

Book "A"
1929

BOOK 1929 1929

FIELD NOTES

BOOK 1929

RE
OF THE SURVEY OF THE

*Fractional East bdy of T. 21 N. R. 30 E.
the East bdy of T. 22 N., R. 30 E.,
and the East bdy of T. 23 N., R. 30 E.*

1929

1929

*Of the Gila and Salt River Base and Meridian,
Territory of Arizona.*

AS SURVEYED BY

Charles L. Campbell, United States Deputy Surveyor,

Under his Contract No. *129*, dated *March 20th*, 1907

Survey commenced *March 23rd*, 1907

Survey completed *March 29th*, 1907

1929

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NAMES AND DUTIES OF ASSISTANTS.

Frank J. Brown, Chairman

Leo R. Leaden

Robert Hasckam, Axeman

BOOK 1929

At my camp at the Cron-
 mayer Indian Trading Stop,
 81. rocks. N. and 18. rocks. S. of
 the cor. of sec. 25, 30, 31 and
 36 on the C. Rdy. T. 21 N. R. 30 E.
 D. 30 E.; latitude $35^{\circ} 10' 22''$
 ~~$35^{\circ} 10' 22''$~~ longitude $109^{\circ} 08' 49''$ W.
 set off $35^{\circ} 15'$ N. on the
 lat. arc; $0^{\circ} 54'$ N. on the decl.
 arc, and at $4^h 10^m$ P. M.,
 l.m.t., determine a
 meridian with the solar
 and mark a point
 thereon on a stone firmly
 set in the ground,
 5 chs. N. of my station.
 At $10^h 15^m$ P. M., by my
 watch, which is 13^m
 fast of l.m.t., observe
 Polaris in accordance with
 the Manual of surveying
 instructions and mark
 the direction thus
 determined by driving
 a tack in a stake
 firmly set in the ground
 5 chs. N. of my station.

Resurvey commenced on the 22nd day of March, 1907 and executed with a H. and L. C. Gurley, improved solar compass No. 210, with telescopic attachment. The horizontal limb is provided with two double series placed opposite to each other, reading to single minutes of arc, which is also the least count of the series of the lat. study arc, the declination arc reads to thirty seconds.

The instrument was examined, tested on the true meridian of the U. S. Geological Survey at the County Court House of Logan, Wash. by Geo. D. Campbell, U. S. C., on March, 23rd, 1907 and was found correct.

Regarding the adjustments of the instrument and finding them correct, they to test the solar apparatus by comparing its indications, resulting from solar observations made during p.m. and a.m. hours with a meridian determined by observations on Polaris, proceed as follows:

	1 37 6	
	12 37 7	
T. 23 N., R. 30 E.	13 35 18	T. 22 ²³ N., R. 31 E.
	24 33 19	
	25 32 30	
	36 30 31	
<hr/>		
	1 24 6	
	12 22 7	
T. 22 N., R. 30 E.	13 20 18	T. 21 ²² N., R. 31 E.
	24 19 19	
	25 17 30	
	36 15 31	
<hr/>		
	1 10 6	
	12 7	
T. 21 N., R. 30 E.	13 18	T. 21 N., R. 31 E.
	24 19	
	25 30	
	36 31	

INDEX DIAGRAM.

Township _____, Range _____

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

Meanders Page _____

WE, _____ and _____
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 _____

_____, *Chainman.*
_____, *Chainman.*

Subscribed and sworn to before me this _____ }
day of _____, 190_____ }



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_____ }



WE, _____ and _____
do solemnly swear that we will well and truly perform the duties of axmen in the establishment of corners and other duties, according to instructions given us, to the best of our skill and ability, in the survey of _____

_____, *Axman.*
_____, *Axman.*

Subscribed and sworn to before me this _____ }
day of _____, 190_____ }



I, _____, 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 _____

_____, *Flagman.*

Subscribed and sworn to before me this _____ }
day of _____, 190_____ }



Astron. time by watch
on March 23rd 10^h 15^m 00^s
Watch fast _____ 0.50
Astron. l.m.t., obs. March 23rd 10-12:00

U. C. Polaris, March 15th 1-56.3
Red. to March 23rd _____ 0.15
U. C. Polaris, March 23rd 1-24.8 1-24.8

Hour angle and time arg. 8-47.9 ✓

Azimuth at obs. 1004' Sh. ✓

March 23rd, 1907.

March 24; At 7^h 05^m a.m.,
l.m.t., I lay off the
azimuth of Polaris
10-04' to the E. and
mark a point in the
meridian thus determined
by cutting a small
groove in the stone
set March 23rd, on which
the meridian falls 0.4 ins.
E. of the line that was
determined by the
solar.

At 7^h 40^m a.m., l.m.t., I set
off 35° 26' N. on the lat.
arc; 1° 76' N. on the decl.
arc; and mark a point in

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The meridian determined by the solar, by cutting a cross on the Victory already set 5 chs. N. of my station; this mark falls 0.4 ins. E. of the meridian established by the Polaris observation. The solar apparatus by p.m. and a.m. observations defines positions for meridians, respectively about $0^{\circ} - 21''$ W. and E. of the meridian established by the Polaris observations; therefore, I conclude, the adjustments of the instrument are satisfactory. The magnetic bearing of the meridian at 8^h 05^m a.m. (L.M.T.) is $N. 14^{\circ} 30'$ W.; the angle thus determined gives the magnetic declination $14^{\circ} - 30'$ E.

In order to locate the Initial Point for surveys to be executed under Contract 129; it was found necessary to De Survey N. of from the cor. of T. 21 and 22 N., R. 33 and 31 E. After a long, careful examination of the country, aided by information from

Indians, white traders and railroad surveyors; the cor. of Tps. 21 and 22 N. R. 30 and 31 E., was found to be the nearest cor. of which there could be no doubt as to its exact location; others having been destroyed by Indians and floods; and still other corners were never established on the ground from all indications. Also in many cases, only a trace of the old corners remain, because the stones used were very soft and the markings have long since become illegible; the pits have filled up and the mounds washed away.

