

Accepted by G. L. O. letter "E" dated April 28-1913

2370

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4-679.
Exterior
Book A

BOOK 2370

APR 24 1913

FIELD NOTES

OF THE SURVEY OF THE

EAST & PARTIAL N. BOUNDARY OF T 17 N R 18 W

EAST BOUNDARY OF T 18 N R 18 W.

PARTIAL NORTH BOUNDARY OF T 18 N R 19 W.

PARTIAL NORTH BOUNDARY OF T 19 N R 19 W.

Of the Gila and Salt River Base and Meridian,

ARIZONA.

AS SURVEYED BY

William B Alexander, United States Deputy Surveyor,

Under his Contract No. 156, dated May 26, 1909, 190

Survey commenced May 10, 1910, 190

Survey completed June 5, 1910, 190

NAMES AND DUTIES OF ASSISTANTS.

F. C. Kelton Chinaman

W. A. Campbell Chinaman

N. S. Darlington Woundman

A. M. Pogue Woundman

Wayne Hubbs Axman

C. H. French Axman

W. G. Carleton Flagman

Index Diagram
T 17 N R 18 W

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

Orig. & Supplemental Standard Book "C"

Fifth Guide Meridian West

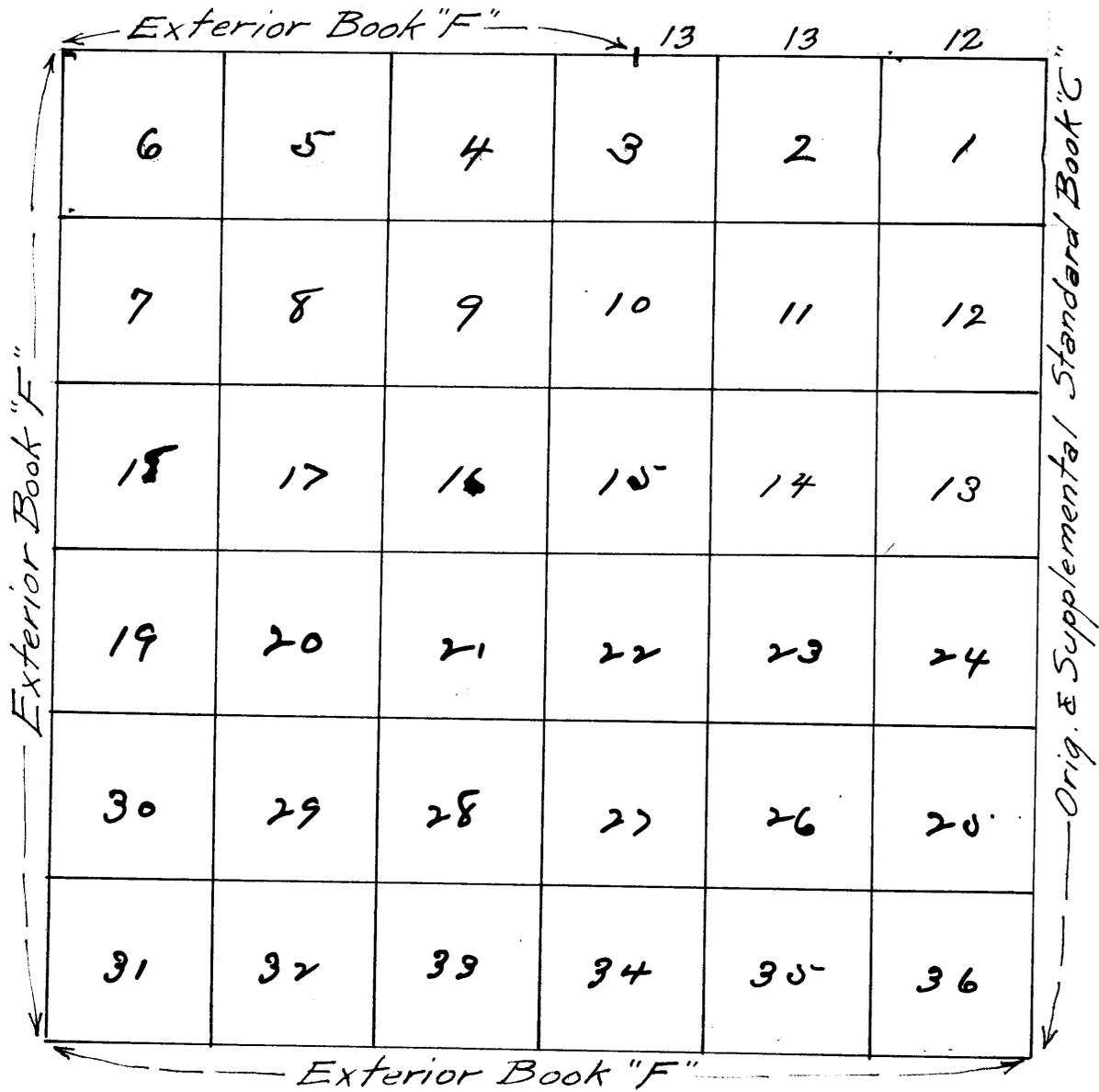
Standard Book "A"
4th Standard Parallel North

INDEX DIAGRAM
T 18 N R 18 W

Fifth Guide Meridian West
Orig. & Supplemental Standard Book "C"

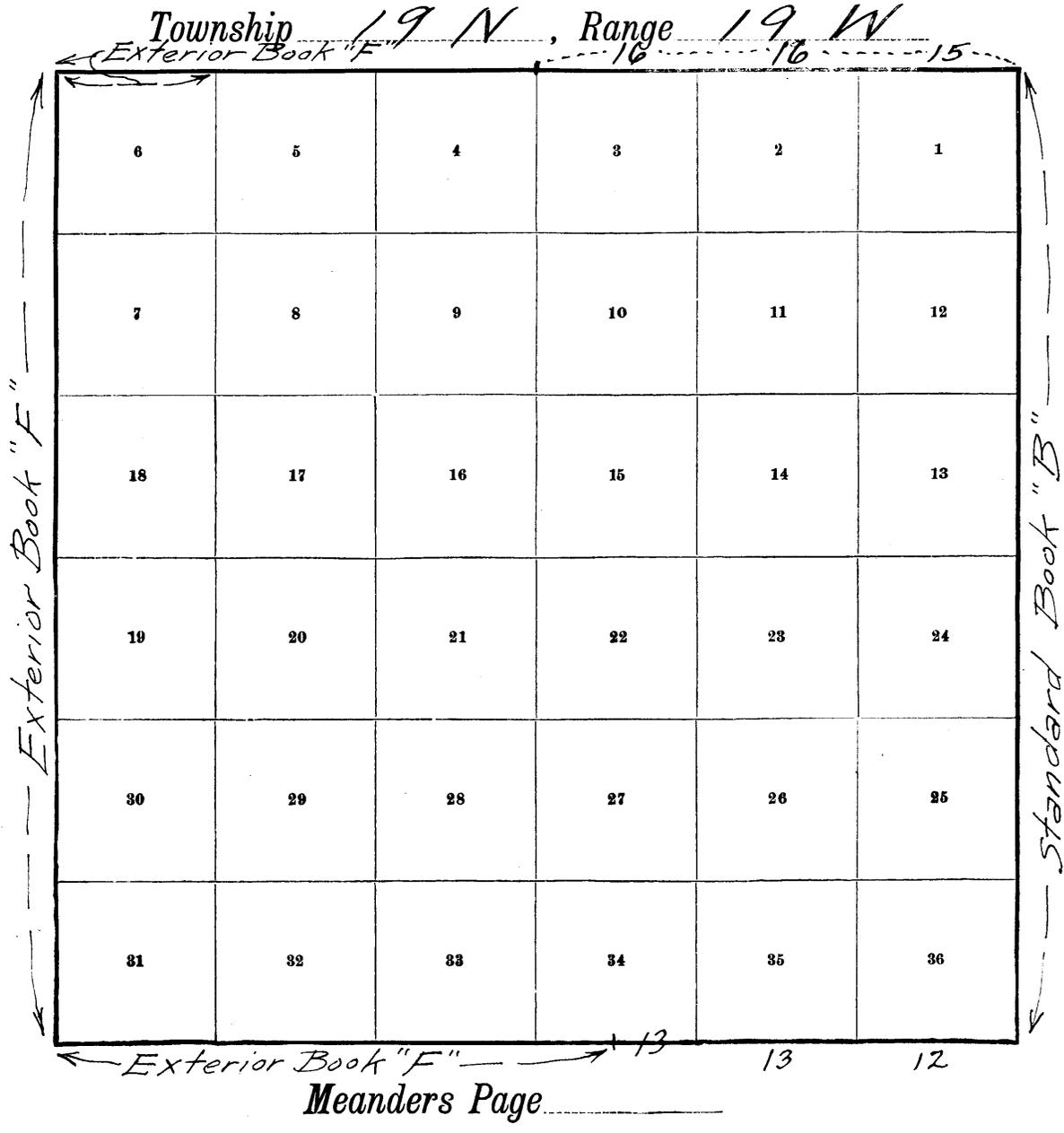
●	5	4	3	2	1	7
7	8	9	10	11	12	8
18	17	16	15	14	13	8
19	20	21	22	23	24	9
30	29	28	27	26	25	9
31	32	33	34	35	36	9
		4	4	4 & 5	5	

