

FIELD NOTES 2329

Accepted S. L. O. letter "E" dated Dec. 17, 1912.

OF THE SURVEY OF THE

East ^{and} West North ^{and} South Bds. T18 R. R 29 E

Of the Gila ^{and} Salt River Meridian,

In the State of Arizona

EXECUTED BY

John J. Hesse

and
Alfred N. Oliver

In the capacity of Assistant U. S. Surveyor, under instructions dated May 25, 1911,

issued by the United States Surveyor General to govern surveys included in

Group No. 5, which were approved by the Commissioner of the General Land

Office, June 7, 1911, pursuant to authority contained in the Act of

Congress dated March 4, 1911.

Survey commenced August 18, 1911.

Survey completed August 30, 1911.

INDEX DIAGRAM.

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INDEX DIAGRAM.

Township 18D, Range 29E

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PRELIMINARY OATHS OF ASSISTANTS.

H. R. Harvey
We, J. H. Bates, A. E. Lyon, and R. A. Coombs, R. L. Bates
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 East and fractional North and South boundaries of Tp. 18 S. Rg. 29 E.

A. E. Lyon
R. L. Bates
R. A. Coombs, Chainman.
H. R. Harvey
J. H. Bates, Chainman.

Subscribed and sworn to before me this 15th. }
day of August, 1911 }
By H. R. Harvey, August 19, 1911.



John P. Hesse

U. S. Transitman

We, E. E. Mills, J. L. Gardner and H. R. Harvey
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 the East and fractional North and South boundaries of Tp. 18 S. Rg. 29 E.

J. L. Gardner
E. E. Mills, Moundman.
H. R. Harvey, Moundman.

Subscribed and sworn to before me this 15th. }
day of August, 1911 }
By J. L. Gardner, August 21, 1911.



John P. Hesse

U. S. Transitman

We, E. Barnes, W. M. Sanders, and H. F. Dillman
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 East and fractional North and South boundaries of Tp. 18 S. Rg. 29 E.

W. M. Sanders
E. Barnes, Axman.
H. F. Dillman, Axman.

Subscribed and sworn to before me this 15th. }
day of August, 1911 }



John P. Hesse

U. S. Transitman

We, Ralph Brown, W. L. Ray, do solemnly swear that we will well and truly perform the duties of flagman according to instructions given us to the best of our skill and ability, in the survey of the East and fractional North and South bdys. of Tp. 18 S. Rg. 29 E.

W. L. Ray
Ralph Brown, Flagman.

Subscribed and sworn to before me this 15th. }
day of August, 1911 }
By W. L. Ray August 16, 1911.



John P. Hesse

U. S. Transitman.

Chains.

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Survey commenced August 18, 1911, and executed with a W. and L.E.Gurley solar compass, not numbered. The horizontal limb is provided with two double verniers placed opposite each other, reading to single minutes of the arc, which is also the least count of the verniers of the latitude and declination arcs.

The instrument was examined and approved by the Supervising Surveyor.

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 camp, near the $\frac{1}{4}$ sec.cor., bet. secs.14 and 15, Tp.18 S., R. 29 E.; latitude, $31^{\circ}52'N.$; longitude, $109^{\circ}23'W.$, I set off $31^{\circ}52'N.$ on the lat.arc; $13^{\circ}15'N.$ 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. E. of my station.

At 9h. 46m.p.m., by my watch, which has correct l.m.t., I observe Polaris at eastern elongation, in accordance with the 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 18, 1911.

August 19: At 6h.30m., a.m., l.m.t., I lay off the azimuth of Polaris, $1^{\circ}23'$ to the west, and mark the meridian thus determined, by cutting a small groove in the stone set August 18, on which the meridian coincides with the mark determined by the solar.

At 7h.00m., a.m., l.m.t., I set off $31^{\circ}52'N.$ on the lat.arc; $13^{\circ}03\frac{1}{2}'N.$ 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 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 determined by 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., l.m.t., is $N.13^{\circ}30'W.$; the angle thus determined gives the mag.decl. $13^{\circ}30'E.$

I commence at the corner of secs. 3,4,33 and 34 on the S.bdy. of the township, which is a stone marked and witnessed, as described by the Surveyor General.

