

TRIPLICATE
FIELD NOTES
OF THE
SURVEY AND ESTABLISHMENT
OF THE
WESTERN BOUNDARY OF NEW MEXICO,
BY
CHANDLER ROBBINS,
U. S. ASTRONOMER AND SURVEYOR.
1875.

2627

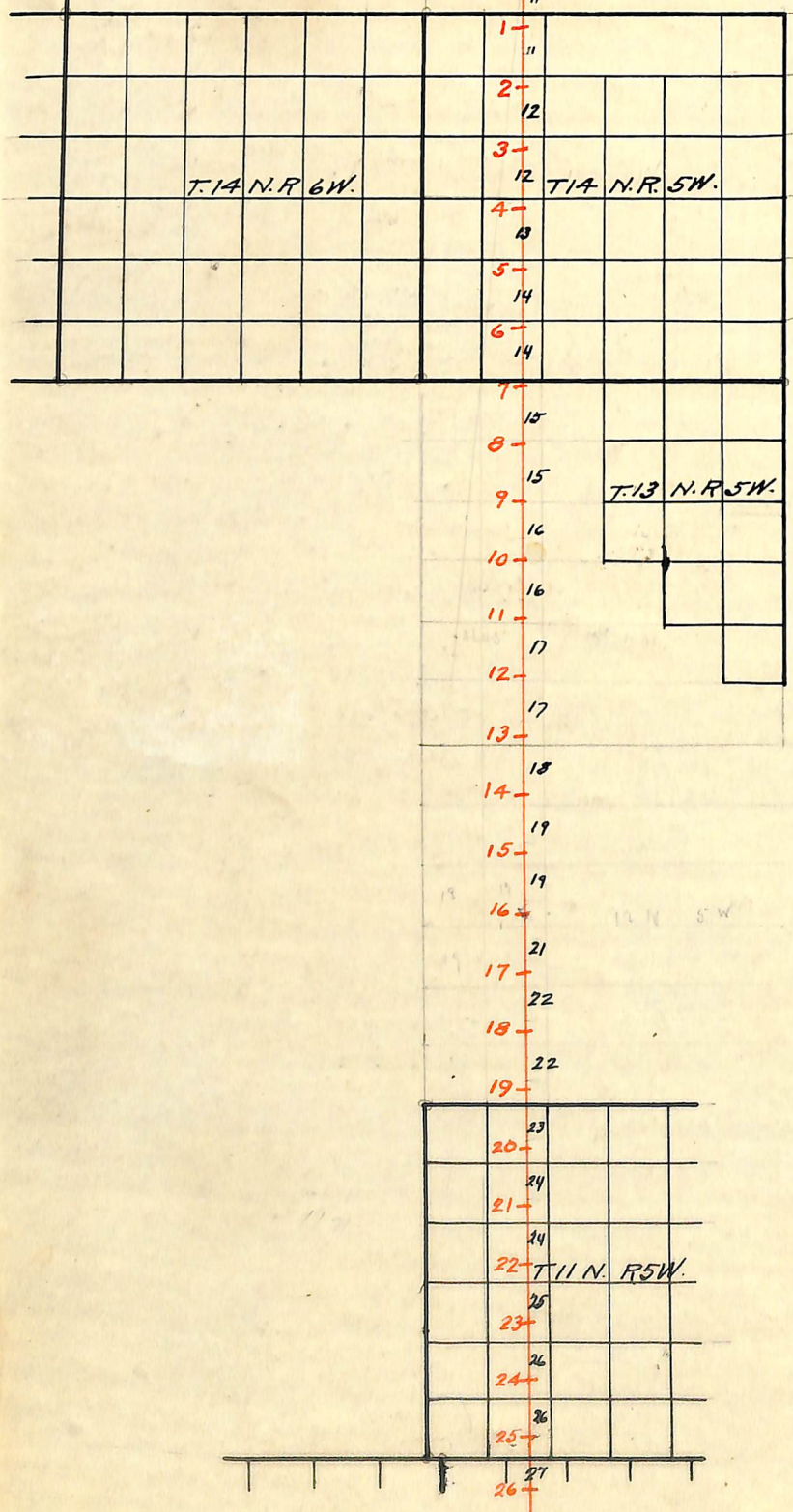
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BOOK 2627

Utah Colo.
Ariz. N. Mex

see Book 4210 for reconstruction
of this corner in 1931.

Page 6 for 1899 Page Cor.



Triplicate

Rec^d with Chandler Robbins letter of March 23 1876

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Navajo Special Base

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See Book 4210
for this mile man.

Part 1711

1st Std. Par. N.
R. 32 E.

T. 5N 1st Std R. 31 E. For N. 222

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T. 4 1/2 N. R. 32 E.

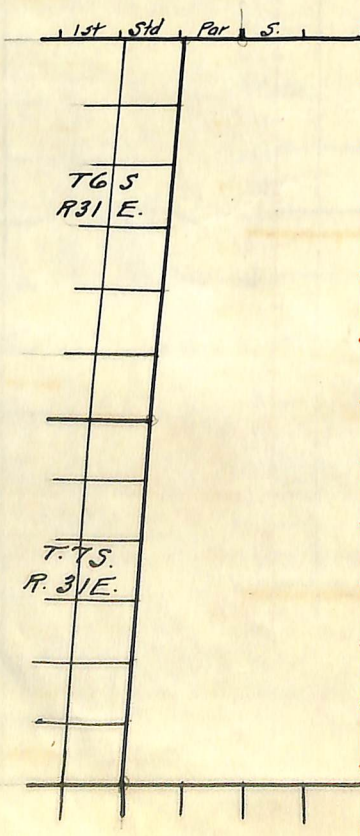
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G.S.R. Base Line

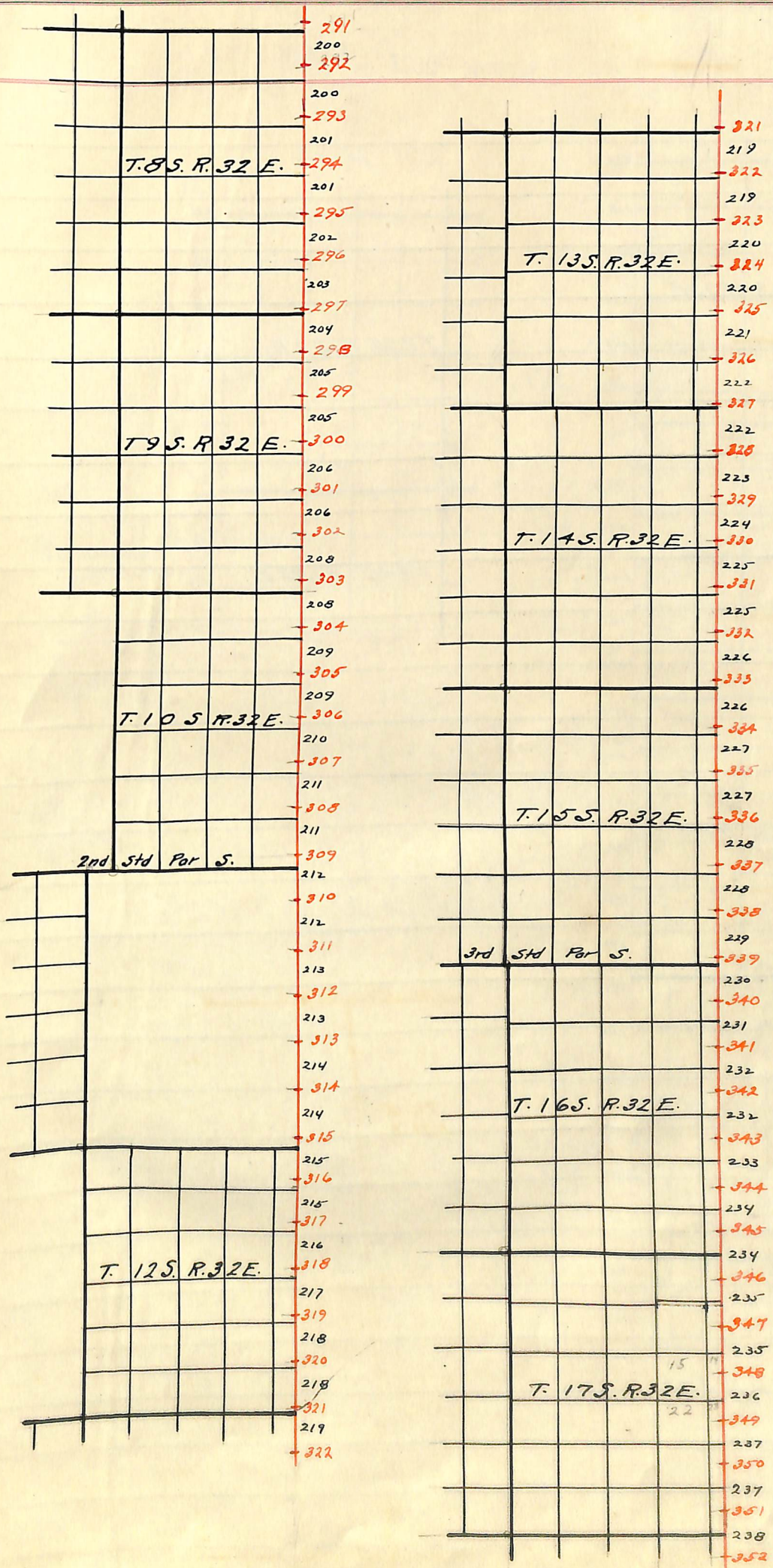
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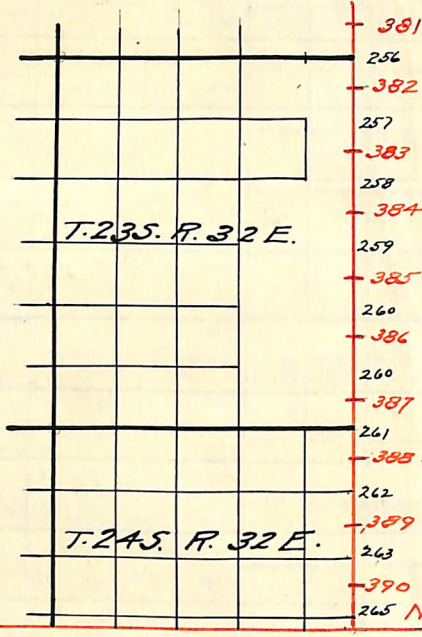
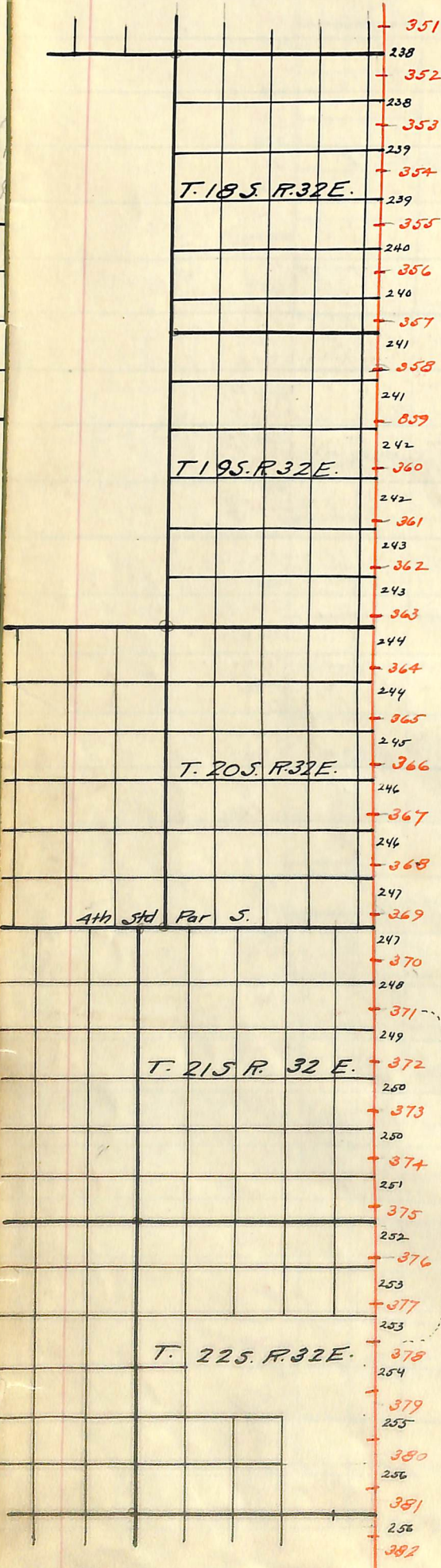
WESTERN BOUNDARY OF NEW MEXICO TERRITORY. 16



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WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

BOOK 2627 BOOK 2627



Retraced book 2475
213.61

Mexico

Retraced book 2475
540.20

BOOK 2627

Triplicate

Field Notes

of the
 Survey of the Western boundary
 of New Mexico, being that por-
 tion of the 32nd degree of Longi-
 tude West from Washington,
 included between the 37° and 31°20'
 parallel of North Latitude, by
 Charles Robbins U.S. Surveyor
 and Astronomer, under his contract
 bearing date April 12th 1875.