Index Diagram
T 18 N R 19 W



BOOK 2370

INDEX DIAGRAM.



PRELIMINARY OATHS OF ASSISTANTS.

WE F. C. Ketter and W. A. Campbell

do solemnly swear that we will well and faithfully execute the duties of chainmen; that we will level the chain upon even and uneven ground, and plumb the tally pins, either by sticking or dropping the same; that we will report the true distances to all notable objects, and the true lengths of all lines that we assist in measuring, to the best of our skill and ability, and in accordance with instructions given us, in the survey of

E + N. Bdy T17N R18W; E Bdy T18N R18W; N Bdy T18N R19W and N Bdy T19N R19W

F. C. Ketter, Chainman.

W. A. Campbell, Chainman.

Subscribed and sworn to before me this 9th

day of May, 1990

 See Note Below.

William P. Alexander
U.S. Deputy Surveyor

WE N. S. Darlington and A. W. Pogue

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

E + N. Bdy T17N R18W; E Bdy T18N R18W; N Bdy T18N R19W; and N Bdy T19N R19W

N. S. Darlington, Moundman.

A. W. Pogue, Moundman.

Subscribed and sworn to before me this 9th

day of May, 1990

 See Note Below.

William P. Alexander
U.S. Dep. Surveyor

WE Wayne Hubbs and C. H. French

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

E + N. Bdy T17N R18W; E Bdy T18N R18W; N Bdy T18N R19W and N. Bdy T19N R19W

Wayne Hubbs, Axman.

C. H. French, Axman.

Subscribed and sworn to before me this 9th

day of May, 1990

 See Note Below.

William P. Alexander
U.S. Dep. Surveyor

I, W. S. Carleton, do solemnly swear that I will well and truly

perform the duties of flagman according to instructions given me, to the best of my skill and ability, in the

survey of E + N. Bdy T17N R18W; E Bdy T18N R18W; N Bdy T18N R19W and N Bdy T19N R19W

W. S. Carleton, Flagman.

Subscribed and sworn to before me this 9th

day of May, 1990

 See Note Below.

William P. Alexander
U.S. Dep. Surveyor

+ Note. No official being available without great expense and loss of time I administer the oaths of assistants

East Boundary of Township 17 North, Range 18 West.

16

Chains.

Survey commenced May 10, 1910, and was executed with a Young and Sons' light mountain transit having two double verniers placed opposite to each other, and reading to single minutes of arc. (Transit No. 7520 with Smith Solar Attachment). The instrument was examined, tested on the true meridian at Phoenix, Arizona, found correct, and was approved by the Surveyor General of Arizona, June 25, 1904.

I begin at the standard corner of Township 17 North, Ranges 17 and 18 West, which I established May 9, 1910.

At the above mentioned standard corner, in lat. $34^{\circ}48'44''$ N; longitude, $114^{\circ}6'6''$ W., at 4h.17.2 m.a.m., 1 a.m.t., by my watch, which is accurate local time, I observe Polaris at eastern elongation, in accordance with the instructions in the Manual, and mark the line thus determined by a tack driven in a stake about five chains north of my station.

At 6h.00m.a.m., I lay off $1^{\circ}26'$ to the west, and mark the true meridian by a tack driven in a stake set firmly in the ground west of the point determined last night; the magnetic bearing of the true meridian is $N.15^{\circ}00'W.$, which gives the magnetic declination $15^{\circ}00'E.$

Thence I run, (from the standard corner of T.17 N., R.18 and 18 W.)

North, between secs. 31 and 36, over rolling land covered with dense undergrowth of mesquite, catsclaw, palo verde, greasewood, and cactus.

- 6.00 Ascend over mountainous land.
- 30.00 Ridge, brs. E. and W. Descend.
- 32.00 Gulch, 30 lks. wide, course W. Ascend.
- 39.45 Road and ridge, brs. E. and W. Descend.
- 40.00 Set a granite stone, $12 \times 18 \times 24$ ins., 18 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the W. face; raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
- 43.00 Enter wash, course SW. thence over level land, covered with very dense undergrowth of mesquite and catsclaw.
- 60.00 Leave wash, course SW. Ascend over mountainous land, covered with dense undergrowth of mesquite, catsclaw and cactus brush.
- 66.55 Ridge brs. NE. and SW. Descend.
- 70.00 Ascend brs. NE. and SW.
- 75.00 Ridge brs. NE. and SW. Descend.
- 80.00 Set a granite stone $5 \times 10 \times 15$ ins., 10 ins. in the ground for the cor. of secs. 25, 30, 31 and 36, marked with 1 notch on the S. and 5 notches on the N. edges; dig pits $18 \times 18 \times 12$ ins. in each sec. $5\frac{1}{2}$ ft. dist., and raise a mound of earth 4 ft. base, 2 ft. high, W. of cor.

Land, level, rolling and mountainous.

Soil, rocky and sandy, 3rd rate,

No timber.

Level land, 17 chains.

Mountainous land, 63.00 chains.

Land, covered with dense brush and exceptionally difficult to survey, 80.00 chains.

North, between secs. 25 and 30.

Ascend over mountainous land.

- 10.00 Enter rolling land.
- 40.00 Set a quartz stone $8 \times 10 \times 24$ ins., 18 ins. in the ground for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the W. face; raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
- 68.00 Gulch, 1.00 chain wide, course SWW.
- 80.00 Set a quartz stone $8 \times 14 \times 20$ ins., 15 ins. in the ground for cor. of secs. 19, 24, 25 and 30, marked with 2 notches on the S. and 4 notches on the N. edges; and raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, W. of corner. Pits impracticable.

Land, mountainous and rolling.

2. East boundary of Township 17 North, Range 18 West.

Chains.

Soil, 3rd rate, stony.
 No timber.
 Land, covered with dense undergrowth of mesquite, catsclaw, greasewood, palo verde and cactus, and exceptionally difficult to survey, 80.00 chains.

May 10, 1910. At 9h. 30m. a.m., I set off $34^{\circ} 50\frac{1}{2}'N$. on the 1st. arc; $17^{\circ} 31\frac{1}{2}'N$. on the decl. arc, and determine a true meridian with the solar at the cor. of secs. 19, 24, 25 and 30.

Thence I run,
 North between secs. 19 and 24, over rolling land covered with dense undergrowth of greasewood, catsclaw, and cactus.