Thence I run, East, bet. secs.3 and 34, Tp. 19 S., R. 29 E., and Tp.18 S., R.29 E. respectively.

Ascending through dense brush and timber,

15.00 Drain, 5 lks.wide, course NW.

30.57 Drain, 6 lks.wide, course NE.

40.00 Set an iron post 3 ft. long, 1 in.in diam., 26 ins. in the ground for $\frac{1}{4}$ sec.cor., marked on brass cap, $\frac{1}{4}$ S 34 in N., and S 3 in S.half; from which,

A pine 18 ins. diam., bears $N.06\frac{3}{4}^{\circ}E.$, 48 lks.dist., marked T 18 S R 29 E S 34 B T.

A pine 16 ins.diam., bears $S.56\frac{3}{4}^{\circ}E.$, 31 lks.dist., marked T 19 S R 29 E S 3 B T.

65.75 Top of ridge bears NE.and SW.; descend.

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,

T 18 S in N.,

T 19 S in S.,

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R 29 E in W.half;
 S 34 in NW.,
 S 35 in NE.,
 S 2 in SE., and
 S 3 in SW.quadrant; raise a mound of stone 2 ft.
 base, 1½ ft. high, W.of cor. Pits impracticable.
 Land, mountainous.
 Soil, rocky and worthless, 4th rate.
 Timber, oak, pine and juniper.
 Undergrowth, manzanita and oak brush.
 Cloudy weather prevented observation for latitude at noon.
 August 19, 1911.

August 21: At 7h.00m.a.m., 1.m.t., I set off 31°49'N. on
 the lat.arc; 12°24'N. on the decl.arc, and determine
 a meridian with a solar at the cor.of secs.2,3,34
 and 35.
 East, bet. secs. 2 and 35.
 Descending through dense brush and timber.
 12.42 Drain, 6 lks.wide, course SE.
 22.84 Cross wash, 20 lks.wide, course SW.; ascend.
 40.00 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the
 ground for ¼ sec.cor., marked on brass cap, ¼ S 35 in
 N. and S 2 in S.half; from which,
 An oak, 6 ins. diam., bears N.05°W, 26 lks.dist.,
 marked T 18 S, R 29 E S 35 B T.
 A pine, 10 ins.diam., bears S.25¾°E., 42 lks.dist.,
 marked T 19 S R 29 E, S 2 B T.
 46.06 Top of 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. 1,2,35 and 36, marked on brass
 cap,
 T 18 S in N.,
 T 19 S in S.,
 Rg. 29 E. in W.half,
 S 35 in NW.,
 S 36 in NE.,
 S 1 in SE., and
 S 2 in SW. quadrant; raise a mound of stone 2 ft.
 base, 1½ ft. high, W.of cor. Pits impracticable.
 Land, mountainous.
 Soil, rocky and worthless, 4th rate.
 Timber, oak, juniper and pine.
 Undergrowth, manzanita and oak brush.
 August 21: At this cor. I set off 12°19'N., on the decl.
 arc, and observe the sun on the meridian at noon; the
 resulting lat.is 31° 49'N.

East, bet, secs.1 and 36.
 Descending through dense brush and timber.
 23.03 Long John Canyon, 50 lks.wide, course SW.; ascend.
 40.00 Set an iron post 3 ft. long, 1 in. in diam., 26 ins. in
 the ground for ¼ sec.cor., marked on brass cap, ¼ S
 36 in N. and S 1 in S.half; raise a mound of stone
 2 ft.base, 1½ ft. high, N.of cor. Pits impracticable.
 77.18 Top of 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 Ts.18 and 19 S., Rs.29 and 30 E.,
 marked on brass cap,
 T 18 S in N.,
 R 30 E in E.,
 T 19 S in S., and
 R 29 E in W.half;
 S 36 in NW.,
 S 31 in NE.,
 S 6 in SE., and
 S 1 in SW. quadrant; raise a mound of stone 2 ft.

