

3525

4-679

Book "I"

BOOK 3525

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FIELD NOTES

OF THE RETRACEMENT OF

part of the Arizona-Utah State Boundary (20th mile),

AND OF THE SURVEY OF

the East boundary,

and Subdivision lines of

Fractional Township 42 North, Range 13 West.

Of the Gila and Salt River Base and Meridian,

In the State of Arizona

EXECUTED BY

Joseph P. Davis, U. S. Cadastral Engineer,

In the capacity of U. S. Surveyor, under Special Instructions dated September 29, 1920, issued by the United States Surveyor General to govern surveys included in Group No. 112, Arizona, which were approved by the Commissioner of the General Land Office, November 10, 1920, and Assignment Instructions dated December 15, 1920

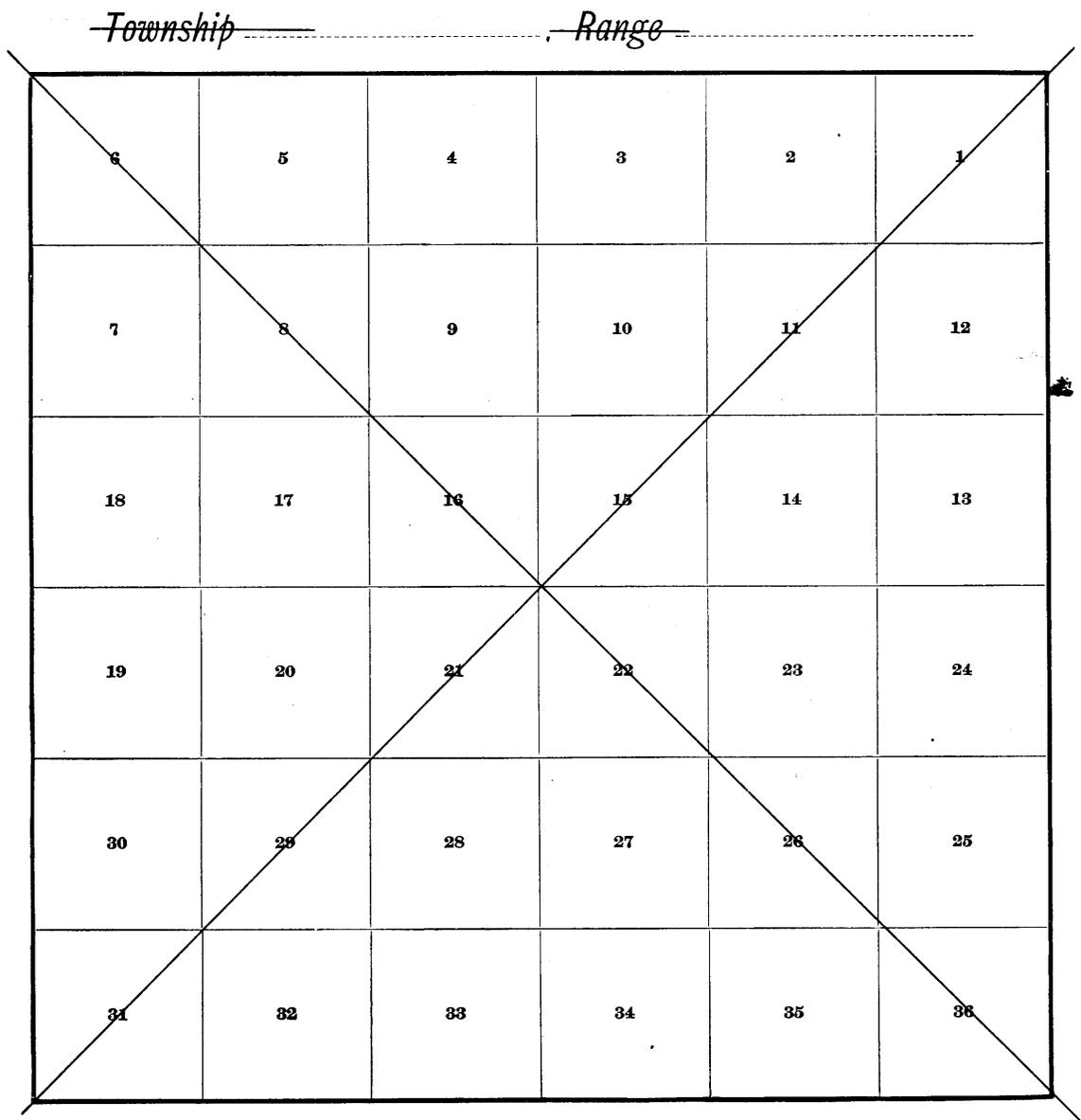
Retracement & Survey commenced April 2, 1921

