

Book "B"

FIELD NOTES

OF THE SURVEY OF THE

N., E., and S. bdrs. of T. 39 N., Rs. 3 and 4 W.;

N., S., and W. bdrs. of T. 39 N., R. 5 W.;

East boundary of T. 40 N., R. 4 W.; and

W. bdrs. of Ts. 40, 41, and frac. 42 N., R. 5 W.

Of the Gila and Salt River Base and Meridian,

In the State of A R I Z O N A

EXECUTED BY

Jos. C. Thoma.

In the capacity of U. S. Surveyor, under instructions dated March 11, 1913,

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

Group No. 29, which were approved by the Commissioner of the General Land

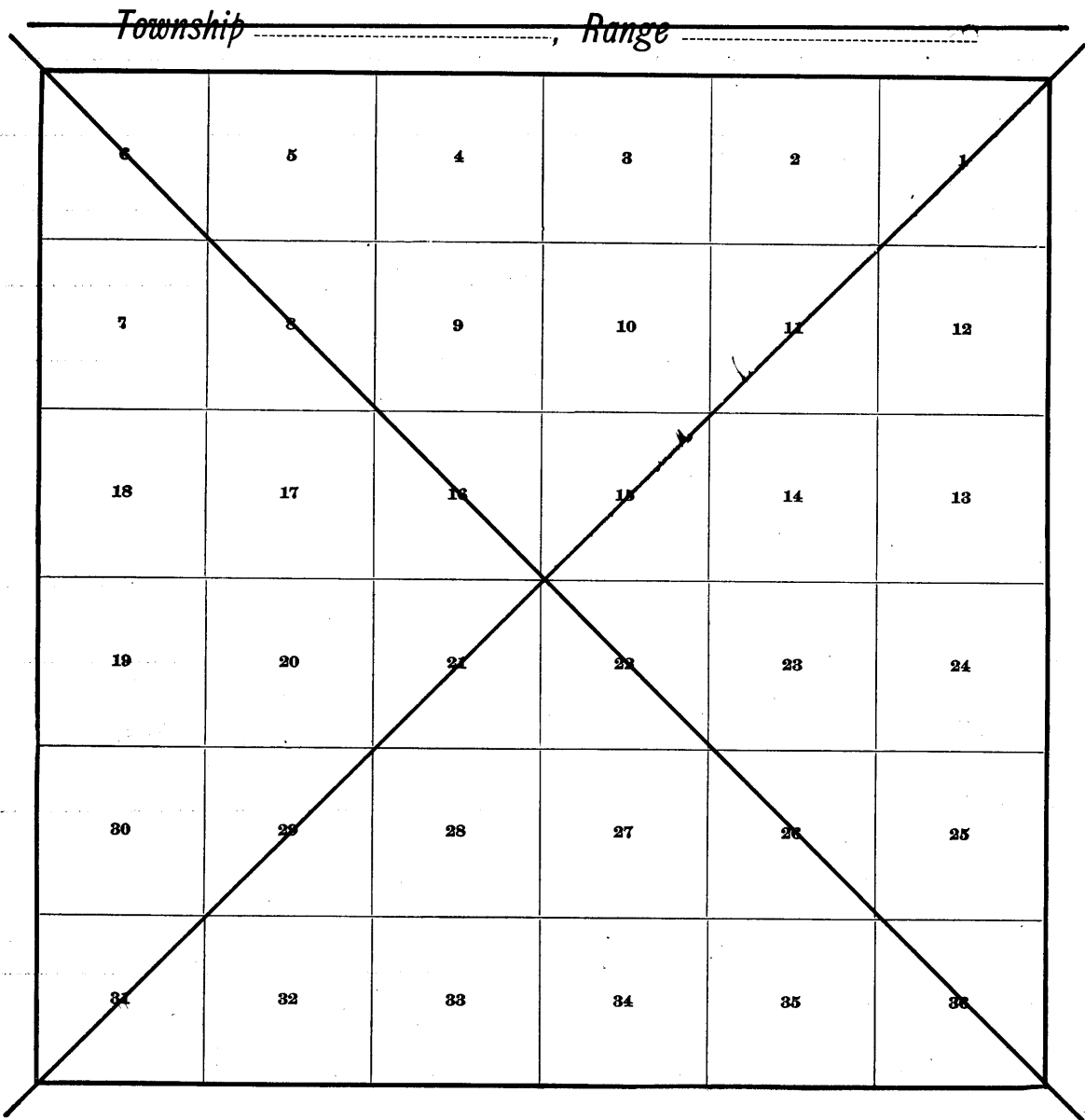
Office, March 26, 1913.

Survey commenced July 17, 1914,

Survey completed October 9, 1914.

1

INDEX DIAGRAM.



Book "B"

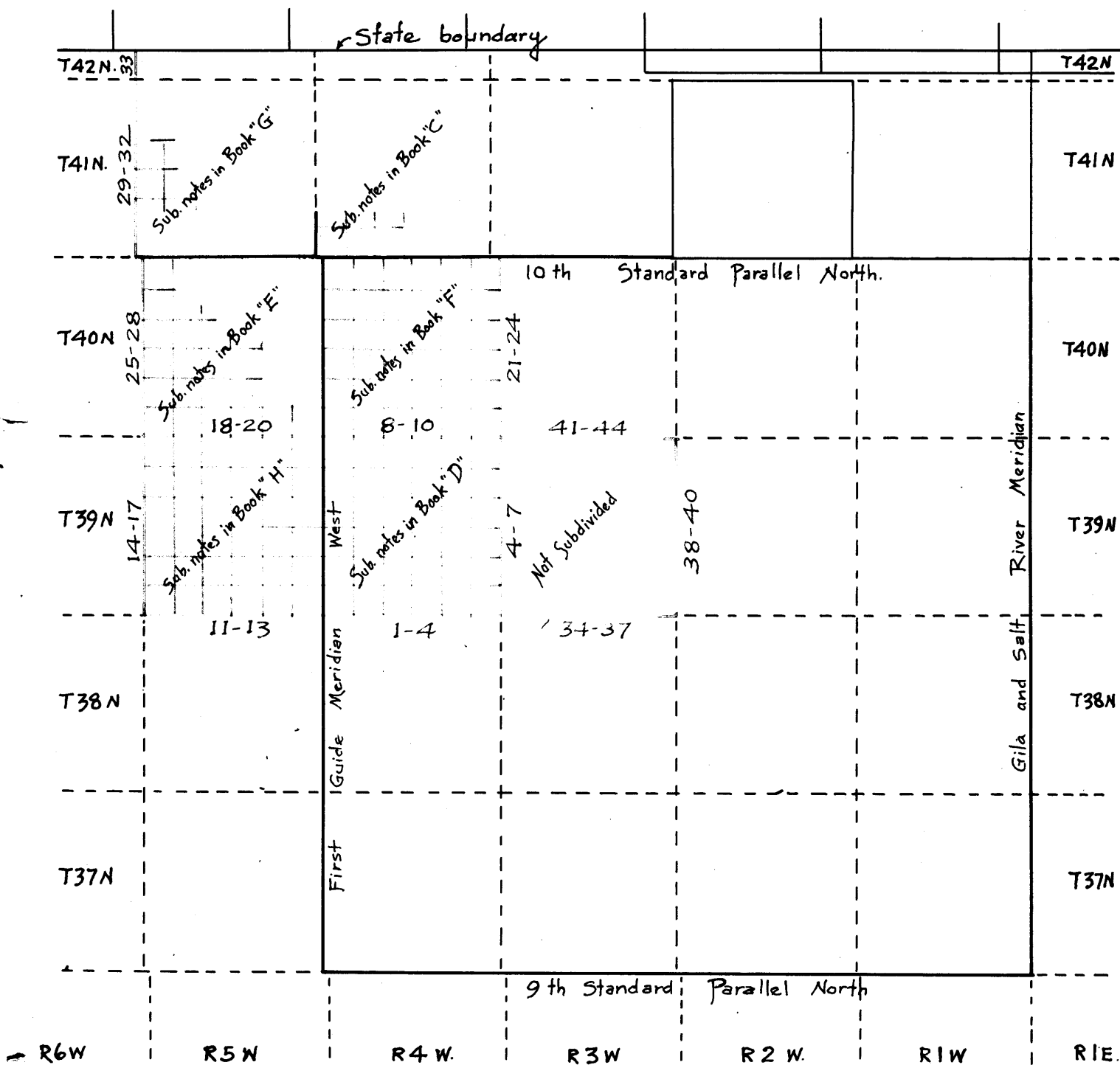
Group 29 - Arizona

INDEX DIAGRAM

BOOK 2856

- 5-8 - Notes in this book (indexed)
- Notes in book "A"
- Accepted surveys
- - - - Unsurveyed lines.
- Subdivision lines - this Group.

STATE OF UTAH



South Boundary of T. 39 N., R. 4 W. 1.

Chains

Survey commenced July 17, 1914, and executed with a Young and Sons' light mountain transit No. 8535, with Smith solar attachment. The horizontal limb is provided with two double verniers placed opposite to each other, reading to single minutes of arc, which is also the least count of the verniers of the latitude and declination arcs.

The instrument was examined, tested on the true meridian at Salt Lake City, Utah, found correct, and was approved by the Assistant Supervisor of Surveys, April 18, 1914.

I examine the adjustments of the transit and find them correct; then, to test the solar apparatus by comparing its indications resulting from 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 Ts. 38 and 39 N., Rs. 4 and 5 W., which is on the First Guide Meridian West, in approximate lat. 36° 44' N. and approximate long. 112° 47' W., I set off 21° 15' N. on the decl. arc; and, at 4h 6m p. m., l. m. t., determine, with the solar, a meridian, which coincides with the First Guide Meridian West.

July 17, 1914.

July 18, 1914: At the cor. of Ts. 38 and 39 N., Rs. 4 and 5 W., which is on the First Guide Meridian West, I set off 36° 44' N. on the lat. arc; 21° 7' N. on the decl. arc; and, at 9h 6m a. m., l. m. t., determine, with the solar, a meridian, which coincides with the First Guide Meridian West.

Thence I run

East, bet. secs. 6 and 31.

Over rolling land.

5.00

Low spur, projects N.; desc. gradually.

35.00

Bottom of gradual descent, bears N. and S.; asc. gradually.

38.92

Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap

- 1914 on S. rim;
- S31 in N.,
- S6 in S., and
- $\frac{1}{4}$ in W. half;

and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor.

78.92

Continue gradual ascent.

Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for cor. of secs. 5, 6, 31, and 32, marked on brass cap

- 1914 on S. rim;
- T39NR4W in N. and
- T38N in S. half;
- S31 in NW.,
- S32 in NE.,
- S5 in SE., and
- S6 in SW. quadrant;

dig pits, 18x18x12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

This cor. is located on a low spur, projecting N. Land, rolling, draining N. into Bull Rush wash.

Soil, coarse sand and gravel. Subsoil, light clay. Sandstone outcropping.

No timber.

Undergrowth, sagebrush, yellowtop, and greasewood.

Poor grazing.

July 18, 1914: At this cor., I set off 21° 6' N. on the decl. arc, and at apparent noon, observe the sun on the meridian. The resulting lat. is 36° 44' N.

Chains	Thence I run East, bet. secs. 5 and 32. Desc. gradually over rolling land, broken with several small drains and low spurs projecting N.
30.00	Bottom of descent, bears N. and S.; asc. gradually. Road, bears NE. and SW.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 18 ins. in the ground, to bedrock, surrounded by a mound of earth and stone, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; S32 in N., S5 in S., and $\frac{1}{4}$ in W. half; dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Continue gradual ascent.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of secs. 4, 5, 32, and 33, marked on brass cap 1914 on S. rim; T39NR4W in N. and T38N in S. half; S32 in NW., S33 in NE., S4 in SE., and S5 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, rolling, draining N. into Bull rush wash. Soil, coarse sand and gravel. Subsoil, light clay. Sand- stone outcropping. No timber. Undergrowth, sage brush, yellowtop, and greasewood. Poor grazing.

	East, bet. secs. 4 and 33. Desc. gradually over rolling land.
35.00	Bottom of descent, bears N. and S.; asc. gradually.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 12 ins. in the ground, to bedrock, surrounded by a mound of stone, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; S33 in N., S4 in S., and $\frac{1}{4}$ in W. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. July 18, 1914. July 20, 1914: At this cor., I set off $36^{\circ}44'$ N. on the lat. arc; $20^{\circ}46'$ N. on the decl. arc; and, at 8h 6m a. m., 1. m. t., determine the meridian with the solar.
50.00	Top of ascent, bears N. and S.; desc. gradually.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 12 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of secs. 3, 4, 33, and 34, marked on brass cap 1914 on S. rim; T39NR4W in N. and T38N in S. half; S33 in NW., S34 in NE., S3 in SE., and S4 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, hilly, draining N. Soil, rocky, disintegrated sandstone and gravel. Subsoil, sandstone bedrock and light clay.

South Boundary of T. 39 N., R. 4 W.

Chains

No timber.
Undergrowth, greasewood and yellowtop.

East, bet. secs. 3 and 34.

Over rolling land, cut by several washes draining N.
Road, from Bull Rush spring to head of Hack's Canyon,
bears NE. and SW.

0.75

11.00

30.00

35.00

39.00

40.00

Draw, 6 lks. wide, 4 ft. deep, course N.

Draw, 7 lks. wide, 5 ft. deep, course N.

Low spur, projecting N.; desc. gradually.

Draw, 4 lks. wide, 5 ft. deep, drains N.

Set an iron post, 3 ft. long, 1 in. diam., 6 ins. in the
ground, to bedrock, surrounded by a mound of stone,
for $\frac{1}{4}$ sec. cor., marked on brass cap

1914 on S. rim;

S34 in N.,

S3 in S., and

$\frac{1}{4}$ in W. half; and

raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, N. of
cor.

July 20, 1914: At this cor., I set off 20° 44' N. on the
decl. arc, and, at apparent noon, observe the sun on
the meridian. The resulting lat. is 36° 44' N.

75.00

80.00

Low spur projects N.; desc. gradually.

Set an iron post, 3 ft. long, 3 ins. diam., 6 ins. in the
ground, surrounded by a mound of stone, for the cor. of
secs. 2, 3, 34, and 35, marked on brass cap

1914 on S. rim;

T39NR4W in N. and

T38N in S. half;

S34 in NW.,

S35 in NE.,

S2 in SE., and

S3 in SW. quadrant; and

raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, W. of
cor.

Land, hilly, gradually descending; drains N.

Soil, disintegrated sandstone and gravel, with outcrop-
ping sandstone. Subsoil, sandstone bedrock and light
clay.

No timber.

Undergrowth, greasewood and yellowtop.

East, bet. secs. 2 and 35.

Over rolling land, cut by several washes, draining N.

2.00

40.00

Draw, 8 lks. wide, 4 ft. deep, drains N.

Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the
ground, on low ridge bearing N. and S., for $\frac{1}{4}$ sec. cor.,
marked on brass cap

1914 on S. rim;

S35 in N.,

S2 in S., and

$\frac{1}{4}$ in W. half;

dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.;
and raise a mound of earth, 3 $\frac{1}{2}$ ft. base, 1 $\frac{1}{2}$ ft. high,
N. of cor.

80.00

Set an iron post, 3 ft. long, 3 ins. diam., 6 ins. in the
ground, to bedrock, surrounded by a mound of stone,
for the cor. of secs. 1, 2, 35, and 36, marked on brass
cap

1914 on S. rim;

T39NR4W in N. and

T38N in S. half;

S35 in NW.,

S36 in NE.,

S1 in SE., and

S2 in SW. quadrant; and

raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, W. of
cor.