Chains.

base, 1 1/2 ft. high, S. of cor. Pits impracticable.
Land, mountainous.
Soil, rocky and worthless, 4th rate.
Timber, pine and juniper.
Undergrowth, manzanita and oak brush.

August 21, 1911.

Alfred N. Oliver
U.S. Transitman.

Chains.

Survey commenced August 17, 1911, 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 the arc, which is also the least count of the verniers of the latitude and declination arcs. The instrument was examined and approved by the Supervising Surveyor.

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 camp near the $\frac{1}{4}$ sec. cor., bet. secs. 14 and 15, T. 18 S., R. 29 E., latitude, $31^{\circ}52'N.$; longitude, $109^{\circ}23'W.$, I set off $31^{\circ}52'N.$ on the lat. arc; $13^{\circ}34'W.$ on the decl. arc; and at 5h.00m. a.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 9h.50m. p.m., by my watch, which has correct l.m.t., I observe Polaris at eastern elongation, in accordance with the 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 17, 1911.

August 18: At 6h.30m., a.m., l.m.t., I lay off the azimuth of Polaris, $1^{\circ}23'$ to the west, and mark the meridian thus determined, by cutting a small groove in the stone set August 17, on which the meridian coincides with the mark determined by the solar.

At 7h.00m. a.m., l.m.t., I set off $31^{\circ}52'N.$ on the lat. arc; $13^{\circ}23'W.$ 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 determined by 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., l.m.t., is $N.13^{\circ}30'W.$; the angle thus determined gives the mag. declination $13^{\circ}30'E.$

I commence at the corner of secs. 3, 4, 33 and 34 on the N. bdy. of Tp. 18 S., R. 29 E., which is a stone marked and witnessed, as described by the Surveyor General.

Thence I run, East, on a random line along N. bdy. of Tp. 18 S., Rg. 29 E., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs., and at 240.00 chs. set temp. cor. for Tps. 17 and 18 S., Rs. 29 and 30 E.

August 18 and 19, 1911.

August 30, 1911.

The east boundary of T. 18 S., R. 29 E., when run north, intersected the north bdy. 45 lks. E. of temp. cor. of Ts. 17 and 18 S., Rs. 29 and 30 E., and at point of intersection, an iron post 3 ft. long, 3 ins. diam., was set 24 ins. in the ground for cor. of Ts. 17 and 18 S., Rs. 29 and 30 E., marked on brass cap,

T 17 in N.,
R 30 in E.,
T 18 S in S., and
R 29 E in W. half;

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S 36 in NW.,
 S 31 in NE.,
 S 6 in SE., and
 S 1 in SW. quadrant; from which,
 A pinon, 8 ins.diam., bears N.14°05'W., 26 lks.
 dist., marked T 17 S R 29 E, S 36 B T.
 A juniper, 18 ins.diam., bears N.23°E., 51 lks.
 dist., marked T 17 S R 30 E S 31 B T.
 An oak, 9 ins.diam., bears S.51°04'E., 45 lks.
 dist., marked T 18 S R 30 E S 6 B T.
 An oak, 7 ins.diam., bears S.21°56'W., 12 lks.
 dist., marked T 18 S R 29 E S 1 B T.
 August 30; At 7h.00m.a.m., l.m.t., I set off 31°54'N. on
 the lat. arc; 9°18½'N. on the decl. arc, and determine
 a meridian with the solar at the cor. of Ts. 17 and 18
 S., Rs. 29 and 30 E.
 Thence I run,
 West, bet. secs. 1 and 36, marking and blazing true line.
 Ascending through dense brush and timber.