Added to this is the further cause of confusion caused by the mounds that had been built by Navajo Indians during the past years all over this section of the country.

Now in order to verify further the position of the cor. of Tps. 21 and 22 N. R. 30 and 31 E. which is a sand stone 12 x 9 ins above the ground and marked with six notches on all four edges, only a trace of

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chains

Pits and mound remain-
ing; I retrace South
along the line bet. sec.
1 and 6, for the reason
that this line has many
natural objects of topog-
raphy that serve as
a further check on the
position of the cor. of
Tps. 21 and 22 N., R. 30
and 31 E.

Therefore I commence at the
cor. of Tps. 21 and 22 N., R.
30 and 31 E, and run
South on random line
bet. sec. 1 and 6.

40.27 $\frac{1}{2}$ Fall 91 lbs. E. of the old
sec. cor. which is a
very dimly marked stone
6x10x10 ins. above the
ground; no trace of pits
and mound remaining,
marked $\frac{1}{2}$ on the st. job.
Set over this old stone and
begin both measurement
and alignment, continu-
ing random E.

40.33 $\frac{1}{2}$ Fall 35 lbs. E. of the
old cor. of sec. 1, 6, 7 and 12,
which is a sand stone
16x8x8 ins. in a mound
of stone, marking illegible.
Only a trace of pits
remaining. Being
satisfied that this
is the old original
corner, which is further
checked by the distances
to certain topographical
features, which will be
given by the Resurvey of this

chains mil; I re-establish this old corner in the same position as follows:

Set a sandstone 18 x 14 x 10 ins., 12 ins. in the ground, for cor. of secs. 1, 6, 7 and 12, marked with 6 notches on the S. and 1 notch on the N. edge, from which

A cedar 14 ins. diam., bears N. 26 3/4° E. 65 lbs. dist. marked S. 21 N. 100, E. 76 W. 10.

A cedar 14 ins. diam., bears S. 84° E. 84 lbs. dist. marked S. 21 N. 100, E. 77 W. 10.

A cedar, 16 ins. diam., bears S. 63° W. 89 lbs. dist. marked S. 21 N. 100 E. 71 W. 10.

A cedar, 12 ins. diam., bears N. 53° W. 60 lbs. dist. marked S. 21 N. 100 E. 71 W. 10.

From this reestablished cor. I run

N. 02° 33' E. on Resurvey line bet. secs. 1 and 6.

Second rolling N. slope through scattering timber and undergrowth, 200 ft.

20.00 Ruins of the old Galbados house, bears N. 72°-20' E., 6.00 chs. dist., as stated in original field notes.

A spring bears N. 54° 43' E., 16.48 chs. dist.

20.20 Lim wagon road, bears N. 80° W. 7.80 E.

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24.00 Wash, 100 lbs. wide, 25 ft. deep, water, 4 ins. deep, course N. 80° E. Over valley, gradual ascent.

35.00 Wash, 100 lbs. wide, 25 ft. deep, dry, course V. 30° E.

40.00 Entered bed $\frac{1}{2}$ sec. cor. Destroy all traces of old cor. and reestablish it as follows in the same position:

Set a sandstone, 15 x 12 x 8 ins., 10 ins. in the ground for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the st. face; from which

A cedar, 18 ins. diam., bears N. 70° E., 260 lbs. dist., marked $\frac{1}{4}$ L. B. S.

A cedar, 10 ins. diam., bears N. 14° E., 108 lbs. dist., marked $\frac{1}{4}$ L. B. S.

From this cor., I run N. 10-18° E.

44.20 Clear valley, bears E. and N. and around.

44.50 Hagon road, bears N. 80° E.; V. 80° E.

50.00 Over rolling mesa, bears E. and N., 20 ft. above valley.

80.51
80.60 Entered the old cor. of 5 ft. 21 and 22 N. D. C. 30 and 31 E., described heretofore. I reestablish this cor. in the same position as follows:

Set a sandstone, 18 x 12 x 4 ins., 12 ins. in the

chains

ground, for the cor. of the land 22 N. R. 00 and 01 C., marked with six notches on all four edges, from which

A pinion, 10 ins. diam., bears N. 80° E. 14 lbs. dist., marked 22 N. R. 01 C. 7 01 B. 1

A pinion, 8 ins. diam., bears S. 75° E. 08 lbs. dist., marked 21 N. R. 01 C. 7 06 B. 1

A pinion, 12 ins. diam., bears S. 79° E. 04 lbs. dist., marked 21 N. R. 00 C. 7 1 B. 1

A pinion, 10 ins. dia., bears N. 29° E. 09 lbs. dist., marked 22 N. R. 00 C. 7 06 B. 1

Land, level, rolling. Soil, sandy and gravelly; and and wet catch timber, juniper, cedar and pinon; undergrowth, small timber, sage, oak and cactus.

11⁴⁵ a.m. March 24, 1907.

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General Description.

The line between sec. 1 and 6 on the East Boundary of Township 22 North, Range 30 East, passes over a rolling country covered with a very scattering growth of cedar, Pinon, juniper, and oak brush. There are several springs just East of the line. The soil is sandy and gravelly and can be classified as sand and silt.

Charles L. Campbell,
U. S. Dept. Surveyor.

Now authorized to administer oaths, other than myself being available without great delay, inconvenience and expense; therefore I administer the required preliminary and final oaths.

Charles L. Campbell
U. S. Dept. Surveyor.