4. South and East Boundaries of T. 39 N., R. 4 W.

Chains	Land, hilly, gradually descending, draining N. Soil, rocky, disintegrated sandstone, gravel, and outcropping sandstone. Subsoil, sandstone bedrock and light clay. No timber. Undergrowth, greasewood and yellowtop.

	East, bet. secs. 1 and 36. Over rolling land.
27.00	Bottom of descent, bears N. and S.; asc. gradually.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 12 ins. in the ground, to bedrock, surrounded by a mound of stone, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; S36 in N., S1 in S., and $\frac{1}{4}$ in W. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor.
59.00	This cor. is located on a spur projecting N. W. rim of Water canyon, bears NE. and S.; desc. abruptly.
62.00	Head of Water canyon, 150 ft. below top of rim, drains S.
75.00	E. rim of Water canyon, bears N. 35° W., and S., 200 ft. above bottom of canyon.
80.00	Set an iron post, 3 ft. long; 3 ins. diam., 8 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of Ts. 38 and 39 N., Rs. 3 and 4 W., marked on brass cap 1914 on S. rim; T39N in N., R3W in E., T38N in S., and R4W in W. half; S36 in NW., S31 in NE., S6 in SE., and S1 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, S. of cor.
	Land, hilly, gradually descending, draining N. Soil, disintegrating sandstone, and gravel. Subsoil, sandstone bedrock. No timber. Undergrowth, greasewood and yellowtop. Good winter range for sheep only. General surface of red, sandy soil.
	July 20, 1914.

	East Boundary of T. 39 N., R. 4 W.

	July 21, 1914: At this cor., I set off $36^{\circ}44'$ N. on the lat. arc, $20^{\circ}34\frac{1}{2}'$ N. on the decl. arc; and, at 9h 6m a. m., 1. m. t., determine a meridian with the solar. Thence I run N., bet. secs. 31 and 36. Asc. gradually over rolling land.
10.00	Top of ridge, bears E. and W.; desc. gradually.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 18 ins. in the ground, surrounded by a mound of stone (cor. post set on bedrock), for the $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; $\frac{1}{4}$ in N., S31 in E., and S36 in W. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor.
	Continue gradual descent.

East Boundary of T. 39 N., R. 4 W.

Chains
80.00 Set an iron post, 3 ft. long, 3 ins. diam., 18 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of secs. 25, 30, 31, and 36, marked on brass cap

1914 on S. rim;
T39N in N.,
R3W in E., and
R4W in W. half;
S25 in NW.,
S30 in NE.,
S31 in SE., and
S36 in SW. quadrant; and

raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, rolling.
Soil, coarse light sand and gravel. Bedrock close to surface.
No timber.
Undergrowth, yellowtop and greasewood.
Poor grazing.
Land drains SE.

North, bet. secs. 25 and 30.
Desc. gradually over rolling land, covered with yellowtop and greasewood undergrowth.

20.00 Bottom of descent, bears NW. and SE.; asc. gradually.

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

1914 on S. rim;
¼ in N.,
S30 in E., and
S25 in W. half; and

raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Continue gradual ascent.

44.00 Point of low outcropping sandstone, extends E. about 20 chs. and W. 1 ch.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 19, 24, 25, and 30, marked on brass cap

1914 on S. rim;
T39N in N.,
R3W in E., and
R4W in W. half;
S24 in NW.,
S19 in NE.,
S30 in SE., and
S25 in SW. quadrant; and

raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, rolling.
Soil, coarse light sand and gravel. Bedrock close to surface.
No timber.
Undergrowth, yellowtop and greasewood.
Poor grazing.
Land drains SE.

North, bet. secs. 19 and 24.
Desc. gradually over rolling land, covered with yellowtop and greasewood undergrowth, with outcropping sandstone bedrock.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 20 ins. in the ground, to bedrock, surrounded by a mound of stone, for ¼ sec. cor., marked on brass cap

1914 on S. rim;
¼ in N.,
S19 in E., and

6.

East, boundary of T. 39 N., R. 4 W.

Chains	S24 in W. half; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
79.40	S. rim of Bull Rush canyon, bears W. and NE.; desc. ab- ruptly.
79.70	Set an iron post, 3 ft. long, 3 ins. diam., 12 ins. in the ground, to bedrock, surrounded by a mound of stone, for witness cor. to the cor. of secs. 13, 18, 19, and 24, marked on brass cap 1914 on S. rim; WC N. of center; T39N in N., R3W in E., and R4W in W. half; S13 in NW.; S18 in NE., S19 in SE., and S24 in SW. quadrant. It is impracticable to build accessories to this cor. I, therefore, raise a mound of stone on line on top of rim about 30 lks. S. of cor.
80.00	True point for cor. Falls on steep, rocky slope of Bull Rush canyon. Land, rolling. Soil, coarse light sand and gravel. Bedrock close to sur- face. No timber. Undergrowth, yellowtop and greasewood. Poor grazing. Land drains N.

	July 21, 1914: Cloudy at noon. North, bet. secs. 13 and 18, from true point for cor. Desc. abruptly over broken bottom of Bull Rush canyon .
2.75	Wash, 35 lks. wide, in bottom of canyon; course, E. about 5 chs., thence N. Wash 150 ft. below top of canyon. Ascend abruptly.
6.25	Top of knoll, 150 ft. above wash, encircled with rim 20 ft. high. At base of rim on S. side is a prehistoric ruin. Descend abruptly.
11.00	Same wash, 35 lks. wide, course NW., 170 ft. below knoll. Ascend abruptly.
15.00	Spur, projects NW., 100 ft. above wash; desc. abruptly.
17.00	Bottom of descent, bears NW. and SE., 100 ft. below spur. Continue over bottom of canyon, cut with deep washes, draining SE.
27.50	Bull Rush wash, 35 lks. wide, 10 ft. deep, drains SE.
30.50	Edge of canyon bottom, bears NW. and SE.; asc. abruptly over broken, rocky slope.
38.50	Rocky spur, projects W., 130 ft. above bottom of canyon; desc. abruptly.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 12 ins. in the ground, to bedrock, surrounded by a mound of stone, for ¼ sec. cor., marked on brass cap 1914 on S. rim; ¼ in N., S18 in E. and S13 in W. half; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
44.00	Point, projecting NW. about 5 chs.; desc. abruptly.
46.50	Base of ledges, bearing E. and NW., 125 ft. below top.
58.00	W. edge of wash, drains SE.; asc. over broken, rocky slope.
60.00	N. rim Bull Rush canyon, bears SE. and S.70° W., 100 ft. above main wash.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 8 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of secs. 7, 12, 13, and 18, marked on brass cap

Chains

1914 on S. rim;
T39N in N.,
R3W in E., and
R4W in W. half;
S12 in NW.,
S7 in NE.,
S18 in SE., and
S13 in SW. quadrant; and

raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, rolling and broken.

Soil, rocky, coarse gravel and coarse red sand, with sandstone bedrock close to surface.

No timber.

Undergrowth, yellowtop, short sage, and greasewood.

Poor grazing.

Land drains into Bull Rush canyon.

North, bet. secs. 7 and 12.

Asc. over rolling land and outcrop of sandstone rock.

29.25 Top of ascent, bears E. and W., 35 ft. above cor.; desc. gradually.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stone, for ¼ sec. cor., marked on brass cap

1914 on S. rim;
¼ in N.,
S7 in E., and
S12 in W. half; and

raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

63.50 Rim of small canyon; desc. abruptly, bears NW. and SE.

66.00 Canyon wash, 15 lks. wide, 60 ft. below rim, drains SE.; asc.

67.50 N. rim of same canyon, bears E. and W., 60 ft. above wash; asc. gradually.

70.00 Point of spur, projects E., 75 ft. above rim of canyon; desc.

72.00 Canyon wash, 15 lks. wide, 75 ft. below spur, extends SE. about 7 chs., thence S.; asc. abruptly.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of secs. 1, 6, 7, and 12, marked on brass cap

1914 on S. rim;
T39N in N.,
R3W in E., and
R4W in W. half;
S1 in NW.,
S6 in NE.,
S7 in SE., and
S12 in SW. quadrant; and

raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.

Land, rolling and broken.

Soil, rocky, coarse gravel and coarse red sand, with sandstone bedrock close to surface.

No timber.

Undergrowth, yellowtop, short sage, and greasewood.

Poor grazing.

North, bet. secs. 1 and 6.

Asc. gradually over rolling land.

7.00 Top of ascent, bears E. and W.; desc. gradually.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stone, for ¼ sec. cor., marked on brass cap

1914 on S. rim;
¼ in N.,

8. East and North Boundaries of T. 39 N., R. 4 W.

Chains S6 in E., and
S1 in W. half;
dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.;
and raise a mound of earth, 3½ ft. base, 1½ ft. high,
W. of cor.
Continue gradual descent.
50.00 Road from Two Mile seep to Bull Rush, bears N. 70° E. and
SW.
78.00 Small canyon, 5 chs. wide, 40 ft. deep, drains E.; asc.
80.00 Set an iron post, 3 ft. long, 3 ins. diam., 6 ins. in the
ground, to bedrock, surrounded by a mound of stone, for
the cor. of Ts. 39 and 40 N., Rs. 3 and 4 W., marked
on brass cap
1914 on S. rim;
T40N in N.,
R3W in E.,
T39N in S., and
R4W in W. half;
S36 in NW.,
S31 in NE.,
S6 in SE., and
S1 in SW. quadrant; and
raise a mound of stone, 2 ft. base, 1½ ft. high, S. of
cor. Pits impracticable.
July 21, 1914.

July 22, 1914: At 8h 6m a. m., 1. m. t., I set off 36°
49' N. on the lat. arc; 200.23' 30" N. on the decl.
arc; and determine a meridian with the solar at the
cor. of Ts. 39 and 40 N., Rs. 3 and 4 W.
Thence I run
West, on a random line, along the N. bdy. of T. 39 N., R.
4W., setting temp. ¼ sec. and sec. cors. at intervals
of 40.00 chs., and, at 478.19 chs., intersect the 1st
Guide Meridian West, 25 lks. S. of the cor. of Ts. 39
and 40 N., Rs. 4 and 5 W., heretofore established, as
described in Book "A." This falling answers to a cor-
rection of 2' per mile, or S. 89° 58' E.; therefore I
run
S. 89° 58' E., on a true line, bet. secs. 6 and 31.
Desc. gradually over gently rolling land, covered with
shad scale and greasewood undergrowth.
3.50 Wash, 40 lks. wide, 7 ft. deep, course, S. 80° E.
9.75 Mouth of same wash, flowing into a wash 65 lks. wide, 10
ft, deep, draining from S. 80° W. to SE.
20.80 Wagon road from Pipe Springs to Trumble mountains, bears
NE. and SW.
37.75 Wash, 20 lks. wide, 3 ft. deep, drains S. 35° E.
38.19 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the
ground, for ¼ sec. cor., marked on brass cap
1914 on S. rim;
S31 in N.,
S6 in S., and
¼ in W. half;
dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.;
and raise a mound of earth, 3½ ft. base, 1½ ft. high,
N. of cor.
38.55 Wash, 10 lks. wide, 3 ft. deep, drains S.
78.19 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
ground, for cor. of secs. 5, 6, 31, and 32, marked on
brass cap
1914 on S. rim;
T40NR4W in N. and
R39N in S. half;
S31 in NW.,
S32 in NE.,
S5 in SE., and
S6 in SW. quadrant;
dig pits, 18x18x12 ins., in each sec., 5½ ft. dist.;
and raise a mound of earth, 4 ft. base, 2 ft. high, W.
of cor.

North Boundary of T. 39 N., R. 4 W.

Chains	Land, gently rolling. Soil, red, sandy loam of medium texture, with subsoil of red clay. No timber. Undergrowth, greasewood and shad scale.
	----- S. 89° 58' E., bet. secs. 5 and 32. Desc. gradually over gently rolling land, through shad scale and greasewood undergrowth.
21.50	Wash, 15 lks. wide, 4 ft. deep, drains SE.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; S32 in N., S5 in S., and $\frac{1}{4}$ in W. half; dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, 3 $\frac{1}{2}$ ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 4, 5, 32, and 33, marked on grass cap 1914 on S. rim; T40NR4W in N., and T39N in S. half; S32 in NW., S33 in NE., S4 in SE., and S5 in SW. quadrant; dig pits, 18x18x12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
	Land, gently rolling. Soil, red sandy loam, of medium texture, with subsoil of red clay. No timber. Undergrowth, greasewood and shad scale.
	----- S. 89° 58' E., bet. secs. 4 and 33. Over gently rolling land, covered with greasewood undergrowth.
15.50	Wash, 15 lks. wide, 4 ft. deep; course, SE.
37.50	Wash, 10 lks. wide, 3 ft. deep; course, SW.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; S33 in N., S4 in S. and $\frac{1}{4}$ in W. half; dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, 3 $\frac{1}{2}$ ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 3, 4, 33, and 34, marked on brass cap 1914 on S. rim; T40NR4W in N. and T39N in S. half; S33 in NW., S34 in NE., S3 in SE., and S4 in SW. quadrant; dig pits, 18x18x12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
	Land, gently rolling; drains SE. Soil, red sandy loam, of medium texture, with subsoil of red clay. No timber. Undergrowth, greasewood and shad scale. Fair grazing.
	----- S. 89° 58' E., bet. secs. 3 and 34. Over gently rolling land, covered with greasewood.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; S34 in N., S3 in S., and $\frac{1}{4}$ in W. half; and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. This cor. is located on edge of bench, bearing N. and S. 80° W.
40.60	Wash, 6 lks. wide, 2 ft. deep, course, S.; asc. point of bench.
45.25	West edge of point, 30 ft. above wash, bears N. 60° W. and SE.
50.00	E. edge of point, bears NE. and S.; desc.
63.00	Base of point, 60 ft. below top; bears NE. and SW.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the

10. North Boundary of T. 39 N., R. 4 W.

Chains ground, for the cor. of secs. 2, 3, 34, and 35, marked on brass cap 1914 on S. rim; T40NR4W in N. and T39N in S. half; S34 in NW., S35 in NE., S2 in SE., and S3 in SW. quadrant; dig pits, 18x18x12 ins., in each sec., 5 1/2 ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, gently rolling; drains SE.; Soil, red sandy loam, of medium texture, with subsoil of red clay. No timber. Undergrowth, greasewood and shad scale. Fair grazing.

S. 89° 58' E., bet. secs. 2 and 35.
Desc. gradually over rolling land, covered with greasewood and shad scale undergrowth.

9.75 Dim road, bears N. and S.
16.75 Wash, 25 lks. wide, 4 ft. deep; course, S.
40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap 1914 on S. rim; S35 in N., S2 in S., and 1/4 in W. half; dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, 3 1/2 ft. base, 1 1/2 ft. high, N. of cor. Continue gradual descent.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 1, 2, 35, and 36, marked on brass cap 1914 on S. rim; T40NR4W in N., and T39N in S. half; S35 in NW., S36 in NE., S1 in SE., and S2 in SW. quadrant; dig pits, 18x18x12 ins., in each sec., 5 1/2 ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, rolling, drains SE. Soil, red sandy loam and clay. Subsoil, red sandy loam, clay, and gravel. No timber. Undergrowth, greasewood and shad scale. Fair grazing.