Oath of *L. Harrison*,
 To Richard Butler, and Antonio
 Trujillo do solemnly swear that we
 will faithfully execute the duties
 of *L. Harrison*; that we will level
 the chain upon uneven ground, and
 plumb the tally pins whether by
 sticking or dropping the same. that
 we will report the true distance to
 all notable objects, and the true
 length of all lines that we assist
 in measuring to the best of our
 skill and ability.

Richard Butler.
Antonio Trujillo.

Sworn to and subscribed before me
 at Fort Defiance. (Navajo Agency)
 Arizona, on this 12th day of July 1875.
L. Chandler Robbins.
 U.S. Astronomer and Sur-
 veyor, Western Boundary of New Mexico.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Oath of Flaquean, and Arceles,
 to Mauricio B. Read, Macedonio
 Ribera, and Jose de Jesus Herrera,
 Arceles, and Francisco Hunter,
 Flaquean, do solemnly swear
 that we will well and truly
 perform the duties of our
 respective positions, according
 to the instructions given us
 and to the best of our skill
 and ability.

Francisco Hunter, Flaquean,
 Mauricio B. Read, Arceles,
 Macedonio Ribera, Arceles,
 Jose de Jesus Herrera, Arceles,

Sworn to and subscribed before
 me at Fort Defiance, (Navajo
 Agency) Arizona, this 12th day
 of July 1875.

Charles Robbins,
 U.S. Astronomer and Sur-
 veyor, Western Boundary of New
 Mexico.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

In the absence of available telegraphic facilities for the determination of the longitude, I was directed by the Hon Commissioner of the General Land Office to "adopt the Southwestern Needle point or custom otherwise named Millou's Peak, situated in Township 11 North Range 3 East of the Navajo Special Meridian; The Geographical position of the needle point", as furnished me by the Hon Commissioner "is longitude $108^{\circ} 50' 26".1$ East from Greenwich, and $36^{\circ} 41' 40".3$ of North Latitude" (Special instructions General Land Office April 12, 1875). The 32° degree of longitude East from Washington corresponds $109^{\circ} 2' 59".25$ East from Greenwich. The meridian is situated $109^{\circ} 2' 59".25$, minus $108^{\circ} 50' 26".1 = 12' 33".24$. East from the Southwestern needle point. Adopting professional papers No 12 Corps of Engineers U.S. Army, from the table on page 132, I deduce $12' 33".24$, in $36^{\circ} 41' 40".3$ North Latitude to be equivalent to 20446.60 yards, which is equal to 11 miles 49 chs. and 39 lks. The calculation is as follows:

 $109^{\circ} 2' 59".25 -$ $108^{\circ} 50' 26".1 = 12' 33".24$

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

In Latitude $36^{\circ} 30' 10'' = 16328.0$ fms
 " " $37^{\circ} 10'' = 16222.4$ "
 Difference for $30'$ = 105.6 fms
 " " $1'' = 3.52$ "

$36^{\circ} 41' 40''$, 3. minus $36^{\circ} 30' = 11' 40'' = 11.672$.
 $11.672 \times 3.52 = 41.08$

In Latitude $36^{\circ} 30' 10'' = 16328.7$ fms.
41.08

In Latitude $36^{\circ} 41' 40''$, $37'' = 16286.92$ —
 $2'' = 3257.384$
 $30'' = 814.346$
 $3'' = 81.435$
 $.24'' = 6.515$

In Latitude $36^{\circ} 41' 40''$, $3.12' 33''.24 = 20446.60$ fms
 which equals 11 miles 49 chs 39 lks
 I therefore ran a line from the
 Southwestern needle point 11 miles
 49 chs 39 lks and set a stake, and
 thence North to a point 1 mile
 and 45.00 chs East of the cor. to
 Ariz. New Mexico, Utah and
 Colorado, as established by Elisha
 K. Darling, and 8.54 chs West of
 the 330 mile cor. of the Northern
 boundary of New Mexico. At
 this point I place initial mon-
 ument which consists of a shaft
 of hard sand stone 7 ft long,
 12 inches wide, and six (6) inches
 thick, set 3 ft in the ground, and

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

marked, on the N.E. "Col 37° N L"; on the S.E. "N. Mex 32° N L"; on the S.A. "Arizona"; on the N.A. "Utah 1875"; also deposited a hard sand stone $6 \times 4\frac{1}{2} \times 4$ marked 37° N L 32° N L, and nailed a mound of stones 5 ft in diameter and 3 ft high. From corner as thus established Hillous Peak bears S. 28° 17' E. the west N.A. point Sierra Gavisso mountains bears S. 53° 30' N about 12 miles dist; Shinerock on the Lata mountains bears N. 45° 16' E about 20 miles dist; Darling's Peak on the Lata mountains bears N. 36° 30' E about 20 miles dist, Conical point on North end of Moca bears N. 52° 7' E. 28.75 chains dist. Conical point on long Moca which bears N.E. and S.A. bears N. 37° 30' N about 60.00 chs. dist. The initial monument is situated on a Moca which rises abruptly from the San Juan River bottom. The ground is devoid of vegetation of any kind, and it was so difficult of access as to render it impossible to bring material for the acc-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

tion of the astronomical observa-
 tory. It was therefore necessary
 to establish the observatory at a
 point in the valley of the San
 Juan River, where timber was
 accessible, said point bears $N. 43^{\circ}$
 $52' E.$ and 49.62 chs dist from the
 initial monument. At this point
 a cotton-wood tree 28 inches in
 diameter was cut down, leaving
 a smooth stump on which to
 mount the instrument, from
 this stump a Meridian was
 set off 8.93 chs in length and
 marked at the North end by
 a cross cut in the center of
 the stump, at the South end
 by a sand stone $22 \times 12 \times 5$, in a
 mound of stone at the foot
 of the bluff, the stone being
 marked on the top with a
 cross. The stump was marked
 $37^{\circ} 0' 20'' N. L.$ from this stump
 bearing trees were marked, as
 follows; a cotton-wood 18 inches in
 diameter bears $N. 15^{\circ} 43' E.$ 88 lrs
 dist, cottonwood 10 inches in dia-
 meter bears $N. 73^{\circ} 10' N.$ 320 lrs dist
 cottonwood 10 inches in dia-
 meter bears $S. 67^{\circ} 48' N.$ 241 lrs dist

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

conical mound on river bluff
 bears S $7^{\circ} 20'$ E, 1780 lks dist.
 At this station observations were
 made for;
 Azimuth; see page. 330
 Latitude " " 349
 True " " 330
 July 10th 1875

5400.

South from "Initial monument"
 on true line

W, 14° E.

Chain compared and found cor-
 rect

67.00 Dry Arroyo 20 lks wide, course
 East and North

80.00 Set a sand stone $14 \times 12 \times 3$, 9 inches
 in earth, (stone ground, no pits)
 marked "1" on N. side, "32", "W.L." on
 the South; "ARIZ." on the West, and
 "N.M." on the East, from which a
 sandstone boulder $10 \times 7 \times 4$ ft bears
 N. 7° E. 60 lks dist. a sandstone
 boulder, $5 \times 4 \times 4$ ft bears West 9 lks
 dist; Surface broken, soil stony
 and northless.

5200.

South on 2nd mile true line;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Va. 14° E.

23.40 Dry Arroyo 30 hrs ride, course East
 80.00 Set a sandstone 18X12X3.14 inches in
 earth, marked "2" on N. side; "32° WL"
 on the South, "ARIZ" on the West;
 "NM" on the East, and dug pits N. & S.
 6ft dist, 2ft square, 12 inches deep
 A round hill bears S 74° 43' N, about
 60 chs dist, a round flat topped
 hill bears N 79° 30' E, about 50.00 chs
 dist, Ground rolling, soil sandy
 3rd rate, a few mesquite bushes along
 the line.

5500.

South on 3rd mile two lines

Va. 14° E.

80.00 Set a sandstone 18X12X3.14 inches in
 earth, marked "3" on N side; "32° WL"
 on the South, "ARIZ" on the West;
 "NM" on the East, and dug pits
 N. and S. 6ft dist, 2ft square
 12 inches, deep, No natural ob-
 jects convenient for bearings
 Surface rolling, soil sandy, 2nd rate
 good gramma grass.

5725.

South on 4th mile two lines.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Ta. 14° E.

- 2.50 Foot of sandstone bluff, bears
E. and N. and ascend.
- 8.00 Top of same 75 ft high
- 80.00 Arroyo 20 hrs ride, course East
- 80.30 Set Nituel corner a sandstone 20X10X4,
15 inches in earth marked "4" WC
on N side, "32° WL" on the South
"ARIZ" on the West; "NM" on the
East, and dug pits N. and S.
6 ft dist, 2 ft square, and 12 inches
deep. No natural objects near
for bearings.
Surface broken and stony, soil
3rd rate.
-

6100.

South on 5th mile two hrs.

Ta. 14° E.

- 20.00 Arroyo 100 hrs ride, course East
- 80.00 Set a sandstone 18X10X4, 14 inches in
earth, marked "5" on the N. side; "32°
WL" on the South; "ARIZ" on the West;
"NM" on the East, and dug pits
N. and S. 6 ft dist, 2 ft square, and
12 inches, deep. No natural objects
convenient for bearings
Surface rolling and stony, soil
3rd rate
-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

South on 6th mile tree line.
Va. 14° E.

55.00 Arroyo 20 hrs ride, course East.

75.00 " 15 hrs ride, course S. E.

80.00 Set a sandstone 18x14x3. in a mound of stones marked, "6" on the N. side; "32° WL" on the South; "ARIZ" on the West; "NM" on the East. No natural objects convenient for bearings. Surface broken and stony. soil 3rd rate

Good gramma grass.
July 11th 1875.

South on 7th mile tree line
Va. 13° 57' E.

14.00 Foot of sandstone bluff 60 ft high & ascend.

20.00 Summit of same, course N. N. and S. E.

80.00 Set a sandstone 20x10x3, 15 inches in earth, marked "7" on North side "32° WL" on the South; "ARIZ" on the West; "NM" on the East, and dug pits N. and S. 6 ft, dist. 2 ft square and 12 inches deep. No natural objects convenient for bearings. Surface rolling, soil 2nd rate, grass good.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

South on 8th mile, true line.

Va. 13° 57' E.

23.00 Arroyo 20 hrs ride, course East.

80.00 Set a sandstone 20X12X5, 15 inches in the earth, marked "8" on the North side; "32° WL" on the South; "ARIZ" on the West; "NM" on the East, dug pits N. and S. 6ft dist 2ft, square, and 12 inches deep. From the corner a juniper tree 14 inches in diameter, bears S 20° N. 8 hrs dist. No other bearings convenient.

Surface rolling, soil sandy, 2nd rate.

South on the 9th mile true line.

Va. 13° 54' E.

26.00 Top of bluff, course E. and N. and descend.

29.00 Foot of same, bears E and N. 40 ft high.

63.00 Arroyo 60 hrs ride, course East

65.00 Indian trail, ^{course} N. N. and S. E.

80.00 Set a sandstone 24X10X4 18 inches in earth, marked "9" on North side; "32° WL" on the South; "ARIZ" on the West; "NM" on the East, and dug pits N and S, 6ft dist, 2ft square, 12 inches deep. No natural objects convenient for bearings. Surface broken and stony, soil 3rd rate.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

South on 10th mile true line.

Ta. 13° 54' E.

- 00.30 Indian trail N. N. and S. E.
 28.00 Foot of bluff 160 ft high and ascend.
 45.00 Top of same course E. and N.
 71.00 Begin descent of same.
 78.00 Foot of same course E. & N. and into valley.
 80.00 Set a sandstone 18x12x3.14 inches in
 earth, marked "10" on the North side;
 "32° W L" on the South; "ARIZ" on the
 West; "NM" on the East; dug pits
 N. and S. 6 ft dist. 2 ft square and
 12 inches deep. No natural objects
 convenient for bearings.
 Surface broken and stony, soil 3rd rate.

South on 11th mile, true line.

Ta. 13° 54' E.