Resurvey commenced on the 12th day of March, 1907, and executed with a H. & C. Curly improved solar compass No. 210 with telescopic attachment. The horizontal limb is provided with two double verniers placed opposite to each other, reading to single minutes of arc, which is the least count of the vernier of the latitude arc; the declination arc, reads to thirty seconds. The instrument was examined, tested on the true meridian of the U. S. Geological Survey at the Chokan County Court House, Chokan, Utah, by George P. Campbell, C. E., on March 2nd, 1907, and was found correct. Examining the adjustments of the instrument and finding them correct, then to test the solar apparatus by comparing its indications, resulting from solar observations made during p. m. and a. m. hours with a meridian determined by observations on Polaris, I proceed as follows:

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At my camp at the Com-
 munes Indian Trading
 store, 81 chs. N. and 18 fks.
 S. of the cor. of Secs. 25, 30,
 31 and 36, on the E. Pdy. of
 T. 22 N., R. 30 E.; latitude 0
 $33^{\circ} 27' 16''$ N.; longitude $109^{\circ} 08' 33''$ W.;
 I set off $03^{\circ} 30' 16''$ N. on the lat.
 arc; $18'$ N. on the decl.
 arc; and at $4:10$ p. m.
 l.m.t., determining a meridian
 with the solar and
 find that said meridian
 coincides with the
 meridian that was deter-
 mined at this station
 on March 23rd by Polaris
 observations.

March 24, 1907.

March 25: At $8:10$ a.m.
 l.m.t., I set off $03^{\circ} 30' 16''$
 N. on the lat. arc; $18'$
 on the decl. arc; and
 determine a meridian
 with the solar and
 find that said meridian
 coincides with the
 meridian that was
 determined at this
 station by Polaris
 observations on March
 23rd.

The solar apparatus by
 p.m. and a.m. observations
 defines positions for
 meridians, respectively, that

coincide with the meridian that was determined by the Polaris observations. Therefore, I conclude that the adjustments of the instrument are satisfactory.

The magnetic bearing of the meridian at 8th P.M. a.m. l.m.f., is N. 14° 30' E. The angle thus determined gives the mean magnetic declination 14° 30' E.

I commence at the re-established cor. of Secs. 21 and 22 N., R. 30 and 31 E., described heretofore.

Thence I run North on a retracing line bet. Secs. 35 and 36.

39.95 I fall 100 lbs. th. of old $\frac{1}{2}$ sec. cor., which is a sand stone 6x10x6 ins. above ground, marked $\frac{1}{2}$ very dimly on the face, only a trace of mound remaining. I set over old cor. and begin both measurement and alignment anew.

40.18 I fall 100 lbs. of remains of old cor. of secs. 25, 30, 31, and 34, which is a sand stone 10x10x10 ins. above ground, marks illegible, with traces of mound. Therefore the T. Chal. mile has a

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bearing of N. 10° 20' E.; the
N. half mile a bearing
of N. 0° 00' E.

North bet. secs. 25 and 30.
40.07 Interesting remains of bed
1/2 sec. cor. which is a
story 6x12x8 ins. above
ground, marks illegible.
With remains of bed
mound on the st.
From here on North for a
distance of 10 1/2 miles, I
continued the random
line and failed to
find any further traces
of the original corners.
Through the work on this
Range Line, the topog-
raphy agrees very
closely with the old
field notes; but no corners
remain; they having been
destroyed by Indians,
floods, slides, and the
many years of erosion.
The soft sandy soil has
filled up the pits; and
disintegration of the
soft sandstone has rendered
markings illegible. I
made a long careful search
for every corner, and
further consulted with
Indians, Trappers and
railroad engineers; but
very thing I went to
show that the old

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 chains corners are no longer in
 existence. I also extended
 blank lines C and H from
 the Range line, but
 could find no traces
 of the old subdivisions
 corners.
 Therefore I found it abso-
 lutely necessary in order
 to locate the Initial
 Point for survey under
 Contract 129, to make
 a complete Resurvey
 of the Range line bet.
 Ranges 30 and 31 E, through
 T. 22 N and 23 N.

March 25, 1907.

I commenced the Resurvey
 of the E. Rdy. of T. 22
 N, R. 30 E. at the
 established cor. of
 T. 21 and 22 N, R. 30
 and 31 E, described her-
 tofore.

Then I run
 N. 10° 26' E. along the old
 line bet. Secs. 31 and 36.
 Ascend over rolling mesa
 through scattering
 timber and undergrowth.
 200 Top of ascent, 23 ft. above
 corner, bears C and H;
 thence over nearly level
 rolling mesa, with gentle
 N. slope.

2226
 2227
 Intersect the old 1/4 sec. cor.

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described heretofore. I re-establish this old corner in the same position as follows:
Set a cedar post, 4 ins. sq. 3 ft. long, 24 ins. in the ground, for $\frac{1}{4}$ sec. cor. marked $\frac{1}{4}$ V 36 on the st. and 01 on E. face, from which

A pinney 4 ins. dia. bears N. 16° E., 18 lbs. dist. marked $\frac{1}{4}$ V 01 P. S.

A cedar, 14 ins. dia. bears S. 74° W., 01 lbs. dist. marked $\frac{1}{4}$ V 06 P. S.

From this cor., I run N. 12° 00' E. along the old line
62.40 Ding wagon Road, bears E. and st.

67.55 Indian trail, bears N. 41° E.
80.14 Intersect old cor. of secs. 25, 30, 31 and 36, described heretofore. I re-establish this cor. in the same position as follows:
Set a hard sand stone, 24 x 14 x 4 ins., 15 ins. in the ground for cor. of secs. 25, 30, 31 and 36, marked with notch by the V and 5 notches on the N. edge, from which

A pinney, 4 ins. dia. bears N. 56° E., 270 lbs. dist. marked T 22 N R 01 E V 00 P. S.

A pinney, 5 ins. dia. bears S. 65° E., 89 lbs. dist. marked T 22 N R 01 E V 01 P. S.

Chains

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A Pinney, 10 ins. dia,
bears T. 5° N, 100 lbs
dist. marked
T. 22 N R. 30 E V. 36
D. 1

A Pinney 8 ins. dia,
bears N. 9° N, 100 lbs
dist. marked
T. 22 N R. 30 E V
25 D. 1

This corner stands, 25 ft.
below the top of recent
soil.