21.00 Top of ridge, bears N. and S.; descend.
 26.35 Cross wash, 10 lks. wide, course SW.; ascend.
 33.00 Top of ridge, bears NE. and SW.; descend.
 40.00 Set an iron post 3 ft. long, 1 in. in diam., 26 ins. in
 the ground for ¼ sec. cor., marked on brass cap, ¼ S
 36 in N. and S 1 in S. half; raise a mound of stone 2
 ft. base, 1½ ft. high, N. of cor. Pits impracticable.
 44.75 Cross wash, 10 lks. wide, course SW.; ascend.
 58.60 Top of ridge, bears NE. and SW.; descend.
 79.75 Cross wash, 10 lks. wide, course SW.; ascend.
 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,

T 17 S in N.,
 T 18 S in S., and
 R 29 E in W. half;
 S 35 in NW.,
 S 36 in NE.,
 S 1 in SE., and
 S 2 in SW. quadrant; from which,
 A juniper, 14 ins.diam., bears N.31°48'W., 20 lks.
 dist., marked T 17 S, R 29 E, S 35 B T.
 An oak, 12 ins.diam., bears N.68°43'E., 83 lks.
 dist., marked T 17 S R 29 E S 36 B T.
 An oak, 9 ins. diam., bears S.65°E., 67 lks.
 dist., marked T 18 S R 29 E S 1 B T.
 A pine, 8 ins. diam., bears S.11°31'W., 49 lks.
 dist., marked T 18 S R 29 E S 2 B T.

Land, mountainous.
 Soil, rocky and worthless, 4th rate.
 Timber, pine, pinon, oak, fir and juniper.
 Undergrowth, manzanita, oak and mahogany.

West, on a true line, bet. secs. 2 and 35.
 Ascending through dense brush and timber.

19.50 Top of ridge, bears NW. and SE.; descend.
 40.00 Set an iron post 3 ft. long, 1 in. in diam., 26 ins. in
 the ground for ¼ sec. cor., marked on brass cap, ¼ S 35
 in N. and S 2 in S. half; raise a mound of stone 2 ft.
 base, 1½ ft. high, N. of cor. Pits impracticable.
 41.00 Saddle between two ridges; ascend.
 50.00 Top of ridge, brs. N. and S.; descend.
 79.50 Cross wash, 20 lks. wide, course SE.; ascend.
 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,
 T 17 S in N.,
 T 18 S in S., and
 R 29 E in W. half;
 S 34 in NW.,

Chains.

S 35 in NE.,
 S 2 in SE., and
 S 3 in SW. quadrant; raise a mound of stone 2 ft.
 base, 1½ ft. high, W. of cor. Pits impracticable.
 Land, mountainous.
 Soil, rocky, and worthless, 4th rate.
 Timber, pine, pinon, oak, fir and juniper.
 Undergrowth, manzanita, oak and mahogany.

West, on a true line, bet. secs. 3, and 34.
 Ascending through dense brush and timber.
 12.20 Top of ridge, bears N. and S.; descend.
 31.50 Cross wash, 10 lks. wide, course SE.; ascend.
 40.00 Set an iron post, 3 ft. long, 1 in. in diam., 26 ins. in
 the ground for ¼ sec. cor., marked on brass cap, ¼ S
 34 in N. and S 3 in S. half; raise a mound of stone
 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.
 49.35 Top of ridge, brs. N. and S.; descend.
 75.70 Cross wash, 15 lks. wide, course SW.; ascend.
 80.45 The cor. of secs. 3, 4, 33 and 34, Ts. 17 and 18 S., R. 29 E.,
 a stone marked and witnessed, as described by the Sur-
 veyor General.
 Land, mountainous.
 Soil, rocky and worthless, 4th rate.
 Timber, pine, pinon, oak, fir and juniper.
 Undergrowth, manzanita, oak and mahogany.

August 30, 1911.

John P. Hesse
 U. S. Transitman.

Chains.

August 23: At 7h.00m.a.m., l.m.t., I set off $31^{\circ}49'N$. on the lat.arc; $11^{\circ}44'N$. on the decl.arc, and determine the meridian with the solar at the cor.of Ts.18 and 19 S., Rs.29 and 30 E., previously described.