- 53.30 Arroyo 25 hkl ride, course East.
 56.00 Indian trail bears E. and N.
 72.00 Arroyo 60 hkl ride, course East.
 80.00 Set a sandstone 26x14x5, 19 inches
 in earth, marked "11" on North side;
 "32° W L" on the South; "ARIZ" on the
 West; "NM" on the East; dug pits
 N. and S. 6 ft dist. 2 ft square and
 12 inches deep. No natural objects
 near for bearings.
 Surface rolling, soil sandy, 2nd rate, good grass

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

South on 12th mile, true line.
 Va. 13° 54' E.

42.00 Cutw sparse growth of Juniper and Piñon trees, bearing E. and N.

80.00 Set a sandstone 24X14X4, 18 inches in earth, marked "12" on North side; "32° WL" on the South; "ARIZ" on the West; "NM" on the East, dug pits N. and S. 6ft dist, 2ft square, and 12 inches deep. No natural objects convenient for bearings.

Surface rolling, soil 2nd rate, good grass and a few Juniper and Piñon trees.

Peak on the Cerro mountain S 73° 26' West from the cor.

9850.

South on 13th mile, true line.

Va. 13° 54' E.

11.00 Dry Arroyo 30 hrs wide, course N. E.

20.50 Dry Arroyo 50 hrs, wide, course N. N. E.

80.00 Set a sandstone 20X12X4, 15 inches in earth marked "13" on North side, "32° WL" on the South; "ARIZ" on the West; "NM" on the East, and dug pits, 6ft dist, 2ft square and 12 inches deep. No natural objects convenient for bearings.

Juniper and Piñon trees near

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

line
 Surface broken and stony soil 3rd
 rate.
 Peak on Ganso mountains bears
 N 85° N. from the cor.
 July 12th 1875.

10075.

South on 14th mile, two lines.
 Va. 13° 51' E.

- 20.00 Dry Arroyo 40 lbs wide, course East.
 - 25.60 Dry Arroyo 50 lbs wide, course East.
 - 31.20 North side of a rocky cañon course East.
 - 35.00 South side of same.
 - 40.00 North side of a rocky cañon, 5.50 chs wide, course E.
 - 60.00 North side of a rocky cañon 80 ft deep 6.30
chs wide, course East.
 - 79.70 North side of cañon 30 ft deep, 2.60 chs wide, course E.
 - 80.00 Set sandstone 24x12x4, 18 inches in
 earth, marked "14" on the North side;
 "32° W. L." on the South; "ARIZ" on the
 West; "N.M." on the East, stone set
 in a mound of stone.
 Nilson's Peak bears S 56° 42' E. No
 natural objects convenient for bear-
 ings.
 Surface broken and rocky, soil
 worthless, scattering juniper and
 Piñon trees.
-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
9300.		South on 15 th mile, true line. Ta. 13° 51' E
2.30		Leave cañon
4.50		North edge of a rocky cañon with precipitous sides, 100 ft deep, course
1.16		East, measure back to ^{0.16} thence measure West a base of 7.00 chs from which point the flag on line, on opposite side of cañon makes an angle of 13° 16'
		Perpendicular of 13° 16' = $4.2413177 \times 7 = 29.69$ chs. + 1.16 = 30.85
30.85		Leave cañon
31.00		North edge of steep rocky cañon, course E.
60.94		Leave cañon 240 ft deep.
67.69		Enter cañon 50 ft deep, course East
80.00		Set a sandstone 26x12x3, in a mound of stones, marked "15" on the North side, "32° W. L." on the South; "ARIZ" on the West; "N.M." on the East. Few scattering Piñon and juniper trees. No natural objects near for bearings.
		Very broken and rocky, scarcely any soil, line passing over the bare rocks.
9475.		South on 16 th mile, true line Ta 13° 57' E
0.00		Edge of cañon, set flag on line.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

- ow opposite side, measure base
5.00 chs West, from which point the
flag makes an angle of $9^{\circ}21'$
 $\text{Perpendicular of } 9^{\circ}21' = 6.0733979 \times 5.00 = 30.37 \text{ chs}$
 30.37 To South side of cañon 120 ft deep
course S. S. E.
- 38.00 North side of rocky cañon with per-
pendicular walls, course East, about
60 ft deep, set flag, on line, on op-
posite side + measure a base of 2.00 chs
West, from which point the flag
makes an angle of $12^{\circ}45'$
 $\text{Perpendicular of } 12^{\circ}45' = 4.4193641 \times 2 = 8.84 \text{ chs}$
 $+ 38.00 = 46.84$
- 46.84 South side of cañon
- 74.00 Near the foot of a perpendicular sand-
stone bluff, set flag in line on
the top, and measure a base of
4.00 chs East, from which point the
flag makes an angle of $17^{\circ}8'$
 $\text{Perpendicular of } 17^{\circ}8' = 3.2438346 \times 4.00 = 12.97 \text{ chs}$
 $+ 74.00 \text{ chs} = 86.97 \text{ chs}$ to the top of bluff.
- 80.00 Place for corner on the face of a
cliff, where it is impossible to es-
tablish it. I therefore set a *Natural*
corner 6.97 chs South of place for
^{the corner, it was a sandstone 18x12x3 pie}
 a mound of stone, marked "W.C. 16"
 on the North side; "32° W. L." on the
 South; "ARIZ." on the West; "NM" on
 the East;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

Surface very broken and stony
soil 3rd rate. No objects convenient
for bearings
Some scattering Piñon and ju-
uiper trees

9625

South on 17th mile, two lias.

Var. $13^{\circ} 57' E$.

6.97 Summit of sandstone bluff about 260 ft. high
course E and N

12.50 Indian trail course N, E and S, N .

34.00 Edge of rocky cañon course East and
descend

37.50 Bottom of cañon 75 ft deep

41.50 Leave cañon

62.00 Cañon course East.

64.50 Leave same about 60 ft deep

76.00 Cañon course East

79.20 Leave same about 40 ft deep.

80.00 Set a sandstone $18 \times 12 \times 3$ in a mound
of stone marked "17" on the North
side; "32" W.L." on the South; "ARIZ"
on the West; "NM" on the East;
Milsous Peak bears $S, 68^{\circ} 15' E$.

No natural objects convenient for
bearings.

Surface very broken and stony.
soil worthless. Scrub juniper and
Piñon trees.

July 13th 1875.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
9600.		South on 18 th mile, true line, Ba. 14° 9' East.
21.00		Ascend high bluff,
28.00		Summit of same N. E. and S. N.
55.60		Descend bluff course E. and N.
60.00		Foot of same,
80.00		Set a Sandstone 18X12X3 in a mound of stones, marked "18" on North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East. No natural objects convenient for bearings.
		Broken and stony, soil 3 rd rate Scrub juniper and Piñon trees,
9725.		South on 19 th mile, true line, Ba. 14° E.
3.00		North side of rocky cañon 100. hrs wide, 85 ft deep, course East,
8.40		Rocky cañon 60 hrs wide, 50 ft deep course East
37.00		Fork of two cañon one from S, 10° E. one from the West 60 ft, deep
41.50		Leave the same
80.00		Set a Lapis stone 24X10X4, 18 inches in earth, marked "19" on the North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

dug pits N. and S. 6 ft. distant;
2 ft square, and 12 inches deep.
Wilson Peak bears $77^{\circ} 16' E$. No
natural objects convenient for bear-
ings.

Surface broken and rocky, soil 3rd
rate, Scattering juniper and
Piñon trees.

9250. South on 20th mile, true line.
Va. $14^{\circ} E$.

- 31.00 Ascend round hill.
- 42.00 Leave the same.
- 80.00 Set a Granite stone $20 \times 12 \times 4$, 15 inches
in earth, marked "20" on the North
side; "32° W.L." on the South; "ARIZ." on
the West; and "N.M." on the East.
dug pits N. and S. 6 ft. dist. 2 ft.
square, and 12 inches deep.
A large isolated peak bears $S. 48^{\circ} 36' N$.
A small isolated peak bears $S. 31^{\circ} 52' E$.
A small isolated peak bears $S. 48^{\circ} 9' N$.
The peaks are of igneous rock, and
called Picachos or crestones.
No natural objects near for bear-
ings.
Timber, juniper and Piñon.
July 14th 1875.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

9275. South on 21st mile, two lines.
Va. 14° E.
- 59.00 Arroyo 40 lbs wide, course East.
- 65.50 Foot of a high rocky mesa with perpendicular sides of sandstone, course E. and N. I offset 21.00 chs West to avoid it, thence south.
- 80.00 Place for corner on Mesa, measure south 27.16 chs, thence East 21.00 chs, to line, and set for a Nituel corner. a sandstone 14X4X4, in a mound of stone, on a large rock marked "W.C. 21" on the North side; "32' W.L." on the South; "ARIZ" on the West; "N.M." on the East. A Sandstone pillar 6 ft, in diameter, and 10 ft, high, bears 35 lbs East, marked it "N.M. 1875"
- Surface broken, soil 3rd rate.
Large sage brush on line.
-

- 9075 South on the 22nd mile, two lines.
Va. 14° E.
- 27.16 Back East 21.00 chs, to line.
- 31.00 Arroyo 20 lbs wide, course East running water.
- 51.40 Nilson's Peak bears East, at this point I was 2 1/2 inches, West of the stake, which was set to mark

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
		<p>"N.M." on the East side; dug pits N. and S. 6ft dist. 2ft square. 12 inches deep. No natural objects convenient for bearings. Surface rolling, soil sandy, 3rd rate. No timber.</p> <hr/>
9225.		<p>South on 24th mile, two lines, Va. 14° 20' E.</p>
10.15		<p>A small round hill of igneous rock 4.00 chs. East of line.</p>
40.00		<p>Leave broken country, and enter high rolling prairie, course N. E. and S. N.</p>
80.00		<p>Set a sandstone 18x18x3. 14 inches in each, marked "24" on North side; "32° W. T." on South; "ARIZ" on the West; "N.M." on the East; dug pits ^{N. and S.} 6ft. dist. 2ft. square, and 12 inches deep. No natural objects convenient for bearings. Surface rolling, soil sandy. 2nd rate Kilrows Pear bears N. 78° 28' E. Large pear bears S. 85° 6' N.</p> <hr/>
9325.		<p>South on 25th mile, two lines.</p>

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Va. 14° 26' E.

- 20.00 Arroyo 5 chs, wide course N. N.
- 47.54 Indian trail bears E. and N.
- 80.00 Set a Sandstone 18x12x4. 14 inches in earth, marked "25" on the North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East; dug pits N. and S. 6ft. dist. 2ft. square. 12 inches deep.

No natural objects near for bearings.

Nilson's Peak bears N. 73° 51' E. A Sandstone column resembling a chimney rock, bears S. 84° 2' N.

Surface rolling. soil sandy. 2nd rate good grass.

9475.

South on the 26th mile. two lines.

Va. 14° 28' E.

- 74.40 Indian trail bears N. N. and S. E.
- 80.00 Set a Sandstone 18x14x3. 14 inches in earth, marked "26" on the North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East. dug pits N. and S. 6ft. dist. 2ft. square 12 inches deep.

No natural objects convenient for bearings.

Nilson's Peak bears N. 69° 22' E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
		<p>Shiny rock. (sandstone column, and a very prominent land mark) bears N. $89^{\circ} 38' N$.</p> <p>Surface rolling, soil sandy, 2nd rate. Good grass.</p> <hr/>
9450.		<p>South on the 27th mile, two line, Va. $14^{\circ} 5' E$.</p>
23.00		Indian trail bears N. E. and S. N.
80.00		<p>Set a Sandstone, 20x10x3, 15 inches in each, marked "27" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; dug pits, ^{N. and S.} 6 ft. dist. 2 ft square, and 12 inches in depth.</p> <p>Shiny rock. (sandstone column) bears N. $83^{\circ} 16' N$.</p> <p>No natural objects convenient for bearings.</p> <p>Surface rolling, soil sandy 2nd rate. Good grass.</p> <hr/>
9525.		<p>South on the 28th mile, two line, Va. $14^{\circ} 3' E$.</p>
17.36		Indian trail bears N. E. and S. N.
41.20		Indian trail bears N. E. and S. N.
53.00		Arroyo 140 lks wide, course West.
60.80		Indian trail bears N. N. E. and S. S. N.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

69.00 Indian trail bears N. N. E. and S. S. W.
 80.00 Set a Sandstone 18x14x3, 14 inches in
 earth, marked "28" on the North side;
 "32° W. L." on the South; "ARIZ" on the
 West; "N. M." on the East; dug pits
 N. and S. 6ft. dist. 2ft square, and
 12 inches deep.
 No natural objects convenient for
 bearings.
 Surface rolling. Soil sandy 2nd
 rate. Good grass.
 July 16th 1875.