Land, rolling.

Soil, sandy, and and red soil.
Timber, pine, juniper and
cedar, undergrowth, small
timber, oak brush and
sage.

March 27: At this eq.
cor., I set off 20²³ 24' N.
on the ~~dist.~~ ^{dist.} and
at 1:06⁰⁶ p.m. (m.t.) observed
the sun on the meridian,
the resulting latitude
is 35° 24' N. which agrees
with the proper lat-
itude.

North bet. sec. 25 and 30.
Over nearly level rolling mesa
with gently N. slope,
thorough scattering timber
and undergrowth.

0.50 Indian hogan bears N. 10° N, 100 lbs
chs. dist.

1.55 Indian trail, bears N. 80° N, V. 80° E.

2.25 Easy rolling mesa, bears

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Chains: East th. and descend
N. slope into the
Rio Puerco Valley.

45.00 Entered the old # sec.
cor., described heretofore.
I re-established this cor.
in the same position as
follows: Set a sand
stone, 28x16x14 ins., 20 ins.
in the ground, for 1/4 cor.
stump bed rock, raised a
mound of stone about
cor., marked 1/4 on the
th. face; from # which

A pinney 5 ins. dia.,
bears N. 49° W., 21 lbs.
dist. marked 1/4
25
20 B 1/4

A pinney 4 ins. dia.,
bears V. 11° E., 5 lbs.
dist. marked 1/4
25
20 B 1/4

50.00 Gradual descent, bears E.
and th., 200 ft. below mesa.

58.00 Indian Hogan, bears E.,
100 lbs. dist.

60.00 Leaf timber, bears E. and th.

80.00 Set a sand stone, 15x12x8 ins., 10
ins. in the ground, for cor.
of sec. 19, 24, 25 and 30,
marked with 2 notches
on the V. and 4 notches
on the N. edges; dig
pits 40x18x12 ins., in each
sec. 5 1/2 ft. dist.; and raise
a mound of earth, 4 ft.
base, 2 ft. high, th. of cor.
This cor. stands 25 ft. below
foot of steep descent.
Land, rolling and moun-
tainous.
Soil, sandy, gravelly and

Claims, stony; end, 3rd and 4th cuts.
Timber, juniper, pinyon, cedar
and oak; underground,
sage, oak brush and
small timber.
Mountainous lands, 25.05 cks.

March 21: At 3^h 10^m P.M.
l.m.f. set off 35-227
on the lat. arc; 2-27 N.
on the dist. arc; and
determining a meridian
with the solar.

Thence ✓ cross
North bet. secs. 19 and 24.

40.00 Cut Rio Puerco Valley,
descending gradually
through scattering
undergrowth; no
timber, 25 ft. to river.
Set a cedar post, 8 ft.
long, 4 ind. sq, 27 ins.
in the ground, for
sec. cor. marked 19
24 on the st. and 19 on the
E. face. Also deposited
a marked stone 8 x 10 x 6 ins.
under post; dug pits, 18 x
18 x 12 ins. N. and S. of post,
8 ft. dist; and raised a
mound of earth 2 1/2 ft.
base, 1 1/2 ft. high N. of
cr.

43.28 Hagon road, bears N. 80° E;
H. 80° st.

50.25 Wash, 50 cks. wide, 15 ft. deep,
course N. 70° E.

52.70 Indian trail, bears N. E.
and V. st.

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Chains

- 64.45 Left Bank of the Rio Puerco River, 10 ft. high, bears N. 80° E. & 70° W.; & thence over dry channel.
 - 66.65 At river's edge, 30 lbs. wide, 1 ft. deep, turbid, course S. 60° W.
 - 70.00 Right Bank, 10 ft. high, bears N. 80° E. and S. 70° W. Beginning very gradual ascent over valley.
 - 79.00 Dry wash, 25 ft. deep, course N. 60° W. comes from the N. thence up wash.
 - 80.00 The true point for cor. of secs. 13, 18, 19 and 24, falls in wash; where natural conditions would insure its destruction.
- Land, nearly level.
Soil, sandy; wet and mud
flat.
No timber; undergrowth; sage.

March 27, 1907.

March 28, 1907.

- North bet. secs. 13 and 18, beginning at the true point for cor. of secs. 13, 18, 19 and 24. Up wash, no timber, scattering undergrowth, ascending gradually.
- 1.40 Leave wash, comes from the N. E. Thence over valley, ascending gradually.
- 1.90 Left a th. C. for the cor. of

chains sec. 12, 18, 19 and 24 which falls in wash.

1.90 Set a sand stone, 24x14x10 ins., 18 ins. in the ground, for H. C. to cor. of sec. 12, 18, 19 and 24, marked with 3 notches on the N. and S. sides, and H. C. on the N. E. face; dug pits, 18x18x12 ins., in each sec., 5 1/2 ft. dist. and raised a mound of earth, 4 ft. base, 2 ft. high, N. of cor.

26.79 History Unity Telegraph line, bears N. 54° 15' E. and S. 54° 15' W.

27.66 Main line of the Santa Fe Railroad, bears N. 54° 15' E., S. 54° 15' W.

28.40 Postal Telegraph line, bears N. 54° 15' E. and S. 54° 15' W.

40.00 Set a sand stone, 18x12x4 ins., 12 ins. in the ground, for 1/4 sec. cor. marked 1/4 on the N. face; dug 4 pits 18x18x12 ins., N. and S. of post, 3 ft. dist. and raised a mound of earth, 3 1/2 ft. base, 1 1/2 ft. high, N. of cor.

61.40 Indian trail, bears N. 60° E. and S. 60° W.

77.14 Fence of Indian farm, bears N. E. and S. W., through corn field.

80.00 Set a sand stone, 15x12x4 ins., 10 ins. in the ground, for cor. of sec. 7, 12, 18 and 19, marked with 4 notches on the S. and 2

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notches on the N. edges.
 dug pits 18x18x12 ins.,
 in each sec. 5 1/2 ft. dist.
 and raised a mound of
 earth, 4 ft. base, 2 ft.
 high, at. of cor.
 This cor. stands 30 ft. above
 the Rio Purco.
 Land, nearly level.
 Soil, sandy, 1st and 2nd
 rate.
 No timber; undergrowth,
 sage, cactus and mesquite.