- 24.50 Descend.
 26.30 Thence over level land.
 32.70 Wash, 1.00 ch. wide, course W.
 33.40 Ascend over mountainous land.
 39.60 Descend.
 40.00 Set a granite stone 8x12x15 ins., 10 ins. in the ground for $\frac{1}{4}$ sec. cor., marked with $\frac{1}{4}$ on the W. face; and raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 42.40 Gulch, course west, 50 lks. wide. Ascend.
 45.00 Ridge, bears E. and W. Descend.
 50.00 Wash, 50 lks. wide, course W. Ascend.
 60.00 Thence over rolling land.
 80.00 Set a granite stone 8x12x15 ins., 10 ins. in the ground for the cor. of secs. 13, 18, 19, and 24, marked with 3 notches on N. and S. edges; and raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.
 Land, rolling and mountainous.
 Soil, 3rd rate, stony.
 No timber.
 Mountainous land, 26.60 chains.
 Rolling land, 53.40 chains.
 Land covered with dense undergrowth of mesquite, catsclaw, greasewood, palo verde and cactus, and exceptionally difficult to survey, 80.00 chains.

Thence I run,
 North, between secs. 13 and 18, over rolling land, covered with dense undergrowth of mesquite, catsclaw, greasewood, palo verde and cactus.

- 40.00 Set a granite stone 5x12x18 ins., 12 ins. in the ground for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the W. face; and raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, W. of cor.
 At noon, at this $\frac{1}{4}$ sec. cor., I set off $17^{\circ} 33'N$. on the decl. arc, and observe the sun on the meridian; the resulting latitude is $34^{\circ} 52'N$.
 76.06 Telephone line bears NW. and SE.
 79.00 Wagon road brs. SE. and NW.
 80.00 Set a quartz stone 8x12x20 ins., 15 ins. in the ground for the cor. of secs. 7, 12, 13 and 18, marked with 2 notches on the N. and 4 notches on the S. edges; 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.
 High derrick at Yucca Station on the Santa Fe R.R. brs. $N. 56^{\circ} 10'W$.
 Land rolling.
 Soil, 3rd rate, stony.
 No timber.
 Rolling land, covered with dense undergrowth of mesquite, catsclaw, palo verde, greasewood and cactus, and exceptionally difficult to survey, 80.00 chains.

East boundary of Township 17 North, Range 18 West.

3.

Chains.

Thence I run,
 North, between secs. 7 and 12, over rolling land, covered
 with dense undergrowth of palo verde, greasewood, cactus
 and catsclaw.

26.65 Telephone line brs. W. and E.

40.00 Set a granite stone 8x8x12 ins., 8 ins. in the ground
 for the $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the W. face; and raise
 a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, W. of cor.
 Pits impracticable.

High derrick at Yucca Station on the Santa Fe R.R., brs.
 N. 85° 12' W. about 70 chains dist.

80.00 Set a granite stone 8x12x20 ins., 15 ins. in the ground
 for the cor. of secs. 1, 6, 7 and 12, marked with 1 notch
 on the N. and 5 on the S. edges; and raise a mound of
 stones 3 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits imprac-
 ticable.

High derrick at Yucca Station on the Santa Fe R.R. brs.
 S. 63° 15' W.

Land, rolling.
 Soil, 3rd rate, stony.
 No timber.
 Rolling land, covered with dense undergrowth of mesquite,
 catsclaw, palo verde, greasewood, and cactus, and ex-
 ceptionally difficult to survey, 80.00 chains.

Thence I run,
 North, between secs. 1 and 6, over sharply rolling land,
 covered with dense undergrowth of catsclaw, greasewood,
 cactus and palo verde.

31.50 Descend.

35.00 Center of wash, 5.00 chs. wide, course W.

37.50 Ascend.

40.00 Set a granite stone 6x6x15 ins., 10 ins. in the ground
 for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the W. face; and raise a
 mound of stones 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Descend.

68.50 Wash, 1.00 ch. wide, course SW. Ascend.

80.00 Set a granite stone 12x12x24 ins., 18 ins. in the ground
 for the cor. of Tps. 17 and 18 N., Rs. 17 and 18 W.,
 marked with 6 notches on each edge, with 18 W on the
 NW face; 17 N on the SW face, 18 N on the NE face, and
 17 W on the SE face; and raise a mound of stones 4 ft.
 base, 3 ft. high, S. of cor. Pits impracticable.
 A catsclaw tree, 4 ins. diam., bears S. 72° 30' E., 219
 lks. dist., marked T 17 N R 17 W S 6 E T.
 No other trees available.

Land sharply rolling.
 Soil, 3rd rate, stony.
 Timber very scattering catsclaw.
 Rolling land, covered with dense undergrowth of catsclaw,
 cactus, greasewood and palo verde, and exceptionally
 difficult to survey, 80.00 chains.

May 10, 1910.

4. North Boundary of Township 17 North Range 18 West.

Chains.

May 11, 1910.

At the corner of Tps. 17 and 18 N., Rs. 17 and 18 W.; lat. $34^{\circ} 53' 57''$ N.; long. $114^{\circ} 06' 06''$ W. just established by me, and described above.

Thence I run,

West, on a random line along the north boundary of T. 17 N., R. 18 W., setting temporary $\frac{1}{4}$ sec. and sec. cors. at intervals of 40.00 chs. to the $\frac{1}{4}$ sec. cor. between secs. 33 and 4, where the line enters the extremely mountainous easterly part of the Black Mountain Range, and is impracticable to survey; I therefore discontinue at this point, and make the random line permanent.

Set a malpais stone $6 \times 8 \times 18$ ins., 12 ins. in the ground, for $\frac{1}{4}$ sec. cor. between secs. 4 and 33, marked $\frac{1}{4}$ on the N. face, and raise a mound of stones $3\frac{1}{2}$ ft. base, 2 ft. high, N. of cor. Pits impracticable.

Thence I run, (descending)

East, on a true line on N. bdy of T. 17 N., R. 18 W., between secs. 4 and 33, over extremely mountainous land, covered with scattering greasewood brush. The surface is obstructed by loose black malpais boulders.

3.00 Rocky gulch, 30 lks. wide, course NE. Ascend.

10.00 Descend.

12.25 Rocky gulch, 20 lks. wide, course NE. Ascend.

16.60 Ridge brs. NE. and SW. Descend.

40.00 Set a malpais stone $6 \times 8 \times 18$ ins., 12 ins. in the ground for the cor. to secs. 3, 4, 33 and 34, marked with 3 notches on the E. and W. edges; and raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, extremely mountainous.

Soil, 4th rate, rock.

Scattering greasewood brush.

Mountainous land extremely difficult to survey, 40.00 chains.

Thence I run,

East, between secs. 3 and 34, over mountainous land.

Enter dense greasewood brush. Descend.

Over black malpais boulders.

40.00 Set a malpais stone $6 \times 8 \times 12$ ins., 8 ins. in the ground for the $\frac{1}{4}$ sec. cor. between secs. 3 and 34, marked with $\frac{1}{4}$ on the N. face, and raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable. Only one bearing tree available, to wit:

A palo verde tree 6 ins. in diam., brs. N. 73° E.
265 lks., marked T 18 N R 18 W $\frac{1}{4}$ S 34 B T.

Enter dense mesquite and catsclaw.

51.70 Center of Sacramento Wash, course S., width, 2.00 chains.

56.40 Gulch, 50 lks. wide, course S.

64.00 Gulch, 40 lks. wide, course S.

80.00 Set a porphyry stone $8 \times 10 \times 20$ ins., 15 ins. in the ground for the cor. to secs. 2, 3, 34 and 35, marked with 2 notches on the E. and 4 notches on the W. edge; and raise a mound of stones 3 ft. base, 2 ft. high, W. of cor. Pits impracticable.

Land, extremely mountainous.

Soil, 4th rate.

No timber.

Dense undergrowth of greasewood, with some catsclaw and cactus.

Mountainous land, exceptionally difficult to survey, 80.00 chs.

May 11, 1910. At noon, the sky is overcast with clouds, and a latitude observation is impracticable.