S. 89° 58' E., bet. secs. 1 and 36.
Desc. gradually over rolling land, covered with shad scale, yellowtop, and greasewood undergrowth.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap 1914 on S. rim; S36 in N. and S1 in S. half, and 1/4 in W. half; dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, 3 1/2 ft. base, 1 1/2 ft. high, N. of cor.

51.50 Dim road, bears N. and S.
55.25 Wash, 15 lks. wide, 4 ft. deep; course, SE.; asc. gradually.
80.00 The cor. of Ts. 39 and 40 N., Rs. 3 and 4. W. Land, rolling; drains SE. Soil, red sandy loam and clay. Subsoil, red sandy loam, clay, and gravel. No timber. Undergrowth, greasewood and shad scale. Fair grazing.
July 22, 1914.

LATITUDES, DEPARTURES, AND CLOSING ERRORS.

Lines designated	True bearing	Distance	Latitude		Departure	
			N	S	E	W
S. bdy. T39NR4W. . .	West.	478.92	. . . . .	. . . . .	. . . . .	478.92
1st G. M. W.	North	480.00	480.00	. . . . .	. . . . .	. . . . .
N. bdy. T39NR4W. . .	S. 89° 58' E.	478.19	. . . . .	. . . 25	478.19	. . . . .
E. bdy. T39NR4W. . .	South	480.00	. . . . .	480.00	. . . . .	. . . . .
Convergency, . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. 54	. . . . .
Totals, . . . . .	. . . . .	. . . . .	480.00	480.25	478.73	478.92
Error in latitude, . . . . .	. . . . .	. . . . .	. . . . .	480.00	Error	478.73
				. 25	in dep.	. 19

South Boundary of T. 39 N., R. 5 W.

Chains Survey commenced August 6, 1914, and executed with a Young and Sons' light mountain transit No. 8535. For description of the instrument, see page 1 of this book.

August 6, 1914: At the cor. of Ts. 38 and 39 N., Rs. 4 and 5 W., at 8h 6m a. m., l. m. t., I set off 36° 44' N. on the lat. arc; 16° 51' N. on the decl. arc; and determine a meridian with the solar. This meridian agrees with the alinement of the First Guide Meridian West.

Thence I run West, on S. bdy. T. 39 N., R. 5 W., bet. secs. 1 and 36. Over rolling land, covered with shad scale and greasewood undergrowth.

38.50 Bull Rush wash, 40 lks. wide, 10 ft. deep, drains N. for about 30 chs., thence N. 70° E.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1914 on S. rim;
 S36 in N.,
 S1 in S., and
 $\frac{1}{4}$ in W. half;
 dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, 3 $\frac{1}{2}$ ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor.

48.00 Wash, 10 lks. wide, 5 ft. deep, course, NE.; asc.

60.00 Spur, projects NE., 50 ft. above wash; desc. gradually.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 1, 2, 35, and 36, marked on brass cap
 1914 on S. rim;
 T39NR5W in N., and
 T38N in S. half;
 S35 in NW.,
 S36 in NE.,
 S1 in SE., and
 S2 in SW. quadrant;
 dig pits, 18x18x12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, rolling, drains NE.
 Soil, light sandy loam of medium texture, with subsoil of dark clay.
 Undergrowth, greasewood and shad scale.
 Good grazing.

West, bet. secs. 2 and 35.
 Desc. gradually over rolling land, covered with greasewood and shad scale undergrowth.

14.25 Wash, 10 lks. wide, 4 ft. deep, drains N. 60° E.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1914 on S. rim;
 S35 in N. and
 S2 in S., and
 $\frac{1}{4}$ in W. half;
 dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, 3 $\frac{1}{2}$ ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor.

70.50 Reef and east side of large basin, bears N. 20° E. and S. 20° W.; desc.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 2, 3, 34, and 35, marked on brass cap
 1914 on S. rim;
 T39NR5W in N. and
 T38N in S. half;
 S34 in NW.,
 S35 in NE.,
 S2 in SE., and
 S3 in SW. quadrant;
 dig pits, 18x18x12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.;

12.

South Boundary of T. 39 N., R. 5 W.

Chains	and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Cor. established 80 ft. below the top of the reef. Land, rolling, drains NE. Soil, light sandy loam of medium texture, with subsoil of dark clay. Undergrowth, greasewood and shad scale. Good grazing.

10.75	West, bet. secs. 3 and 34. Desc. gradually over rolling land, covered with greasewood and shad scale undergrowth. Road from Pipe Springs to head of Hack's canyon, bears N. 30° E. and S. 30° W.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; S34 in N., S3 in S., and $\frac{1}{4}$ in W. half; dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, 3 $\frac{1}{2}$ ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor.
50.00	E. edge of basin, bears NW. and S. 35° E.; continue across basin.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 3, 4, 33, and 34, marked on brass cap 1914 on S. rim; T39NR5W in N. and R38N in S. half; S33 in NW., S34 in NE., S3 in SE., and S4 in SW. quadrant; dig pits, 18x18x12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Basin drains SE. into Wild Band pockets, thence into Bull Rush wash. Land, rolling, Soil, sandy loam; subsoil, sandy loam and clay. Undergrowth, greasewood and shad scale. Fair grazing.

	August 6, 1914: At this cor., I set off 16° 48' N. on the decl. arc; and, at apparent noon, observe the sun on the meridian; the resulting lat. is 36° 44' N. Thence I run West, bet. secs. 4 and 33. Over gently rolling land, covered with greasewood and shad scale undergrowth.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; S33 in N., S4 in S., and $\frac{1}{4}$ in W. half; dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, 3 $\frac{1}{2}$ ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor.
70.00	W. rim of basin, bears NE. and S. 30° E.; asc. gradually over rolling foothills of mesa to the N.
79.40	Wagon road, from Pipe Springs to Trumble mountains, bears NE. and SW.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 4, 5, 32, and 33, marked on brass cap 1914 on S. rim; T39NR5W in N. and T38N in S. half;

Chains S32 in NW.,
 S33 in NE.,
 S4 in SE., and
 S5 in SW. quadrant;
 dig pits, 18x18x12 ins., in each sec., 5½ ft. dist.;
 and raise a mound of earth, 4 ft. base, 2 ft. high,
 W. of cor.
 Land, rolling.
 Soil, sandy loam; subsoil, sandy loam and clay.
 Undergrowth, greasewood and shad scale.
 Fair grazing.

 West, bet. secs. 5 and 32.
 Asc. over rolling land, covered with shad scale and greasewood undergrowth.
 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
 1914 on S. rim;
 S32 in N.,
 S5 in S., and
 ¼ in W. half;
 dit pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, 3½ ft. base, 1½ ft. high, N. of cor.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 5, 6, 31, and 32, marked on brass cap
 1914 on S. rim;
 T39NR5W in N. and
 T38N in S. half;
 S31 in NW.,
 S32 in NE.,
 S5 in SE., and
 S6 in SW. quadrant;
 dig pits, 18x18x12 ins. in each sec., 5½ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
 Land, rolling, drains SE.
 Soil, sandy loam; subsoil, sandy loam and clay.
 Undergrowth, greasewood and shad scale.
 Fair grazing.

 West, bet. secs. 6 and 31.
 Asc. gradually over rolling land, covered with greasewood and shad scale undergrowth.
 27.00 Top of low spur, projecting SE.; desc. gradually.
 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
 1914 on S. rim;
 S31 in N.,
 S6 in S., and
 ¼ in W. half;
 dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, 3½ ft. base, 1½ ft. high, N. of cor.
 47.50 Wash, 7 lks. wide; course, SE.; asc. gradually.
 78.92 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of Ts. 38 and 39 N., Rs. 5 and 6 W., marked on brass cap
 1914 on S. rim;
 T39N in N.,
 R5W in E.,
 T38N in S., and
 R6W in W. half;
 S36 in NW.,
 S31 in NE.,
 S6 in SE., and
 S1 in SW. quadrant;
 dig pits, 24x24x12 ins., on each line, N., E., and W.

14. South and West Boundaries of T. 39 N., R. 5 W.

Chains	<p>4 ft., and S. of post, 8 ft. dist.; and raise a mound of earth, 5 ft. base, 2½ ft. high, S. of cor. Land, rolling foothills of Cedar ridge. Drains SE. Soil, sandy loam; subsoil, sandy loam and clay. Undergrowth, greasewood and shad scale. Fair grazing.</p> <p style="text-align: right;">August 6, 1914.</p> <hr style="border-top: 1px dashed black;"/> <p style="text-align: center;">West Boundary of T. 39 N., R. 5 W.</p> <hr style="border-top: 1px dashed black;"/> <p>August 7, 1914: At the cor. of Ts. 38 and 39 N., Rs. 5 and 6 W., I set off 360° 44' N. on the lat. arc, 16° 34½' N. on the decl. arc; and, at 8h 6m a. m., 1. m. t., determine a meridian with the solar. Thence I run</p> <p>North, bet. secs. 31 and 36. Asc. gradually over broken foot hills of Cedar ridge, through greasewood and shad scale undergrowth.</p> <p>14.00 S. edge of bench, bears E. and SW. 19.00 Point of bench, projecting E. 37.75 Point of same bench, projecting E. 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 1914 on S. rim; ¼ in N., S31 in E., and S36 in W. half; dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist. and raise a mound of earth, 3½ ft. base, 1½ ft. high, W. of cor.</p> <p>40.50 Head of wash, 10 lks. wide, 4 ft. deep, course, E. 49.50 Wash, 15 lks. wide, 5 ft. deep, course, E. 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 25, 30, 31, and 36, marked on brass cap 1914 on S. rim T39N in N., R5W in E., and R6W in W. half; S25 in NW., S30 in NE., S31 in SE., and S36 in SW. quadrant; dig pits, 18x18x12 ins., in each sec., 5½ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.</p> <p>Land, broken foot hills. Soil, light fine sand and adobe clay, with limestone close to surface. Undergrowth, shad scale and greasewood. Fair grazing. Land has southern exposure and drains SE.</p> <hr style="border-top: 1px dashed black;"/> <p>North, bet. secs. 25 and 30. Asc. gradually over broken rolling foot hills of Cedar ridge, through greasewood and shad scale undergrowth.</p> <p>17.75 Wash, 75 links wide, 20 ft. deep, course S. 60° E. 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 1914 on S. rim; ¼ in N., S30 in E., and S25 in W. half; dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3½ ft. base, 1½ ft. high, W. of cor.</p> <p>45.00 Enter scattering scrub cedar and pinion timber, bears E. and W.</p>
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West Boundary of T. 39 N., R. 5 W.

Chains Point of Cedar ridge, bears E. about 30 chs.
 53.60 Wash, 10 lks. wide, 5 ft. deep, course, SE.
 64.00 Start abrupt ascent, bears S. 70° E. and SW.
 70.00 Base of ledge, 30 ft. high, 80 ft. above beginning of abrupt ascent, bears S. 70° E. and SW.
 72.00 Top of ascent, bears S. 70° E. and SW.; asc. gradually over a series of deep draws and ridges; draws drain E. about 3 chs. into a gulch draining S.
 80.00 Point for cor. falls in deep wash.
 80.90 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for witness corner to the cor. of secs. 19, 24, 25, and 30, marked on brass cap
 1914 on S. rim;
 T39N in N.,
 R5W in E., and
 R6W in W. half;
 S24 in NW.,
 S19 in NE.,
 S30 in SE., and
 S25 in SW. quadrant;
 dig pits, 18x18x12 ins., NE., SE., SW., and NW. of post, 5½ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
 This cor. is established on spur projecting E. Land, broken and rolling, drains SE. Soil, gypsum, disintegrated shale and sandstone. Timber, scattering scrub cedar and pinion. Undergrowth, greasewood and shad scale. Fair grazing in south half mile. Southern exposure.

 North, from the true cor. point, bet. secs. 19 and 24. Asc. over a series of ridges and draws, through scattering scrub cedar and pinion timber.

0.90 W. C. to cor. of secs. 19, 24, 25, and 30.
 12.00 Top of S. rim of Cedar ridge; leave bad land, enter soil of red gravel and light sandy loam, covered with yellowtop and sage brush, with scattering scrub cedar and pinion timber.
 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
 1914 on S. rim;
 ¼ in N.,
 S19 in E., and
 S24 in W. half; and
 raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable. Trees too small for bearing trees.
 Desc. gradually.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 4 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of secs. 13, 18, 19, and 24, marked on brass cap
 1914 on S. rim;
 T39N in N.,
 R5W in E., and
 R6W in W. half;
 S13 in NW.,
 S18 in NE.,
 S19 in SE., and
 S24 in SW. quadrant; from which
 A pinion, 14 ins. diam., bears S. 68° E., 42 lks. dist. marked T39NR5WS19BT.
 No other trees suitable for bearing trees within limits. Raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor.
 Land, rolling and broken, draining SE. in south 12 chs. and NW. in north 68 chs.
 Soil, adobe and gypsum for 12 chs. on south, light gravel and sandy loam for 68 chs. on the north.
 Timber, scattering scrub cedar and pinion.

16.

West Boundary of T. 39 N., R. 5 W.

Chains	Undergrowth, yellowtop, shad scale, and sage brush. Good grazing on top of Cedar ridge. First 12 chs. to the south has southern exposure. North 68 chs. has northern exposure.

	August 7, 1914: I set off $16^{\circ} 31'$ N. on the decl. arc; and, at apparent noon, observe the sun on the meridian; the resulting lat. is $36^{\circ} 46'$ N. North, bet. secs. 13 and 18. Desc. gradually over rolling land, covered with scatter- ing scrub cedar and pinion timber, yellowtop, shad scale, and sage brush undergrowth.
0.07	S. edge of sandstone boulder on line, 10x10x3 ft.
18.00	Bottom of descent, bears NE. and SW.; asc. gradually.
24.70	Old brush fence, bears E. and W.
26.50	Spur, projecting E.; desc. gradually.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; $\frac{1}{4}$ in N., S18 in E., and S13 in W. half; dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, W. of cor. No trees within limits.
49.00	Dry wash in grassy hollow, drains S. 60° E.
62.00	Spur of sandstone rock, projecting E.; desc. gradually over white gravelly surface.
70.00	Leave scattering scrub cedar and pinion timber, bears E. and W.; enter rolling open land.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of secs. 7, 12, 13, and 18, marked on brass cap 1914 on S. rim; T39N in N., R5W in E., and R6W in W. half; S12 in NW., S7 in NE., S18 in SE., and S13 in SW. quadrant; from which A cedar, 8 ins. diam., bears S. $11^{\circ} 45'$ E., 20 lks. dist., marked T39NR5WS18BT. No other trees within limits. Raise amount of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Land, rolling. Soil, sandy loam and light gravel, with bedrock close to surface. Timber, scrub cedar and pinion on south 70 chs. Undergrowth, yellowtop, shad scale, and sage brush. Excellent grazing. Northern exposure.

	North, bet. secs. 7 and 12. Over rolling land.
14.00	Wash, in grassy hollow, drains S. 70° E.
25.00	Leave grassy opening, enter scattering scrub cedar and pinion timber, bears W. and SE.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 24 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; $\frac{1}{4}$ in N., S7 in E., and S12 in W. half; from which A cedar, 14 ins. diam., bears S. 7° E., 84 lks. dist.,

West and North Boundaries of T. 39 N., R. 5 W. 17.