- North bet. sec. 7 and 12.
 Over Indian field, in
 Rio Purco Valley, ascend-
 ing gradually through
 no timber or undergrowth.
- 18.25 Near field, bears N. 40°
 and V. 60° C.; and ascend
 through scattering timber
 and dense undergrowth,
 along broken N. slope
 of mountain.
- 19.56 Bend of Indian farm, bears
 N. 60° W., V. 60° C.
- 20.25 Hash, 10 ft. deep, course
 S. 30° W.
- 20.50 Camp V. 30° C.
- 40.00 Set a sand stone, 18x12x6
 ins., 12 ins. in the ground,
 for 1/4 sec. cor., marked 1/4 on
 the N. face, from which
 A cedar, 40 ins. diam.,
 bears V. 11° C., 40 lbs
 dist. marked 1/4 V.
 D.V.

Chains

A. Pinion 8 ins. diam,
bears N. 112° th, 49
lbs. dist. marked
1 V 12 B 2

8000 At a point, 500 ft. above
the cor. of sec. 7, 12, 10 and
15, set an iron stone,
24 x 12 x 8 ins., 15 ins. in the
ground, marked with
5 notches on the V. and
1 notch on the N. edges,
from which,

A. Pinion, 10 ins. diam,
bears N. 68° E, 112
lbs. dist. marked
2 22 N R 00 E V 6 B 2

A. Pinion, 12 ins. diam,
bears V. 89° E, 61 lbs.
dist. marked 2
2 22 N R 00 E V 10 B 2

A. Pinion, 12 ins. diam,
bears V. 64° th, 110
lbs. dist. marked
2 22 N R 00 E V 19
B 2

A. Pinion, 4 ins. diam,
bears N. 68½° th, 41 lbs
dist. marked 2
2 22 N R 00 E V 1
B 2

Land, nearly level and
mountainous.
Soil, sandy and rocky,
and and with cots. V
Timber, pinon, cedar, oak
and juniper; undergrowth
small timber, oak & brush,
and mesquite.
Mountainous or lands
covered with dense under-
growth, 6. 75 chs.

Resurvey East Rdy. T. 22 N, R. 00 C.

BOOK 1029

Chains March 28: At 10^h 35^m
a.m. l.m.t. Set of
33' 25" N on the lat. arc;
20' 46" N on the decl. arc;
and determine a meridian
with solar; thence I run
North bet. sec. 1 and 6.

Ascend broken V. slope
of mountain, through
scattering timber and
dense undergrowth.

30.00 Top of spur, 200 ft above
sec. cor., slopes V. H. Secured.

40.00 Set iron stony 28 x 14 x 0 ins,
21 ins. in the ground, for
1/4 sec. cor., marked 1/4 on
the N. face; from which
A pinon, 12 ins. diam.
bears N. 81 1/2 E, 85 lbs
dist. marked 1/4 V 6
D. I.

A pinon 8 ins. diam.
bears N. 70' H., 35 lbs.
dist. marked 1/4 V
1, D. I.

41.00 Wash, 15 lbs. wide, 25 ft. below
spur, course V. E. Continue
general ascent of broken
V. slope of mountain.

80.00 At a point, 300 ft. above
wash, set an benchmark
18 x 10 x 4 ins, 12 ins. in the
ground, for cor. of T. 22
V. 22 and 20 N, R. 00 and 01 C,
marked with 6 notches
on all four edges; from
which

A pinon, 15 ins. diam,
bears N. 20 1/2 E, 14 1/2
lbs. dist. marked
T 22 N 20, E V
0, D. I.

A Pinion, 10 ins. diam,
bars V. 26. C. 8 lbs
dist. marked
S. 22 N. P. 01 C. V. 6 D. 1

A Pinion 6 ins. diam,
bars V. 28. C. 42
lbs. dist. marked
S. 22 N. P. 00 C. V. 1
D. 1

A Pinion, 6 ins. diam,
bars N. 46. C. 49
lbs. dist. marked
S. 22 N. P. 00 C. V. 25
D. 1

Land, mountainous.
Soil, gravelly and stony;
old and 4th cat. of
timber, pinon, oak brush,
juniper and cedars; under-
growth, small timber,
mesquite, sage and
cactus.

Mountainous or lands
covered with dense
undergrowth, 80.00 chs.
Overcast but now prevented
taking the latitude.

March 28, 1907.

BOOK 1929

General Description.

The East Boundary of Township No. 22 North, Range No. 30 East, extends over both valley and mountain-ous lands. The Rio Puerco Valley is very fertile and would produce good crops by the aid of irrigation. The land in the vicinity of secs. 1, 6, 7, 12, 13 and 18 is rough and mountainous and will never have any commercial value. The timber consists of pinon, juniper, oak and cedar. There is also a heavy growth of sage, mesquite, cactus and brush. This region is very dry and is inhabited only by a few wandering Navajo Indians.

Charles L. Campbell.
U. S. Dept. Surveyor.

Resurvey commenced on the 23rd of March, 1907 and executed with a H. and L. E. Currier improved solar compass, No. 210, with telescopic 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 vernier of the latitude arc, the declination arc, reads to thirty seconds.

The instrument was examined and tested on the true meridian of the U. S. Geological Survey at the Spokane County Court House, Spokane, Wash., by Geo. D. Campbell, C. E., on March 23rd, 1907 and was found correct.

Examining the adjustments of the instrument and finding them all correct, then to test the solar apparatus by comparing its indications, resulting from solar observations made during p. m. and a. m. hours with a meridian determined by observations on Polaris, I proceed as follows:

At my camp at the Com-
mune Indian trading store.