Thence I run,
North, on E.bdy.of T.18 S.,R.29 E., bet. secs.31 and 36.
Ascending through dense brush and timber,

40.00 Set an iron post 3 ft. long, 1 in. diam., 26 ins. in the ground for the $\frac{1}{4}$ sec.cor., marked on brass cap, $\frac{1}{4}$ S 36 in W. and S 31 in E.half; raise a mound of stone 2 ft. base, $1\frac{1}{2}$ ft. high,W.of cor. Pits impracticable.

47.00 Top of ridge, bears NW.and SE.; descend.

71.41 Cross wash, 10 lks.wide, course SW.; ascend.

79.00 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for witness, cor. of secs. 25,30,31 and 36, marked on brass cap,
W C, S of center;
T 18 S in N.half;
R 29 E, S 25 in NW.,
R 30 E, S 30 in NE.,
S 31 in SE., and
S 36 in SW. quadrant; from which,
An oak, 9 ins.diam., bears N. $20^{\circ}53'W$., 36 lks. dist., marked W C T 18 S R 29 E, S 25 B T.
A pine, 8 ins. diam., bears N. $46^{\circ}E$., 30 lks. dist., marked W C T 18 S R 30 E, S 30 B T.
A pine 12 ins.diam., bears S. $20^{\circ}09'E$., 57 lks. dist., marked W C T 18 S R 30 E, S 31 B T.
A pine 10 ins,diam., bears S, $30^{\circ}55'W$., 12 lks. dist., marked W C T 18 S R 29 E, S 36 B T.

80.00 Point for cor.falls on edge of wash, 20 lks.wide, course SW.
Land, mountainous.
Soil, rocky and worthless, 4th rate.
Timber, pine, fir, oak, pinon and juniper.
Undergrowth, manzanita and oak.

August 23: At this cor. I set off $11^{\circ}39'N$. on the decl. arc, and observe the sun on the meridian at noon; the resulting lat. is $31^{\circ}50'N$.

From true point, for cor.of secs.25,30,31 and 36, I run,
North, bet. secs.25 and 30.
Ascending through scattering brush and timber.

19.50 Top of ridge, bears NW.and SE.; descend.

40.00 Set an iron post 3 ft. long, 1 in. in diam., 26 ins. in the ground for $\frac{1}{4}$ sec.cor., marked on brass cap, $\frac{1}{4}$ S 25 in W., and S 30 in E.half; from which,
A pine, 9 ins:diam., bears S. $61^{\circ}12'W$., 36 lks. dist., marked T 18 S, R 29 E S 25 B T.
A pine, 14 ins. diam., bears S. $46^{\circ}55'E$., 62 lks. dist., marked T 18 S, R 30 E, S 30 B T.

60.00 Cross wash, 8 lks.wide, course NW.; ascend.

64.60 Top of ridge, bears NW.and SE.; descend.

70.00 Cross wash, 5 lks.wide, course NW.; ascend.

80.00 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor.of secs.19,24,25 and 30, marked on brass cap,
T 18 S in N.half;
R 29 E, S 24 in NW.,
R 30 E, S 19 in NE.,
S 30 in SE., and
S 25 in SW. quadrant; raise a mound of stone 2 ft. base, $1\frac{1}{2}$ ft. high,W.of cor. Pits impracticable.

Land, mountainous.
Soil, rocky and worthless, 4th rate.
Timber, pine, fir and oak, very heavy on and near top of range.
Undergrowth, manzanita, oak and elder berries.

August 23, 1911.