Chains

marked $\frac{1}{4}$ S7BT.
 A cedar, 20 ins. diam., bears S. 25° 30' W., 110 lks. dist., marked $\frac{1}{4}$ S12BT.
 45.00 Low spur, projecting E.; desc. gradually.
 50.00 Leave scattering cedar and pinion; enter open rolling land, bears E. and W.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 1, 6, 7, and 12, marked on brass cap
 1914 on S. rim;
 T39N in N.,
 R5W in E., and
 R6W in W. half;
 S1 in NW.,
 S6 in NE.,
 S7 in SE., and
 S12 in SW. quadrant;
 dig pits, 18x18x12 ins., in each sec., 5 $\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
 Land, rolling, drains NE.
 Soil, sandy loam, with some gravel.
 Subsoil, sandy loam.
 Timber, cedar and pinion, 25 chs.
 Undergrowth, some sage brush.
 Good grazing.

 North, bet. secs. 1 and 6.
 Desc. gradually over rolling land.
 5.75 Road, from Pipe Springs to Cedar ridge, bears N. 65° E. and S. 65° W.
 34.00 Bottom of descent, bears E. and W.; asc. gradually.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1914 on S. rim;
 $\frac{1}{4}$ in N.,
 S6 in E., and
 S1 in W. half;
 dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3 $\frac{1}{2}$ ft. base, 1 $\frac{1}{2}$ ft. high, W. of cor.
 This cor. is established on a low ridge bearing E. and W.
 Desc. gradually.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of Ts. 39 and 40 N., Rs. 5 and 6 W., marked on brass cap
 1914 on S. rim;
 T40N in N.,
 R5W in E.,
 T39N in S., and
 R6W in W. half;
 S36 in NW.,
 S31 in NE.,
 S6 in SE., and
 S1 in SW. quadrant;
 dig pits, 24x24x12 ins., N., E., and W., 4 ft., and S. of post, 8 ft. dist.; and raise a mound of earth, 5 ft. base, 2 $\frac{1}{2}$ ft. high, S. of cor.
 Land, rolling, drains NE.
 Soil, light red sandy loam of medium texture.
 Subsoil, fine light gravel.
 Undergrowth, yellowtop.
 Good grazing.

August 7, 1914.

North Boundary of T. 39 N., R. 5 W.

August 8, 1914: At 8h 5.5m a. m., 1. m. t., I set off 36°/49' N. on the lat. arc; 16° 18' N. on the decl.

18.

North Boundary of T. 39 N., R. 5 W.

Chains	arc; and determine a meridian with the solar at the cor. of Ts. 39 and 40 N., Rs. 4 and 5 W., which is on the 1st G. M. W. Said meridian corresponds to the alignment of said Guide Meridian.
	Thence I run West on a random line, along the N. bdy. of T. 39 N., R. 5 W., setting temp. $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs.; and, at 478.81 chs., intersect the W. bdy. of the T., $2\frac{1}{2}$ lks. S. of the cor. of Ts. 39 and 40 N., Rs. 5 and 6 W. The falling answers to less than 15" per mile. I disregard the same, therefore, and run thence
	East, on a true line, bet. secs. 6 and 31. Desc. gradually over rolling land, covered with yellowtop and shad scale undergrowth.
38.81	Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap S31 in N., S6 in S., and $\frac{1}{4}$ in W. half; 1914 on S. rim; dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, N. of cor.
78.81	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 5, 6, 31, and 32, marked on brass cap 1914 on S. rim; T40NR5W in N. and R39N in S. half; S31 in NW., S32 in NE., S5 in SE., and S6 in SW. quadrant; dig pits, 18x18x12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
	Land, rolling, drains NE. Soil, light sandy loam and fine gravel, with gravel subsoil. Undergrowth, yellowtop and greasewood. Good grazing.

	East, bet. secs. 5 and 32. Desc. gradually over rolling land, covered with greasewood undergrowth.
22.00	Road, from Pipe Springs to Cedar Ridge, bears NE. and SW.
32.50	Sandy wash, 35 lks. wide, course N. 35° E. Cedar trees along same. Asc. gradually.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; S32 in N., S5 in S., and $\frac{1}{4}$ in W. half; dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist. and raise a mound of earth, $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, N. of cor.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 4, 5, 32, and 33, marked on brass cap 1914 on S. rim; T40NR5W in N. and T39N in S. half; S32 in NW., S33 in NE., S4 in SE., and S5 in SW. quadrant; dig pits, 18x18x12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Chains	Land, rolling, drains NE. Soil, light sandy loam and fine gravel, with gravel sub-soil. Undergrowth, yellowtop and greasewood. Good grazing.

	East, bet. secs. 4 and 33. Asc. gradually over rolling land.
25.00	Enter scrub cedar and pinion timber, bears NW. and SE.
28.40	Old road, bears NW. and SE.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 12 ins. in the ground, to bedrock, surrounded by a mound of stone, for the $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; S33 in N., S4 in S., and $\frac{1}{4}$ in W. half; from which A cedar, 14 ins. diam., bears N. $78^{\circ} 20'$ E., 308 lks. dist., marked $\frac{1}{4}$ S33BT. A cedar, 6 ins. diam., bears S. 50° E., 230 lks. dist., marked $\frac{1}{4}$ S4BT.
	This cor. is located on top of an ascent bearing N. and S., near the edge of Cedar ridge.
	Desc. gradually.
48.50	Base of Cedar ridge, about 20 ft. below top, bears NE. and SW.; continue gradual descent. Leave timber.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 3, 4, 33, and 34, marked on brass cap 1914 on S. rim; T40NR5W in N. and T39N in S. half; S33 in NW., S34 in NE., S3 in SE., and S4 in SW. quadrant; dig pits, 18x18x12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
	Land, rolling, drains NE. Soil, light sandy loam, and fine gravel, with gravel sub-soil. Undergrowth, yellowtop and greasewood. Good grazing.

	East, bet. secs. 3 and 34. Over rolling land, covered with greasewood undergrowth.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; S34 in N., S3 in S., and $\frac{1}{4}$ in W. half; dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, N. of cor.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 2, 3, 34, and 35, marked on brass cap 1914 on S. rim; T40NR5W in N. and T39N in S. half; S34 in NW., S35 in NE., S2 in SE., and S3 in SW. quadrant; dig pits, 18x18x12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

20:

North Boundary of T. 39 N., R. 5 W.

Chains	Land, rolling, drains NE. Soil, light sandy loam and fine gravel, with gravel sub-soil. Undergrowth, yellowtop and greasewood. Good grazing.

40.00	East, bet. secs. 2 and 35. Desc. gradually over rolling land, covered with scattering greasewood undergrowth. Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; S35 in N., S2 in S., and $\frac{1}{4}$ in W. half; dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, N. of cor.
60.00	Wash, 15 lks wide, 6 ft. deep; course, SE.; asc. gradually.
73.00	Base of Indian Knoll, bears N. and S.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stone, on top of Indian Knoll, for the cor. of secs. 1, 2, 35, and 36, marked on brass cap 1914 on S. rim; T40NR5W in N. and T39N in S. half; S35 in NW., S36 in NE., S1 in SE., and S2 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
	Land, rolling, drains NE. Soil, light sandy loam and fine gravel, with gravel sub-soil. Undergrowth, yellowtop and greasewood. Good grazing.

12.00	East, bet. secs. 1 and 36. Desc. over rolling land, covered with greasewood undergrowth. Base of Indian Knoll, 30 ft. below cor., bears N. 35° W. and S.
40.00	Set an iron post, 3 ft. long, 1 in diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; S36 in N., S1 in S., and $\frac{1}{4}$ in W. half; dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist. and raise a mound of earth, $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, N. of cor.
80.00	The cor. of Ts. 39 and 40 N., Rs. 4 and 5 W. Land, rolling. Soil, light sandy loam and fine gravel, with gravel sub-soil. Undergrowth, yellowtop and greasewood. Good grazing.
	August 8, 1914.

Chains	Latitudes, Departures, and Closing Errors.						
	Lines Designated	True Bearing	Dis- tance.	Latitude		Departure	
				N	S	E	W
	S.bdy.T.39NR.5W.	West	478.92				478.92
	W.bdy.T.39NR.5W.	North	480.00	480.00			
	N.bdy.T.39NR.5W.	East	478.81			478.81	
	1st.G.M.W.	South	480.00		480.00		
	Convergency					54	
	Totals,			480.00	480.00	479.35	478.92
						478.92	
							.43

NOTE: Considering the falling of 2½ lks. of the random line of the N. bdy., which has been discarded and does not show in the course of that boundary, the closing error would be 2½ lks. in latitude and 43 lks. in departure.

 East Boundary of T. 40 N., R. 4 W.

August 9, 1914: At my camp at Pipe Springs, which is located in sec. 17, T. 40 N., R. 4 W., at 10h 21m p. m., 1. m. t., I observe Polaris at eastern elongation and mark a point in the line thus determined by a tack driven in a wooden peg set in the ground about 10 chs. N. of my station. Approximate latitude, 36° 52' N.; approximate longitude, 112° 45' W.

August 9, 1914.

August 10, 1914: At 6 a. m., I lay off the azimuth of Polaris, 1° 26' to the W. and mark the meridian thus determined by a tack driven in another wooden peg set in the ground about 10 chs. N. of my station.

At 7h 35m a. m., 1. m. t., I set off 36° 52' N. on the lat. arc; 15° 44' N. on the decl. arc; and determine a meridian with the solar, which coincides with the meridian determined by observation on Polaris.

From the cor. of Ts. 39 and 40 N., Rs. 3 and 4 W., I run North, on the E. bdy of T. 40 N., R. 4 W., bet. secs. 31 and 36.

Asc. over rolling land, covered with yellowtop and shad scale undergrowth.

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 in N.,
 S31 in E., and
 S36 in W. half;
 1914 on S. rim;
 dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3½ ft. base, 1½ ft. high, W. of cor.

41.00 Road from Fredonia to Bull Rush, bears NE. and SW.
 44.75 Wash, 8 lks. wide, 3 ft. deep, drains SE. New wire fence on S. bdy. Kaibab Indian Reservation, bears E. and W.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 25, 30, 31, and 36, marked on brass cap
 1914 on S. rim;
 T40N in N.,
 R3W in E., and
 R4W in W. half;
 S25 in NW.,
 S30 in NE.,
 S31 in SE., and
 S36 in SW. quadrant;
 dig pits, 18x18x12 ins., in each sec., 5½ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high,

22.

East Boundary of T. 40 N., R. 4 W.

Chains	<p>W. of cor. Land, rolling, drains SE. Soil, light sandy loam of medium texture. Subsoil, fine gravel. No timber. Undergrowth, yellowtop and shad scale. Fair grazing.</p> <p>-----</p> <p>North, bet. secs. 25 and 30. Asc. gradually, over rolling land, through yellowtop and shad scale undergrowth.</p> <p>5.00 Start abrupt ascent over S. slope of bench, bears N. 60° E. and SW.</p> <p>11.00 Top of bench, 50 ft. above bottom, bears N. 60° E. and SW.; desc. gradually.</p> <p>40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; $\frac{1}{4}$ in N., S30 in E., and S25 in W. half; dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3$\frac{1}{2}$ ft. base, 1$\frac{1}{2}$ ft. high, W. of cor.</p> <p>80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 19, 24, 25, and 30, marked on brass cap 1914 on S. rim; T40N in N., R3W in E., and R4W in W. half; S24 in NW., S19 in NE., S30 in SE., and S25 in SW. quadrant; dig pits, 18x18x12 ins., in each sec., 5$\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor. Land, rolling, drains SE. Soil, red sandy loam of medium texture. Subsoil, red clay. No timber. Undergrowth, shad scale and yellowbrush. Fair grazing.</p> <p>-----</p> <p>North, bet. secs. 19 and 24. Desc. gradually over rolling land, covered with yellowtop and sagebrush.</p> <p>3.50 Drain from Two Mile seep, course SE.; 1 ch. wide, 8 ft. deep. Small stream of strong alkali water. Asc. gradually.</p> <p>40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; $\frac{1}{4}$ in N., S19 in E., and S24 in W. half; dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3$\frac{1}{2}$ ft. base, 1$\frac{1}{2}$ ft. high, W. of cor.</p> <p>80.00 Continue gradual ascent. Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 13, 18, 19, and 24, marked on brass cap 1914 on S. rim; T40N in N., R3W in E., and R4W in W. half; S13 in NW., S18 in NE.,</p>
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Chains S19 in SE., and
S24 in SW. quadrant;
dig pits, 18x18x12 ins., in each sec., 5½ ft. dist.;
and raise a mound of earth, 4 ft. base, 2 ft. high,
W. of cor.
Land, rolling, drains SE.
Soil, red sandy loam of medium texture. Subsoil, red clay.
No timber.
Undergrowth, shad scale and yellowbrush.
Fair grazing.

August 10, 1914: At this cor., I set off 15° 40' N. on
the decl. arc; and, at apparent noon, observe the sun
on the meridian. The resulting lat. is 36° 52' N.
North, bet. secs. 13 and 18.
Asc. gradually over rolling land, covered with shad scale
and greasewood undergrowth.

1.25 Wash, 5 lks. wide, 8 ft. deep; drains SE.
32.00 Enter broken bad lands, bearing SE.
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
1914 on S. rim;
¼ in N.,
S18 in E., and
S13 in W. half;
dig pits, 18x18x12 ins., N. and S. of post, 3 ft.
dist.; and raise a mound of earth, 3½ ft. base, 1½ ft.
high, W. of cor.

61.00 Wash, 20 lks. wide, drains SE.
69.50 Wash, 10 lks. wide, 4 ft. deep, drains S. 35° E.
80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
ground, for the cor. of secs. 7, 12, 13, and 18,
marked on brass cap
1914 on S. rim;
T40N in N.,
R3W in E., and
R4W in W. half;
S12 in NW.,
S7 in NE.,
S18 in SE., and
S13 in SW. quadrant;
dig pits, 18x18x12 ins., in each sec., 5½ ft. dist.;
and raise a mound of earth, 4 ft. base, 2 ft. high, W.
of cor.
Land, rolling and broken bad lands, draining SE.
Soil, red sandy loam of medium texture, 32 chs.; broken
shale and gypsum, 48 chs.
No timber.
Undergrowth, shad scale and yellowtop.
Poor grazing.

North, bet. secs. 7 and 12.
Over broken bad lands, through shad scale and yellowtop
undergrowth.

20.00 Leave broken bad lands, enter rolling land.
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
1914 on S. rim;
¼ in N.,
S7 in E., and
S12 in W. half;
dig pits, 18x18x12 ins., N. and S. of post, 3 ft.
dist.; and raise a mound of earth, 3½ ft. base, 1½ ft.
high, W. of cor.

57.75 Road, from Fredonia to Pipe Springs, bears N. 80° W. and
S. 80° E.
68.75 Wash, 6 lks. wide, 6 ft. deep, drains SE.
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

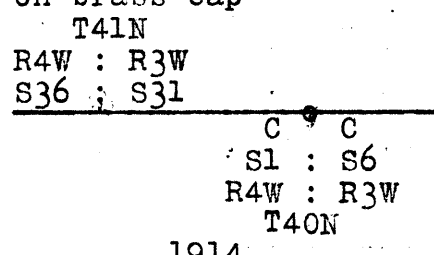
24. East Boundary of T. 40 N., R. 4 W.

Chains

brass cap
 1914 on S. rim;
 T40N in N.,
 R3W in E., and
 R4W in W. half;
 S1 in NW.,
 S6 in NE.,
 S7 in SE., and
 S12 in SW. quadrant;
 dig pits, 18x18x12 ins., in each sec., 5½ ft. dist.;
 and raise a mound of earth, 4 ft. base, 2 ft. high,
 W. of cor.
 Land, broken and rolling.
 Soil, shale gypsum, fine gravel, and light red sandy loam;
 subsoil, disintegrated shale and gypsum.
 Undergrowth, shad scale and yellowtop.
 Fair grazing.
 Land drains SE.