Retracement & Survey completed April 28, 1921

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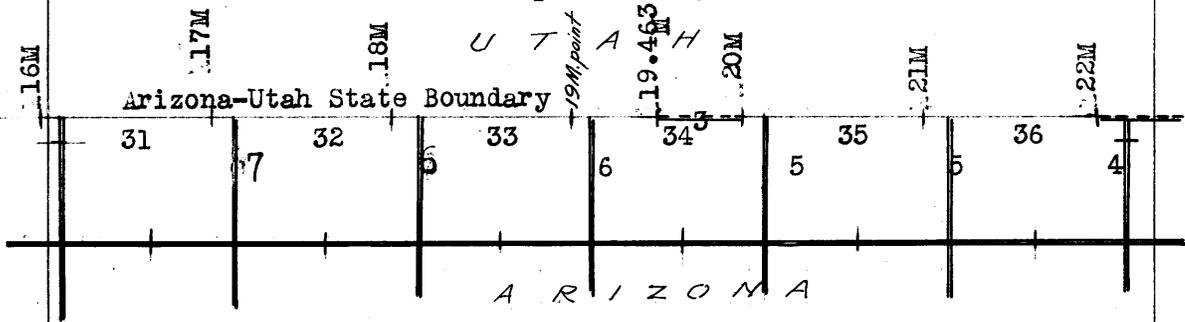
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INDEX DIAGRAM.



Book "I"
Index Diagram

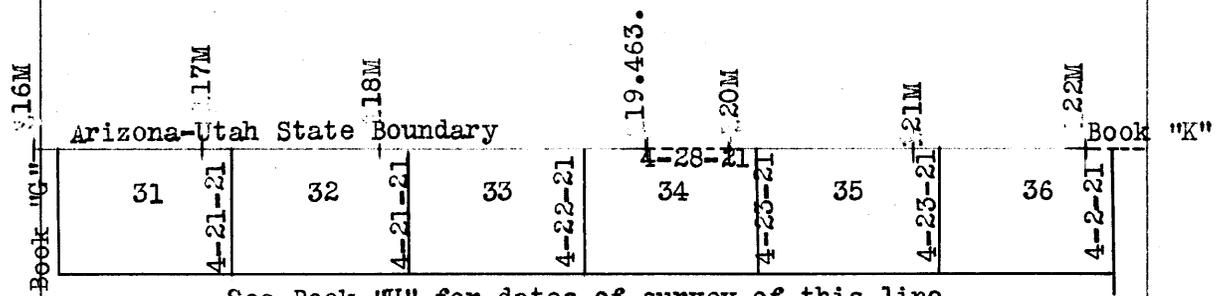
Fractional Township 42 North, Range 13, West,



- Lines surveyed under this Group
- - - - - Lines retraced under this Group
- Accepted survey

Date Diagram

Fractional Township 42 North, Range 13 West,



See Book "H" for dates of survey of this line.

On the above diagram, black lines indicate surveys, and dotted black lines, retracements, executed by Joseph P. Davis, U. S. Cadastral Engineer, on dates shown thereon.

Retracements and surveys hereinafter described executed by Joseph P. Davis, U. S. Cadastral Engineer, on dates shown on diagram on page 1 hereof, using Buff light mountain transit No. 10125. For description of instrument and certificate of approval, see Book "A".

Unless otherwise specified, all measurements are made with a Lufkin steel tape, 5 chs. in length, compared with a Chesterman standard steel tape and found correct. The measurements are made on the slope, the vertical angles determined and the slope measurements properly reduced to true horizontal distances.