9525. South on 29th mile. two lines.
 Va. 14° 6' E.
 21.00 Western foot of a round flat
 topped column of igneous rock,
 about 150 ft. in diameter, and about
 340 ft. high. bears East 146 deg; it is
 a very conspicuous land mark,
 standing alone on the prairie.
 80.00 Set a Sandstone 18x12x4, 14 inches
 in earth, marked "29" on North side;
 "32° W. L." on the South; "ARIZ" on the
 West; "N. M." on the East; dug pits
 N. and S. 6ft. dist. 2ft. square, and
 12 inches deep.
 No natural objects convenient for
 bearings

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Surface rolling. Soil sandy, 3rd rate.
Poor grass.

9125.

South on 30th mile, two lines.
Var. $14^{\circ} 6' E$.

0.10 Arroyo 30 hrs ride, course N. and N. N.

22.00 Leave same 40 hrs ride.

36.00 Indian trail bears N. E. and S. N.

80.00 Set a Sandstone $16 \times 14 \times 6$, 11 inches
in earth, marked "30" on North side;
"32° W. L." on South; "ARIZ" on the West;
"N. M." on the East; dug pits N.
and S. 6 ft. dist. 2 ft. square, and
12 inches deep.

No natural objects convenient
for bearings.

Surface rolling. Soil sandy 2nd
rate. Good grass.

Bald Peak on the Tuichas range
bears S. $20^{\circ} 57' E$.

9700.

South on 31st mile, two lines.
Var. $14^{\circ} 3' E$.

31.00 Arroyo 100 hrs, ride, course N. N.

40.20 Indian trail bears S. N. and N. E.

80.00 Set a Sandstone $18 \times 13 \times 4$, 14 inches
in earth, marked "31" on the North
side; "32° W. L." on the South;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

"ARIZ" on the West; "N.M." on the East; dug pits N. and S. 6 ft. dist. 2 ft. square, and 12 inches deep

Bald Peak on the Tuuicha mountains, bears S. $24^{\circ} 23' E$.

No natural objects convenient for bearings

Surface rolling. Soil sandy 2nd rate. Good grass.

9850.

South on 32nd mile, two lines,
Va. $14^{\circ} E$.

51.20 Amoyo course N. and N. N.

61.75 Leave the same 150 hrs side, water

80.00 Set a Sandstone $20 \times 14 \times 4$, 15 inches in earth, marked "32" on North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East; dug pits N. and S. 6 ft. dist. 2 ft square, and 12 inches deep.

No natural objects convenient for bearings.

Surface rolling. Soil sandy, 2nd rate. Good grass.

Observed Point. See page 328

July 17th 1875.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

9950. South on 33rd mile, true line.
 Va. 14° E.
- 27.00 Leave prairie E. and N. and enter broken country, near the foot of the Tuniicha mountains.
- 60.00 A Spur of the Tuniicha mountains bears S. 80° E. about 2 miles distant; another spur of the same bears S. 77° N. about 3 miles distant;
- 78.00 Bend of Arroyo course N. N.
- 80.00 Set a Sandstone 18x15x5, 14 inches in each, marked "33" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; dug pits, ^{N. and S.} 6 ft. dist., 2 ft square, 12 inches deep.
- Surface rolling. Soil sandy 2nd rate. A few juniper bushes along the Arroyo.

9950

South on 34th mile, true line.

Va. 14° E.

- 1.00 Leave Arroyo, course N. E. 50 lbs. side.
- 3.00 Enter bend of Arroyo, course N. N.
- 45.00 Leave Arroyo, course S. E. foot of the Tuniicha mountains and ascend.
- 60.00 Very broken country, impossible to chain, I therefore set flag

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

in line, on a hill and measure a base of 25.28 ch. East, from which point flag makes an angle of 12°

by tangent of 12° = $4.7046301 \times 25.28 = 118.93 =$ to the distance to flag.

80.00 The place for corner on a broken ledge impossible to establish. I therefore set a Nituel corner 20.00 ch North of the true place, where I set a trap rock 16x12x8, on stony ground, in a mound of stones, marked "W.C. 34" on the North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East; Surface broken, soil sandy 2nd rate, juniper and Piñon trees of a scrub by growth. No natural objects convenient for bearings.

10100. South on 35th mile, true line. Ca 14° E.

80.00 The place for corner on mountain slope, impracticable to establish. I therefore set Nituel corner 18.93 ch South of the true place, where I set a sandstone, 20x16x6 on stony ground, in a mound of stones;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

marked "W.C. 35" on the North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East; No natural objects convenient for bearings. Surface very rough and mountainous. A scrubby growth of Juniper and Piñon trees.

11000.

South on the 36th mile, true line.

Ca. 14° E.

18.93 To Summit of "log-back" bears E. and N.

19.50 Descend side of cañon

60.00 Foot of same. course N. E.

62.60 Begin ascent of cañon.

76.00 Leave cañon

80.00 Set a Sandstone 18X16X4, on stony ground, in a mound of stones marked "36" on the North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East;

No natural objects convenient for bearings.

Surface very broken and mountainous. Soil worthless.

Scrubby Juniper, Piñon and White Pine trees.

July 18th 1875.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
10975.		South on 37 th mile, true line. Va. 14° E.
20.20		Rocky cañon 600 lks wide, and 100 ft deep. course N. N.
80.00		Set a Sandstone 20X10X4, on stony ground, in a mound of stone marked "37" on the North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East;
		No natural objects convenient for bearings.
		Surface broken, mountainous and rocky. Soil worthless.
		Scrubby growth of juniper, Piñon and Palo.
11475.		South on 38 th mile, true line. Va 14° E.
4.00		Cañon 300 lks wide, course West.
20.80		Cañon 280 lks wide course West.
26.86		Cañon course N. N. Wall almost perpendicular; set flag on line on opposite side, and measure a base of 2.00 ch. East from which point the flag makes an angle of 7° 47'
		Cotangent of 7° 47' = $7.3160047 \times 2 = 14.63 =$ distance across cañon to flag, 14.63 + 26.86 = 41.49

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

- 41.49 Leave cañon 200 ft. deep.
 67.40 Indian trail: bears E. and N.
 72.00 Descend slope E. and N.
 80.00 Set a Sandstone 26X14X8, 19 inches
 in each, marked "38" on North side
 "32° W.L." on the South; "ARIZ" on the
 West; "N.M." on the East; dug pits
 N. and S. 6 ft. dist. 2 ft square, and
 12 inches deep.

No natural objects convenient for
 bearings.

Surface broken, mountainous and
 rocky. Soil 3rd rate.

Scrubby growth of Pine, juniper,
 cedar, and Piñon trees.

11450.

South on the 39th mile, true line,
 Va, 14° E.

11025.

12.00 Bottom of slope, and edge of ca-
 ñon 425 ft. deep, 1 barometric meas-
 urement) course S. E.

25.00 Leave cañon

36.00 Cañon 2.00 chs. wide and 120 ft
 deep, course N. E.

58.90 Edge of cañon, course N. E. the
 sides are precipitous, and 600 ft.
 high by barometer, it contains
 a small stream of water, and
 the walls are hollowed into

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

covered by its action; set flag in line on opposite side, and measure a base of 628 chs. East from which point flag makes an angle of $11^{\circ}23'$

\cotangent of $11^{\circ}23' = 4.9669037 \times 628 = 31.19$
 distance across the cañon, $58.90 + 31.19 = 90.09$

80.00 Place for corner in cañon, on precipitous slope impossible to establish. Set for a Witness corner 10.09 chs. South of this place, a Sandstone $24 \times 16 \times 8$ on rocky ground, in a mound of stones, marked "W.C. 39" on the North; "32° W.L." on the South; "ARIZ" on the West; and "N.M." on the East;
 No natural objects convenient for bearings.

Surface very broken, and mountainous. Soil worthless.

Scrubby growth of Piñon, Cedar, Juniper, and Piñon, and in cañon there is oak and soft maple.

July 19th 1875.

11600.

South on 40th mile. two lines.

Ca, $11^{\circ} E$ C.

16.09 Leave cañon course N. E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

11200. 41.00 Edge of cañon with perpendicular walls. thence measure back north on line, 7.71 chs, to enable me to get a base for triangulation

33.29 Set a flag on line, on opposite side of cañon and measure a base of 16.22 chs. Act; from which point the flag marked an angle of $10^{\circ}44'$

the tangent of $10^{\circ}44' = \frac{52755255 \times 16.22}{85.57} =$ distance to flag, $25.57 + 33.29 =$
 118.86 or 1 mile 38.86 chs.

80.00 Place for the corner in the cañon, impossible to establish. Surface very rough, and broken. 3rd rate soil. Timber, cedar, piñon, and oak brush.

South on the 41st mile, true line,
 Ta, $14^{\circ}6' E$.

11000. 38.86 Flag to which triangulation was made, from point in the preceding mile; at this point it is impossible either to get a base for triangulation, or to proceed further with ^{the} line, as the country is broken up with impass-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

sable cañons, therefore leave a flag on the line, at this point, which can be seen from higher ground which lays to the North of us, and measure an offset of 200.00 chs. West and thence, run South on the offset line, 3 miles and 20.00 chs. At the end of the triangulation and before the offset was made; viz; 40. miles and 38.86 chs, is the Eastern foot of a red Sandstone column called "Torona de Gigante" about 400. ft. high.

80.00 Place for corner among Sand stone breaks, very rough, and broken, impossible to enter.
 Timber, Piñon and Juniper.
 July 20th 1875.

South on the 42nd mile, offset line,
 by 14° E. S.

80.00 Place for corner in an inaccessible cañon which descends North, its sides are broken and precipitous and it is impossible to get near the line.
 Timber, White and Yellow pine.
 Piñon and Juniper.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

South on 43rd mile, offset line.
 Pa. 14° 6' E.

80.00 Place for corner in a bad cañon,
 impossible to establish.

Surface broken and rocky. Soil 3rd
 rate.

Timber, White and yellow pine,
 Piñon and juniper.

South on 44th mile, offset line.
 Pa. 14° 6' E.

58.87 Measure back East 200.121 chs,
 to line; from this point the
 flag set at 40. miles 38.87 chs. is
 visible, the .121 chs having been
 allowed for the divergence of the
 meridians, calculations as follows;

Offset made 40.486 miles $\times 52'' = 38' 5'' .27 =$ distance south

37° 00' 00'' = Latitude of initial point.

$\frac{38' 5'' .27}{36' 24' 54'' .73} =$ Latitude of point where offset was made

Return to line, at 43.74 miles $\times 52'' = 37' 54'' .48 =$ distance south.

37° 00' 00'' = Latitude of initial point.

$\frac{37' 54'' .48}{36' 22' 5'' .12} =$ Latitude of point where I returned to line.

As cosine of Latitude 36° 24' 54'' .73 A. S. = 0.0943468

: Longitude 200. chs = 2.3010300

:: Cosine of Latitude 36° 22' 5'' .12 = 9.9059170

: Required distance 200.121 = 2.3012938

Hence the divergence = .121 chs. or 12.1 Lks,
 Hence South on true line.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
80.00		<p>Set a Sandstone 20x16x4 15 inches in earth marked "44" on the North side; "32° W.L." on the South; "Ariz." on the West; "N.M." on the East; from which a Yellow pine 12 in. in dia- meter bears South 7 1/2 hrs dist. an oak 6 in. in diameter, bears S. 23° E. 10 hrs dist. an oak 8 in. in diameter bears S. 52° 12' N. 16 hrs dist. Surface broken. Soil 1st rate. Timber Yellow, and White pine, Aspen and Oak, with Oak brush, and excellent Gramma grass, July 21st 1875.</p> <hr/>
12700.		<p>South on 45° mile, true line, Va. 13° 45' E.</p>
0.00		Ascending slope of mountain peak.
0.71		Yellow pine 12 inches in diam.
12.12		Yellow pine 16 inches in diam.
22.50		White pine 10 inches in diam.
34.08		Yellow pine 18 inches in diam.
34.38		Yellow pine 18 inches in diam.
39.00		Spruce pine 8 inches in diam.
41.70		Yellow pine 30 inches in diam.
42.50		Summit of slope bears E. and N.
49.00		Yellow pine 24 inches in diam.
65.00		Descend slope bears E. and N.
13100.	72.40	Bottom of the same.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
80.00		<p>Set a Sandstone 24X10X5 on level ground, in a mound of stones, marked "45" on the North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East;</p> <p>No natural objects convenient for bearings.</p> <p>Land rolling. Soil 1st rate;</p> <p>Trees White and Yellow pine Aspen, and Oak, with Oak brush.</p> <p>Excellent grass.</p> <p>July 22nd 1875.</p>
13000.		<p>South on 46th mile, true line. Pa. 13° 52' E.</p>
13080.	2.50	Leave Gulch bears East.
	7.75	Oak 10 inches in diam.
	9.60	Aspen 5 inches in diam.
	10.70	Aspen 10 inches in diam.
	11.80	Indian trail bears N. N. and S. E.
	13.00	Descend into valley.
	30.50	Bottom of valley, descend S. N. a Spring bears East 25 hrs, dist.
	61.19	Spruce pine 18 inches in diam.
	66.06	Aspen 10 inches in diam.
	66.21	Aspen 13 inches in diam.
	70.00	Leave valley.
	80.00	Set a Sandstone 24X12X5 in a mound of stones, marked.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
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"46" on the North; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East; from which a Yellow pine 24 inches in diam, S. 30° 45' N. 53 lks dist, a Yellow pine 24 inches in diam, bears S. 31° N. 105 lks dist; a Yellow pine 20 inches in diam, bears N. 18° 5' N, 103 lks dist,

Surface rolling and mountainous. Soil 2nd rate

Trees white, yellow and spruce pines, aspen and oak, with undergrowth of same, excellent grass.