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Chains.	
	<p>August 24: At 7h.00m.a.m., l.m.t., I set off $31^{\circ}50\frac{1}{2}'N.$ on the lat.arc; $11^{\circ}24'N.$, on the decl.arc, and determine a meridian with the solar at the cor.of secs.19, 24, 25 and 30.</p> <p>Thence I run, North, bet. secs.19 and 24. Descending through dense brush and timber.</p>
25.55	Creek, clear running water, 15 lks.wide, 6 ins. deep, course NE.
40.00	Set an iron post 3 ft. long, 1 in. in diam., 26 ins. in the ground for $\frac{1}{4}$ sec.cor., marked on brass cap, $\frac{1}{4}$ S 24 in W. and S 19 in E.half; from which, An oak, 10 ins.diam., bears $N.43^{\circ}26'W.$, 87 lks.dist., marked T 18 S R 29 E, S 24 B T. A pine 12 ins.diam., bears $N.28^{\circ}50'E.$, 69 lks.dist., marked T 18 S R 30 E, S 19 B T.
64.10	Cross road, bears NW.and SE.
65.30	Creek, clear running water, 15 lks.wide, 6 ins.deep, course NW.
72.30	Creek, clear running water, 15 lks.wide, 6 ins.deep, course NE.
77.30	Cross old logging road, bears NE.and SW.; ascend.
80.00	Set an iron post 3 ft. long, 3 ins.diam., 24 ins. in the ground for cor.of secs.13,18,19 and 24, marked on brass cap, T 18 S in N.half, R 29 E, S 13 in NW., R 30 E, S 18 in NE., S 19 in SE., and S 24 in SW.,quadrant; raise a mound of stone 2 ft. base, $1\frac{1}{2}$ ft. high,W.of cor. Pits impracticable. Land, mountainous. Soil, rocky and worthless, 4th rate. Timber, pine,oak, fir, pinon and juniper. Undergrowth, manzanita,oak,mahogany and needle brush. August 24: At this cor. I set off $11^{\circ}18\frac{1}{2}'N.$ on the decl.arc, and observe the sun on the meridian at noon; the resulting lat.is $31^{\circ}51\frac{1}{2}'N.$

	<p>North, bet. secs. 13 and 18. Descending through dense brush and timber.</p>
4.50	Cross old logging road, bears NW.and SE.
12.20	Turkey Creek, clear running water, 50 lks.wide, 4 ins. deep, course NW.; ascend.
24.00	Cross old log road, bears NE.and SW.
24.25	Drain, 10 lks.wide, course SW.
40.00	Set an iron post 3 ft. long, 1 in. in diam., 26 ins. in the ground for $\frac{1}{4}$ sec.cor., marked on brass cap, $\frac{1}{4}$ S 13 in W. and S 18 in E.half; raise a mound of stone 2 ft. base, $1\frac{1}{2}$ ft. high,W.of cor. Pits impracticable.
75.20	Top of ridge, bears E.and W.; descend.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor.of secs. 7,12,13 and 18, marked on brass cap, T 18 S in N.half; R 29 E, S 12 in NW., R 30 E S 7 in NE., S 18 in SE., and S 13 in SW.quadrant; from which, A juniper, 32 ins.diam., bears $N.81^{\circ}04'W.$, 29 lks. dist., marked T 18 S R 29 E, S 12 B T. An oak, 26 ins.diam., bears $N.60^{\circ}55'E.$, 92 lks. dist., marked T 18 S, R 30 E, S 7 B T. An oak, 14 ins.diam., bears $S.16^{\circ}45'E.$, 72 lks. dist., marked T 18 S R 30 E S 18 B T. An oak,,9 ins.diam., bears $S.34^{\circ}51'W.$, 48 lks. dist., marked T,18 S, R 29 E, S 13 B T. Land, mountainous. Soil, rocky and worthless, 4th rate. Timber, pine, pinon,fir,oak,juniper and walnut.

Chains

Undergrowth, manzanita, oak, mahogany and needle brush.
August 24, 1911.

August 25: At 7h.00m.a.m., l.m.t., I set off $31^{\circ}52\frac{1}{2}'N.$ on the lat. arc; $11^{\circ}03\frac{1}{2}'N.$ 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.
Descending through dense brush and timber.

