 22'} N., on the decl. arc and observe the Sun on the Meridian, the resulting latitude is 33° 28' N. Descend.
42.15	Ravine 20 lks. wide, course S. W. Begin ascent.
49.12	Top and descend.
60.03	Dry creek 35 lks. wide course S. W.
80.00	Set a malpais stone 24 x 12 x 12 ins., 18 ins., in the ground for the corner of sections 3, 4, 33 and 34, marked with 3 grooves on the E and W. edges, from which, A Juniper 13 ins., in diam. brs. N. 9° E., 82 lks. dist. marked T. 2 N., R. 31 E., S. 34 B.T. A pinon, 6 ins., in diam. brs. S. 40 1/2° E., 98 lks. dist. marked T. 1 N., R. 31 E., S. 3 B. T. A pinon 6 ins., in diam. brs. S. 82 1/2° W., 182 lks. dist. marked T. 1 N., R. 31 E., S. 4 B. T. A juniper 4 ins., in diam. brs. N. 24° W., 93 lks. dist. marked T. 2 N., R. 31 E., S. 33 B. T. Land rough broken mountains 80.00 chains. Soil rock 4th rate. Timber heavy cedar, pinon and oak.

Aug st 10th, 1904.

Chs. August 11th, 1904, at 8 a. m., 1. m. t., I set off 33° 28' N., on the lat. arc. ~~33° 28'~~ 33° 18' 1/2" N. on the decl. arc and determine a true meridian with the Solar at the cor. of secs. 3, 4, 33 and 34.

Thence I run, N. 89° 50' E., on a true line bet. secs. 3 and 34. Over S. slope of rough mountains through heavy timber. Descending.

12.65 Ravine 20 lks. wide, course S. W.
21.70 Gully 10 lks. wide, course S. W.
39.75 Dry creek, 30 lks. wide, course S. and begin ascent.
40.00 ✓ Set a malpais stone, 30 x 18 x 12 ins., 24 ins., in the ground for 1/4 sec. cor. marked 1/4 on the N. face, from which,

A pinon, 6 ins., in diam. brs. N. 39° E., 14 lks. dist. marked 1/4 S., 34 B. T.
A pinon, 11 ins., in diam. brs. S. 69 1/2° W., 21 lks. dist. marked 1/4 S., 3 B. T.
Ascent becomes more steep.

44.05 Top of ridge bears N. and S. and begin descent.

49.15 Ravine 10 lks. wide, course S. W.
66.75 Dry creek 20 lks. wide, course S. W. and ascend.
80.00 ✓ Set a malpais stone, 18 x 12 x 10 ins., 12 ins., in the ground for the corner of secs. 2-3-34 and 35, marked with 2 grooves on the E. and 4 grooves on the W edges, from which,

A pinon, 4 ins., in diam. brs. N. 84° E., 35 lks. dist. marked T. 2 N., R. 31 E., S. 35 B. T.
A pinon, 10 ins., in diam. brs. S. 45° E., 98 lks. dist. marked T. 1 N., R. 31 E., S. 8 B. T.
A pinon, 4 ins., in diam. brs. S. 6 1/4° W., 142 lks. dist. marked T. 1 N., R. 31 E., S. 3 B. T.
A pinon 7 ins., in diam. brs. E. 66° W., 132 lks. dist. marked T. 2 N., R. 31 E., S. 34 B. T.

At 12 o'clock noon at this corner I set off 15° 14' 30" N. on the decl. arc and observe the Sun, the resulting latitude is 35° 28' N.
Land rough mountains 80.00 chs.
Timber scattering oak, pine and juniper 80.00 chs.
Soil rocky and 4th rate.

N. 89° 50' E., on a true line bet. secs. 2 and 35 Over rough mountains through scattering timber of pine, pinon, oak and juniper. Ascending.

4.05 Top of ridge bears N. and S. and descend.
19.50 Ravine 20 lks. wide, course S. S. westerly.
35.40 Gully 10 lks. wide, course S. S. westerly and ascend.
40.00 ✓ Set a malpais stone 20 x 12 x 8 ins., 15 ins., in the ground for 1/4 sec. cor. marked 1/4 on the N. face, from which,

A pinon, 10 ins., in diam. brs. N. 20 1/2° E., 24 lks. dist. marked 1/4 S. 35 B. T.
An oak, 6 ins., in diam. brs. S. 24 1/2° E., 26 lks. dist. marked 1/4 S., 2 B. T.
Descend.