 North, bet. secs. 1 and 6.
 Over broken land, cut by numerous small washes, draining
 E.

- 2.00 Wash, 30 lks. wide, 10 ft. deep, containing seepage of
poor water; course, SE.
- 24.50 Wash, 15 lks. wide, 5 ft. deep; course, E.
- 35.50 Wash, 10 lks. wide, 5 ft. deep; course, E.
- 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
1914 on S. rim;
¼ in N.,
S6 in E., and
S1 in W. half;
dig pits, 18x18x12 ins., N. and S. of post, 3 ft.
dist.; and raise a mound of earth, 3½ ft. base, 1½ ft.
high, W. of cor.
- 61.70 S. bank of wash, 15 ft. high, bears NW. 1½ chs., thence N.
- 63.20 N. bank of wash, 15 ft. high, brs. NW. 1 ch., thence NE.
- 65.00 Intersect the N. bank of same wash from N. 35° W.
- 73.73 Intersect the Tenth Standard Parallel North, 6.93 chs. E.
of the standard cor. of T. 41 N., Rs. 3 and 4 W. At
point of intersection,
Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the
ground, for closing corner of T. 40 N., Rs. 3 and 4 W.,
marked on brass cap



1914
 Dig pits, 30x24x12 ins., crosswise on each line, E. and
 W., 4 ft., and S. of post, 8 ft. dist.; and raise a
 mound of earth, 5 ft. base, 2½ ft. high, S. of cor.
 Land, broken and rolling.
 Soil, shale gypsum, fine gravel, and light red sandy loam;
 subsoil; disintegrated shale and gypsum.
 Undergrowth, shad scale and yellowtop.
 Fair grazing.
 Land drains SE.

August 10, 1914.

Boundaries of T. 40 N., R. 4 W.

Chains

Latitudes, Departures, and Closing Errors.

Lines Designated	True Bearing	Dis- tance	Latitude		Departure	
			N	S	E	W.
S.bdy.T.40 N.R.4W	N. 89° 58' W.	478.19	.25			478.19
1st G. M. W.	North	473.70	473.70			
10th St. Par. N.	East	478.31			478.31	
E.bdy.T40NR4W	South	473.73		473.73		
Convergency					.54	
Totals,			473.95	473.73	478.85	478.19
Error in lat.			473.73	Error	478.19	
			.22	in dep.	.66	

West Boundary of T. 40 N., R. 5 W.

For test of solar, see page 21 of this Book.

August 11, 1914: At the cor. of Ts. 39 and 40 N., Rs. 5 and 6 W., I set off 36° 49' N. on the lat. arc; 15° 26' N. on the decl. arc; and, at 8h 5m a. m., l. m. t., determine a meridian with the solar.

Thence I run

North, bet. secs. 31 and 36.

Desc. gradually over gently rolling land, through scattering greasewood and yellowtop.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap.

1914 on S. rim;

1/4 in N.,

S31 in E., and

S36 in W. half;

dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3 1/2 ft. base, 1 1/2 ft. high, W. of cor.

60.00 Leave scattering greasewood, bears E. and W.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 25, 30, 31, and 36, marked on brass cap

1914 on S. rim;

T40N in N.,

R5W in E., and

R6W in W. half;

S25 in NW.,

S30 in NE.,

S31 in SE., and

S36 in SW. quadrant;

dig pits, 18x18x12 ins., in each sec., 5 1/2 ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, gently rolling.

Soil, light sandy loam of medium texture. Subsoil, fine red gravel.

Undergrowth, greasewood and yellowtop.

Excellent grazing.

North, bet. secs. 25 and 30.

Desc. gradually over rolling land.

9.50 Wash, 8 lks. wide, 4 ft. deep; course, NE.

24.50 Wash, 10 lks. wide, 5 ft. deep; course, NE.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap

1914 on S. rim;

1/4 in N.,

S30 in E., and

S25 in W. half;

dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.

26. West Boundary of T. 40 N., R. 5 W.

Chains and raise a mound of earth, $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, W. of cor.
 70.40 Wash, 8 lks. wide, 3 ft. deep; course, NE.
 80.00 Point for cor. falls in wash, 40 lks. wide, 4 ft. deep; course, SE.; therefore, 1 ch. N., or at
 81.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for witness cor. to the cor. of secs. 19, 24, 25, and 30, marked on brass cap
 1914 on S. rim;
 WC N. of center;
 T40N in N.,
 R5W in E., and
 R6W in W. half;
 S24 in NW.,
 S19 in NE.,
 S30 in SE., and
 S25 in NW. quadrant;
 dig pits, 18x18x12 ins., NE., SE., SW., and NW. of post, $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
 Land, gently rolling.
 Soil, light sandy loam of medium texture. Subsoil, fine red gravel.
 Undergrowth, greasewood and yellowtop.
 No timber.
 Excellent grazing.

 From true point for cor.,
 North, bet. secs. 19 and 24.
 Asc. gradually over gently rolling land.
 1.00 Witness corner, to cor. of secs. 19, 24, 25, and 30.
 32.30 Old road, bears E. and W.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1914 on S. rim;
 $\frac{1}{4}$ in N.,
 S19 in E., and
 S24 in W. half;
 dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, W. of cor.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 13, 18, 19, and 24, marked on brass cap
 1914 on S. rim;
 T40N in N.,
 R5W in E., and
 R6W in W. half;
 S13 in NW.,
 S18 in NE.,
 S19 in SE., and
 S24 in SW. quadrant;
 dig pits, 18x18x12 ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
 Land, gently rolling.
 Soil, light sandy loam of medium texture. Subsoil, fine red gravel.
 Undergrowth, greasewood and yellowtop.
 No timber.
 Excellent grazing.

 August 11, 1914: At this cor., I set off $15^{\circ} 22'$ N. on the decl. arc; and, at apparent noon, observe the sun on the meridian; the resulting lat. is $36^{\circ} 52'$ N.
 North, bet. secs. 13 and 18.
 Asc. over rolling land.
 11.50 Wash, 10 lks. wide, 3 ft. deep; course, SW. Continue as-

Chains cent along W. side wash.
 18.00 Same wash, drains from N. 30° E.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap
 1914 on S. rim;
 1/4 in N.,
 S18 in E., and
 S13 in W. half;
 dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3 1/2 ft. base, 1 1/2 ft. high, W. of cor.
 42.00 Top of gradual ascent, bears E. and W.; desc. gradually.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 7, 12, 13, and 18, marked on brass cap
 1914 on S. rim;
 T40N in N.,
 R5W in E., and
 R6W in W. half;
 S12 in NW.,
 S7 in NE.,
 S18 in SE., and
 S13 in SW. quadrant;
 dig pits, 18x18x12 ins., in each sec., 5 1/2 ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
 Land, gently rolling.
 Soil, light sandy loam of medium texture. Subsoil, fine red gravel.
 Undergrowth, greasewood and yellowtop.
 No timber.
 Excellent grazing.

 15.50 North, bet. secs. 7 and 12.
 35.25 Asc. gradually over rolling land.
 Road, Pipe Springs to St. George, bears E. and W.
 Telephone line, Kanab to Hurricane, bears N. 70° W. and S. 70° E.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for 1/4 sec. cor., marked on brass cap
 1914 on S. rim;
 1/4 in N.,
 S7 in E., and
 S12 in W. half;
 dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3 1/2 ft. base, 1 1/2 ft. high, W. of cor.
 Enter scattering scrub cedar and pinion timber, bears E. and W.
 72.00 Point of spur of red ledges projecting from NE.
 75.50 Gulch at base of mesa, drains S. 35° W.; asc. abruptly over broken S. slope.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 1, 6, 7, and 12, marked on brass cap
 1914 on S. rim;
 T40N in N.,
 R5W in E., and
 R6W in W. half;
 S1 in NW.,
 S6 in NE.,
 S7 in SE., and
 S12 in SW. quadrant; and
 raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor. Pits impracticable. No trees within limits.
 This cor. is established 140 ft. above the bottom of the gulch.
 Land, gently rolling.
 Soil, light sandy loam of medium texture. Subsoil, fine red gravel.
 Undergrowth, greasewood and yellowtop.

28.

West Boundary of T. 40 N., R. 5 W.

Chains No timber, except scattering scrub cedar and pinion trees.
Excellent grazing.

North, bet. secs. 1 and 6.
Asc. gradually over broken land, through dense scrub cedar and pinion timber.

10.00 Top of ascent, 50 ft. above cor., bears E. and W.; leave dense cedar and pinion timber, and enter open sagebrush land; desc. gradually.

20.00 Bottom of gradual descent, bears E. and W.; asc. gradually.

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

1914 on S. rim;

$\frac{1}{4}$ in N.,

S6 in E., and

S1 in W. half;

dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, W. of cor.

45.00 Enter dense cedar and pinion timber, bears E. and W.

69.00 Top of ascent, bears E. and W.; desc.

73.76 Intersect the Tenth Standard Parallel North, 10.42 chs. E. of the standard cor. of T. 41 N., Rs. 5 and 6 W. X

At point of intersection, I

Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for closing cor. of T. 40 N., Rs. 5 and 6 W., marked on brass cap

T41N
R6W : R5W
S36 : S31

o

C C

S1 : S6

R6W : R5W

T40N

1914; from which

A cedar, 12 ins. diam., bears S. $24^{\circ} 15'$ E., 130 lks. dist., marked T40NR5WS6CCBT.

A pinion, 8 ins. diam., bears S. $27^{\circ} 45'$ W., 55 lks. dist., marked T40NR6WS1CCBT.

Land, rolling, and broken top of mesa, draining NW.

Soil, light sandy loam, with coarse gravel subsoil.

Timber, scrub cedar and pinion.

Undergrowth, sagebrush and greasewood.

Good grazing.

August 11, 1914.

Latitudes, Departures, and Closing Errors.

Lines Designated	True Bearing	Distance	Latitude		Departure	
			N	S	E	W
S. bdy. T40NR5W	West	478.81				478.81
W. bdy. T40NR5W	North	473.67	473.67			
10th St. Par. N.	East	478.20			478.20	
1st G. M. W.	South	473.70		473.70		
Convergency					.54	
Totals			473.67	473.70	478.74	478.81
Error in lat.				473.67	Error	478.74
				.03 in dep.		.07

Chains

Survey commenced September 7, 1914, and executed with a Young and Sons' light mountain transit, No. 8535, with Smith solar attachment.

For description of instrument and solar, see page 1 of this book.

At my camp at Cane Bed spring, which is located in sec. 19, T. 41 N., R. 5 W., at 8h 27.5m p. m., l. m. t., I observe Polaris at eastern elongation and mark a point in the line thus determine by a tack drive in a peg set about 12 chs. N. of my station. Approximate lat. 36° 57' N.; approximate longitude, 112° 53' W.

September 7, 1914.

September 8, 1914: I lay off the azimuth of Polaris, 10° 26' 30" to the W., and mark the meridian thus determined by driving another peg in the ground about 12 chs. N. of my station.

At 7h 58m a. m., l. m. t., I set off 36° 57' N. on the lat. arc; 5° 53' N. on the decl. arc; and determine a meridian with the solar. This meridian coincides with the meridian determined by Polaris observation.

From the standard cor. of T. 41 N., Rs. 5 and 6 W., I run North, bet. secs. 31 and 36.

Desc. over broken land, covered with dense scrub cedar and pinion timber.

12.25 Draw, 15 lks. wide, 70 ft. below cor.; course, N. 70° W.; asc. steep rocky SW. slope.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stone, for 1/4 sec. cor., marked on brass cap

1914 on S. rim;

1/4 in N.,

S31 in E., and

S36 in W. half; from which

A pinion, 8 ins. diam., bears S. 71° E., 75 lks. dist., marked 1/4 S31BT.

A pinion, 10 ins. diam., bears N. 70° 30' W., 78 lks. dist., marked 1/4 S36BT.

This cor. is established 125 ft. above draw; continue ascent.

46.75 Rocky spur from point of mesa, bears N. 35° E. and N. 70° W., 60 ft. above cor.; desc. gradually over NW. slope.

77.50 Stake and rider fence, bears N. 70° W. and S. 70° E.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 25, 30, 31, and 36, marked on brass cap

1914 on S. rim;

T41N in N.,

R5W in E., and

R6W in W. half;

S25 in NW.,

S30 in NE.,

S31 in SE., and

S36 in SW. quadrant; from which

A pinion, 16 ins. diam., bears N. 69° 30' E., 60 lks. dist., marked T41NR5WS30BT.

A cedar, 18 ins. diam., bears S. 77° W., 185 lks. dist., marked T41NR6WS36BT.

A pinion, 24 ins. diam., bears N. 58° 30' W., 180 lks. dist., marked T41NR6WS25BT.

No other trees available for bearing trees.

Raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.

Land, mountainous and broken.

Soil, red sandy loam, rocky and covered with large boulders. Subsoil, red clay.

Timber, dense scrub cedar and pinion.

Undergrowth, buck- and service brush.

Land has western exposure.

North, bet. secs. 25 and 30.

Over broken NW. slope of foot hills, through dense scrub

30.

West Boundary of T. 41 N., R. 5 W.

Chains	cedar and pinion timber.
38.00	Leave broken land and dense timber, bears NE. and SW.; enter open rolling land, covered with yellowtop undergrowth.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; $\frac{1}{4}$ in N., S30 in E., and S25 in W. half; dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, W. of cor.
62.50	Road, from Pipe Springs to Cane Beds, bears NE. and SW.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 19, 24, 25, and 30, marked on brass cap 1914 on S. rim; T41N in N., R5W in E., and R6W in W. half; S24 in NW., S19 in NE., S30 in SE., and S25 in SW. quadrant; dig pits, 18x18x12 ins., in each sec., $5\frac{1}{2}$ ft. dist., and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
	Land, broken and rolling. Soil, light red sandy loam. Subsoil, red clay. Timber, scrub cedar and pinion. Undergrowth, yellowtop. Good grazing. Land has NW. exposure.

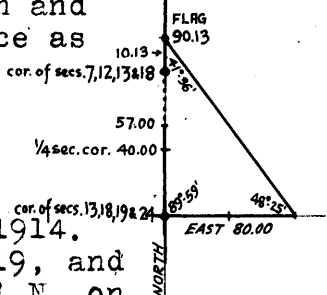
	September 8, 1914: I set off $5^{\circ} 49'$ N. on the decl. arc; and at apparent noon, observe the sun on the meridian, the resulting lat. is $36^{\circ} 56'$ N. North, bet. secs. 19 and 24. Desc. gradually over rolling land, covered with yellowtop undergrowth.
5.50	Road, bears N. 86° W. and S. 86° E.
5.75	Wire fence, bears N. 86° W. and S. 86° E.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; $\frac{1}{4}$ in N., S19 in E., and S24 in W. half; dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist. and raise a mound of earth, $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, W. of cor.
55.20	Road, bears E. and W.
60.20	Road, bears N. 80° E. and S. 80° W.
65.25	Wash, 10 lks. wide; course, SW.; asc. gradually.
65.50	Old road, bears NE. and SW.
72.90	Rail fence, bears N. 60° E. and S. 60° W. A corral bears E. 2 chs.; enter scattering scrub cedar and pinion timber.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 13, 18, 19, and 24, marked on brass cap 1914 on S. rim; T41N in N., R5W in E., and R6W in W. half; S13 in NW., S18 in NE., S19 in SE., and S24 in SW. quadrant; dig pits, 18x18x12 ins., in each sec., $5\frac{1}{2}$ ft. dist.;

Chains

and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
 No trees suitable for bearing trees within limits.
 Land, rolling.
 Soil, light red sandy loam, of fine texture, with some white shifting sand.
 Subsoil, red clay.
 Undergrowth, yellowtop and greasewood.
 Timber, scattering scrub cedar and pinion, 7 chs.
 Good grazing.