BOOK 1929

81 chs. H. and is chs. V
of the cor. of arcs 05, 09,
01 and 06, on the C. Poly.
of Pt. N, D. W. C., latitude
 $33^{\circ} 33' 16''$ N. longitude $109^{\circ} 08'$
~~79~~ 07. Set off $35^{\circ} 16'$ N.
on the lat. arc; $2^{\circ} 28'$ N.
on the decl. arc; and
at $4^h 15^m$ P. M., L. M. T.,
determining a meridian
with the solar and find
that said meridian, coin-
cides with the meridian
that was determined
at this station on
March 23rd by Polaris
observations.

March 27, 1907

March 28. At $8^h 10^m$ A. M.,
L. M. T., set off $35^{\circ} 16'$ N.
on the lat. arc; $2^{\circ} 52'$ N.
on the decl. arc; and
determining a meridian
with the solar and find
that said meridian co-
incides with the merid-
ian that was determined
at this station by
Polaris observations on
March 23rd.

The solar apparatus by
P. M. and A. M. observations
defines positions for meridians,
respectively, that coincide
with the meridian
that was determined by
the Polaris observations.

Therefore, I conclude that the adjustments of the instrument are satisfactory.

The magnetic bearing of the meridian at 8⁴⁵ P.M. l.m.t. is $N 14^{\circ} 30' W$, the angle thus determined gives the mean magnetic declination $14^{\circ} 30' E$.

As mentioned in the Resurvey of the East Bdy. of Fractional T²¹N, R. 30 E.; and the East Bdy. of T²⁰N, R. 30 E.; the original survey of this Range line is in such a state of obsolescence, resulting from many years of erosion, Indian depredations and possible fraudulent surveys; that a Resurvey of the East Bdy. of T²⁰N, R. 30 E. is also absolutely necessary in order to locate the Initial Point for surveys under Contract No. 129. A blank line extending over the entire E. Bdy. of T²⁰N, R. 30 E. fails to reveal any trace of the old survey. A most careful and diligent search was made at every 40 and 80 chain

BOOK 1929

Point. Indian mounds by the hundred were examined, but all efforts failed to locate the old corners. In short the topography of the E. Rdy. by T. 20 N., R. 30 E. does not correspond with the old field notes, as the surveys further south do. It would seem that the survey of this part of the Range Line was never made. From absolute necessity therefore, I make a Resurvey of the E. Rdy. of T. 20 N., R. 30 E.

I commence at the cor. of T. 20 N. and R. 30 E. and S. 1 E., described heretofore. Thence I run North bet. secs. 31 and 36. Ascend broken S. slope of mountain through scrubby timber and dense undergrowth. 40.00 Set a sand stake 24x18x10 ins., 18 ins. in the ground for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the pt. face, from which a pinon, 12 ins. diam., bears N. 46° E., 107 lbs. dist., marked $\frac{1}{4}$ V 31 B.S. A pinon, 4 ins. diam., bears N. 46 $\frac{1}{2}$ ° E., 52 lbs. dist., marked $\frac{1}{4}$ V 32 B.S.

Chains

50.68 Dry wash, 15 lbs. wid, in
bearing 50 ft. deep, course
T. 60° E.

76.00 Top of main ascent, 300
ft. above township cor.
bears E. and th; thence over
rolling mesa

80.00 Set a standard stone, 18 x 12 x 4 ins.,
12 ins. in the ground,
for cor. of sec. 05, 00, 01
and 06, marked with
1 notch on the V. and 5
notches on the N. edges,
from which

A pinion, 10 ins.
diam, bears N.
45° E., 18 lbs. dist.
marked T. 20 N.
W. 00 C. V. 00 W. 01

A pinion, 10 ins.
diam, bears V. 100°
E., 90 lbs. dist.
marked T. 20 N.
W. 01 C. V. 00 W. 01

A pinion, 8 ins.
diam, bears V.
50° th, 50 lbs. dist.
marked T. 20 N.
W. 00 C. V. 00 W. 01

A pinion, 8 ins. diam,
bears N. 59° th, 57
lbs. dist. marked
T. 20 N. W. 00 C. V.
00 W. 01

Land, rolling and moun-
tainous.

Soil, sandy, gravelly and
stony; red and 4th cat.
Timber, scrubby pinon, juniper,
cedar and N. pine; underground;

BOOK 1929

Chamis

small timber, oak brush,
mosquito and cactus.
Mountainous, the lands
covered with dense
undergrowth, & rocks.

North bet. secs. 25 and 30.

Look rolling musq through
scrubby timber and
dense undergrowth.

10.00 wooden wash, 25 lbs. wide, 15 ft.
deep, course S. E.

40.00 The top point for $\frac{1}{4}$ sec. cor.
falls on a ledge $1\frac{1}{2} \times 10$ ft.
above ground. At the
exact point, I cut a cross
+ for $\frac{1}{4}$ sec. cor. and mark
on both sides of cross, 4 ins.
dist. from which

A pinon, 10 ins diam,
bears S. 110 E, 16 lbs.
dist. marked $\frac{1}{4}$ V
30 D S.

A pinon, 15 ins diam,
bears S. 40° W, 30 lbs.
dist. marked $\frac{1}{4}$ V
25 D S.

20.00 Set a sand stone, 18 x 18 x 8 ins,
12 ins in the ground, for
the corner sec. 19, 24, 25 and
30, marked with 4
notches on the N. and 2
notches on the S. edges,
from which

A pinon, 12 ins diam,
bears N. 50° E, 38 lbs.
dist. marked $\frac{1}{4}$ V
N D 31 E V 19 D S

A pinon, 10 ins. dia,

chains

bears 7.500th,
33 lbs. dist.
marked 720
N 000 E 720
D 7

1929

BOOK 1929

No other trees suitable
for marking in limits;
raised a mound of
stone, 2 ft. base, 1 1/2 ft.
high, 1/2 ft. dia; pits
impracticable.