13000.

South on 47th mile, true line, Va. 13° 52' E.

16.74 An Oak 9 inches in diam.
 29.68 Astronomical Station, No 2, Observations were made for
 Azimuth; See page 330
 Latitude; " " 350
 Time; " " 330

July 23rd and 24th 1875.

13380.

29.68 Astronomical monument No 2, consisting of a hard sandstone 6.5 ft. long and 18x9 inches. Set in the ground and stone, 2 1/2 ft. deep, and railed mound of stone 5 ft, in

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

diameter, and 3ft. high, marked "46.37" and "36° 20' N.L." on the North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East; and "A.S. 1875" on the top. From which an Aspen 14 inches in diameter, bears S. 26° 53' N. 77 lbs. dist., a white pine 20 inches in diameter, bears N. 50° 22' E. 87 lbs. dist., White pine 18 inches in diameter, bears S 88° 52' N. 144 lbs. dist.

- 41.00 Aspen 12 inches in diameter.
- 44.12 Aspen 15 inches in diameter.
- 51.42 White pine 6 inches in diameter.
- 54.00 Yellow pine 18 inches in diameter.
- 68.70 Descend ledge of metamorphic rock bears N. E. and S. N.
- 80.00 Set a sandstone 18x16x3. in a mound of stones, marked "47" on the North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East; from which a yellow pine 18 inches in diameter, bears N. 13° 30' E. 240 lbs dist.
- An Aspen 8 inches in diameter, bears S. 31° 32' N. 267 lbs dist; 3 forked Aspen 12 inches in diameter, bears S. 77° 52' E. 280 lbs dist.
- Surface rolling. Soil 2nd rate. Timber, white, yellow and spruce pine, aspen and oak with

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

undergrowth of same, Excellent
gramma grass.
July 24th 1875.

13175. South on 48th mile, true line.
Va. 14° E.

16.75 Yellow pine 36 inches in diam.
39.50 Indian trail bears E. and N.
80.00 Set a Sandston 28X18X3, in a
mound of stones, marked "48" on the
North side; "32° W.L." on the South;
"ARIZ" on the West; "N.M." on the East;
from which a yellow pine 14 inches
in diam, bears S. 38° N. 41 lks. dist;
Yellow pine 16 inches in diam. bears
N. 79° 30' N. 68 lks dist; Yellow pine 42
inches in diam, bears S. 42° 29' E. 42
lks dist.
Surface rolling. Soil 2nd rate.
Timber yellow and white pine, as
fir and oak bush.
Good gramma grass.

13125. South on 49th mile, true line.
Va. 14° E.

26.10 Descend into valley.
12850 41.50 Bottom of valley, and a few lks.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

ride, course West.

42.65 Leave Gulch trail E. and N.

63.80 Descend into valley.

86.00 Set a Sandstone $24 \times 12 \times 4$ in a mound of stone, marked, "49" on the North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East; from which a yellow pine 32 inches in diam. bears S. $31^{\circ} 35' E.$ 64 hrs. dist. yellow pine 28 inches in diam. bears S. $22^{\circ} 28' N.$ 43 hrs. dist. yellow pine 28 inches in diam. bears S. $51^{\circ} N.$ 47 $\frac{1}{2}$ hrs. dist.

Surface rolling. Soil 2nd rate.
Timber white and yellow pine oak. and aspen.
Excellent gamma grass.

12525.

South on 50th mile, two hrs.
To. $14^{\circ} E.$

3.60 Bottom of valley, descend East.

10.98 Yellow pine 34 inches in diam.

14.05 White pine 13 inches in diam.

19.71 White pine 5 inches in diam.

45.45 White pine 14 inches in diam. and descend mountain slope.

73.30 White pine 11 inches in diam.

86.00 Set a Sandstone $20 \times 16 \times 4$ in a

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

mound of stones, marked "50" on the North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East; from which a yellow pine, bears S. 67° 30' N. 57 lks dist. yellow pine 22 inches in diam, bears N. 76° N. 43 lks. dist. yellow pine 21 inches in diam, bears S. 82° E. 89 lks dist.

Surface rolling, Soil 2nd rate, Timber, white, yellow and spruce pine, oak and aspen bush. Excellent grass.

12650

South on 51st mile, two lks.

Pa. 14° E.

18.00 Indian trail course E. and N.

65.00 Yellow pine 36 inches in diam.

79.30 Oak 4 inches in diam.

80.00 Set a Sandstone 18X12X4, in a mound of stones, marked "51" on the North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East; from which a yellow pine 24 inches in diam, bears N. 67° 30' E. 57 lks, dist, a yellow pine 30 inches in diam, bears S. 65° 5' E. 113 lks, dist, a yellow pine 40 inches in diam, bears S. 63° E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

139 lks dist;

Surface broken and stony Soil 3rd rate.

Timber, White, yellow, and spruce pine, Oak with undergrowth of the same.

Excellent grass.

11500.

South on 52nd mile, two lks,

Ta, 14° E.

1.00 Foot of mountain bears N. E. ^{and} S. N. and cuts valley.

1.45 Brook 5 lks. side, course S. E.

22.50 Brook 15 lks. side, course S. N. and S.

29.30 Leave same, course S. and S. N.

53.30 Indian trail course N. N. N. ^{and} S. S. E.

65.00 Bend of creek, course S. E. and S.

68.00 Leave bend, course S. and S. N.

78.30 Brook 2 lks. side, course N. E.

80.00 Set a sandstone 20X14X4. in a mound of stones marked. "52" on the North side; "32° W. L." on the South; "ARIZ" on the West; "N. M." on the East; from which a yellow pine 24 inches in diam. bears S. 78° N. 27 lks. dist; a yellow pine 24 inches in diam. bears N. 40° E. 211 lks. dist, a yellow pine 26 inches in diam. bears N. 53° 10' N. 134 lks.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

dist.

Surface rolling. Soil 2nd rate.
Timber, white and yellow pine, cot-
tonwood, and willow, with under-
growth of same.

Most excellent grass.

11400.

South on 53rd mile, true line.

Va. 14° 36' E.

6.00 Indian trail bears N. E. and S. N.

20.00 Same bears N. N. and S. E.

58.60 Yellow pine 20 inches in diam.

73.84 Yellow pine 22 inches in diam.

80.00 Set a Sandstone 14X10X10 in a
mound of stones, marked, "53" on the
North side; "32° W.L." on the South;
"ARIZ" on the West; "N.M." on the
East; from which a yellow pine 20
inches in diam, bears N. 80° E. 27 lks.
dist; a yellow pine 18 inches in diam,
bears N. 18° 12' E. 103 1/2 lks. dist; yellow
pine 14 inches in diam, bears N. 87° 10' N.
181 lks. dist;

Surface gently rolling. Soil 2nd rate.
Yellow pine, oak, cottonwood and wil-
low, timber.

Most excellent grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

11380. South on 54th mile, two lias.
 Va. 14° 36' E.
- 15.54 Yellow pine 22 inches in diam.
 16.00 Indian trail bears E. and N.
 20.18 Yellow pine 24 inches in diam.
 24.20 Brook 5 lias, wide course N. & S.
 35.00 Yellow pine 5 inches in diam.
 51.00 Yellow pine 36 inches in diam.
 72.50 Brook 1 lias, wide course N. & S.
 80.00 Set a Sandstone 24x12x4 in a mound of stones, marked "54" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; from which a yellow pine 26 inches in diam. bears N. 8° 30' E. 115 lias. dist; yellow pine 28 inches in diam. bears S. 73° 56' E. 99 lias. dist; an oak 8 inches in diam. bears S. 39° 15' N. 148 lias. dist;
- Surface gently rolling, Soil 2nd rate. Timber. pine, oak, and cottonwood. Most excellent grass.
- July 25th 1875.
-

11650. South on 55th mile, two lias.
 Va. 14° 40' E.
- 2.50 Open meadow or vega, bears E. and N.
 22.00 Leave same.
 61.97 Foot of mountain (a spur of the

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Truicha range) bears N. E. and S. N.
and accord.

71.80 Yellow pine 15 inches in diam.

80.00 Set a Sandstone 24x12x6. in a
mound of stones, marked "55" on
the North; "32° W.L." on the South;
"ARIZ." on the West; "N.M." on the
East; from which a yellow pine
16 inches in diam. bears N. 17° 16' E.
44 lbs. dist.; a yellow pine 26 inches
in diam. bears N. 1° 30' N. 25 lbs. dist.;
an oak 8 inches in diam. bears
S. 34° E. 34 lbs. dist.

Surface rolling, soil 2nd rate,
Timber, pine and oak, with under-
growth of same.
Excellent grass.

12/25.

South on 56th mile, tree line.

Va. 15° E.

1.30 Yellow pine 13 inches in diam.

15.00 Indian trail bears E. and N.

28.08 Yellow pine 10 inches in diam.

80.00 Set a Basalt rock 16x10x8 in a
mound of stones marked "56" on
the North side; "32° W.L." on the South;
"ARIZ." on the West; "N.M." on the
East; from which a yellow pine
20 inches in diam. bears N. 61° 25' N.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
		<p>32 lks. dist; an oak 20 inches in diam. bears S. $37^{\circ} 56'$ E. 14 lks. dist; a yellow pine 12 inches in diam. bears S. $73^{\circ} 45'$ N. 45 lks. dist; Surface broken and rocky. Soil 3rd rate. Timber, yellow pine, oak, and aspen, with undergrowth of same. Excellent grass.</p>
12400.		<p>South on 57th mile, true line. Ta. $15^{\circ} 9'$ E.</p>
10.00		Summit of ridge, bears E. and N.
12.00		Descend into valley.
16.50		Brook 5 lks. wide, course N. & S.
20.80		Leave valley E. and N. and ascend.
27.12		Yellow pine 30 inches in diam.
28.04		Yellow pine 19 inches in diam.
36.50		Spring 6 lks. west of line
41.60		Yellow pine 21 inches in diam.
70.00		Summit of ridge, bears E. and N. and descend into valley.
80.00		Bottom of valley, descend S. & N. and set a Basalt rock $32 \times 10 \times 4$ in a mound of stones, marked "57" on the North side; " 32° W.L." on the South; "ARIZ." on the West, "N.M." on the East; from which an aspen 10 inches in diam. bears N. 68° N. 16 lks. dist. an aspen 16

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

inches in diam. bear S. $52^{\circ}30'N$. 29
 lks. dist; an aspen 4 inches in diam.
 bears N. $75^{\circ}E$. 20 lks. dist.

Surface broken, mountainous, rugged,
 and rocky. Soil 3rd rate.

Timber, white and yellow pine, oak,
 aspen and manzanita, with un-
 dergrowth of same.

Excellent grass.

12875.

South on 58th mile, true line.

Ba. $15^{\circ}21'E$

5.00 Leave valley, steep cliff. E. and N.

15.00 Gulch 80 ft. deep 4.00 chs. wide. course N.

25.00 Gulch 100 ft. deep 8.00 chs. wide. course N.

13075 60.00 Begin descent of mountain bears. E. and N.

80.00 Set a Trap rock $30 \times 10 \times 6$ in a mound
 of stones marked "58" on the North side;
 "32° W.L." on the South; "ARIZ." on the
 West; "N.M." on the East; from which
 a yellow pine 8 inches in diam. bears
 N. $52^{\circ}45'N$. 43 lks. dist; yellow pine
 13 inches in diam. bears S. $70^{\circ}N$. 88
 lks. dist; yellow pine 22 inches in
 diam. bears S. $1^{\circ}E$. 57 lks. dist;

Surface broken and rocky. Soil 3rd rate.
 Timber, oak and aspen bush. and
 yellow pine.