Thence I run,

East, between secs. 2 and 35, over mountainous land, covered with dense undergrowth of mesquite, catsclaw, greasewood, palo verde and cactus.

Chains.

- 6.70 Gulch, course S., 30 lks. wide.
- 20.00 Gulch, 30 lks. wide, course S.
- 40.00 Set a granite stone 7x9x16 ins., 12 ins. in the ground for the $\frac{1}{4}$ sec. cor., between secs. 2 and 35, marked $\frac{1}{4}$ on the N. face; whence,
 A catsclaw tree, 4 ins. in diam., brs. S. $34\frac{1}{2}^{\circ}$ E., 143 lks. dist., marked $\frac{1}{4}$ S 2 B T.
 A catsclaw tree, 5 ins. in diam., brs. N. 14° E., 19 lks. dist., marked $\frac{1}{4}$ S 35 B T.
- Thence over rolling, ascending land.
- 45.00 Center of wash, 3.00 chs. wide, course SWW.
- 56.00 Ascend over mountainous land.
- 60.00 Ridge brs. NE. and SW. Descend.
- 62.00 Ascend.
- 80.00 Set a granite stone 12x12x24 ins., 18 ins. in the ground for the sec. cor. to secs. 1, 2, 35 and 36, marked with 1 notch on the E. and 5 notches on the W. edge; and raise a mound of stones 3 ft. base, 2 ft. high, W. of cor. Pits impracticable.
- Rolling land, 16.00 chs.
 Mountainous land, 64.00 chs.
 Soil, 3rd and 4th rate, stony.
 No timber.
 Dense undergrowth of mesquite, catsclaw, palo verde, greasewood, and cactus.
 Mountainous land, or land covered with dense undergrowth, and exceptionally difficult to survey, 80.00 chs.

May 11, 1910. At 4.00 o'clock p.m., l.m.t., I set off $17^{\circ}51\frac{1}{2}'$ N. on the decl. arc; $34^{\circ}54'$ N. on the lat. arc; and determine a meridian with the solar at the cor. of secs. 1, 2, 35 and 36 above described.

Thence I run,

East, between secs. 1 and 36, over sharply rolling land, covered with dense undergrowth of greasewood, catsclaw, cactus and palo verde.

- 30.20 Telegraph line, brs. N. $9^{\circ}9'$ E. and S. $9^{\circ}9'$ W.
- 30.90 Santa Fe R. R. brs. N. $9^{\circ}9'$ E. and S. $9^{\circ}9'$ W.
- 31.60 Telegraph line brs. N. $9^{\circ}9'$ E. and S. $9^{\circ}9'$ W.
- 32.70 Wagon road brs. NNE. and SSW.
- 40.00 Set a granite stone 10x12x24 ins., 18 ins. in the ground for $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the N. face; and raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, E. of cor. Pits impracticable.
- Descend.
- 46.75 Wash, 15 lks. wide, course SW. Ascend.
- 65.00 Ridge, brs. NE. and SW. Descend.
- 70.00 Ascend.
- 77.00 Descend.
- 80.00 Corner of Tps. 17 and 18 N., Rs. 17 and 18 W. hereinbefore described.

Land sharply rolling.

Soil, 3rd and 4th rate, stony.

No timber.

Dense undergrowth of mesquite, catsclaw, palo verde, greasewood and cactus.

Sharply rolling land, covered with dense undergrowth, and exceptionally difficult to survey, 80.00 chains.

May 11, 1910.

GENERAL DESCRIPTION.

This township is extremely rough and mountainous in the western part, and mountainous and rolling in the eastern part. There is no water except during the rainy seasons when the water runs entirely away in a few days. It is probable that the months of July and August, and December and January would be considered the rainy seasons, but as to the latter nothing definite

6. North boundary of Township 17 North, Range 18 West.

Chains.

can be stated because often a year passes with no appreciable rainfall. The principal and main drainage channel in the Sacramento Wash which runs southerly through nearly the center of the township. This channel as well as all others is absolutely dry at the time of this survey, and probably has not carried water for many months. The western part of the township contains a scattering undergrowth of greasewood and cactus, with but very little grass, and embraces a part of what is known as the Black Mountain Range which rises approximately 2000 feet above the Sacramento Wash. It would be entirely impracticable to subdivide this part of the township. The eastern part of this township embraces mountainous and rolling land, ascending from the Sacramento Wash to the Hualpai Mountains, which are situated about seven miles east of the eastern boundary. This portion of the township may be subdivided with difficulty; contains no surface water, but little grass. Soil, 3rd and 4th rate, stony, and is for the greater part covered with dense undergrowth of greasewood, mesquite, catclaw, palo verde and cactus brush. The small settlement of Yucca of about twenty-five inhabitants is situated in sec. 12 on the main line of the Santa Fe R.R., which passes through this portion of the township in a general NNE and SSW direction. The only water available for domestic and other uses is secured from the deep well at Yucca Station which penetrates the gravel (granitic) strata of the Hualpai Mountain wash, whence the underflow presumably has its source. The scarcity of water, the extremely high temperatures prevailing at this season of the year (often reaching 120°F. in the shade), the dense undergrowth, and the rough nature of the surface, combine to render this an extremely difficult survey to execute. It is doubtful that any portion of T. 17 N., R. 18 W. could be classed as agricultural, and the uncertainty attached to the quantity of annual precipitation convinces one of the impracticability of stock raising. The scanty occurrence of nutritious grasses further increases the doubt, while the entire absence of cattle on this range affords a practical proof that as a feeding ground for stock this township is not favorably considered.

William D. Alexander
U. S. Deputy Surveyor.

July 1, 1910.

Boundaries of Township 17 North, Range 18 W.
Latitudes, departures, and closing errors.

Line designated.	True bearing.	Dist.	Latitudes.		Departures.	
			N.	S.	E.	W.
4th. Std. Par. N.	East,	240.00			240.00	
E. Bdy. T. 17 N., R. 18 W.	North,	480.00	480.00			
W. Bdy. T. 17 N., R. 18 W.	West,	240.00				240.00
W. bdy. sec. 3,	S. 0° 05' E.	80.08		80.08	0.12	
S. bdy. "	East,	80.00			80.00	
W. bdy. secs. 11, 14, 23 & 26	S. 0° 01' E.	320.00		320.00	0.09	
N. bdy. sec. 34	West,	80.00				80.00
W. bdy. sec. 34	S. 0° 02' E.	80.00		80.00	0.05	
Convergency,						0.25
Totals,			480.00	480.08	320.26	320.25
				480.00	320.25	
	Error in lat.			0.08	0.01	
	Error in dep.					

East boundary of Township 18 North, Range 18 West. 7.

Chains.

Survey commenced May 20, 1910, and was executed with a Young and Sons' light mountain transit No. 7520, having two double verniers placed opposite to each other, and reading to single minutes of arc, which is also the least reading of the latitude and declination arcs on the Smith solar attachment fitted to this instrument. The instrument was examined, tested on the true meridian at Phoenix, Arizona, found correct and approved by the U. S. Surveyor General June 25, 1904.

I begin at the cor. of T. 17 and 18 N., R. 17 and 18 W., established by me May 10, 1910, under this contract, in lat. 34° 53' 57" N.; longitude, 114° 6' 6" W.

At this cor. at 3h. 38.4m. a.m., l.m.t., by my watch, which is correct local mean time, I observe Polaris at eastern elongation in accordance with instructions in the Manual, and mark the line thus determined by a tack driven in a stake set about 5 chains north of my station.

At 6h. 00m. a.m., I lay off 1° 26' to the west, and mark the true meridian thus determined by a tack driven in a stake set firmly in the ground west of the point determined this morning. The magnetic bearing of the true meridian thus determined is S. 15° 00' W., which gives the magnetic declination of N. 15° 00' E.