Field Test of Instrument No. 10125.

Examine the adjustments of the transit and correct all errors; then, to test the solar apparatus, by comparing its indications, resulting from solar observations made during a.m. and p.m. hours, with a meridian determined by observations on Polaris at elongation, proceed as follows:

April 17, 1921. At camp in sec. 2, T. 41 N., R. 13 W., G. and S. R. B. and M., lat. $36^{\circ}58\frac{1}{2}'N.$, long. $113^{\circ}40\frac{1}{2}'W.$, at 5 hrs. 55.3 m. a.m., l.m.t., observe Polaris at eastern elongation, in accordance with the Manual of Instructions, and mark a point in the line thus determined by a tack driven in a stake, firmly set in the ground, 5 chs. N. of station.

At 8 hrs. 0 m., a.m., l.m.t., lay off the azimuth of Polaris, $1^{\circ}24'$ to the west, and mark the true meridian thus determined by a tack in a stake, firmly driven in the ground, 5 chs. N. of station.

At 9 hrs. 0 m., a.m., l.m.t., set off $36^{\circ}58\frac{1}{2}'N.$ on the lat. arc; $10^{\circ}27\frac{1}{2}'N.$ on the decl. arc; and determine a meridian with the solar, which agrees with the true meridian.

At apparent noon, with the lat. arc unchanged, observe the sun on the meridian; the resulting decl. is $10^{\circ}30'N.$, which is the computed decl. of the sun.

At 3 hrs. 0 m., p.m., l.m.t., with the lat. arc unchanged, set off $10^{\circ}33'N.$ on the decl. arc, and determine a meridian with the solar, which agrees with the true meridian.

As all of the solar observations during the usual hours of solar work come within $1'30''$ of the true meridian, conclude that the adjustments of the solar are satisfactory.

Retracement of part of Arizona-Utah State Boundary Line
(20th Mile).

Chains.

That part of the Arizona-Utah State Boundary Line, forming the North boundary of fractional T. 42 N., R. 13 W., Arizona, was surveyed in April, 1901, by Howard B. Carpenter, U. S. Surveyor and Astronomer, and no retracement or resurvey of such portion of the line is of record.

This portion of the line is closed upon by Ts. 43 S., Rs. 16 and 17 W. of the Utah surveys.
The following notes describe a retracement of the 20th mile.



The 19th mile point was not monumented in the survey of the State Boundary as it falls on the face of cliffs on left wall of Virgin River Canyon, and is inaccessible. This point is described in the record as being witnessed at 36.99 chs. E. therefrom by a monument designated as the 19.463 mile monument.

This monument is found to be a limestone 24x10x6 ins. above ground, firmly set, marked "UTAH" on N. face, "37NL" on E. face, "ARIZ." on S. face, and "19.403M" on W. face, and witnessed by a mound of stone, E. of monument. No bearing trees.

This agrees with the record description. This monument is on top of ridge, bearing NE. and SW., and at left rim of Virgin River canyon, same bearing.

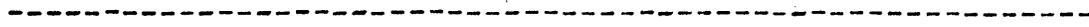
Thence,
East, on a random line, on 20th mile, continuing measurement from 19th mile point.
Over mountainous land, thru. scattering undergrowth.
Descend.

49.00 Gulch, course NE. Ascend.
73.60 Ridge, brs. N. and S. Descend to
80.57 (43.58 chs. E. from 19.463 mile mon.), Intersect the 20th mile monument, which is a limestone, 10x10x6 ins. above ground, firmly set, marked "UTAH" on N. face, "37NL" on E. face, "ARIZ." on S. face, and "20M" on W. face, and witnessed by a mound of stone E. of monument. No bearing trees.

Land, mountainous.
Soil, rocky, 4th rate.
No timber.
Undergrowth, black brush.

True course and dist. of the 20th mile are therefore, East 80.57 chs.

True course and dist. between the 19.403 mile mon., and the 20 mile mon, are therefore East, 43.58 chs.



Survey of East bdy. of fracl. Township 42 North, Range 13 West.

Chains.