I set a flag ahead on the range line on top of high ledges and lay off a base line E. 80.00 chs., leaving a temporary corner at 40.00 chs., and triangulate as follows:
 The angle between this base line and the range line is $89^{\circ} 59'$; the angle at the 80-ch. point on the base line between the flag on top of ledges and the triangulation point at the cor. of secs. 13, 18, 19, and 24, is $48^{\circ} 25'$; and, on the following day, I measure the angle at the flag on top of ledges to the north and find same to be $41^{\circ} 36'$. I compute the distance as follows:

Colog. sin. $41^{\circ} 36'$	=	0.1778802
Log. sin. $48^{\circ} 25'$	=	9.8738965
Log. 80.00 chs.	=	1.9030900
Log. 90.13 chs.	=	1.9548667



September 8, 1914.

September 9, 1914: At the cor. of secs. 13, 18, 19, and 24, T. 41 N., Rs. 5 and 6 W., I set off $36^{\circ} 57'$ N. on the lat. arc; $5^{\circ} 30'$ N. on the decl. arc; and, at 8h. 28m a. m., 1. m. t., determine a meridian with the solar. Thence I run

- North, bet. secs. 13 and 18.
- Asc. gradually over rolling land, through dense scrub cedar and pinion timber.
- 25.00 Leave dense cedar and pinion timber, bears E. and W.
- 40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 - 1914 on S. rim;
 - $\frac{1}{4}$ in N.,
 - S18 in E., and
 - S13 in W. half;
 dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, W. of cor.
- 50.00 Asc. abruptly over rocky spur projecting E., 50 ft. high.
- 57.00 Bottom of gulch, 50 ft. below spur, course, SE.; asc. abruptly over broken slope of mesa and ledges. I abandon chaining at this point.
- 80.00 From the triangulation point on top of ledges, which is 90.13 chs. from the cor. of secs. 13, 18, 19, and 24, I chain south along line 10.13 chs., where, at
 - Set an iron post, 3 ft. long, 3 ins. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of secs. 7, 12, 13, and 18, marked on brass cap
 - 1914 on S. rim;
 - T41N in N.,
 - R5W in E., and
 - R6W in W. half;
 - S12 in NW.,
 - S7 in NE.,
 - S18 in SE., and
 - S13 in SW. quadrant; from which
 - A pinion, 8 ins. diam., bears N. 84° E., 21 lks. dist., marked T41NR5WS7BT.
 - A pinion, 12 ins. diam., bears S. 35° E., 18 lks. dist., marked T41NR5WS18BT.
 - A pinion, 16 ins. diam., bears S. $43^{\circ} 30'$ W., 72 lks. dist., marked T41NR6WS13BT.

32.

West Boundary of T. 41 N., R. 5 W.

Chains A pinion, 12 ins. diam., bears N. 83° W., 105 lks. dist., marked T41NR6WS12BT.
 Land, rolling, 50 chs.; broken and mountainous, 30 chs.
 Soil, light red sandy loam, 40 chs.; white sand, 10 chs.; rocky, 30 chs. Subsoil, red clay, 50 chs.; bedrock, 30 chs.
 Timber, dense scrub cedar and pinion, 35 chs.
 Undergrowth, yellowtop, white sage, and manzanita.
 Good grazing, south 20 chs.

North, bet. secs. 7 and 12.
 Asc. over broken rocky slope, through dense timber.
 10.13 Triangulation point.
 17.00 Ridge, bears E. and W., 70 ft. above cor.; desc.
 21.00 Gulch, course E.; 75 ft. below ridge; asc.
 30.00 Top of ascent, bears E. and W., 125 ft. above gulch; desc.
 33.00 Gulch, course E., 60 ft. below top of ascent; asc.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stone, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1914 on S. rim;
 $\frac{1}{4}$ in N.,
 S7 in E., and
 S12 in W. half; from which
 A cedar, 10 ins. diam., bears S. 40° E., 91 lks. dist., marked $\frac{1}{4}$ S7BT.
 A pinion, 12 ins. diam., bears S. 16° W., 69 lks. dist., marked $\frac{1}{4}$ S12BT.
 47.00 Top of broken ascent, bears E. and W.; desc., through scattering yellow pine and dense oak brush.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of secs. 1, 6, 7, and 12, marked on brass cap
 1914 on S. rim;
 T41N in N.,
 R5W in E., and
 R6W in W. half;
 S1 in NW.,
 S6 in NE.,
 S7 in SE., and
 S12 in SW. quadrant; from which
 A pinion, 6 ins. diam., bears N. 10° E., 84 lks. dist., marked T41NR5WS6BT.
 A cedar, 10 ins. diam., bears S. 72° 15' E., 145 lks. dist., marked T41NR5WS7BT.
 A yellow pine, 24 ins. diam., bears S. 11° 30' W., 106 lks. dist., marked T41NR6WS12BT.
 A pinion, 10 ins. diam., bears N. 45° W., 91 lks. dist., marked T41NR6WS1BT.
 Land, broken and mountainous, draining E.
 Soil, rocky and white drift sand in places. Sandstone bedrock close to surface.
 Timber, dense cedar and pinion with scattering yellow pine.
 Undergrowth, scrub oak and sage brush.
 Poor grazing.
 Land has eastern exposure.

September 9, 1914

September 10, 1914: I set off 36° 58' N. on the lat. arc; 5° 7' N. on the decl. arc; and, at 8h 57m a. m., 1. m. t., determine a meridian with the solar.
 North, bet. secs. 1 and 6.
 Over broken E. slope of mesa, through scattering cedar and pinion.
 8.00 Gulch, 8 ft. deep, drains E. Seep bears 2 chs. W.
 17.00 Desc. abruptly over broken rocky slope.

West Boundaries of Ts. 41 and 42 N., R. 5 W. 33.

Chains
37.00 Bottom of box canyon, 100 ft. deep, drains E.; asc.
40.00 Impracticable to set $\frac{1}{4}$ sec. cor.
41.00 Small pinnacle, 30 ft. high, on line.
41.20 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for witness corner to $\frac{1}{4}$ sec. cor., marked on brass cap WC S. of center;
1914 on S. rim;
 $\frac{1}{4}$ in N.,
S6 in E., and
S1 in W. half; from which
A cross (X) on sandstone ledge, bears N. 21° 48' E., 32 lks dist., marked BOS6.
A pinion, 8 ins. diam., bears S. 60° W., 60 lks. dist., marked $\frac{1}{4}$ S1BT.
This cor. is located between two large pinnacles; asc. over sandstone outcrop.
65.00 Top sandy ridge, bears E. and W.; desc. gradually; enter dense timber.
71.00 Dry draw, 10 lks. wide, 5 ft. deep, drains W.; asc. gradually.
80.00 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, under a large cedar tree, for the cor. of Ts. 41 and 42 N., Rs. 5 and 6 W., marked on brass cap
1914 on S. rim;
T42N in N.,
R5W in E.,
T41N in S., and
R6W in W. half;
S36 in NW.,
S31 in NE.,
S6 in SE., and
S1 in SW. quadrant; from which
A cedar, 6 ins. diam., bears N. 39° 30' E., 110 lks. dist., marked T42NR5WS31BT.
A cedar, 20 ins. diam., bears S. 9° 30' E., 62 lks. dist., marked T41NR5WS6BT.
A cedar, 14 ins. diam., bears S. 49° 30' W., 85 lks. dist., marked T41NR6WS1BT.
A cedar, 14 ins. diam., bears N. 78° 30' W., 56 lks. dist., marked T42NR6WS36BT.
Land, broken and mountainous, drains E. and SW.
Soil, rocky and white sand, with sandstone bedrock close to surface.
Timber, dense cedar and pinion and scattering yellow pine.
Undergrowth, scrub oak, buck, and sage brush.
Poor grazing.

West Boundary of fractional T. 42 N., R. 5 W.

September 10, 1914.
At the cor. of Ts. 41 & 42 N., Rs. 5 & 6 W. I set off 5° 31' N. on the decl. arc; and, at apparent noon, observe the sun on the meridian; the resulting lat. is 36° 59' N.
Thence I run
North, bet. secs. 31 and 36.
Asc. over rolling land, covered with dense scrub cedar, pinion, and scattering yellow pine timber.
40.00 Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
1914 on S. rim;
 $\frac{1}{4}$ in N.,
S31 in E., and
S36 in W. half; from which
A pinion, 8 ins. diam., bears N. 57° E., 48 lks. dist., marked $\frac{1}{4}$ S31BT.
A pinion, 8 ins. diam., bears S. 58° W., 69 lks. dist., marked $\frac{1}{4}$ S36BT.
55.02 Intersect the Arizona-Utah state line, 15.30 chs. East of the 64th-mile corner, which is a sandstone, 24x15x8

34.

Fractional West Boundary of T. 42 N., R. 5 W.

Chains ins. above ground, on solid rock, in a mound of stone, witnessed as described by the Surveyor-General. At point of intersection, I
Set an iron post, 3 ft. long, 3 ins. diam., over a cross (X) on bedrock, surrounded by a mound of stone, for closing cor. of frac. T. 42 N., Rs. 5 and 6 W., marked on brass cap 1914 on S. rim;
CC S. of center;
UTAH in N. and
T42N in S. half;
R5WS31 in SE. and
R6WS36 in SW. quadrant; from which
A yellow pine, 12 ins. diam., bears S. 58° E., 71 lks. dist., marked T42NR5WS31CCBT.
A pinion, 8 ins. diam., bears S. 17° W., 117 lks. dist., marked T42NR6WS36CCBT.
Land, broken and mountainous, drains E. and SW.
Soil, rocky and white sand, with sandstone bedrock close to the surface.
Timber, dense cedar and pinion and scattering yellow pine.
Undergrowth, scrub oak, buck, and sage brush.
Poor grazing.

September 10, 1914.

South Boundary of T. 39 N., R. 3 W.

Survey commenced September 28, 1914, and executed with a Young and Sons' light mountain transit No. 8535, with Smith solar attachment. For description of instrument, see page 1 of this book.
To test the solar apparatus, I proceed as follows:
September 28, 1914: At my camp, which is located in sec. 10, T. 39 N., R. 3 W., I observe Polaris at eastern elongation, at 7h 5m p. m., l. m. t., and mark a point in the line thus determined by a tack driven in a peg 10 chs. N. of my station.
September 28, 1914.
September 30, 1914: I lay off the azimuth of Polaris 1° 26' to the west and mark the meridian thus determined by a tack driven in another stake 10 chs. N. of my station.
At 7h 20m a. m., l. m. t., I set off 36° 47' N. on the lat. arc; 2° 35' S. on the decl. arc; and determine a meridian with the solar, which coincides with the Polaris meridian.
From the cor. of Ts. 38 and 39 N., Rs. 3 and 4 W., I run East, bet. secs. 6 and 31.
Over rolling land, covered with greasewood undergrowth.
16.00 Low divide between Bull Rush and Kanab canyon, bears N. and S., 50 ft. above township cor.; desc. gradually.
38.92 Set an iron post, 3 ft. long, 1 in. diam., 10 ins. in the ground, to bedrock, surrounded by a mound of stone, for the $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim;
S31 in N.,
S6 in S., and
 $\frac{1}{4}$ in W. half; and
raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.
78.92 Set an iron post, 3 ft. long, 3 ins. diam., 3 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of secs. 5, 6, 31, and 32, marked on brass cap
1914 on S. rim;
T39NR3W in N. and
T38N in S. half;
S31 in NW.,
S32 in NE.,
S5 in SE., and

South Boundary of T. 39 N., R. 3 W.

Chains S6 in SW. quadrant; and
 raise a mound of stone, 2 ft. base, 1½ ft. high, W. of
 cor. Pits impracticable.
 Land, rolling, drains SE.
 Soil, coarse sandy loam, gravel, and stony, with sandstone
 bedrock close to surface.
 Undergrowth, yellowtop and greasewood.
 Fair grazing.
 No timber.

 East, bet. secs. 5 and 32.
 Desc. gradually over rolling land, covered with grease-
 wood and yellowtop undergrowth.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 10 ins. in the
 ground, to bedrock, surrounded by a mound of stone,
 for ¼ sec. cor., marked on brass cap
 1914 on S. rim;
 S32 in N.,
 S5 in S., and
 ¼ in W. half; and
 raise a mound of stone, 2 ft. base, 1½ ft. high, N. of
 cor. Pits impracticable.

September 30, 1914: At this cor., I set off 2° 41' S. on
 the decl. arc; and, at apparent noon, observe the sun
 on the meridian; the resulting lat. is 36° 44' N.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 4 ins. in the
 ground, to bedrock, surrounded by a mound of stone, for
 the cor. of secs. 4, 5, 32, and 33, marked on brass
 cap
 1914 on S. rim;
 T39NR3W in N. and
 T38N in S. half;
 S32 in NW.,
 S33 in NE.,
 S4 in SE., and
 S5 in SW. quadrant; and
 raise amount of stone, 2 ft. base, 1½ ft. high, W. of
 cor. Pits impracticable.
 Land, rolling, drains SE.
 Soil, coarse sandy loam, gravel, and stony, with sandstone
 bedrock close to surface.
 Undergrowth, yellowtop and greasewood.
 Fair grazing.
 No timber.

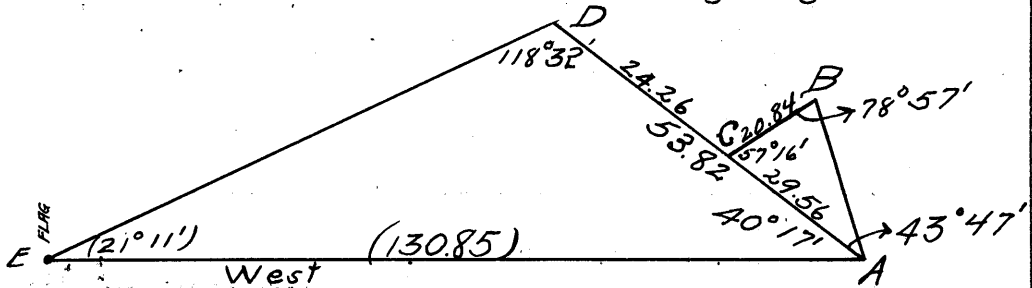
 East, bet. secs. 4 and 33.
 Desc. gradually over rolling land.
 22.33 W. edge of Kanab Canyon and triangulation point.
 22.40 W. rim of Kanab canyon, 10 ft. high, bears N. 27° E., and
 S. 27° W.; desc. abruptly over broken W. slope.
 27.60 Top of perpendicular ledge, 250 ft. high, 180 ft. below
 top. At this point
 Set an iron post, 3 ft. long, 1 in. diam., over a cross
 (X) on solid ledge, surrounded by a mound of stone,
 for witness cor. to the ¼ sec. cor., marked on brass
 cap
 1914 on S. rim;
 WC E. of center;
 T39NR3W½S33 in N. and
 S4 in S. half; and
 raise a mound of stone, 2 ft. base, 1½ ft. high, N. of
 cor. Pits impracticable.
 Bottom of Kanab canyon is 900 ft. below triangulation
 point.
 Set a flag ahead on the E. rim of Kanab canyon and leave
 a flag at the triangulation point on the W. rim of
 canyon.
 September 30, 1914: At my camp at 4.20 a.m., I set off 36° 47' N. on
 the lat. arc; 2° 43½' S. on the decl. arc; and deter-
 mine a meridian with the solar, which coincides with

Chains

the meridian as obtained by observation on Polaris.
September 30, 1914.