From the township corner I run, North, on a random line, setting temporary 1/2 sec. and sec. cor. at intervals of 40.00 chains to

478.10

The corner to Tps. 18 and 19 N., R. 17 and 18 W., a quartz stone 8 ins. above ground, marked and witnessed as described by the Surveyor General by U.S. Deputy Surveyor Fred W. Rodolf, under his contract No. 155, dated March 10, 1909, bears west 2.85 chains. This falling is sufficient to throw the meridional lines of the west three tiers of sections of T. 18 N., R. 18 W. more than 21 minutes from a true north if I run S. 0° 20' E. on a true line from the township corner established by Deputy Rodolf to the cor. of T. 17 and 18 N., R. 17 and 18 W. established by me. I therefore reestablish cor. of T. 18 and 19 N., R. 17 and 18 W. in the same place, and change markings from a corner common to four townships to a corner common to T. 19 N., R. 17 and 18 W. as follows:

Set a granite stone 12x12x20 ins., set 15 ins. in the ground, marked with 6 notches on the N., E. and W. edges, 19 N. 17 W on the NE. face, and 18 W on the NW. face; and raise a mound of stones 3 ft. base, 1 1/2 ft. high, N. of cor. I then proceed east 2.85 cha. to the point where the range line between R. 17 and 18 W. intersects the S. bdy. of T. 19 N., R. 17 W., and establish a closing cor. as follows:

Set a malpais stone 12x12x20 ins., 15 ins. in the ground for the closing township corner for T. 18 N., R. 17 and 18 W. on the S. bdy. of T. 19 N., R. 17 W., marked with 6 grooves on the S., E. and W. faces, C C 18 N on the S., 17 W on the E. grooves, and 18 W on the W. faces; and raise a mound of stones 3 ft. base, 1 1/2 ft. high, S. of cor. Pits impracticable.

May 20, 1910, at noon, I set off 19° 55 1/2' N. on the decl. arc, and observe the sun on the meridian at the township corner just set; the resulting latitude reading is 34° 59' N.

Thence I run, South, on a true line, between secs. 1 and 6. Over rolling land, covered with dense undergrowth of greasewood, cactus and cataclaw.

38.10

Set a malpais stone 8x12x20 ins., 15 ins. in the ground for the 1/2 sec. cor. between secs. 1 and 6, marked with 1/2 on W. face; and raise a mound of stones 3 ft. base, 2 1/2 ft. high, W. of cor. Pits impracticable.

78.10

Set a malpais stone 10x12x24 ins., 18 ins. in the ground for cor. of secs. 1, 6, 7 and 12, marked with 1 notch on the N. and 5 notches on the S. edges; and raise a

8. East boundary of Township 18 North, Range 18 West.

Chains.

mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, rolling.

Soil, 3rd rate, gravelly.

Dense undergrowth of greasewood, cactus and catsclaw.

Rolling land, covered with dense undergrowth and difficult to survey, 78.10 chs.

Thence I run,

South, between secs. 7 and 12.

Over mountainous land, covered with dense undergrowth of greasewood, cactus and catsclaw.

Descend.

8.00 Thence over level land.

11.20 Wash, 50 lks. wide, course W.

13.60 Ascend over mountainous land.

15.00 Descend.

20.00 Wash, 2.00 chains wide, course W. Thence over level land.

24.50 Leave level land. Ascend.

40.00 Set a sandstone rock, 12x12x15 ins., 10 ins. in the ground for the $\frac{1}{4}$ sec. cor. between secs. 7 and 12, marked with $\frac{1}{4}$ on the W. face; dig pits 16x18x12 ins. N. and S. of cor. 3 ft. dist., and raise a mound of dirt $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, W. of cor.

Thence over sharply rolling land.

80.00 Set a porphyry stone 10x12x24 ins., 18 ins. in the ground for the cor. to secs. 7, 12, 13 and 18, marked with 2 notches on the N. and 4 notches on the S. edges; and

raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land level, rolling and mountainous.

Soil, 3rd rate.

Dense undergrowth of greasewood, cactus, catsclaw.

No timber. Rolling land, 55.50 chains.

Level land, 10.10 chains.

Mountainous land, 14.40 chains.

Land covered with dense undergrowth and exceptionally difficult to survey, 80.00 chains.

At 4h. 00m. p.m., 1 m.t., I set off $34^{\circ}57\frac{1}{2}'$ N. on the 1st.arc; $19^{\circ}57'$ N. on the decl. arc, and determine a solar meridian at the cor. of secs. 7, 12, 13 and 18.

Thence I run south, bet. secs. 13 & 18.

Over sharply rolling land, covered with dense undergrowth of greasewood, cactus, catsclaw, and palo verde.

Descend.

8.00 Wash, 30 lks. wide, course SW. Ascend.

8.10 Telegraph line bears $N.9^{\circ}8'E.$ and $S.9^{\circ}8'W.$ 12.50 Santa Fe R.R. brs. $N.9^{\circ}8'E.$ and $S.9^{\circ}8'W.$ 16.90 Telegraph line brs. $N.9^{\circ}8'E.$ and $S.9^{\circ}8'W.$ 40.00 Set a granite stone 5x10x15 ins., 10 ins. in the ground for the $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the W. face; and raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.Signal Station on the Santa Fe R.R. brs. $S.81^{\circ}W.$, 3.50 chs.

Descend.

48.00 Road brs. SW. and NE.

51.40 Gulch, 30 lks. wide, course SW. Ascend.

80.00 Set a granite stone 10x12x15 ins., 10 ins. in the ground for the cor. of secs. 13, 18, 19 and 24, marked with 3 notches on the N. and S. edges; dig pits 16x18x12 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.

Sharply rolling land.

Soil, 2nd and 3rd rate, gravelly.

Dense undergrowth of greasewood, cactus, palo verde, and catsclaw.

No timber. Some (a very little) grass.

East boundary of Township 18 North, Range 18 West.

9.

Chains.

Sharply rolling land, covered with dense undergrowth, and difficult to survey, 80.00 chains.

May 20, 1910.

May 21, 1910.

South, between secs. 19 and 24.

Over rolling land, covered with dense undergrowth of greasewood, cactus, catsclaw and palo verde.

25.00 Descend.

30.50 Gulch, 50 lks. wide, course W. Ascend.

40.00 Set a granite stone 5x9x15 ins., 10 ins. in the ground for the $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the W. face; and raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

80.00 Set a granite stone 8x10x15 ins., 10 ins. in the ground, for the cor. of secs. 19, 24, 25 and 30, marked with 4 notches on the N. and 2 notches on the S. edges; 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.

Soil, 2nd and 3rd. rate.

Dense undergrowth of greasewood, cactus, catsclaw, and palo verde.

No timber. Very little dried grass.

Rolling land, covered with dense undergrowth, and difficult to survey, 80.00 chains.

At 9h. 30m. a.m., J.m.t., I set off $20^{\circ} 6\frac{1}{2}' N$ on the decl. arc; $34^{\circ} 55\frac{1}{2}' N$ on the lat. arc; and determine a meridian with the solar at the cor. of secs. 19, 24, 25 and 30, above described.

South, between secs. 25 and 30, over sharply rolling land, covered with dense undergrowth of greasewood, cactus, and catsclaw.

40.00 Set a sandstone rock, 5x7x19 ins., 12 ins. in the ground, for the $\frac{1}{4}$ sec. cor., marked with $\frac{1}{4}$ on the W. face; dig pits 18x18x12 ins. N. and S. of cor. 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 a granite stone 6x8x15 ins., 10 ins. in the ground for the cor. of secs. 25, 30, 31 and 36, marked with 5 notches on the N. and 1 notch on the S. edges; and raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, sharply rolling.

Soil, 3rd rate, stone.

Dense undergrowth of greasewood, catsclaw, cactus, and palo verde. No timber. No grass.

Sharply rolling land, covered with dense undergrowth, and exceptionally difficult to survey, 80.00 chains.

South, bet. secs. 31 and 36.