Excellent grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

- | Altitude. | Chains. |
|-----------|---|
| 12950. | South on 59 th mile, two lines,
Pa. 14° 30' E. |
| 6.70 | Edge of a Basalt cliff, bears E and N. it is a perpendicular wall, about 750 ft. high which is the south edge of the mountain, as it is impossible ^{to} get a base at this point for triangulation I set a flag in line at this point, and also set another flag in line, on the plain below, and go to the plain. |
| 80.00 | Place for corner on inaccessible slope.
Surface broken and rocky. Soil worthless.
Timber, cedar, juniper pine and fir |

South on 60th mile, two lines.
Pa. 14° 30' E.

At point in line, where the flag was set (from 6.70 chs. on the 59th mile) I measure a base of 28.00 chs. East, to a point from which the flag in line on the crest of the mountain bears N. 12° 44' N.

Perpendicular of 12° 44' = $4,4253439 \times 28 = 123,91$ chs.
= distance to flag on the crest of the mountain + 6.70 chs. = 130,61 chs. total

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

- distance from the last monument
- 40.00 Foot of Tuuicha mountain course E. and N.
- 40.60 Creek 80 lks. wide course West. running north.
- 50.61 Point from which the triangulation was made.
- 54.60 Enter Arroyo 80 lks. wide. course N. and N.E.
- 68.56 Leave the same. course N. and N.E.
- 80.00 Set a Sandstone 20X10X3 in a mound of stones marked "60" on the North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East; from which a yellow pine 24 inches in diam. bears S. 19° N. 27 lks. dist; a yellow pine 24 inches in diam. bears S. 84° 3' N. 92 lks. dist; yellow pine 21 inches in diam. bears S. 23° 5' E. 55 lks. dist;
- Surface broken and stony. Soil 3rd rate. Timber, yellow pine, juniper, and piñon. And willow along the creek.
- July 26th 1875.

11400.

South on 61st mile, two lks.

Ca. 14° 52' E.

10.00 Eastern slope of a double mound.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

line, bears west about 2 miles. Line
 near the foot of the slope.
 80.00 Set a Sandstone 20x15x4 in a
 mound of stones, marked "61" on
 the North side; "32" W.L. on the South;
 "ARIZ" on the West; "N.M." on the
 East; from which a yellow pine
 20 inches in diam. bears N. 15° N. 56 lks.
 dist; a yellow pine 18 inches in
 diam. bears N. 77° 10' E. 62 lks. dist;
 a yellow pine 18 inches in diam.
 bears N. 86° N. 110 lks. dist;
 Surface rolling. Soil 2nd rate.
 Timber, yellow pine, juniper, piñon
 and oak.
 Excellent gamma grass.

11660.

South on 62nd mile, two lines.
 Va. 14° E.

- 25.40 A pine tree 25 inches in diam.
 32.00 A pine tree 21 inches in diam.
 42.10 Brook 2 lks. wide course East.
 63.87 Edge of steep ledge of red sand-
 stone bears N. E. and S. N. Off set
 East 11 chs. thence South.
 80.00 Place for corner on inaccessible
 slope. Therefore set for a witness
 corner 10 chs. East of line, a sand-
 stone 24x12x4 in a mound of

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

stones marked "W.C. 62" on the North side; "32° W.L." on the South; "ARIZ" on the West; "N.M." on the East; from which an oak 9 inches in diam bears S. 43° E. 58 lks. dist; a cedar 13 inches in diam, bears S. 66° 56' N. 53 lks. dist; a yellow pine 16 inches in diam, bears N. 24° N. 130 lks. dist;

Surface broken and stony - Soil 3rd rate. Timber, white and yellow pine, oak, cedar, juniper and piñon. Good grass.

11500.

South on 63rd mile, offset line, Ta, 13° 40' E.

28.00 Return 10 ch. west to line

55.00 Leave foot of mountain, bear S. N. and enter rolling prairie, covered with sage bush.

66.00 Arroyo 20 lks. wide course East.

80.00 Set a Sandstone 20X10X8' 15 inches in earth, marked "63" on the North side; "32° W.L." on the South; "ARIZ.", on the West; "N.M." on the East; dug pits 6ft. dist; N. and S. 2ft square, and 12 inches deep.

No natural objects convenient for bearings.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Surface rolling. Soil 2nd rate.
 Good grass.
 Timber, pine, oak, juniper and
 piñon, with sage bush.

11420.

South on 64th mile, two lines.
 Ta. 13° 10' E.

80.00 Set a Sandstone 18x12x3, 14 inches
 in each, marked "64" on the North
 side; "32° W.L." on the South; "ARIZ."
 on the West; "N.M." on the East;
 dug pits N. and S. 6 ft. dist; 2 ft.
 square, and 12 inches deep.

No natural objects convenient for
 bearings.

Surface rolling. Soil 2nd rate.
 Timber, sage bush, and scattered
 piñon and juniper trees.
 Good grass.

11300.

South on 65th mile, two lines,
 Ta. 13° 39' E.

8.00 Indian trail bears E. and N.

80.00 Set a Trap rock 16x10x10 in a
 mound of stone, marked "65" on
 the North side; "32° W.L." on the
 South; "ARIZ." on the West; "N.M."
 on the East;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
		<p>No natural objects convenient for bearings. Surface gently rolling. Soil 2nd rate. A few cedars along lines.</p>
11275.		<p>South on 66th mile, two lines. Va. 13° 39' E.</p>
60.00		Indian trail bears E. and N.
71.00		Arroyo 20 hrs. ride course N.
80.00		<p>Set a Sandstone 16X12X6 11 inches in earth, marked "66" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft. square, and 12 inches deep.</p>
		<p>No natural objects convenient for bearings. Surface gently rolling. Soil 2nd rate. Sage bush, and good grass.</p>
11375.		<p>South on 67th mile, two lines. Va. 13° 39' E.</p>
11400.	60.00	<p>The "divide" between the waters of the Rio Puerco, of the West, and the cañon de Shelby.</p>
	80.00	<p>Set a Sandstone 18X10X8 14 inches in earth, marked, "67" on the North side; "32° W.L." on the South; "ARIZ."</p>

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

on the West; "N.M." on the East;
and pits N. and S. 6ft. dist; 2ft.
square, and 12 inches deep.

No natural objects convenient for
bearings.

Surface rolling. Soil 2nd rate.

Sage brush and a few scattered
piñon trees.

Observed polaris. See page. 328

July 27th 1875.

11300.

South on 68th mile, two lines.

Va. 13° 39' E.

32.00 Indian trail. course N. N. E. and S. S. W.

80.00 Set a Sandstone 18X18X8 14 inches in
the earth, marked "68" on the North
side; "32° W. L." on the South; "ARIZ."
on the West; "N.M." on the East;
and pits N. and S. 6ft. dist; 2ft.
square, and 12 inches deep.

No ^{natural} objects convenient for bearings.

Surface gently rolling. Soil 2nd rate.

A few scattered piñon trees on
first 1/2 mile.

11250.

South on 69th mile, two lines.

Va. 13° 39' E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

36.80 Arroyo 30 lks. wide, course S. E.
 72.00 Arroyo 40 lks. wide, course S. E.
 80.00 Set a Sandstone 20X12X4, 15 inches
 in earth, marked "69" on the
 North side; "32° W.L." on the South;
 "ARIZ." on the West; "N.M." on the
 East; dug pits N. and S. 6ft. dist;
 2 ft. square, and 12 inches deep.
 No natural objects convenient
 for bearings.
 Surface gently rolling. Soil 2nd rate.

11200.

South on "70th" mile, true line.
 Pa. 13° 40' E.

53.70 Indian trail bears E. and N.
 80.00 Set a sandstone 16X10X8, 11 inches
 in earth, marked "70" on the North
 side; "32° W.L." on the South; "ARIZ."
 on the West; "N.M." on the East;
 dug pits N. and S. 6ft. dist; 2ft.
 square, and 12 inches deep.
 No natural objects convenient for
 bearings.
 Surface gently rolling. Soil 2nd rate.

11250.

South on 71st mile, true line.
 Pa. 13° 40' E.

80.00 Set a Sandstone 16X12X3 11 inches

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

in earth, marked, "71" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft. square, and 12 inches deep.
 No natural objects convenient for bearings.
 Surface gently rolling. Soil 2nd rate.

11200. South on "72nd" mile, two lines.
 Va. 13° 40' E.
 17.00 Anoyo 10 hrs. ride, course E.
 80.00 Set a Sandstone 16x8x8, 11 inches in earth, marked, "72" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist, 2ft. square, 12 inches deep.
 No natural objects convenient for bearings.
 Surface gently rolling. Soil 2nd rate.

11200. South on 73rd mile, two lines.
 Va. 13° 40' E.
 45.20 Anoyo 15 hrs. ride, course E.
 80.00 Set a Sandstone 16x14x3, 11 inches in earth, marked "73" on the North side; "32° W.L." on the South;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

"ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist. 2ft. square, and 12 inches deep. No natural objects convenient for bearings. Surface gently rolling. Soil 2nd rate.

11180.

South on 74th mile, true line.

Pa. $13^{\circ} 40' E$.

31.00 Indian trail, course N. E. and S. W.

74.00 Western Edge of the bed of "Red Lake" bears N. E. and S. W.

The bed of the lake occupied about 200 acres, and contains water only in the rainy season.

80.00 The place for the corner falls in the bed of the lake. I therefore set for a Nituss corner, 6.00 ch. North a Sandstone $21 \times 14 \times 4$. 15 inches in earth, marked "W.C. 74", on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft. square. 12 inches deep. No natural objects convenient for bearings. Surface rolling. Soil 2nd rate. July 28th 1875.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
11100.		South on 75 th mile. two line, Va. 13° 40' E.
28.00		Leave lake. course N. E. and S. N.
80.00		A piñon tree 5 inches in diam. in place for corner; mark the tree, "75" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; from which a piñon 12 inches in diam. bears N. 32° E. 14 lks. dist; a piñon 6 inches in diam. bears N. 60° 15' N. 16 lks. dist; a piñon 16 inches in diam. bears N. 68° 10' E. 30 lks. dist; Shuck rock. bears S. 66° 31' E. Conical peak of igneous rock, bears S. 48° 7' E. Surface rolling. Soil 2 nd rate. Timber. small grove of piñon and juniper. near the monument,
11000.		South on 76 th mile. two line.
		Va. 13° 40' E.
30.00		Shuck rock. bears N. 84° 14' E. and Conical peak bears N. 66° 28' E.
80.00		Set a Sandstone. 24 X 10 X 3. 18 inches in the earth. marked. "76" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6 ft.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

dist; 2 ft. square. 12 inches deep.
 No natural objects convenient for
 bearings.
 Surface gently rolling. Soil 2nd rate.

11000.

South on 77th mile, two lines,
 Va. 13° 40' E.

51.00 Dry sandy water course, from
 Black Lake 2.00 chs. wide, course S. N.
 and S.

80.00 Set a Sandstone 24x12x4, 18 inches
 in the earth, marked "77" on the
 North side; "32° W. L." on the South;
 "ARIZ." on the West; "N.M." on the
 East; dug pits N. and S. 6 ft.
 dist; 2 ft. square. 12 inches deep.
 No natural objects convenient for
 bearings.
 Surface gently rolling. Soil 2nd rate.
 Timber, a very few scattered piñon
 trees.

11000.

South on 78th mile, two lines,
 Va. 13° 45' E.

80.00 Set a Sandstone 16x14x3, 11 inches
 in the earth, marked "78" on the
 North side; "32° W. L." on the South;
 "ARIZ." on the West; "N.M." on the

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

East; dug pits N. and S. 6ft. dist; 2ft. square. 12 inches deep. No natural objects. convenient for bearings.

Surface rolling. Soil sandy. 3rd rate. Sage brush. and a few piñon trees.

10980.

South on 79th mile. two lines.

Pa. 13° 45' E.

80.00 Set a Sandstone 30x16x3 22 inches in the earth. marked "79" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft. square. 12 inches deep. No natural objects. convenient for bearings.

Surface rolling. Soil sandy 3rd rate. Sage brush. and a few piñon trees.

10920.

South on 80th mile. two lines.

Pa. 13° 45' E.

41.30 Dry sandy water course. 140 hrs. wide course S.E.

61.60 Indian trail. bears N.E. and S.

80.00 Set a Sandstone 34x24x10 25 inches in the earth. marked "80" on the

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

North side; "32° W. L." on the South;
 "ARIZ." on the West; "N. M." on the
 East; dug pits N. and S. 6 ft.
 dist; 2 ft. square, 12 inches deep.
 No natural objects convenient
 for bearings.
 Surface gently rolling. Soil 2nd rate.