- .40 Cross wash 8 lks. wide, course SW.; ascend.
 - 7.00 Top of ridge, bears E. and W.; descend.
 - 22.65 Cross wash, 10 lks. wide, course NW.; ascend.
 - 36.00 Drain, 6 lks. wide, course NW.
 - 40.00 Set an iron post 3 ft. long, 1 in. in diam., 26 ins. in the ground for $\frac{1}{4}$ sec. cor., marked on brass cap, $\frac{1}{4}$ S 12 in W. and S. 7 in E. half; from which,
 - An oak, 10 ins. diam., bears $S.72^{\circ}02'W.$, 41 lks. dist., marked T 18 S R 29 E, S 12 B T.
 - An oak, 8 ins. diam., bears $N.77^{\circ}21'E.$, 32 lks. dist., marked T 18 S, R 30 E S 7 B T.
 - 46.00 Top of ridge, bears E. and W.; descend.
 - 69.50 Cross wash, 8 lks. wide, course NW.; ascend.
 - 70.35 Top of ridge, bears NW. and SE.; descend.
 - 80.00 Set an iron post 3 ft. long, 3 ins. diam., 24 ins. in the ground for cor. of secs. 1, 6, 7 and 12, marked on brass cap,
 - T 18 S in N. half,
 - R 29 E, S 1 in NW.,
 - R 30 E S 6 in NE.,
 - S 7 in SE., and
 - S 12 in SW. quadrant; from which,
 - A juniper 8 ins. diam., bears $N.54^{\circ}02'W.$, 140 lks. dist., marked T 18 S R 29 E, S 1 B T.
 - An oak, 9 ins. diam., bears $N.41^{\circ}39'E.$, 100 lks. dist., marked T 18 S, R 30 E, S 6 B T.
 - An oak, 9 ins. diam., bears $S.51^{\circ}04'E.$, 45 lks. dist., marked T 18 S R 30 E, S 7 B T.
 - An oak, 7 ins. diam., bears $S.21^{\circ}56'W.$, 12 lks. dist., marked T 18 S, R 29 E, S 12 B T.
- Land, mountainous.
Soil, rocky and worthless, 4th rate.
Timber, pine, pinon, juniper and oak.
Undergrowth, manzanita, oak and mahogany.
- August 25: At this cor. I set off $10^{\circ}58'N.$ on the decl. arc, and observe the sun on the meridian at noon; the resulting lat. is $31^{\circ}53\frac{1}{2}'N.$

North, bet. secs. 1 and 6.

- 1.05 Descending through dense brush and timber.
- 8.55 Cross wash, 8 lks. wide, course SW.; ascend.
- 28.40 Top of ridge, bears NE. and SW.; descend.
- 34.65 Cross road, brs. NE. and SW.
- 40.00 Rock Creek, clear running water, 15 lks. wide, 6 ins. deep, course SW.; ascend.
- 48.50 Set an iron post 3 ft. long, 1 in. in diam., 26 ins. in the ground for $\frac{1}{4}$ sec. cor., marked on brass cap, $\frac{1}{4}$ S 1 in W. and S 6 in E. half; from which,
 - A juniper 24 ins. diam., bears $S.84^{\circ}17'W.$, 53 lks. dist., marked T 18 S, R 29 E S 1 B T.
 - An oak, 14 ins. diam., bears $N.79^{\circ}30'E.$, 96 lks. dist., marked T 18 S, R 30 E, S 6 B T.
- 74.00 Top of ridge, bears E. and W.; descend.
- 79.70 Cross wash, 8 lks. wide, course SE.; ascend.
- The cor. of Ts. 17 and 18 S., Rs. 29 and 30 E., previously described.

Chains

Land, mountainous.
 Soil, rocky and worthless, 4th rate.
 Timber, pine, pinon, juniper, walnut and oak.
 Undergrowth, manzanita, oak and needle brush.
 August 25, 1911.

GENERAL DESCRIPTION.

This township is very rough and mountainous. The township is well watered and well timbered, and the soil along the streams is very fertile.