Over mountainous land, covered with dense undergrowth of greasewood, catsclaw, cactus, and palo verde.

Ascend.

1.00 Descend.

3.00 Thence over level land.

6.00 Wash, 1.00 chain wide, course SW.

12.00 Leave level land; ascend over mountainous land.

15.00 Descend.

40.00 Set a granite stone 5x10x15 ins., 10 ins. in the ground for the $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the W. face; dig pits 18x18x12 ins., N. and S. of cor. 3 ft. dist., and raise a mound of earth $3\frac{1}{2}$ ft. base, $1\frac{1}{2}$ ft. high, W. of cor.

Thence over rolling land.

80.00 The cor. of $\frac{1}{4}$ s. 17 and 18 N., Rs. 17 and 18 W. hereinbefore described.

Land, level, rolling and mountainous.

Soil, 3rd rate.

10. East boundary of Township 18 North, Range 18 West.

Chains.

Dense undergrowth of greasewood, catsclaw, mesquite, cactus and palo verde.
 No timber. Very little dried grass.
 Level land, 9.00 chains. Rolling land, 40.00 chains; and mountainous land, 31.00 chains.
 Land, covered with dense undergrowth, and exceptionally difficult to survey 80.00 chs.

May 21, 1910.

Boundaries of Township 18 North, Range 18 W.
 Latitudes, departures, and closing errors.

Line designated.	True bearing.	Dist.	Latitudes.		Departures.	
			N.	S.	E.	W.
5th. Guide Mer. W.						
5th. Guide Mer. W. of sec. 6	S. 0° 3' E.	77.70		77.70	0.07	
5th. Guide Mer. W. of sec. 7.	S. 0° 3' E.	80.00		80.00	.07	
South of sec. 7.	East,	81.20			81.20	
W. of sec. 17	S. 0° 03' E.	80.00		80.00	0.07	
S. of sec. 17	East,	80.00			80.00	
W. of sec. 21	S. 0° 02' E.	80.00		80.00	0.05	
W. of sec. 28	S. 0° 02' E.	80.00		80.00	0.05	
S. of sec. 28	East,	80.00			80.00	
W. of sec. 34,	S. 0° 02' E.	80.00		80.00	0.05	
S. of secs. 34, 35 & 36,	East,	240.00			240.00	
N. bet. Rs. 17 & 18 W.	North,	478.10	478.10			
W. bet. Ts. 18 & 19 N.	West,	481.82				481.82
Convergency,						0.51
Totals,			478.10	477.70	481.56	482.33
			477.70			481.56
Error in lat.			0.40	Error in dep.		0.77

GENERAL DESCRIPTION.

T. 18 N., R. 18 W. is extremely rough and mountainous in the southwestern quarter, and sharply rolling and mountainous in the remaining portion. It varies from solid rock to gravel and sand, with no portion that could be classed as 1st rate. The entire township is drained by the Sacramento Wash, which runs in a SSE. direction through the center, and into this main channel are directed innumerable canyons, gulches and sand washes all of which are at this time absolutely dry, and evidently have been dry for a year. There is no surface water anywhere within the boundaries of the township, and no wells exist. It is probable that no permanent water could be secured except by digging approximately 400 feet below the surface to penetrate the granitic Hualpai Mountain wash which might be water bearing to a very limited extent.

There is evidence of grass which probably would be more pronounced during the rainy seasons, but at present is pretty thoroughly burnt out by the prolonged hot and dry weather. A greater part of this township is covered with dense, undergrowth peculiar to this desert country, consisting of greasewood, cactus, catsclaw and palo verde, which affords a considerable obstruction to the progress of the surveys, and this in connection with the exceeding difficulty attendant upon securing

water for general camp and outfit purposes; the absence of feed for the horses, the high temperature prevailing, and the rough character of the surface of the land combine to render the subdivision of this township exceptionally difficult to perform. The Black Mountain range intersects or rather embraces a portion of the SW. 1/4 of this township, and this part is impractical to subdivide on account of the worthless and rough character of the land.

The Santa Fe R.R. runs in a NNE. and SSW. direction, through secs. 36, 25, 24 and 13, and the Flag Station of Signal is situated in sec. 13 near the east boundary line of the township. This is a section house only, and has only two or three inhabitants.

William P. Alexander
U.S. Deputy Surveyor.

July 1, 1910.

12. Portion of North boundary of Township 18 North, Range 19 W.

Chains.

Survey commenced May 30, 1910, and was executed with a Young and Sons Light Mountain Transit No. 7520, fitted with two double verniers placed opposite to each other and reading to single minutes of arc on the horizontal limb. The transit is also fitted with a Smith Solar Attachment, the latitude and declination arcs of which also read to single minutes of arc.

The instrument was examined, tested on a true meridian at Phoenix, Arizona, found correct, and approved by the U. S. Surveyor General of Arizona, June 26, 1904.

I examine the bubble, collimation, standard, and other adjustments of the transit and find them to be correct; then to test the solar apparatus by comparing the results of a.m. and p.m. observations with a true meridian determined by an observation on Polaris, I proceed as follows:

At the cor. of Ts. 18 and 19 S., Rs. 18 and 19 W. on the Fifth Guide Meridian West; latitude, $34^{\circ}59'10''$ N.; long. $114^{\circ}12'26''$ W., which is a lava stone 7 ins. above ground, marked and witnessed as described by the U.S. Surveyor General for Arizona, at 4h.30m. p.m., l.m.t., I set off 35° N. on the lat. arc; $21^{\circ}46'$ N. on the decl. arc, and determine a meridian with the solar; I mark the line thus determined by a tack driven in a stake set about 5 chains N. of my station.

May 30, 1910.

May 31, 1910. At 2h.55m., a.m., l.m.t., I observe Polaris at eastern elongation and mark the line thus determined by a tack driven in a stake about 5 chains north of my station.

At 6h. 30m., l.m.t., I lay off $1^{\circ}26'$ to the west, and mark this true meridian by a tack driven in the stake set yesterday afternoon by solar observation. The last tack driven is about one-eighth of an inch east of the solar observation.

At 7h. 0m. a.m., l.m.t., I set off $21^{\circ}52'$ N. on the decl. arc; 35° N. on the lat. arc, and determine a meridian with the solar; the line determined falls one sixteenth of an inch east of the Polaris meridian on the stake set 5 chains north of my station, From this I am satisfied that my instrument is in adjustment. Mag. ver. 15° N. E. on the lat. arc

It being impracticable to run in the boundaries of T. 18 N. R. 19 W. in the usual way on account of the fact that the south boundary is unsurveyable because it passes through the Black Mountains over unsurveyable ground, I commence at the corner of Ts. 18 and 19 N., Rs. 18 and 19 W., and run west on a true line north of sec. 1. Ascending over mountainous land, covered with large malpais boulders and with dense undergrowth of greasewood, cactus and catsclaw.

40.00 Set a malpais stone 6x8x20 ins., 15 ins. in the ground for the $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the N. face, and raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

48.00 Ascend steep east slope of butte.
Top of granite butte. Descend steep slope.

51.00 Ascend.

55.00 Rocky gulch, course N. 20° E.

62.00 Rocky gulch, 70 lks. wide, course NE.

76.50 Rocky gulch, 50 lks. wide, course NE.

80.00 Set a malpais stone 6x12x14 ins., 10 ins. in the ground for the cor. of secs. 1, 2, 35 and 36, marked with 1 notch on the E. and 5 notches on the w. edges; and raise a mound of stone 3 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, mountainous, and covered with boulders.
Soil, 4th rate, rocky.

Dense undergrowth of greasewood, cactus, catsclaw, and palo verde.

Portion of North boundary of Township 18 North, Range 19 W. 13.

Chains.

No grass or timber.
Mountainous land, covered with dense undergrowth and large boulders, and exceptionally difficult to survey, 80.00 chs.

West, bet. secs. 2 and 35.
Over mountainous land, covered with dense undergrowth of greasewood, cactus, catsclaw and palo verde; loose rock.