10880

South on 81st mile. two lines.
 Va. 13° 45' E.

42.00 Dug Arroyo 120 lbs. wide, course
 S. N.

80.00 Set a Sandstone 24 X 18 X 4. 18 inches
 in the earth, marked "81" on the
 North side; "32° W. L." on the South;
 "ARIZ." on the West; "N. M." on the
 East; dug pits N. and S. 6 ft
 dist; 2 ft. square, 12 inches deep.
 No natural objects convenient for
 bearings.
 Surface rolling. Soil 2nd rate.
 July 29th 1875.

10900.

South on 82nd mile, two lines.
 Va. 13° 45' E.

80.00 Set a Sandstone 18 X 10 X 5. 14 inches
 in the earth, marked "82" on the
 North side; "32° W. L." on the South;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

"ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6 ft. dist; 2 ft. square. 12 inches deep.

No natural objects convenient for bearings.

Surface gently rolling. 2nd rate soil. Sage brush.

10920. South on 83rd mile, two lines.

Pa. 13° 48' E.

42.75 Indian trail, bears N. E. and S. W.

80.00 Set a Sandstone 22 X 12 X 4, in a mound of stones, marked "83" on the North side; "32° W. L." on the South; "ARIZ." on the West; N.M. on the East; from which a piton 12 inches in diam. bears S. 71° W. 16 lbs. dist; a piton 10 inches in diam. bears N. 5° E. 10 lbs. dist; a quipon 4 inches in diam. bears S. 50° E. 19 lbs. dist.

Surface rolling and stony. Soil 3rd rate.

A few quipon, and piton trees.

11000. South on 84th mile, two lines.

Pa. 13° 45' E.

0.00 At foot of hill, bears S. W. and

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

N.E. As it is impracticable to chain over it, I offset 14.00 chs. West; thence South.

80.00 Set a Sandstone, 18X10X8 14.00 chs. West of true place, set it in a mound of stones, marked "W.C. 84" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;

No natural objects convenient for bearings.

Surface very rough, and rocky. Soil 3rd rate.

A few piñon, and juniper trees.

10900

South on 85th mile. true line.
 Va 13° 45' E.

37.50 East 14.00 chs. to line. thence South on line.

80.00 Set a Sandstone 32X8X8 .22 inches in earth, marked "85" on the North side; "32° W.L." on the South side; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep.

No natural objects convenient for bearings.

Surface broken, and stony. Soil 3rd rate.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

10925. South on 86th mile. true line.
 Va. 13° 48' E.
 77.26 Indian trail bears E. and N.
 80.00 Set a Sandstone 20X13X4. 15 inches
 in the earth; marked "86" on the
 North side; "32° W.L." on the South;
 "ARIZ." on the West; "N.M." on the
 East; dug pits N. and S. 6ft.
 dist; 2ft. square. 12 inches deep.
 No ^{natural} objects convenient for bearings.
 Surface gently rolling. Soil 2nd rate.

10575. South on 87th mile. true line.
 Va. 13° 39' E.
 13.66 Astronomical station, No 3. obser-
 vations were made for
 Azimuth. See page 331
 Latitude. See page 351
 Time. See page 331
 July 30th and 31st 1875.
 13.66 Astronomical monument, No 3,
 consisting of a Sandstone 36X14X8.
 27 inches in ^{the} earth; marked "86.14
 35° 45' N. L." on the North side;
 "32° W.L." on the South; "ARIZ." on
 the West; "N.M." on the East;
 an "A. S. 1875" on the top. dug pits ^{usual} as
 No natural objects convenient
 for bearings.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

- 18.00 Indian trail bears E. and N.
 32.62 Initial monument of the Navajo Indian Reservation, situated in Fort Defiance, bears N. 2 miles, 1.42 chs. dist.
 34.25 Indian trail bears E. and N.
 80.00 Set a Sandstone 18X10X8, 14 inches in the earth; marked "87" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6 ft. dist; 2 ft. square, 12 inches deep. No natural objects convenient for bearings.
 Surface level. Soil 1st rate.
 Grass good.
-

10575.

South on 88th mile, true line.
 Va. 13° 39' E.

- 3.20 Indian trail bears E. and N.
 43.40 Indian trail bears N. N. and S. E.
 56.00 Arroyo 20 hrs. wide, course West.
 80.00 Set a Sandstone 20X10X10, 15 inches in the earth, marked "88" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6 ft. dist; 2 ft. square, 12 inches deep. Highest point of "Black Rock".

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

(a ridge of igneous rock, about 200 ft. high and about $\frac{1}{4}$ of a mile long, extending N. N. and S. E.) bears S. $83^{\circ} 32' N.$

No natural objects convenient for bearings.

Surface level. Soil 1st rate. Grass good.

10575.

South on 89th mile. true line.
Ta. $13^{\circ} 39' E.$

11.35 Indian trail bears E. and N.

25.00 Ascend low ridge. bears E. and N.

37.40 Leave the same.

71.00 Indian trail bears S. N. and N. E.

80.00 Set a Sandstone $26 \times 14 \times 10$. 19 inches in the earth; marked "89" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; dug pits N. and S. 6 ft. dist 2 ft. square. 12 inches deep.

Highest point of "Black Rock".
bears N. $67^{\circ} 31' N.$

No natural objects convenient for bearings.

Surface rolling. Soil 2nd rate.
A few piñon trees on ridge.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

10540.

South on 90th mile, true line.
 Va. 13° 39' E.

22.74 Foot of Sandstone cliff, about
 180 ft. high, bears E. and N. Off-
 set 10.00 chs. west to avoid it,
 thence south on offset line.

35.81 East 10.00 chs. to line on top of
 cliff, thence south.

80.00 Set a Sandstone 24X12X5. in
 a mound of stones, marked "90"
 on the North side; "32° W.L." on
 the South; "ARIZ." on the West;
 "N.M." on the East;
 No natural objects near for bear-
 ings.

Surface broken, and rocky. Soil 3rd
 rate;

Scattering piñon, juniper, and
 oak trees.

10780.

South on 91st mile, true line.

Va. 13° 40' E.

80.00 Set a Sandstone 38X16X6. 25 inches
 in earth; marked, "91" on the North;
 "32° W.L." on the South; "ARIZ." on
 the West; "N.M." on the East,
 dug pits N. and S. 6 ft, dist. 2 ft.
 square. 12 inches deep.

No natural objects, convenient for

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

bearings.
Surface rolling. Soil sandy. 3rd rate.

10700. South on 92nd mile. true line.
Var. 13° 40' E.
- 35.00 Across 40 hrs. wide. course West.
- 80.00 Place for corner on an immense flat rock. cut across at the point, and set a Sandstone 24x10x6. in a mound of stones, marked "92" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N.M." on the East;
Surface very rough, and broken.
Soil 3rd rate.
No natural objects convenient for bearings.
Timber, scattering juniper and piñon
August. 1st 1875.
-

10450. South on 93rd mile. true line.
Var. 13° 39' E.
- 9.45 A wall of sandstone called "Haystack" about 100 ft. high, and 60 ft. in diam.;
Largest one of several bears S. 70° W.
- 17.00 Leave hilly ground, and enter

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

- Butler's pass. bears N. N. and S. E.
- 45.48 Road from Fort Huachuca to Fort Defiance, bears N. N. and S. E. On the north side of the road, set a Sandstone 28X14X8, 21 inches in earth, marked 92.57 on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug one pit North, 6ft. dist; 2ft square 12 inches deep.
- No natural objects convenient for bearings.
- 57.12 Arroyo 50 hrs. ride, course N. N.
- 61.09 Haystack Rock bears N. 26° N.
- 67.00 Indian trail bears N. N. and S. E.
- 80.00 Set a Sandstone 16X10X5, 11 inches in earth, marked "93" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep.
- No natural objects convenient for bearings.
- Surface rolling. Soil 2nd rate
Grass good.
Timber, scattering juniper, piñon and pine.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

10520.

South on 94th mile. two lines.

Va. 13° 40' E.

35.00 Leave pass. at the foot of a high rocky mesa, bears E. and N. Set a flag in line on the summit of the mesa, and measure a base of 5.00 ch. East to a point from which a line to the flag bears S. 15° 49' N. consequently the angle at the vertex = 15° 49'. $\cotangent\ of\ 15^{\circ}49' = 3.5300057 \times 5 = 17.65 = \text{distance to flag.}$
 $17.65 + 35.00 = 52.65$

52.65 Summit of mesa and begin descent.

78.80 Foot of mesa bears E. and N.

80.00 Set a sandstone 24x10x8, in a mound of stones, marked "94" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;

No natural objects convenient for bearings.

Surface broken and rocky. Soil worthless.

Timber, scattering piñon and juniper.

10575.

South on 95th mile. two lines.

Va. 13° 39' E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

21.30 Indian trail bears E. and N.
 59.00 Arroyo 15 lks. wide. course West.
 80.00 Set a Sandstone 36X18X8. in
 a mound of stones, marked,
 "95" on the North side; "32° W.L."
 on the South; "ARIZ." on the
 West; "N.M." on the East;
 No natural objects convenient
 for bearings.
 Surface broken, and rocky. Soil
 3rd rate.
 Timber, juniper and piñon
 Grass good.
 August 3rd 1875.

10700.

South on 96th mile. two lines.
 Va. 13° 40' E.

0.95 A Sandstone rock. 20 ft. long.
 8 ft. wide, and 8 ft. high on line.

80.00 Set a Sandstone 24X12X4. 18
 inches in earth, marked, "96" on
 the North side; "32° W.L." on the
 South; "ARIZ." on the West; "N.M."
 on the East; dug pits N. and
 S. 6 ft. dist; 2 ft. square, 12 inches
 deep.

No natural objects convenient
 for bearings.

Surface broken, and rocky. Soil 3rd rate.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Timber, juniper, and piñon.

10700.

South on 97th mile. true line.

Pa. 13° 40' E.

- 0.00 Leave timber bears E. and N.
 80.00 Set a Sandstone 18X14X5, 14
 inches in the earth, marked "97"
 on the North side; "32° W.L." on
 the South; "ARIZ." on the West;
 "N.M." on the East; dug pits ^{N. and S.}
 6ft. dist; 2ft. square, 12 inches deep.
 No natural objects convenient
 for bearings.
 Surface gently rolling. Soil sau-
 dy. 2nd rate.
-

10620.

South on 98th mile, true line,

Pa. 13° 40' E.

- 56.00 Enter timber bears E. and N.
 73.92 Indian trail bears N. N. and S. E.
 80.00 Set a Sandstone 20X14X3, 15 inches
 in the earth, marked "98" on the
 North side; "32° W.L." on the South;
 "ARIZ." on the West; "N.M." on the
 East; dug pits N. and S. 6ft.
 dist; 2ft. square, 12 inches deep.
 No natural objects convenient
 for bearings.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
		<p>Surface broken and stony. Soil 3rd rate. Timber, piñon, and juniper.</p> <hr/>
10200.		<p>South on 99th mile, two lines, Ta. 13° 40' E.</p>
80.00		<p>Set a Sandstone 16X14X4. 11 inches in the earth, marked "99" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6 ft. dist; 2 ft. square. 12 inches deep. No natural objects convenient for bearings. Surface rolling. Soil sandy. 2nd rate. Timber juniper, and piñon.</p> <hr/>
10150		<p>South on 100th mile, two lines, Ta. 13° 40' E.</p>
80.00		<p>Set a Sandstone 18X16X4. 14 inches in the earth, marked "100" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits ^{N. and S.} 6 ft. dist; 2 ft. square. 12 inches deep. No natural objects convenient for bearings.</p>

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Surface broken, and stony. Soil
3rd rate.

Timber, juniper and piñon, good
grass.

August 4th 1875.

9975.

South on 101st mile, two lines.

Va. 13° 40' E.

10.00 Ascend ledge bears E. and N.

50.00 Indian trail bears S. N. and N. E.

62.00 Ascend ledge bears E. and N.

75.60 Indian trail bears S. N. and N. E.

80.00 Set a sandstone 19 X 14 X 4, 14 inches
in the earth, marked "101" on the
North side; "32° W. L." on the South;
"ARIZ." on the West; "N. M." on the
East; dug pits N. and S. 6 ft.
dist; 2 ft. square, 12 inches deep.
No natural objects convenient
for bearings.

Surface broken and stony. Soil
3rd rate.

Timber, juniper and piñon.
Good grass.

40020.

South on 102nd mile, two lines.

Va. 13° 40' E.