October 1, 1914.

From the point on the east rim of Kanab canyon, I triangulate in accordance with the following diagram:



Triangulation station at "A" is located on a point projecting W., with a deep canyon draining W. between the stations "A" and "B," therefore, it is impossible to measure a base in this direction. There is also a deep canyon to the S. of "A." I set a flag at "D" and one at "C" in line therewith; also a flag at "B." The angle at "A" between "D" and "E" measures $40^{\circ} 17'$; the angle at "A" between "B" and "C" measures $43^{\circ} 47'$; the angle at "B" measures $78^{\circ} 57'$; the angle at "C" measures $57^{\circ} 16'$; and the angle at "D" measures $118^{\circ} 32'$. I double chain the line "B-C" and find the distance to be 20.84 chs. I compute the distance "A-C" as follows:

Colog. sin. $43^{\circ} 47'$ = 0.1599358
 Log. sin. $78^{\circ} 57'$ = 9.9918727
 Log. 20.84 chs. = 1.3188977
 Log. 29.56 chs. = 1.4707062

From "C," I double chain the line "C-D" and find it to be 24.26 chs. 24.26 chs. plus 29.56 chs. = 53.82 chs., the length of the line "A-D," which I use for a base and compute the distance "A-E" as follows:

Colog. sin. $21^{\circ} 11'$ = 0.4420679
 Log. sin. $118^{\circ} 32'$ = 9.9437612
 Log. 53.82 chs. = 1.7309431
 Log. 130.85 chs. = 2.1167728

130.85 chs. plus 22.33 chs. = 153.18 chs., the distance the flag on the east rim is from the cor. of secs. 4, 5, 32, and 33. I measure East along line and at 6.82 chs., or 160.00 chs., or 2 miles, from cor. of secs. 4, 5, 32, and 33,

160.00

Set an iron post, 3 ft. long, 3 ins. diam., 8 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of secs. 2, 3, 34, and 35, marked on brass cap

1914 on S. rim;
 T39NR3W in N., and
 T38N in S. half;
 S34 in NW.,
 S35 in NE.,
 S2 in SE., and
 S3 in SW. quadrant; and

raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

The bottom of Kanab canyon is 1200 ft. below triangulation point on E. rim and the township line runs along the perpendicular ledges of a canyon draining from the E. It is, therefore, impracticable to set the cor. of secs. 3, 4, 33, and 34, and the $\frac{1}{4}$ sec. cor. bet. secs. 3 and 34.

October 1, 1914.

October 5, 1914: I arrive at the cor. of secs. 2, 3, 34, and 35 too late for a. m. solar observation. I back-sight on the flag on the W. rim of Kanab canyon and project the line

East, bet. secs. 2 and 35.

Desc. gradually over rolling rocky land, covered with dense sagebrush and greasewood undergrowth.

Chains

15.00 Head of S. fork of canyon, course, N.; asc.
 24.00 Point of spur, projecting N.; desc. gradually.
 29.60 Ledge of main canyon, near head, 15 ft. high, bears NW. and SE.
 35.50 Bottom of canyon, 65 ft. below top of rim, course, NW.; asc.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., over a cross (X) on bedrock, surrounded by a mound of stone, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1914 on S. rim;
 S35 in N.,
 S2 in S., and
 $\frac{1}{4}$ in W. half; and
 raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.
 This cor. is established 40 ft. above the bottom of the canyon.

October 5, 1914: At this cor., I set off $40^{\circ} 37'$ S. on the decl. arc; and, at apparent noon, observe the sun on the meridian; the resulting lat. is $36^{\circ} 44'$ N.

71.50
 80.00

Dim road, bears NE. and SW.
 Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 1, 2, 35, and 36, marked on brass cap
 1914 on S. rim;
 T39NR3W in N. and
 T38N in S. half;
 S35 in NW.,
 S36 in NE.,
 S1 in SE., and
 S2 in SW. quadrant;
 dig pits, $18 \times 18 \times 12$ ins., in each sec., $5\frac{1}{2}$ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.
 Land, rolling; drains into Kanab canyon.
 Soil, coarse gravel and covered with volcanic rock in W. half mile; red sandy loam of coarse texture in E. half mile. Subsoil, coarse gravel in east half mile; bedrock, close to surface, in west half mile.
 Undergrowth, dense sage and greasewood.
 Poor grazing.
 No timber.

October 5, 1914: I set off $36^{\circ} 44'$ N. on the lat. arc; $40^{\circ} 39'$ S. on the decl. arc; and, at 2h 19m p. m., 1. m. t., determine a meridian with the solar.

Thence I run
 East, bet. secs. 1 and 36,
 Over rolling land, covered with dense sagebrush undergrowth.

40.00

Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap
 1914 on S. rim;
 S36 in N.,
 S1 in S., and
 $\frac{1}{4}$ in W. half;
 dig pits, $18 \times 18 \times 12$ ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, N. of cor.

60.00
 73.00
 80.00

Enter surface covered with malpais boulders.
 Low ridge, bears NE. and SW.; desc.
 Set an iron post, 3 ft. long, 3 ins. diam., 18 ins. in the ground, surrounded by a mound of stone, for the cor. of Ts. 38 and 39 N., Rs. 2 and 3 W., marked on brass cap
 1914 on S. rim;
 T39N in N.,
 R2W in E.,
 T38N in S., and

38. South and East Boundaries of T. 39 N., R. 3 W.

Chains R3W in W. half;
S36 in NW.,
S31 in NE.,
S6 in SE., and
S1 in SW. quadrant; and
raise a mound of stone, 2 ft. base, 1½ ft. high, S. of
cor. Pits impracticable.
Soil, light red sandy loam of coarse texture; rocky for
20 chs. Subsoil, coarse gravel and rocky.
Undergrowth, sagebrush.
Poor grazing.
No timber.

October 5, 1914.

East Boundary of T. 39 N., R. 3 W.

October 6, 1914: At the cor. of Ts. 38 and 39 N., Rs.
2 and 3 W., I set off 36° 44' N. on the lat. arc;
4° 55' S. on the decl. arc; and, at 7h 48m a. m., 1.
m. t., determine a meridian with the solar.

Thence I run

North, bet. secs. 31 and 36.

13.00 Asc. over rolling land, covered with dense sage brush.
Low ridge, bears NE. and SW., 60 ft. above cor.; desc.
gradually.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 18 ins. in the
ground, to bedrock, surrounded by a mound of stone,
for ¼ sec. cor., marked on brass cap

1914 on S. rim;

¼ in N.,

S31 in E., and

S36 in W. half;

dig pits, 18x18x12 ins. N. and S. of post, 3 ft. dist.;
and raise a mound of earth, 3½ ft. base, 1½ ft. high,
W. of cor.

80.00 Set an iron post, 3 ft. long, 3 ins. diam., 8 ins. in the
ground, to bedrock, surrounded by a mound of stone,
for the cor. of secs. 25, 30, 31, and 36, marked on
brass cap 1914 on S. rim;

T39N in N.,

R2W in E., and

R3W in W. half;

S25 in NW.,

S30 in NE.,

S31 in SE., and

S36 in SW. quadrant;

dig pits, 18x18x12 ins., in each sec., 5½ ft. dist.;
and raise a mound of earth, 4 ft. base, 2 ft. high, W.
of cor.

Land, rolling.

Light red sandy loam of coarse texture. S. 13 chs. cov-
ered with malpais boulders. Bedrock close to surface.

Undergrowth, dense sage.

Poor grazing.

No timber.

North, bet. secs. 25 and 30.

Desc. gradually over rolling land, covered with sage brush
and yellowtop undergrowth.

20.60 Old dim road, bears N. 60° E. and S. 60° W.

23.00 Bottom of gradual descent, bears NW. and SE.; asc. gradual-
ly.

40.00 Set an iron post, 3 ft. long, 1 in. diam., 10 ins. in the
ground, to bedrock, surrounded by a mound of stone,
for the ¼ sec. cor., marked on brass cap

1914 on S. rim;

¼ in N.,

East Boundary of T. 39 N., R. 3 W. 39.

Chains	<p>S30 in E. and S25 in W. half; from which A cedar, 10 ins. diam., bears N. 45° 30' E., 112 lks. dist., marked $\frac{1}{4}$S30BT. A cedar, 12 ins. diam., bears S. 62° 30' W., 33 lks. dist., marked $\frac{1}{4}$S25BT. This cor. is located on top of a low ridge, bearing N. 35° W. and E. There are a few scattering cedars in the vicinity of the cor. Desc. gradually.</p> <p>61.50 S. rim of Rock canyon, bears E. and W.; desc. abruptly. 65.50 Bottom of S. fork Rock canyon, drains N. 60° W., 80 ft. below S. rim. 69.50 Spur, projects W., 60 ft. above bottom of canyon. 75.00 Bottom of Rock canyon, 60 ft. below spur, drains SW. 7 chs.; thence W.; asc. abruptly. 78.50 N. rim of Rock canyon, 125 ft. above bottom, bears N. 80° E. and W.; asc. gradually. 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of secs. 19, 24, 25, and 30, marked on brass cap 1914 on S. rim; T39N in N., R2W in E., and R3W in W. half; S24 in NW., S19 in NE., S30 in SE., and S25 in SW. quadrant; and raise a mound of stone, 2 ft. base, 1$\frac{1}{2}$ ft. high, W. of cor. Pits im- practicable. No trees within limits. Land, rolling. Light red sandy loam of coarse texture. Bedrock close to surface. Undergrowth, dense sagebrush and yellowtop. Poor grazing.</p> <p>----- North, bet. secs. 19 and 24. Asc. gradually over rolling land, covered with sagebrush and yellowtop undergrowth. 6.00 Spur, projects E., 80 ft. above cor.; desc. 21.50 Old road, bears N. 60° W. and S. 60° E. 22.50 Bottom of descent, bears NW. and SE., 80 ft. below spur; asc. 40.00 Set an iron post, 3 ft. long, 1 in. diam., 8 ins. in the ground, to bedrock, surrounded by a mound of earth and stone, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; $\frac{1}{4}$ in N., S19 in E., and S24 in W. half; dig pits, 18x18x12 ins., N. and S. of post, 3 ft. dist.; and raise a mound of earth, 3$\frac{1}{2}$ ft. base, 1$\frac{1}{2}$ ft. high, W. of cor. This cor. is located on a spur, projecting W., 60 ft. a- bove bottom of descent; desc. gradually. 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 8 ins. in the ground, to bedrock, surrounded by a mound of stones, for the cor. of secs. 13, 18, 19, and 24, marked on brass cap 1914 on S. rim; T39N in N., R2W in E., and R3W in W. half; S13 in NW., S18 in NE., S19 in SE., and S24 in SW. quadrant; and raise a mound of stone, 2 ft. base, 1$\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, hilly and broken, drains NW. Soil, light sandy loam, gravelly and rocky. Subsoil, solid bedrock, Undergrowth, dense sage and yellowtop. Fair grazing for sheep only. No timber.</p> <p>----- October 6, 1914: I set off 5° S. on the decl. arc; and, at apparent noon, observe the sun on the meridian; the resulting lat. is 36° 46' N. North, bet. secs. 13 and 18. Over broken rolling land, through sagebrush and yellowtop. 3.00 Small canyon, 60 ft. deep, drains NW., 5 chs. wide. Dim road in bottom. 15.00 Spur, projects NW.; desc. gradually. 25.00 Head of small canyon, 5 chs. wide, 40 ft. below spur, drains NW.; asc. gradually. 32.00 Low ridge, bears NW. and SE., 40 ft. above canyon; desc. gradually. 40.00 Set an iron post, 3 ft. long, 1 in. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stones, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; $\frac{1}{4}$ in N., S18 in E., and S13 in W. half; and raise a mound of stones, 2 ft. base, 1$\frac{1}{2}$ ft. high, W. of cor.</p>
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40.

East Boundary of T. 39 N., R. 3 W.

Chains	Pits impracticable. This cor. is established 30 ft. below top of ridge; continue gradual descent.
45.00	Rim of canyon, 90 ft. below cor., bears NW. and E.
58.50	Canyon bottom, 60 ft. below rim, drains NW.; asc.
68.50	N. rim of canyon, 60 ft. above bottom, bears NW. and E.; desc. gradually.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stones, for the cor. of secs. 7, 12, 13, and 18, marked on brass cap 1914 on S. rim; T39N in N., R2W in E., and R3W in W. half; S12 in NW., S7 in NE., S18 in SE., and S13 in SW. quadrant; and raise a mound of stones, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable. Land, hilly and broken, drains NW. Soil, light sandy loam, gravelly and rocky. Subsoil, solid bedrock. Undergrowth, dense sage and yellowtop. Fair grazing for sheep only. No timber.

	North, bet. secs. 7 and 12. Desc. gradually over rolling broken land, covered with sagebrush and yellowtop undergrowth.
29.00	S. rim of canyon, bears NW. and SE.
37.50	Bottom of canyon, 100 ft. below rim, drains NW.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 8 ins. in the ground, to bedrock, surrounded by a mound of stones, for ¼ sec. cor., marked on brass cap 1914 on S. rim; ¼ in N., S7 in E., and S12 in W. half; and raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable. This cor. is located on the S. edge of a low spur, 60 ft. above canyon bottom.
42.00	Top of low spur, projecting W., 20 ft. above ¼ sec. cor.; desc.
51.00	Draw, drains S. 60° W.; 50 ft. below spur.
61.00	N. rim of canyon, bears N. 55° E. and W., 60 ft. above draw.
76.00	Spur, projecting W.; desc. gradually.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of secs. 1, 6, 7, and 12, marked on brass cap 1914 on S. rim; T39N in N., R2W in E., and R3W in W. half; S1 in NW., S6 in NE., S7 in SE., and S12 in SW. quadrant; and raise a mound of stones, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable. Land, hilly and broken, drains NW. Soil, light sandy loam, gravelly and rocky. Subsoil, solid bedrock. Undergrowth, dense sage and yellowtop. Fair grazing for sheep only. No timber.

October 6, 1914.

October 7, 1914: At the cor. of secs. 1, 6, 7, and 12, I set off 36° 48' N. on the lat. arc; 5° 20' S. on the decl. arc; and, at 8h 48m a. m., 1. m. t., determine a meridian with the solar.

Thence I run

North, bet. secs. 1 and 6.

Desc. gradually, over rolling, broken land, covered with sagebrush and yellowtop.

12.00 S. ledge of rim of canyon, 10 ft. high, 75 ft. below cor. bears NE. and S. 70° W.; desc. abruptly.

21.00 Bottom of canyon, 110 ft. below top, drains SW. 8 chs., thence N. 60° W.

27.00 N. ledge rim of canyon, 10 ft. high, 90 ft. above bottom, bears N. 70° E. and S. 70° W.; asc. gradually.

28.00 Top of ascent, 50 ft. above rim, bears NW. and SE.; desc.

East and North Boundaries of T. 39 N., R. 3 W. 41.