Descend.

3.50 Draw, course NE.

15.00 Draw, course NE.

24.50 Foot of rocky slope. Ascend abruptly.

35.00 Ridge, brs. N. and S. Descend.

40.00 Set a granite stone 6x9x24 ins., 18 ins. in the ground for the $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the N. face, and raise a mound of stones 3 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor.

Pits impracticable.

Ascend.

57.00 Ascend abruptly.

63.00 Top, bears MNW. and SSE. Descend.

80.00 Set a lava rock 8x12x30 ins. 24 ins. in the ground, for the cor. of secs. 2, 3, 34 and 35, marked with 2 notches on the E. and 4 notches on the W. edges; and raise a mound of stones 3 ft. base, 1 $\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, extremely mountainous, covered with loose rock and boulders.

Soil, 4th rate.

Scattering undergrowth of greasewood, catsclaw and cactus.

No timber or grass.

Mountainous land, covered with loose rock, and exceptionally difficult to survey, 80.00 chains.

At noon at the above cor., I set off 21° 53' N. on the decl. arc; and observe the sun on the meridian; the resulting 1st. reading is 35° N.

Thence I run,

West, bet. secs. 3 and 34.

Over extremely mountainous land, nearly impracticable to survey.

Descend slope covered with large volcanic rock difficult to measure.

Scattering catsclaw and greasewood.

14.50 Rocky gulch, 40 lks. wide, brs. SE. Ascend abruptly.

40.00 Set a malpais stone 6x8x15 ins., 10 ins. in the ground for the $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the N. face; and raise a mound of stones 3 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor. Pits impracticable.

Continue steep ascent.

50.50 Top of ridge, bears N. and S.

Discontinue line at this point on account of unsurveyable character of land.

Land, extremely mountainous, and covered with boulders.

Soil, 4th rate.

No timber or grass.

Scattering undergrowth, greasewood, cactus and catsclaw.

Mountainous land, covered with boulders and extremely difficult to survey, 55.50 chains.

May 31, 1910.

14. Portion of North boundary of Township 18 North, R. 19 W.

Boundaries of Township 18 North, Range 19 West.
Latitudes, departures, and closing errors.

Line designated.	True bearing.	Dist.	Latitudes.		Departures.	
			N.	S.	E.	W.
N. bdy. Sec. 1	West,	80.00				80.00
W. bdy. sec. 1	S. 0° 3' E.	77.85	77.85		0.07	
S. bdy. sec. 1	S. 89° 59' E.	80.00		0.02	80.00	
5 Guide Mer. W. bet. secs. 1 and 6.	N. 0° 03' W.	77.70	77.70			0.07
Totals,			77.70	77.87	80.07	80.07
				77.70		80.07
Error in latitude,				.17		
Error in departure,						0.00

GENERAL DESCRIPTION.

Only section 1 of this township could be subdivided. The balance embraces a portion of the main range of the Black Mountains, and is out by canyons and cliffs in rapid sequence. The soil is worthless, being all 4th rate rock; there is but very scattering grass; no water, no timber; scattering undergrowth of greasewood, cactus, and palo verde. It is thoroughly impracticable to subdivide this township.

July 1, 1910.

William D. Alexander
U.S. Deputy Surveyor

Survey portion of North boundary of Township 19 N., R. 19 W. 15 Chains.

Survey commenced June 4, 1910, and was executed with a Young & Sons' Light Mountain Transit No. 7520, with a 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 latitude and declination arc verniers.

The instrument was examined, tested on the true meridian at Phoenix, Arizona, found correct, and approved by the Surveyor General for Arizona, June 25, 1904.

I examine the adjustments of the transit, and correct the level and collimation errors; then to test the solar apparatus by a comparison of the results of a.m. and p.m. observations, with a true meridian determined by an observation on Polaris, I proceed as follows:

June 4, 1910, at the cor. of T_s.19 and 20 N., R_s.18 and 19 W., which is a lava stone 6 ins. above ground, marked and witnessed as described by the Surveyor General, in lat. $35^{\circ}04'23''$ N.; long. $114^{\circ}12'26''$ W., on the Fifth Guide Meridian West, at 9h.30m., a.m., l.m.t., I set off $35^{\circ}04\frac{1}{2}'$ N. on the lat. arc; $22^{\circ}24'$ N. on the decl. arc, and determine a meridian with the solar (the half minutes are interpolated on the verniers which read to single minutes) and mark the point thereof by a tack driven in a stake set five chains north of my station.
June 4, 1910.

June 5, 1910. At 2h.36m. a.m., l.m.t., I observe Polaris at eastern elongation in accordance with instructions in the Manual, and mark a point on the line thus determined on a stake driven in the ground about five chains north of my station.

At 5h.30m. a.m., l.m.t., I set off $1^{\circ}26'$ to the west, and mark the true meridian thus determined by a tack driven in the stake set yesterday afternoon by solar observation. The line determined yesterday falls 0.2 inches W. of the true meridian.

At 6h.30m. a.m., l.m.t., I set off $35^{\circ}05'$ N. on the lat. arc; $22^{\circ}31'$ N. on the decl. arc, and determine a meridian with the solar. This line falls 0.1 inch east of the true meridian. The solar apparatus is thus shown to be in excellent adjustment.

Mag. ver. N. $15^{\circ}00'$ E.

Thence I run,
West on the N. bdy. of Tp. 19 N., R. 19 W., bet. secs. 1 and 36.

Over rolling land, covered with dense undergrowth of greasewood, catsclaw and cactus.

Descend.

37.50 Wash 60 lks. wide, course SE.

40.00 Set a granite stone 7x8x16 ins., 11 ins. in the ground for the $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the N. face, and raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, N. of cor.

Pits impracticable.

43.50 Draw, course S.

46.50 Draw, course SE.

76.00 Wash, 40 lks. wide, course SE.

80.00 Set a malpais stone 6x9x16 ins., 11 ins. in the ground for the cor. of secs. 1, 2, 35 and 36, marked with 1 notch on the E. and 5 notches on the W. edges, and raise a mound of stones 3 ft. base, $1\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land rolling; cut by washes.

Soil, 3rd rate, stony.

No timber or grass.

Dense undergrowth of greasewood, cactus and catsclaw.

Rolling land, covered with dense undergrowth and exceptionally difficult to survey, 80.00 chs.

16. Portion of North boundary of Township 19 North, Range 19 W.

Chains.

Thence I run,
West, bet. secs. 2 and 35.
Ascend over rolling land.
Through dense undergrowth of greasewood, cactus, and cats-
claw.

26.00 Draw, course SE.
32.00 Wash, 20 lks. wide, course S. 75° E.
34.00 Wash, 20 lks. wide, course N. 75° E. runs into wash just men-
tioned.

40.00 A granite stone in place 12x18x20 ins. above ground, for
the $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the N. face, and raise a
mound of stones 3 ft. base, 1 $\frac{1}{2}$ ft. high, W. of cor. Pits
impracticable.

68.50 Draw, course SE.
80.00 Set a granite stone 7x8x16 ins., 11 ins. in the ground
for the cor. of secs. 2, 3, 34 and 35, marked with 2 notches
on the E. and 4 notches on the W. edges, and raise a
mound of stones 3 ft. base, 1 $\frac{1}{2}$ ft. high, W. of cor. Pits
impracticable.

Land rolling.
Soil, 3rd rate, stony.
Dense undergrowth of greasewood, cactus, and catsclaw.
No timber or trees.
Rolling land, covered with dense undergrowth, and excep-
tionally difficult to survey, 80.00 chains.

Thence I run,
West, between secs. 3 and 34,
Over mountainous land, covered with dense undergrowth of
greasewood, cactus and catsclaw.