42.95 Dry creek, 35 lks. wide, course S. S. W.
73.00 Descend into Canon 43 lks. wide, course southerly.
80.00 ✓ Set a malpais stone, 24 x 12 x 10 ins., 18 ins., in the ground for the corner of secs. 1, 2, 35 and 36 marked with 1 groove on the E. and 5 grooves on the W. edges, from which,

A Juniper 28 ins., in diam. brs. N. 16° E., 204 lks. dist. marked T. 2 N., R. 31 E., S. 36 B. T.
A Juniper, 12 ins., in diam. brs. S. 43° E., 478 lks. dist. marked T. 1 N., R. 31 E., S. 1 B. T.
A Juniper, 16 ins., in diam. brs. S. 32 1/2° W., 250 lks. dist. marked T. 1 N., R. 31 E., S. 2 B. T.

Chs. A Juniper 7 ins., in diam. brs. N. 44 1/2° W., 335
lks. dist. marked T. 2 N., R. 31 E., S. 35 B. T.
Land rough mountains 80.00 chains.
Soil 3rd and 4th rate. Rocky.
Timber Scattering Juniper and oak.
Oak underbrush scattering.

N. 89° 50' E., on a true line bet. secs. 1 and 36.
Over S. slope of rough mountain.
33.00 Leave rough mountains and over rolling mts.
40.00 Set a malpais stone, 18 x 12 x 10 ins., 12 ins., in
the ground for 1/4 sec. cor. marked 1/4 on the N.
face, from which,
A cedar, 12 ins., in diam. brs. S. 2° E., 50
lks. dist. marked 1/4 S., 1 B. T.
A Cedar, 4 ins., in diam. brs. N. 63 1/2° W.,
93 lks. dist. marked 1/4 S., 36 B. T.
Descend.
40.80 Gully 10 lks. wide, course S. S. easterly.
53.70 Dry creek, 20 lks. wide, course S. S. Westerly.
74.05 Descend into deep canon.
77.04 Bottom 42 lks. wide, course S. S. westerly.
Ascend.
80.00 The corner of Tps. 1 and 2 N., Rs. 31 and 32 E., here-
tofore established and described by me.
Land rough and rolling mountains 80. chains.
Timber, scattering juniper and oak.
Underbrush oak, and jano.
Soil, rocky, worthless 4th rate.

August 11th,

North boundary concluded.

General Description.

The north, west and east boundaries of this Township
traverse rough and rolling mountains cut by deep canons
and ravines. The soil is worthless except. where the
lines traverses the Blue River. The tp. is well watered.
The lines are covered with scattering and dense timber
of oak, juniper, pinon and cedar. Scattering oak brush.
The tp. as a whole is only suitable for grazing.

Boundaries of T. 1 N., R. 31 E.

	n.	s	w	E.
South Bdy. Gila & S. River B. line, East, 409.00 chs.				400.00
East. " " " "	480.00	.05		
West " " " "		480.		81.41
North " " " "			480.90	
Convergence, S. 89° 50' W. 480' 90		1.38		
Totals,	480.00	481.43	.48	
		480.00		

Error in lat. 1.43
John F. Mease Error in dep. 0.03
U. S. Dep. Surveyor

LIST OF NAMES.

BOOK 1878

A list of the names of the individuals employed by John P. 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 East
 West and North boundaries of Pp. 1 N. Rg. 31 E.
 showing the respective capacities in which they acted:

George W. Cassidy, Chainman.

A. A. Snyder, Chainman.

_____, Moundman.

_____, Moundman.

W. W. Oliver, Axman.

G. E. Wiswell, Axman.

W. H. Port, Flagman.

FINAL OATH OF ASSISTANTS.

We hereby certify that we assisted John P. Hesse
 _____, United States Deputy Surveyor, in surveying all
 those parts or portions of the East, West and North boundaries
 of Pp. 1 N. Rg. 31 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

George W. Cassidy, Chainman.

A. A. Snyder, Chainman.

_____, Moundman.

_____, Moundman.

Will W. Oliver, Axman.

G. E. Wiswell, Axman.

W. H. Port, Flagman.

Subscribed and sworn to before me this 11th
 day of August 1804



John P. Hesse
 U. S. Dep. Surveyor

No notary available

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BOOK 1878

FINAL OATH OF UNITED STATES DEPUTY SURVEYOR.

I, John P. 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 17th day of June 1904, ~~189~~, 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 East, West and North boundaries of T. 1 N. R. 31 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; and should any fraud be detected, I will suffer the penalty of perjury under the provisions of an Act of Congress approved August 8, 1846.

John P. Hesse
United States Deputy Surveyor.

Subscribed by said John P. Hesse, and sworn to before me }
this 2nd day of Nov, 189 1904 }

Frank S. Ingalls
U.S. Surveyor



APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,

Phoenix, Ar. April 21, 1905, 189 189

The foregoing field notes of the survey of the East West and North Bdrs. of T. 1 N. R. 31 E. of the Gila and Salt River Base and Meridian, in the Territory of Arizona

executed by John P. Hesse under his contract No. 121, dated June 17, 1904, 189 189, 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.