From the cor. of Ts. 41 North, Ranges 12 and 13 West, and fracl. Ts. 42 North, Ranges 12 and 13 West, described in Book "H,"

North, on true line, bet. fracl. secs. 31 and 30.
Over rolling land, thru. scattering undergrowth.
Descend 35 ft., over NE. slope, to

13.50 Shallow wash, course N. from SE. Desc. 40 ft. in wash, to
38.00 Leave wash, course NE. Ascend 15 ft. to
40.00 Set an iron post, 3 ft. long, 1 in. in diam., 26 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap,

$\frac{1}{4}$
S36 | S31
1921

and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, W. of cor.
Descend 10 ft. to

44.00 Same wash, course W. Ascend 40 ft.
46.00 Descend 23 ft.
50.00 Ascend 23 ft. to
55.04 Intersect the Arizona-Utah State Boundary Line, 9.81 chs. E. of the 22 mile monument, which is a limestone, 10x14x8 ins. above ground, firmly set, marked "UTAH" on N. face, "37NL" on E. face, "ARIZ." on S. face, and "22M" on W. face, and witnessed by four pits, one each N., S., E. and W., and a mound of earth, E. of mon. No bearing trees.

At the point of intersection,
Set an iron post, 3 ft. long, 3 ins. in diam., 24 ins. in the ground, for closing cor. of fracl. Ts. 42 N., Rs. 12 and 13 W., marked on brass cap,

UTAH
S36 | S31
R13W | R12W
T42N
C C
1921.

and raise a mound of stone, 2 ft. base, $1\frac{1}{2}$ ft. high, S. of cor.
Land, rolling.
Soil, rocky, 4th rate.
No timber.
Undergrowth, black brush.

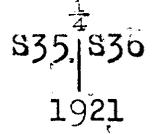
Boundaries of fracl. Township 42 North, Range 13 West.
Latitudes, departures, and closing errors.

Line designated.	True bearing.	Dist.	Latitudes.		Departures.	
			N.	S.	E.	W.
South boundary,	S. 89° 57' W.	479.76		.42		479.76
West boundary,	North,	55.78	55.78			
North boundary, (Ariz.-Utah Bdy.)	East,	479.63			479.63	
East boundary,	South,	55.04		55.04		
Convergency,					.06	
Totals,			55.78	55.48	479.69	479.76
			55.48			479.69
Error in latitude,			0.32			
Error in departure,					0.07	

Subdivision lines of fracl. Township 42 North, Range 13 West. 5

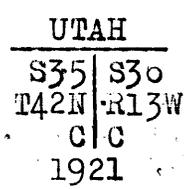
Chains.

From the cor. of secs. 1 and 2, and fracl. secs. 35 and 30, on the S. bdy. of the Tp., described in Book "H," North, on true line bet. fracl. secs. 35 and 30. Over mountainous land, thru. scattering undergrowth. Descend 20 ft.
 5.00 Ascend 30 ft.
 9.00 Point of spur, slopes E. Descend 50 ft.
 18.00 Ascend 45 ft.
 23.00 Apex of gypsum hill; descend 10 ft.
 24.10 Ascend 15 ft.
 31.50 Spur, slopes N. 50° E. Descend 145 ft.
 37.20 Draw, course N. 60° E. Ascend 20 ft. to
 40.00 Set an iron post, 3 ft. long, 1 in. in diam., 20 ins. in the ground, for $\frac{1}{4}$ sec. cor., marked on brass cap,



and raise a mound of stone, 2 ft. base, 1 $\frac{1}{2}$ ft. high, W. of cor. Ascend 92 ft.

44.35 Descend 150 ft.
 54.00 Draw, course E. Ascend 30 ft. to
 55.13 Intersect the Arizona-Utah State Boundary Line, 9.87 chs. E. of the 21st mile mon., which is a limestone, 12x10x6 ins. above ground, firmly set, marked "UTAH" on N. face, "37NL" on E. face, "ARIZ." on S. face, and "21M" on W. face, and witnessed by a mound of stone, E. of mon. No bearing trees.
 At the point of intersection,
 Set an iron post, 3 ft. long, 2 ins. in diam., 24 ins. in the ground, for closing cor. of fracl. secs. 35 and 30, marked on brass cap,



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

Land, mountainous.
 Soil, rocky, 4th rate.
 No timber.
 Undergrowth, black brush.