Land rolling.

Soil, stony, 4th rot.
Timber scrubby junon, oak,
pine, juniper, and cedar;
undergrowth, small
timber, mesquite, sage
and cactos.

Land covered with dung
undergrowth, 80.00 chs.
March 25. At this sec.
cov. set off 20 47' N. on
the decl. acc. and at
12:00 p.m. l.m.f. observe
the sun on the mer.
the resulting lat.
is 35° 27' N. which is
correct.

North bet. secs. 19 and 24.
Over rolling mesa, through
scattered scrub timber
and dense undergrowth.
40.00 Set an ironstone, 18x10x6
ins., 10 ins. by the
ground, for 7 sec. cov.
marked 7 on the th.
face, 7 on which

BOOK 1929

chains

A pinon, 6 ins. diam.
bears S. 34° E, 54 lbs
dist. marked 1/4
19 B 2

A pinon, 8 ins. diam,
bears S. 23° E, 7
lbs. dist. marked
1/4 24 B 2

75.00 S. wall of great gorge,
100 ft. deep, corner E.

79.00 N. wall of great gorge
corner E, thinning over
rolling mesa.

80.00 Set an ironstone 26 x 14 x 10 ins,
25 ins. in the ground,
for cor. of lines 13, 18, 19
and 24 marked with
3 notches on the N. and
S. sides, from which

A pinon, 10 ins. diam,
bears N. 76° E, 36 lbs.
dist. marked 1/4
20 N B 01 E 1/4 18
B 2

A pinon, 12 ins. diam,
bears S. 75° E, 45 lbs
dist. marked 1/4
20 N B 01 E 1/4 19
B 2

A pinon, 6 ins. diam,
bears S. 30° E, 88
lbs. dist. marked
1/4 20 N B 00 E 1/4
24 B 2

A pinon, 6 ins. diam,
bears N. 20° E, 31
lbs. dist. marked
1/4 20 N B 00 E
1/4 10 B 2

Land, rolling and
mountainous.

chains

BOOK 1929

Loil, stony; wet and thick soil.
Timber, Pinon, jun, cedar
and juniper; undergrowth,
small timber, mesquite,
cactus and sage.
Mountainous or lands
covered with dense
undergrowth, so. so cho.

March 28, 1907.

March 29: At 7:50^{am} a.m. (m.t.)
I set off 35° ^{23'} N. on the
lat. arc; 31° 07' N. on the
dial arc; and determine
a meridian with the
solar; then I run
North bet. secs. 18 and 18.
Over rolling mesa through
scattered pinon and
juniper and dense under-
growth.

- 4.00 Over rolling mesa, bears
E. and th. and ascend.
- 10.00 Top of ascent, 100 ft. above
rolling mesa, bears E. and th.
then over rolling mesa
- 29.00 Over mesa, bears N. 60° th.
and V. 60° E. and descend
along rugged N. E. slope
of mountain.
- 39.00 Dry wash, 10 lbs. wide, in
travertine, 100 ft. deep, course
E.

40.00 Set a sand stone 28x14x10
ins., 21 ins. in the ground,
for 1 sec. cor., marked

BOOK 1929

Chains

$\frac{1}{4}$ on th. face, from which
A pinon, 6 ins. diam,
bears N. 16° E., 27 lbs
dist. marked $\frac{1}{4}$
18 W. S.

A pinon, 4 ins. diam,
bears N. 13° th., 21 lbs
dist. marked $\frac{1}{4}$
10 W. S.

46.15 Drink of great gorge, 100
ft. deep, course E. Con-
tinuing descending over
very rugged precipitous
ground, bluffs and
slides.

71.00 Gorge, 100 ft. deep, course E.
Continuing descent.

79.25 Foot of precipitous descent,
800 ft. below rolling
mesa, bears N. th. and W. E.
Gradual descent.

80.00 At a point, 5 ft. below
foot of precipitous descent,
set an iron stone 24 x 12 x 10
ins., 18 ins. in the ground,
for cor. of sec. 12, 10 and
18, marked with 2 notches
on the N. and 4 notches on
the S. edges, from which
A pinon, 8 ins. diam,
bears N. 60° E., 29 lbs
dist. marked $\frac{1}{2}$
N. W. E. S. 10 W. S.

A pinon, 4 ins. diam,
bears ~~N. 60° E.~~ 42 lbs
dist. marked $\frac{1}{2}$
N. W. E. S. 10 W. S.

A pinon, 6 ins. diam,
bears S. 15° th., 38 lbs
dist. marked $\frac{1}{2}$
20 N. W. E. S. 10 W. S.

Chains

A pinon, 12 ins. diam,
bears N. 66° E., 17 lbs.
dist. marked $\frac{1}{4}$ V
N. 20° E. $\frac{1}{2}$ W. $\frac{1}{4}$

Land, rolling and mountainous.

Soil, stony and bed rock;
4th rate.

Timber; pinon, juniper, cedar,
pine and oak; undergrowth;
small timber, mesquite
and cactus.

Mountainous islands covered
with dense undergrowth,
s.s. rocks.

North bet. sec. 1 and 12.
down gradual N.E.
slope through scattering
timber and dense under-
growth.

2000 Foot of descent, 50 ft. below
cor. head of basin, course
S. E. down gradually.

3400 Summit of divide in basin,
100 ft. above head of basin,
bet. Rio Puerco Valley
and Defiance Cup Basin,
bears E. and S. down
along gradual N.E. slope.

4000 Let a sand stone, 36 x 16 x 10 ins.,
6 ins. in the ground, struck
rock, raised a mound of
stone around, for $\frac{1}{4}$ sec.
cor., marked $\frac{1}{4}$ on the S.
face; from which

A pinon, 10 ins. diam,
bears ∇ 30° E., 42 lbs.
dist. marked $\frac{1}{4}$ ∇
N. 20° E.