Chains
40.00 gradually.
Set an iron post, 3 ft. long, 1 in. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stone, for $\frac{1}{4}$ sec. cor., marked on brass cap
1914 on S. rim;
 $\frac{1}{4}$ in N.,
S6 in E., and
S1 in W. half; and
raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
Cor. established 50 ft. below top of ascent.
52.00 Small canyon, 50 ft. below $\frac{1}{4}$ sec. cor., course W.
60.00 Spur, projecting W., 75 ft. above bottom of small canyon.
70.00 Small canyon, 3 chs. wide, 75 ft. deep, drains W.
76.00 Spur, projects W., 50 ft. above bottom of canyon; desc.
80.00 Set an iron post, 3 ft. long, 3 ins. diam., 6 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of Ts. 39 and 40 N., Rs. 2 and 3 W., marked on brass cap
1914 on S. rim;
T40N in N.,
R2W in E.,
T39N in S., and
R3W in W. half;
S36 in NW.,
S31 in NE.,
S6 in SE., and
S1 in SW. quadrant; and
raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, S. of cor. Pits impracticable.
Land, broken slope, draining NW.
Soil, light red sandy loam, gravelly and rocky. Subsoil, solid bedrock.
Undergrowth, sage and yellowtop.
Fair grazing for sheep only.
No timber.

North Boundary of T. 39 N., R. 3 W.

From the cor. of Ts. 39 and 40 N., Rs. 2 and 3 W., I run west, on a random line, on the north boundary of T. 39 N., R. 3 W., setting temporary $\frac{1}{4}$ sec. and sec. cors. at regular intervals.
At the temporary cor. of secs. 1, 2, 35, and 36, Ts. 39 and 40 N., R. 3 W., I set off $50^{\circ} 23'$ S. on the decl; arc; and, at apparent noon, observe the sun on the meridian; the resulting lat. is $36^{\circ} 49'$ N.
Continue random line west to the temporary cor. of secs. 3, 4, 33, and 34, Ts. 39 and 40 N., R. 3 W.
October 7, 1914.
October 8, 1914: At this temp. cor., at 9h 18m a. m., 1. m. t., I set off $36^{\circ} 49'$ N. on the lat; arc; $50^{\circ} 43'$ S. on the decl. arc; and determine a meridian with the solar.
Thence I continue random line west, setting regular temp. cors., and, at 478.30 chs. from the cor. of Ts. 39 and 40 N., Rs. 2 and 3 W., intersect the W. bdy. of the T., 6 lks. S. of the cor. of Ts. 39 and 40 N., Rs. 3 and 4 W. This falling answers to a course of less than $30''$ to the mile, therefore, I call the N. bdy. of the T. an east and west line. October 8, 1914.
October 9, 1914. From the cor. of Ts. 39 and 40 N., Rs. 3 and 4 W., I run East, on a true line, on N. bdy. T. 39 N., R. 3 W., bet. secs. 6 and 31.
Desc. gradually over broken, rolling land, covered with greasewood and yellowtop.
7.00 Bitter Seep wash, 50 ft. deep, 40 lks. wide, 60 ft. below

Chains	cor., drains NE.; continue gradual descent along bottom.
26.00	Same wash, at bend, from NW., draining NE.; asc.
27.00	Low spur, projects N.; desc.
30.60	Same wash, course SE.
38.30	Set an iron post, 3 ft. long, 1 in. diam., 4 ins. in the ground, to bedrock, surrounded by a mound of stone, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; S31 in N., S6 in S., and $\frac{1}{4}$ in W. half; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Cor. established 50 ft. above wash; continue gradual ascent.
44.00	Spur, projects S. 35° W., 60 ft. above $\frac{1}{4}$ sec. cor.; desc.
50.00	W. rim of Two Mile seep, bears N. and S.; desc. abruptly.
55.75	Two Mile seep, 1 ch. wide, 75 ft. below top, drains S. Seepage water in bottom is strongly alkaline. Asc.
56.30	Road, Fredonia to Bull Rush, bears NE. and SW.; asc. abruptly.
63.25	E. rim Two Mile seep, 75 ft. above bottom.; continue ascent, bears N. and S.
65.00	Spur, projecting S., 3 chs.; desc.
70.50	Rim of canyon, 50 ft. deep, drains SW.
77.30	E. rim of canyon, 60 ft. above bottom, bears N. 70° W. and SW.
78.30	Set an iron post, 3 ft. long, 3 ins. diam., 4 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of secs. 5, 6, 31, and 32, marked on brass cap 1914 on S. rim; T40NR3W in N. and T39N in S. half; S31 in NW., S32 in NE., S5 in SE., and S6 in SW. quadrant; and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable. Land, rolling and broken. Soil, light red sandy loam and fine gravel, with sandstone bedrock close to surface. Undergrowth, yellowtop. Poor grazing.

	East, bet. secs. 5 and 32. Asc. gradually over rolling land, covered with greasewood and yellowtop undergrowth.
20.00	Leave rocky surface, enter sandstone outcropping, bears N. and S.
40.00	Set an iron post, 3 ft. long, 1 in. diam., 11 ins. in the ground, to bedrock, surrounded by a mound of stone, for $\frac{1}{4}$ sec. cor., marked on brass cap 1914 on S. rim; S32 in N., S5 in S., and $\frac{1}{4}$ in W. half; dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist. and raise a mound of earth and stone, $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, N. of cor.
80.00	Set an iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 4, 5, 32, and 33, marked on brass cap 1914 on S. rim; T40NR3W in N., and T39 N in S. half; S32 in NW., S33 in SE., S4 in SE., and S5 in SW. quadrant;

North boundary of T. 39 N., R. 3 W.

Chains dig pits, 18x18x12 ins., in each sec., 5½ ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft, high, W. of cor.
 Land, rolling and broken.
 Soil, light red sandy loam and fine gravel, with sandstone bedrock close to surface.
 Undergrowth, greasewood and yellowtop.
 Poor grazing.

 East, bet. secs. 4 and 33.
 Asc. gradually over rolling land.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 16 ins. in the ground, to bedrock, surrounded by a mound of earth and stone, for ¼ sec. cor., marked on brass cap
 1914 on S. rim;
 S33 in N.,
 S4 in S., and
 ¼ in W. half;

dig pits, 18x18x12 ins., E. and W. of post, 3 ft. dist.; and raise a mound of earth, 3½ ft. base, 1½ ft. high, N. of cor.
 Continue gradual ascent.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 18 ins. in the ground, to bedrock, surrounded by a mound of stone, for the cor. of secs. 3, 4, 33, and 34, marked on brass cap

 1914 on S. rim;
 T40NR3W in N., and
 T39N in S. half;
 S33 in NW.,
 S34 in NE.,
 S3 in SE., and
 S4 in SW. quadrant; and
 raise a mound of stone, 2 ft. base, 1½ ft. high, W. of cor. Pits impracticable.
 Land, rolling and broken.
 Soil, light red sandy loam and fine gravel, with sandstone bedrock close to surface.
 Undergrowth, greasewood and yellowtop.
 Poor grazing.

 East, bet. secs. 3 and 34.
 Asc. gradually over rolling land, through greasewood and sagebrush undergrowth.
 22.00 Top of ascent, bears N. and S.; desc. gradually over broken land.

36.50 W. rim Kanab canyon, bears N. and S.; desc. abruptly.
 40.00 Set an iron post, 3 ft. long, 1 in. diam., 8 ins. in the ground, to bedrock, surrounded by a mound of stone, for ¼ sec. cor., marked on brass cap
 1914 on S. rim;
 S34 in N.,
 S3 in S., and
 ¼ in W. half; and
 raise a mound of stone, 2 ft. base, 1½ ft. high, N. of cor. Pits impracticable.

This cor. is established 100 ft. below W. rim of canyon.
 42.40 W. rim Kanab creek, 75 ft. high, 150 ft. below W. rim of canyon, bears N. 30° E. and S. 20° E.

45.25 Kanab creek, 1 ch. wide, 20 ft. deep, course S. 20° E. No water. Asc.

47.75 E. rim Kanab creek, 75 ft. high, bears N. 30° E. and S. 20° W.; asc.

56.50 E. rim Kanab canyon, 250 ft. above creek, bears N. 35° E. and S.; asc.

75.00 Ridge, bears NE. and S. 35° W., 60 ft. above E. rim of canyon.

80.00 Set and iron post, 3 ft. long, 3 ins. diam., 24 ins. in the ground, for the cor. of secs. 2, 3, 34, and 35,

44.

North Boundary of T. 39 N., R. 3 W.

Chains marked on brass cap
 1914 on S. rim;
 T40NR3W in N. and
 T39N in S. half;
 S34 in NW.,
 S35 in NE.,
 S2 in SE., and
 S3 in SW. quadrant; and
 raise a mound of stone, 2 ft. base, 1½ ft. high, W. of
 cor. Pits impracticable.
 Land, broken, rough, steep, and drains southwesterly.
 Soil, light red sandy loam, gravelly, and rocky. Subsoil,
 sandstone bedrock.
 Undergrowth, scattering greasewood and sage.
 Poor grazing.

 East, bet. secs. 2 and 35.
 Desc. over broken land, covered with greasewood and sage-
 brush undergrowth.
 16.00 W. rim of canyon, 50 ft. below cor., bears NE. and SW.
 30.00 Wash, in bottom of canyon, 40 lks. wide, 160 ft. below W.
 rim, drains S. about 10 chs., thence S. 70° W.; asc.
 33.00 E. rim of canyon, 75 ft. above bottom, bears N. 65° E. and
 SW.
 40.00 Spur, projecting N. 80° W.
 Set an iron post, 3 ft. long, 1 in. diam., 6 ins. in the
 ground, to bedrock, surrounded by a mound of stone,
 for ¼ sec. cor., marked on brass cap
 1914 on S. rim;
 S35 in N.,
 S2 in S., and
 ¼ in W. half; and
 raise a mound of stone, 2 ft. base, 1½ ft. high, N. of
 cor. Pits impracticable.
 48.00 Bottom of small canyon, 60 ft. below ¼ sec. cor.; course,
 N. 70° W.
 59.00 Spur, projects N. 60° W., 60 ft. above bottom of canyon.
 63.00 W. rim of canyon, bears N. 60° W. and SE.
 77.00 Canyon wash, 40 lks. wide, 60 ft. below W. rim, drains N.
 85° W. about 13 chs., thence N. 35° E.
 80.00 Set an iron post, 3 ft. long, 3 ins. diam., 4 ins. in
 the ground, to bedrock, surrounded by a mound of stone,
 for the cor. of secs. 1, 2, 35, and 36, marked on
 brass cap
 1914 on S. rim;
 T40NR3W in N. and
 T39 N in S. half;
 S35 in NW.,
 S36 in NE.,
 S1 in SE., and
 S2 in SW. quadrant; and
 raise a mound of stone, 2 ft. base, 1½ ft. high, W. of
 cor. Pits impracticable.
 Land, broken, rough, and steep; drains N.
 Soil, light red sandy loam, gravelly and rocky. Subsoil,
 solid bedrock.
 Undergrowth, scattering greasewood and sage.
 Poor grazing.

 East, bet. secs. 1 and 36.
 Over rolling, broken land, covered with sagebrush and
 greasewood undergrowth.
 12.00 Low spur, projecting NW.; desc. gradually.
 20.75 Dry wash, 20 lks. wide, 4 ft. deep, drains N.; asc. grad-
 ually.
 40.00 Set an iron post, 3 ft. long, 1 in; diam., 8 ins. in the
 ground, to bedrock, surrounded by a mound of stone,
 for ¼ sec. cor., marked on brass cap
 1914 on S. rim;

Chains S36 in N.,
 S1 in S., and
 $\frac{1}{4}$ in W. half; and
 raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, N. of
 cor. Pits impracticable.

42.00 Low spur, projecting N.; desc. gradually.

44.75 Dim road, bears N. and S.

45.00 Wash, 10 lks. wide, 5 ft. deep, drains N.; asc. gradually
 over numerous small washes, draining N.

80.00 The cor. of Ts. 39 and 40 N., Rs. 2 and 3 W.
 Land, hilly and cut by numerous washes, draining N.
 Soil, light red sandy loam, gravelly and rocky. Subsoil,
 sandstone bedrock.
 Undergrowth, scattering greasewood and sagebrush.
 Fair grazing.

October 9, 1914.

Latitudes, Departures, and Closing Errors,
 T. 39 N., R. 3 W.

Lines Designated	True Bearing	Dis- tance	Latitude		Departure	
			N	S	E	W
W.bdy. T39NR3W	North	480.00	480.00	.....	.....	.....
N.bdy. T39NR3W	East	478.30	.....	.....	478.30	.....
E.bdy. T39NR3W	South	480.00	.....	480.00	.....	.....
S.bdy. T39NR3W	West	478.92	.....	.....	.....	478.92
Convergency		.....	.....	.....	.54	.....
Totals			480.00	480.00	478.84	478.92
						478.84
Error in departures						.08

NOTE: Considering the falling of 6 lks. of the random line of the N. bdy., which I have discarded, and which does not show in the course of the N. bdy., the closing error would be 6 lks. in lat. and 8 lks. in departure.

GENERAL DESCRIPTION.

The land is of a rolling and broken character, covered in most places by broken malpais boulders, and outcropping bedrock. The soil is light red sandy loam of coarse texture and light gravel, ranging from 4 to 12 ins. deep on a solid bed of rock. The land east of Kanab canyon is rough and broken with numerous canyons, draining westerly into Kanab canyon.

Kanab Canyon runs from the north to south practically through the middle of the township, varying in width and depth. On the S. bdy. it is about 1000 ft. deep and $1\frac{1}{2}$ miles wide; on the N. bdy. it is about 200 ft. deep and $\frac{1}{4}$ mile wide. In places in the middle of the T., it reaches a width of about 3 miles from rim to rim. The walls are perpendicular, making it difficult to cross. A small stream of alkaline water flows in the bottom. Bull Rush Canyon intersects Kanab canyon in about the center of the T. This, like Kanab canyon, has perpendicular walls and is difficult to cross.

Vegetation is scarce and consists of scattering sagebrush, greasewood, and yellowtop, affording scant grazing. There are a few scattered bunches of scattering cedars. Drinking water was hauled from Pipe Springs. No evidence of mineral was found.

The land being of little or no value for agricultural purposes, I did not subdivide.

Joe B. Thomas
 U. S. Surveyor.

152
46

BOOK 2856

FOR FINAL OATH OF UNITED STATES SURVEYOR.

See Book "A"

I, _____, U. S. Surveyor, do solemnly swear that, in pursuance of special instructions received from the U. S. Surveyor General for _____ bearing date of the _____ day of _____, 191____, I have well, faithfully, and truly, in my own proper person, and in strict conformity with said instructions, the Manual of Surveying Instructions, and the laws of the United States, surveyed all those parts or portions of _____ of the _____ Meridian, in the State of _____, which are represented in the foregoing field notes as having been executed 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 U. S. 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.

U. S. Surveyor.

Subscribed by said _____, and sworn to before me }
 this _____ day of _____, 191____



APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,

Phoenix Arizona Feb. 15, 1916

The foregoing field notes of the survey of *the North, East and South bdrs. of Tps. 39 North, Rs. 3 and 4 West, the North, South and West bdrs. of Tp. 39 North, R. 5 West, the East bdy. of Tp. 40 North, R. 4 West and the West bdrs. of Tps. 40, 41 and fractional 42 North, R. 5 West, of the Gila and Salt River Base and Meridian in the State of Arizona*

executed by *Jos. C. Thoma, U.S. Surveyor* under his special instructions dated *March 11, 1913 for Group 29*, 191____, having been critically examined, and the necessary corrections and explanations made, the said field notes, and the surveys they describe, are hereby approved.

U. S. Surveyor General. OF ARIZONA.

~~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.~~