From the cor. of secs. 2 and 3, and fracl. secs. 34 and 35, on the S. bdy. of Tp., described in Book "H," North, on true line, bet. fracl. secs. 34 and 35. Over rolling and mountainous land, thru. scattering undergrowth. Descend 30 ft.

9.00 Draw, course E. Ascend slightly to
 16.00 Draw, course S. 45° E. Ascend 70 ft.
 23.00 Descend 10 ft.
 24.00 Draw, course E. Ascend 50 ft.
 28.80 Ridge, brs. NE. and SW. Descend 100 ft.
 37.15 Gulch, course N. 75° E. Ascend 20 ft. to
 40.00 Point of spur slopes E. Set an iron post, 3 ft. long, 1 in. in diam., on bed rock, with marked stone, for $\frac{1}{4}$ sec. cor., and raise a mound of stone around post, with brass cap, marked



Descend 20 ft.
 42.00 Gulch, course S. 30° E. Ascend 50 ft.
 46.00 Point of spur, slopes E. Descend 45 ft.
 48.50 Draw, course S. 60° E. Ascend 30 ft. to
 55.22 Intersect the Arizona-Utah State boundary line, 9.64 chs,

6 Subdivision lines of fracl. Township 42 North, Range 13 West.

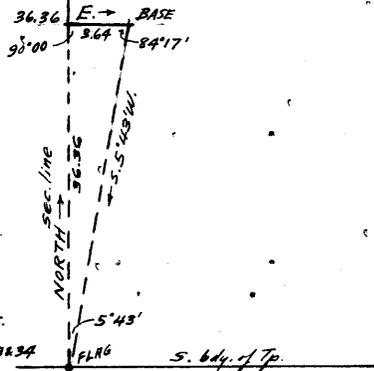
Chains.

E. of the 20th mile mon., hereinbefore described. At the point of intersection, Set an iron post, 3 ft. long, 2 ins. in diam., 24 ins. in the ground, for closing cor. of fracl. secs. 34 and 35, marked on brass cap,

UTAH
S34 | S35
T42N | R13W
C C
1921

and raise a mound of stone, 2 ft. base, 1 1/2 ft. high, S. of cor. Land, rolling and mountainous. Soil, rocky, 4th. rate. No timber. Undergrowth, black brush.

From the cor. of secs. 3 and 4, and fracl. secs. 33 and 34, on the S. bdy. of the Tp., described in Book "H," North, on true line, bet. fracl. secs. 33 and 34. Over mountainous land, thru. scattering undergrowth. Descend 575 ft. to bottom of gulch, over cliffs. Chaining being impracticable, triangulate as described as follows, and as shown on the diagram hereon:



Leave flag at sec. cor. From point ahead on sec. line, measure a base, East, 3.04 chs. which is as long a base as it is practicable to chain. From E. end of base, flag brs. S. 5°43' W.

Included angles are 84°17', 5°43' and 90°00', the sum of which is 180°00'.

Vertical angle from sec. cor. to triangulation point on sec. line is - 1/2°.

Triangulated dist. on sec. line is obtained by Tang. 84°17' x Base or 9.98931 x 3.64 chs. = 36.36 chs.

- 16.00 (Approximate) Gulch, course N. 75° W. Ascend 550 ft. to
- 36.36 Triangulation point, at the right rim of gulch, bearing NW. & SE. Continue line & measurement by chaining. Asc. 30 ft. to
- 39.40 Point of spur, sloping S. 75° W. Descend slightly to
- 40.00 S. or left rim of Virgin river canyon, brs. NE. and SW. Set an iron post, 3 ft. long, 1 in. in diam., 12 ins. in the ground, with marked stone, for 1/4 sec. cor., and raise mound of stone around post, with brass cap, marked