Resurvey East Bdy. T. 20N, R. 10E

BOOK 1929

Chain

A pin, 12 ins diam,
bears N. 40° W., 20 lbs
dist. marked $\frac{1}{4}$ V 12
P.C.

53.00 Enter very scattering timber,
yellow pine, dense sage,
bears N. 40° W. and V. C.

60.10 Hagon road, bears N. 40° W. and
V. C.

64.00 Gash, 10 lbs. wide, in draw,
5 ft. deep, course N. 30° W.;
thing around along gully
st. slope, heavy timber, N. 40° W. & V. C.

70.00 Set a sand stone, 24 x 12 x 10
ins., 18 ins. in the ground,
for cor. of sec. 1, 6, 7 and
12, marked with 5 notches
on the S. and 1 notch on
the N. edge, from which

A pin, 8 x ins. diam,
bears N. 50° W., 66 lbs.
dist. marked T. 20
N. P. C. V. 6 P. C.

A pin, 10 ins. diam, bears
V. 40° W., 52 lbs. dist.
marked T. 20 N. P. C.
E. V. 2 P. C.

A pin, 10 ins. diam,
bears V. 50° W., 53 lbs.
dist. marked T. 20 N.
P. C. E. V. 12 P. C.

A pin, 10 ins. diam,
bears N. 87° W., 46 lbs.
dist. marked T. 20
N. P. C. E. V. 1 P. C.

This cor. stands, 25 ft. above
water course.

Land, mountainous.

Soil, sandy and stony; and
and very rocky.
Timber, pine, fir, cedar and

BOOK 1929
1929

juniper, undergrowth
small timber, magnolia,
oak, oak brush and
cactus.

Mountainous, heavily timbered
islands covered with
dense undergrowth, 80.00 chs.

North bet. sec. 1 and 6.
Ascend along gradual
th. slope, through heavy
timber and dense under-
growth.

21.00 Steeper ascent along
mountainous th. slope,
through scattering
oak timber, brack N. th.
and V.C.

40.00 At a sand stone, 66 x 14 x 8 ins.
& 8 ins. in the ground,
stump rock and raised
a mound of stone about
30 x 20 cor., marked
1/4 ft. th. th. face, from
to which

A pinion, 12 ins. diam.,
bears N. 80° E., 32 lbs.
dist. marked 1/4 V.C.

A pine, 14 ins. diam.,
bears N. 110° th., 61 lbs.
dist. marked 1/4 V.C.

At a point, 5.00 chs. N. of the
cor., the line passes into
the great lime bluff
region which extends for
many miles to the North.

BOOK 1929

forming an impassible
barrier along the East
side of Doherty Valley.
This region is extremely
rough and precipitous,
and is in the main
impassible. Therefore
since I find it impos-
sible to continue the line
to get within
20.00 chs. of the point
for cor. of Tps. 20 and 24
N., R. 00 and 01 E., I
propose as follows.

Start 40.00 chs. thence
North 40.00 chs. to a point
on the E. Day of T. 24 N.,
R. 00 E. at the position
for 1/2 sec. cor. just 40.00 chs.
to the point for cor. of
Tps. 20 and 24 N., R. 00 and
01 E., which falls in the
impassible bluff region.
Land, mountainous.

Soil, sandy and stony; red
and 4th rate.
Timber, pine, birch, cedar
and juniper; undergrowth,
small timber, mesquite,
cactus and rock brush.
Mountainous, heavily timbered
so lands covered with
dense undergrowth.
40.00 chs.

Not on this line during
noon, prevented by
the latitude.

March 29,

BOOK 1929

General Description.

The East Boundary of T. 207, R. 00 C., extends over rolling mesa and rough mountainous lands, covered with scrubby pines, junipers, cedars, oak and pine timber. The soil is of a very low grade and can be classed as red and yellow soil in the main. The region is very arid. There are no Indian settlements along this line.

Charles L. Campbell,
U. S. Dept. Surveyor.

See Book "6" subdivisions of T247A 208.

LIST OF NAMES.

BOOK 1929

A list of the names of the individuals employed by _____

_____, 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 _____

showing the respective capacities in which they acted:

- _____, *Chainman.*
- _____, *Chainman.*
- _____, *Moundman.*
- _____, *Moundman.*
- _____, *Axman.*
- _____, *Axman.*
- _____, *Flagman.*

FINAL OATH OF ASSISTANTS.

We hereby certify that we assisted _____

_____, United States Deputy Surveyor, in surveying all those parts or portions of the _____

_____ of the _____

_____ meridian, _____ of _____, 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 _____

- _____, *Chainman.*
- _____, *Chainman.*
- _____, *Moundman.*
- _____, *Moundman.*
- _____, *Axman.*
- _____, *Axman.*
- _____, *Flagman.*

Subscribed and sworn to before me this _____ day of _____, 190 _____



20542 Jan
BOOK 1929

FINAL OATH OF UNITED STATES DEPUTY SURVEYOR.
See Book "6" Subdivisions of T. 24 N R 30 E.

I, _____, United States Deputy Surveyor, do solemnly swear that, in pursuance of a contract received from _____, United States Surveyor General for _____, bearing date of the _____ day of _____, 190____, 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 _____, the Manual of Surveying Instructions, and the laws of the United States, surveyed all those parts or portions of _____

_____ of the _____ meridian, in the _____ of _____, 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 _____ and in the specific manner described in the field notes, and that the foregoing are the original field notes of such survey.

United States Deputy Surveyor.

Subscribed by said _____, and sworn to before me }
this _____ day of _____, 190____



APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,

Phoenix Ar. Nov. 27th, 1907

The foregoing field notes of the survey of ^{re} the track East bdy. of T. 21 N R 30 E, the East bdy. of T. 22 N R 30 E, and the East bdy. of T. 23 N R 30 E, of the Gila and Salt River Base and Meridian, in the Territory of Arizona

executed by Charles L. Campbell U. S. deputy surveyor under his contract No. 129, dated March 20th, 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. Duggan
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