Boundaries of Township 18 South, Range 29 East.
 Latitudes, departures, and closing errors.

Line Designated.	True bearing.	Distance.	Latitudes.		Departures.	
			N.	E.	E.	W.
South Bdy.	East,	479.10			479.10	
East Bdy.	North,	479.70	479.700			
North Bdy.	West,	478.65				478.65
West Bdy.	South,	480.00		480.00		
Convergency,						.45
Totals,			479.70	480.00	479.10	479.10
Error in latitude,				<u>479.70</u>		
				.30		

John P. Hease
 U. S. Transitman.

BOOK 2329

LIST OF NAMES.

BOOK 2329

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

Transitman
 _____, 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 and fractional North and South boundaries of Tp. 18 S. Rg. 29 E. showing the respective capacities in which they acted:

- | | | | |
|---------------------|----------------------|----------------------|-----------|
| <u>H. R. Harvey</u> | <u>J. H. Bates</u> | <u>A. E. Lyon</u> | Chainman. |
| | <u>R. A. Coombs</u> | <u>R. L. Bates</u> | Chainman. |
| | <u>J. L. Gardner</u> | <u>H. R. Harvey</u> | Moundman. |
| | | <u>E. E. Mills</u> | Moundman. |
| | | <u>E. Barnes</u> | Axman. |
| | | <u>H. F. Dillman</u> | Axman. |
| <u>Ralph Brown</u> | | <u>W. L. Ray</u> | Flagman. |

FINAL OATH OF ASSISTANTS.

We hereby certify that we assisted John F. Hesse

Transitman
 _____, United States Deputy Surveyor, in surveying all those parts or portions of the the east and fractional north and south boundaries of Tp. 18 S. Rg. 29 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

- | | | | |
|----------------------|----------------------|-------------------|-----------|
| <u>HR Harvey</u> | <u>R. A. Coombs</u> | <u>A. E. Lyon</u> | Chainman. |
| <u>J. H. Bates</u> | <u>R. L. Bates</u> | | Chainman. |
| <u>J. L. Gardner</u> | <u>E. E. Mills</u> | | Moundman. |
| <u>W. M. Sanders</u> | <u>HR Harvey</u> | | Moundman. |
| | <u>E. Barnes</u> | | Axman. |
| | <u>H. F. Dillman</u> | | Axman. |
| <u>W. L. Ray</u> | <u>Ralph Brown</u> | | Flagman. |

Subscribed and sworn to before me this 30th. day of August, 19 11
 By R. A. Coombs August 19, 1911

John F. Hesse

U. S. Transitman.

6-151 By Ralph Brown August 24, 1911.
 By H. F. Dillman August 28, 1911.



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BOOK 2329

FINAL OATH OF UNITED STATES DEPUTY SURVEYOR.

Transitmen

X, We *John P. Hesse and Alfred N. Oliver*, United States Deputy Surveyor, do solemnly swear that, in pursuance of ^{instructions} a contract received from *Frank P. Ingalls* United States Surveyor General for *Arizona*, bearing date of the *25th* day of *May*, 1911, we have well, faithfully, and truly, in ^{our} ~~my~~ own proper persons, 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 *N. S. and E. boundaries of Pp. 185. Pg. 29 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 P. Hesse
Alfred N. Oliver
United States Deputy Surveyor.
Transitmen

Subscribed by said *John P. Hesse*, and sworn to before me }
this *18* day of *July*, 1912 and
by *Alfred N. Oliver Aug 1, 1912* }
Frank P. Ingalls
SURVEYOR-GENERAL OF ARIZONA



APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,

Francis Craig Aug 3, 1912

The foregoing field notes of the survey of *the East and Gila*,

North and South Boundaries of Pp. 185 Pg. 29 E

executed by *John P. Hesse and Alfred N. Oliver*
under his contract No. *5*, dated *Aug. 25*, 1910, having been critically examined, and the necessary corrections and explanations made, the said field notes, and the surveys they describe, are hereby approved.
Frank P. 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.