S33 | S34
1921

55.57 Desc. 335 ft., over S. or left wall of Virgin River canyon, to Intersect the Arizona-Utah State Boundary Line, 26.90 chs. W. of the 19.463 mile mon., hereinbefore described, or 10.09 chs. E. of the 19th mile point, which is not monumented. At the point of intersection, Set an iron post, 3 ft. long, 2 ins. in diam., 24 ins. in the ground, for closing cor. of fracl. secs. 33 and 34, marked on brass cap,

UTAH
S33 | S34
T42N | R13W
C C
1921

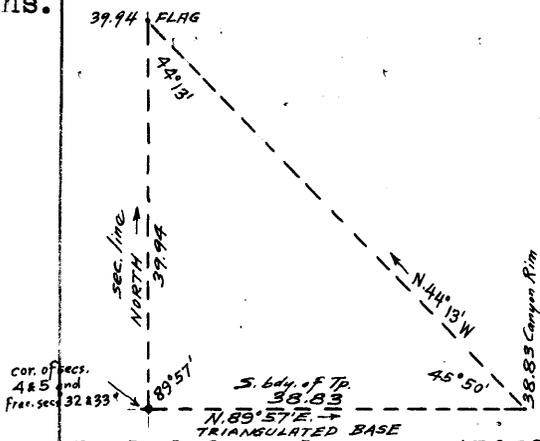
and raise mound of stone, 2 ft. base, 1 1/2 ft. high, S. of cor. Land, mountainous. Soil, rocky, 4th. rate. No timber. Undergrowth, black brush.

From cor. of secs. 4 and 5, and fracl. secs. 32 and 33, on S. bdy. of Tp., described in Book "H," North, on true line, bet. fracl. secs. 32 and 33. Over mountainous land, thru. scattering undergrowth. Over N. or right wall of Virgin River Canyon, brs. NE. & SW. Asc. 1250 ft. over cliffs to right rim of canyon, measurement by triangulation as described as follows, and as shown on the diagram hereon:

Subdivision of fracl. Township 42 North, Range 13 West.

7

Chains.



From sec. cor., measure a Base, N. 89°57' E., 38.83 chs. on the S. bdy. of Tp., to point on S. or left rim of Virgin River Canyon, as described in Book "H."

Set flag ahead on sec. line, near N. or right rim of Virgin River Canyon.

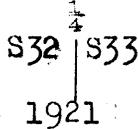
From E. end of base, flag brs. N. 44°13' W.

Included angles are 45°50', 89°57' and 44°13', the sum of which is 180°00'.

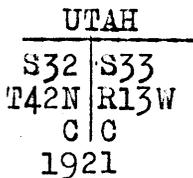
Vertical angle from sec. cor. to flag is + 25°.

Triangulated dist. on sec. line is obtained by
 $\text{sine } 45^\circ 50' \times \text{Base}$ or $.71732 \times 38.83 = 39.94$ chs.
 $\text{sine } 44^\circ 13' \quad .69737$

- 39.00 From flag point measure South 0.94 chs. to N. or right rim of Virgin River Canyon, brs. E. and W. Continue line and measurement, by chaining.
- 39.94 Flag point of above described triangulation.
- 40.00 Set an iron post, 3 ft. long, 1 in. in diam., 8 ins. in the ground, with marked stone, for $\frac{1}{4}$ sec. cor., and raise a mound of stone, around post, with brass cap, marked



- 43.00 Descend 20 ft. Gulch, course E. Ascend 30 ft. to
 - 55.64 Intersect the Arizona-Utah State Boundary Line, 10.47 chs. E. of the 18th mile mon., which is a limestone, 16x10x7 ins. above ground, firmly set, marked "UTAH" on N. face, "37NL" on E. face, "ARIZ." on S. face, and "18M" on W. face, and witnessed by a mound of stone E. of mon. No bearing trees.
- At the point of intersection,
 Set an iron post, 3 ft. long, 2 ins. in diam., 10 ins. in the ground, with marked stone, for closing cor. of fracl. secs. 32 and 33; and raise a mound of stone around post, with brass cap, marked



Land, mountainous.
 Soil, rocky, 4th rate.
 No timber.
 Undergrowth, black brush.