Ascend.
18.00 Descend.
21.10 Gulch, 20 lks. wide, course SE. Ascend.
40.00 Set a malpais stone 5x6x20 ins., 15 ins. in the ground
for the $\frac{1}{4}$ sec. cor., marked $\frac{1}{4}$ on the N. face, and raise
a mound of stones 3 ft. base, 1 $\frac{1}{2}$ ft. high, N. of cor.
Pits impracticable.

Ascend steep slope.
80.00 Set a malpais stone 6x8x15 ins., 10 ins. in the ground for
the cor. of secs. 3, 4, 33 and 34, marked with 3 notches
on the E. and W. edges; and raise a mound of stones 3
ft. base, 1 $\frac{1}{2}$ ft. high, W. of cor. Pits impracticable.

Land, mountainous.
Soil, 3rd rate, rocky.
Dense undergrowth of greasewood, cactus, and catsclaw.
No grass or trees.
Mountainous land, covered with dense undergrowth, and ex-
ceptionally difficult to survey, 80.00 chains.

Thence I run,
West, bet. secs. 4 and 33.
Over extremely mountainous land, covered with scattering
undergrowth of greasewood, catsclaw and cactus.

18.00 Ascend rocky precipitous mountains, impracticable to sur-
vey. I therefore discontinue the line at this point,
June 5, 1910.

Portion of North boundary of Township 19 North, Range 19 West. 17.

Chains.

Boundaries of Township 19 North, Range 19 W.
Latitudes, departures, and closing errors.

Line designated.	True bearing.	Dist.	Latitudes.		Departures.	
			N.	S.	E.	W.
S. bdy. secs. 35 & 36.	East,	160.00			160.00	
5th. Guide Mer. W.						
Bet. secs. 31 & 36.	N. 0° 03' W.	80.10	80.10			0.07
" " 25 & 30	N. 0° 06' W.	80.22	80.22			0.14
" " 19 & 24	N. 0° 06' W.	79.98	79.98			0.14
" " 13 & 18	N. 0° 09' W.	80.00	80.00			0.21
" " 7 & 12	N. 0° 13' W.	80.00	80.00			0.30
" " 1 & 6	N. 0° 09' W.	81.12	81.12			0.21
N. bdy. 1 & 2.	West,	160.00			160.00	
W. of sec. 2.	S. 0° 10' E.	81.12	81.12		0.23	
W. of sec. 11	S. 0° 14' E.	80.00	80.00		0.33	
W. of sec. 14	S. 0° 10' E.	80.00	80.00		0.23	
N. of sec. 22	West,	80.00				80.00
W. of sec. 22	S. 0° 08' E.	80.00	80.00		0.19	
S. of sec. 22	East,	80.00			80.00	
W. of sec. 26	S. 0° 07' E.	80.00	80.00		0.16	
W. of sec. 35	S. 0° 04' E.	80.00	80.00		0.09	
Convergency,						0.18
Totals,			481.42	481.12	241.23	241.25
			481.12			241.23
Error in latitude, -0.30						0.02
Error in departure, -----						

GENERAL DESCRIPTION.

This township is extremely rough and mountainous in the western two-thirds, and mountainous and sharply rolling in the eastern portion; only approximately the eastern third can be subdivided. The mountains are what is known as the Black Mountains, and consist of extremely rugged, broken land, covered with scattering greasewood, cactus and catsclaw brush, with very little grass and no timber. There is no water at the surface, and no wells. The soil is nearly all 4th rate, rocky, and there is no soil that could be classed as 1st or 2nd rate. The eastern two tiers of sections cover or embrace what could be termed mountainous, and semi-mountainous land, covered with dense undergrowth of greasewood, catsclaw, cactus and palo verde. All of the eastern half of the township drains into the Sacramento Wash, situated some three miles east of the eastern boundary.

It is quite probable that water could be secured by driven wells tapping the underflow, but it is very difficult to estimate the depth to the supposed water bearing stratae.

In the prosecution of this survey it was necessary to haul the water for camp purposes from Yucca Station, a distance of about 14 miles, and this combined with the absence of feed for the horses contributed materially to the difficulty of carrying on the work.

It is thoroughly impractical to subdivide the western two thirds of this township.

William P. Reynolds
U.S. Deputy Surveyor.

July 1, 1910.

FINAL OATHS OF DEPUTY SURVEYOR AND HIS ASSISTANTS.

LIST OF NAMES.

A list of the names of the individuals employed by

William D Alexander

....., United States Deputy Surveyor, to assist in running, measuring, and marking the lines and corners described in the foregoing field notes of the survey of

E + N Bdy T17N R18W; E Bdy T18N R18W; N Bdy T18N R19W; N Bdy T19N R19W showing the respective capacities in which they acted:

- F. O. Kelton* Chainman.
- W. A. Campbell* Chainman.
- N. S. Darlington* Moundman.
- A. M. Pogue* Moundman.
- Wayne Hubbs* Axman.
- C. H. French* Axman.
- W. G. Carleton* Flagman.

FINAL OATH OF ASSISTANTS.

We hereby certify that we assisted

William D Alexander

....., United States Deputy Surveyor, in surveying all

those parts or portions of the *E and N. Bdy T17N R18W*
E. Bdy T18N R18W
N. Bdy T18N R19W
N. Bdy T19N R19W of the *Gila and*

Salt River River meridian, *Territory* of *Arizona*, which are represented in the foregoing field notes as having been surveyed by him and under his direction; and that said survey has been in all respects, to the best of our knowledge and belief, well and faithfully surveyed, and the corner monuments established, according to the instructions furnished by the United States Surveyor

General for *Arizona*

- F. O. Kelton* Chainman.
- W. A. Campbell* Chainman.
- N. S. Darlington* Moundman.
- A. M. Pogue* Moundman.
- Wayne Hubbs* Axman.
- C. H. French* Axman.
- W. G. Carleton* Flagman.

Subscribed and sworn to before me this *15th* day of *June*, 19*00*

William D Alexander
U.S. Dep. Surveyor

Note: There being no official available without great expense and loss of time, I administered the oaths of assistants

FINAL OATH OF UNITED STATES DEPUTY SURVEYOR.

I, William B. Alexander, United States Deputy Surveyor, do solemnly swear that, in pursuance of a contract received from Frank S. Ingalls United States Surveyor General for Arizona, bearing date of the 26th day of May, 1909, I have well, faithfully, and truly, in my own proper person, and in strict conformity with the instructions furnished by the United States Surveyor General for Arizona, the Manual of Surveying Instructions, and the laws of the United States, surveyed all those parts or portions of

E. and N. Boundary T17N R18W
E. Boundary T18N R18W
N. Boundary T18N R19W
N. Boundary T19N R19W

of the Gila and Salt River Base meridian, in the Territory of Arizona, which are represented in the foregoing field notes as having been surveyed by me, and under my direction; and I do further solemnly swear that all the corners of said survey have been established and perpetuated in strict accordance with the Manual of Surveying Instructions, and the special written instructions of the United States Surveyor General for Arizona and in the specific manner described in the field notes, and that the foregoing are the original field notes of such survey.

William B. Alexander
United States Deputy Surveyor.

Subscribed by said William B. Alexander, and sworn to before me
this 19th day of September, 1900

W. H. ...
U.S. Commissioner



APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,

Phoenix, Arizona, Feb. 26 1913, 1900

The foregoing field notes of the survey of E. and portion of N. Bdy of Tp. 17 N., R. 18 W., the E. bdy of Tp. 18 N., R. 18 W., portion of N. bdy of Tp. 18 N., R. 19 W. and a portion of N. bdy of Tp. 19 N., R. 19 W.

Gila & Salt River Base and Meridian
State of Arizona

executed by William B. Alexander, U.S. Deputy Surveyor under his contract No. 156, dated May 26, 1909, having been critically examined, and the necessary corrections and explanations made, the said field notes, and the surveys they describe, are hereby approved.

Frank S. Ingalls
United States Surveyor General.

I certify that the foregoing transcript of the field notes of the above-described surveys in _____, has been correctly copied from the original notes on file in this office.

United States Surveyor General.