- 3.95 From the cor. of secs. 5 and 6, and fracl. secs. 31 and 32, on the S. bdy. of the Tp., described in Book "H," North, on true line, bet. fracl. secs. 31 and 32. Over mountainous land, thru. scattering undergrowth. Descend 35 ft.
- 20.00 Draw, course E. Ascend 60 ft.
- 20.00 Ridge, brs. E. and W. Descend 60 ft.
- 32.85 Gulch, course N. 45° E. Ascend 80 ft. to
- 40.00 Set an iron post, 3 ft. long, 1 in. in diam., 4 ins. in the ground, with marked stone, for $\frac{1}{4}$ sec. cor., and raise a mound of stone around post, with brass cap,

8 Subdivision lines of fracl. Township 42 North, Range 13 West.

Chains.

marked, ...

$\frac{1}{4}$
 S31 | S32
 1920

Ascend 35 ft.
 42.40 Spur, slopes E. Descend 130 ft. to
 55.70 Intersect the Arizona-Utah State Boundary Line, 10.52 chs.
 E. of the 17th mile mon., which is a limestone, 30x20x8
 ins., firmly set in a mound of stone, marked "UTAH" on
 N. face, "37NL" on E. face, "ARIZ." on S. face, and
 "17M" on W. face, and witnessed by a mound of stone, E. of
 cor. No bearing trees.
 At the point of intersection,
 Set an iron post, 3 ft. long, 2 ins. in diam., on bed rock,
 with marked stone, for closing cor. of fracl. secs. 31
 and 32, and raise a mound of stone around post, with
 brass cap, marked

UTAH
 S31 | S32
 T42N R13W
 C C
 1921

Land, mountainous.
 Soil, rocky, 4th rate.
 No timber.
 Undergrowth, black brush.

The continued satisfactory adjustment of the solar appa-
 ratus during the survey of the subdivision of this
 fractional township is shown by the final test of in-
 strument on April 29, 1921, as described in Book "H."

The cors. of that portion of the subdivision of T. 43 S.,
 R. 16 W., S. L. B. and M., Utah, erroneously extended across
 the Arizona-Utah State Boundary Line into Arizona, were
 obliterated during this survey.

GENERAL DESCRIPTION.

This fractional township consists of rough, mountainous
 land, drained by the Virgin River, and its tributaries.
 There are no roads or settlers in the township, nor is
 any of this land of any value for agricultural purposes.
 A sparse growth of yucca, sagebrush, cactus and black brush
 is found over the township. The only permanent water
 is in Virgin River.
 No evidence of valuable mineral can be found.

CERTIFICATE OF UNITED STATES CADASTRAL ENGINEER.

10

I, Joseph P. Davis, U. S. Cadastral Engineer, hereby certify upon honor that, in pursuance of special instructions received from the U. S. Surveyor General for Group 112, Arizona, bearing date of the 29th day of September, 1920, 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, retraced surveyed all those parts or portions of the Arizona-Utah State Boundary, and surveyed all those parts or portions of the East boundary, and Subdivision lines of

Fractional Township 42 North, Range 13 West,

of the Gila and Salt River

Base and Meridian, in the State of Arizona, which are represented in the foregoing field notes as having been executed by me, and under my direction; and that all the corners of retracement and 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 Group 112, Arizona

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

Place - Boise, Idaho

Date - January 1, 1922

Joseph P. Davis
U. S. Cadastral Engineer

APPROVAL.

OFFICE OF THE UNITED STATES SURVEYOR GENERAL,

Phoenix, Arizona, January 25, 1922.

The foregoing field notes of the retracement survey of part of the Arizona-Utah State Boundary (10 (20th mile), and of the survey of the East boundary and Subdivision lines of

Fractional Township 42 North, Range 13 West,

of the Gila and Salt River Base and Meridian,

in the State of Arizona,

executed by Joseph P. Davis, U. S. Cadastral Engineer,

under his special instructions dated September 29, 1920, for Grp. 112, Arizona, having been critically examined, and the necessary corrections and explanations made, the said field notes, retracements and the surveys they describe, are hereby approved.

Handwritten signature of the Surveyor General

U. S. 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.

U. S. Surveyor General