5.00 Descend sandstone ledge, bears

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

38.00 N. E. and S. N. about 35 ft. high.
Ascend sandstone ledge, bears
N. N. and S. E.

55.00 Descend sandstone ledge, bears
E. and N.

80.00 Set a Sandstone 24X24X4.18
inches in the earth, marked "102"
on the North side; "32° W.L." on
the South; "ARIZ." on the West;
"N.M." on the East; dug pits
N. and S. 6 ft. dist; 2 ft square,
12 inches deep.

No natural objects convenient
for bearings.

Surface broken, all rocky. Soil 3rd
rate.

Timber, juniper and piñon, excel-
lent grass

10000.

South on 103rd mile, two lines.

Pa. 13°40' E.

3.20 Indian trail bears N. N. and S. E.

9.80 Arroyo 20 lbs. wide course S. E.

65.88 Indian trail bears N. N. and S. E.

80.00 Arroyo 15 lbs. wide course E. set
for a witness corner, 50 lbs. South
of two place, ^{a sandstone} 24X12X8, 18 inches
in the earth, marked "W.C. 103"
on the North side; "32° W.L." on

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

the South; "ARIZ." on the West;
"N.M." on the East; dug pits
N. and S. 6ft. dist; 2ft. square
12 inches deep.

No natural objects convenient for
bearings.

Surface broken and rocky. Soil 3rd
rate.

Timber juniper, and piñon, grass
good.

10100.

South on 104th mile, true line.

Pa. 13° 40' E.

29.65 Arroyo 15 hrs. wide course S. E.

80.00 Set a Sandstone 26X18X6, in a
mound of stone, marked "104"
on the North side; "32° W.L." on
the South; "ARIZ." on the West;
"N.M." on the East;

No natural objects convenient
for bearings.

Surface hilly and rocky. Soil 3rd
rate.

Timber, juniper, and piñon, excel-
lent grass.

10150.

South on 105th mile, true line.

Pa. 13° 40' E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
29.40		Arroyo 20 lks. wide. course S. E.
53.40		Arroyo 18 lks. wide course S. E.
80.00		Set a Sandstone. 34X20X8, 23
		inches in earth. marked "105"
		on the North side; "32° W. L." on
		the South; "ARIZ." on the West;
		"N. M." on the East; dug pits
		N. and S. 6ft. dist; 2ft. square
		12 inches deep.
		No natural objects convenient
		for bearings.
		Surface broken, and stony Soil
		3 rd rate.
		Timber. piñon, and juniper.
10350.		South on 106 th mile. true line.
		Pa. 13° 40' E.
12.80		Ascend rocky ridge.
27.00		Summit of same bears N. N.
		and S. E.
46.00		Descend ledge bears E. and N.
50.00		Foot of same.
51.60		Indian trail bears N. N. and
		S. E.
53.10		Arroyo 15 lks. wide course S. E.
62.80		Ascend hill bears E. and N.
70.00		Top of same.
80.00		Set a Sandstone 23X10X5. in
		a mound of stone, marked

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

"106" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;
 No natural objects convenient for bearings.
 Surface hilly and stony.
 Soil worthless.
 Timber, juniper and piñon.
 August 5th 1875.

10325.

South on 107th mile, true line.
 Va. 14° E.

- 17.30 Descend ledge, bears E. and N.
 22.00 Foot of same.
 35.00 Ascend bluff, bears N. N. and S. E.
 38.80 Descend bluff bears N. E. and S. N.
 48.50 Cañon course East.
 68.50 Leave same and ascend gentle slope, bears E. and N.
 80.00 Set a Sandstone 30X14X4, in a mound of stones, marked "107" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;
 No natural objects convenient for bearings.
 Surface broken, and stony.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Soil 3rd rate.Timber: juniper, piñon, with
a few yellow pine, and oak.

10400.

South on 108th mile, true line.
Va. 14° E.20.90 Rocky gorge 60 ft. deep, course
N. E.

27.50 Leave same 6.60 chs. wide.

55.00 Descend into cañon, course S. E.

78.00 Begin ascent of same

80.00 Set a Sandstone 18x16x12, in a
mound of stones, marked "108"
on the North side; "32° W. L." on the
South; "ARIZ." on the West; "N. M."
on the East; from which a
white pine 12 inches in diam.
bears N. 41° E. 24 kls. dist; a yellow
pine 20 inches in diam. bears
S. 86° N. 42 kls. dist; a yellow pine
12 inches in diam. bears S 35° 6' N.
61 kls. dist;Surface broken, Soil 3rd rate.Timber, juniper, piñon, pine, and
oak.

10325.

South on 109th mile, true line.
Va. 14° E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

1.95 A yellow pine 20 inches in diam.

3.20 Leave cañon course S.E.

80.00 Set a Sandstone 36x24x6, in a mound of stones, marked "109" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;

No natural objects convenient for bearings.

Surface broken, and stony, Soil 3rd rate.

Timber. juniper, piñon, and pine.

10700.

South on 110th mile, two lines.

Va. 13° 50' E.

3.00 Descend ledge of Sandstone about 700 ft. high, bears N.E. and S.W.

24.00 Foot of same.

9975, 28.30 Arroyo 200. hrs. wide, course S.E.

80.00 Set a Sandstone 45x30x8, in a mound of stones, marked "110" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;

No natural objects convenient for bearings.

Surface very rough, and broken, Soil 3rd rate.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Timber, quercus, piñon, and
fir.

10000.

South on 111th mile, true line,
Ta. 13° 50' E.

3.00 Leave timber and enter open
valley or cañada. Descend
S. E.

23.60 Leave valley, and enter timber
bars, E. and N.

80.00 Set a Sandstone 30 X 18 X 3, in a
mound of stones, marked "111"
on the North side; "32° W. L." on
the South; "ARIZ." on the West;
"N. M." on the East;

No natural objects convenient
for bearings.

Surface broken, and stony. Soil
3rd rate.

Timber quercus, and piñon.

10020.

South on 112th mile, true line,
Ta. 13° 50' E.

50.00 Descend ledge 120 ft. high, into
cañon, course East.

60.00 Begin ascent from cañon

72.50 Leave cañon

80.00 Set a Sandstone 26 X 16 X 6 in a

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

mound of stones, marked "1/2" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East;

No natural objects convenient for bearings.

Surface broken and stony. Soil 3rd rate.

Timber, juniper, and piñon.

10100. South on 113th mile, true line.
 Va. 13° 40' E.

50.00 Edge of cliff bears N. E. and S. W. about 500 ft. high.

As it is impossible to get a base for triangulation, I leave a flag at this point, and also set a flag in line, in the bottom below.

I then go to the flag in the bottom, and measure a base of 10.00 chs. East, from which point the flag on cliff bears N. 9° 55' N.
 Cotangent of $9^{\circ} 55' = 5.7199173 \times 10 = 57.20$
 I then extend the base to 13.00 chs. from which point flag on cliff bears N. 12° 47' N.

Cotangent of $12^{\circ} 47' = 4.4074504 \times 13 = 57.30$. The mean of the two results

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
		<p>rod 57.25 chs. as the distance to the flag. From the point in line from which the triangulation was made, I measure back South on line, and find that at</p>
68.00		<p>Foot of cliff, and enter the valley of the Rio. Puerco of the West. in the cañon called Kelenua</p>
80.00		<p>Set a Sandstone 20X10X8. in a mound of stone, marked "113" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East:</p> <p>No natural objects convenient for bearings.</p> <p>Surface on the mountain, broken and stony, soil 3rd rate, with juniper, and piñon trees.</p> <p>Surface in the valley level, soil 1st rate.</p> <p>Sage bush and grass, no timber.</p> <p>Observed polaris see page. 328</p> <p>August 6th 1875.</p> <hr/>
9600.		<p>South on 1/4th mile, two lines.</p> <p style="text-align: right;">Pa. 13° 40' E.</p>
27.25		<p>Point from which the preceding triangulation was made.</p>

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

57.00 Rio Puerco of the West, high sandy banks, muddy current 15 mi. wide, 2 inches deep. flows S. N. the river contains no water except in the rainy season.

77.00 Enter a bend of the river course E. and S.

80.00 Place for corner in the river, I therefore set for a Nitass corner, 3.30 chs. South of the two place, and on the North side of the road from Fort Huachuca N. Mexico to Prescott Arizona, a Sandstone 16x14x8, in a mound of stones marked "W.C. 114" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings.

Surface level, soil 1st rate, bottom covered with sage brush, and grass, no timber.

9500.

South on 115th mile, true line. Va. 13° 40' E.

2.00 Leave bend of river course S. N.

3.30 Mail road from Fort Huachuca N. M. to Prescott Ariz. bears N. E. and S. N.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

- 10.00 Bend of road course N. N. and S. E.
 12.20 Leave the same,
 13.00 Foot of mesa. bears N. E. and S. N.
 and ascend,
 47.00 Top of mesa about 400 ft. high.
 80.00 Sct. a Sandstone 16X12X5. in a
 mound of stone, marked "115" on
 the North side; "32° W. L." on the
 South; "ARIZ." on the West; "N.M."
 on the East;
 No natural objects convenient
 for bearings.
 Surface very rough. and broken.
 Soil northless.
 Timber, juniper, and piñon.

South on 116th mile, two lines.
 Va. 13°48' E.

- 80.00 Sct a Sandstone 28X12X5. in a
 mound of stone, marked "116"
 on the North side; "32° W. L." on
 the South; "ARIZ." on the West;
 "N.M." on the East;
 No natural objects convenient
 for bearings.
 Surface very rough and broken.
 Soil 3rd rate.
 Timber, juniper and piñon.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

South on 117^{th} mile, two lines,
 Va. $13^{\circ} 48' \text{E}$.

80.00 Set a Sandstone $24 \times 14 \times 4$ in a mound of stones, marked "117" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;

No natural objects convenient for bearings.

Surface somewhat broken, soil 2nd rate.
 Timber, juniper and piñon.
 August 7th 1875.

9900.

South on 118^{th} mile, two lines.
 Va. $13^{\circ} 50' \text{E}$.

26.76 Arroyo 40 lbs. wide course N. N.

41.00 Arroyo 40 lbs. wide course N. E.

80.00 Set a Sandstone $24 \times 10 \times 5$ in a mound of stones, marked "118" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;

No natural objects convenient for bearings.

Surface rolling, Soil 1st rate.
 Timber, juniper and piñon, good grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

South on 119th mile, true line,
 Va. $13^{\circ}50' E$.

4.20 Arroyo 20 hrs. wide course N. N.
 16.00 Leave Arroyo course N. E. and N.
 80.00 Set a Sandstone 16X10X8, in a
 mound of stones, marked "119" on
 the North side; "32° W.L." on the
 South; "ARIZ." on the West; "N.M."
 on the East;
 No natural objects convenient
 for bearings.
 Surface gently rolling, soil
 sandy, 2nd rate.
 Timber scattering, juniper, and
 piñon.
 August 8th 1875.

10250.

South on 120th mile, true line,
 Va. $13^{\circ}50' E$.

52.00 Ascend hill bears N. E. and S. N.
 63.00 Top of same.
 80.00 Set a Sandstone 24X10X5, 18 inches
 in the earth, marked "120" on the
 North side; "32° W.L." on the South;
 "ARIZ." on the West; "N.M." on the
 East; dug pits N. and S. 6 ft.
 dist; 2 ft. square, 12 inches deep.
 No natural objects convenient for
 bearings.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Surface rolling. soil sandy 2nd rate.
Timber, juniper and piñon. grass
excellent.

10309

South on 121st mile, two line.

Ca. 13° 50' E.

12.80 Indian trail bears N. N. and S. E.

80.00 Set a Sandstone 20X12X8. 15 inches
in each, marked "121" on the North
side; "32° W. L." on the South; "ARIZ."
on the West; "N. M." on the East;
dug pits N. and S. 6ft. dist. 2ft.
square. 12 inches deep.

No natural objects convenient
for bearings.

Surface rolling. soil sandy 2nd rate.
Timber juniper, and piñon.
grass excellent.

10450

South on 122nd mile, two line.

Ca. 13° 40' E.

5.50 Reced sandstone ridge, bears
E. and N.

19.00 Top of same.

80.00 Set a Sandstone 18X12X3. 14 inches
in the each, marked "122" on the
North side; "32° W. L." on the South;
"ARIZ." on the West; "N. M." on the

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

East; dug pits N. and S. 6ft. dist: 2ft. square. 12 inches deep. No natural objects convenient for bearings. Surface rolling. Soil sandy 2nd rate. Timber juniper, and piñon.

10450.

South on 123rd mile, true line. Va 13° 40' E.

- 8.00 Enter valley course E. and N.
 - 58.30 Leave same at the foot of a rocky point, and ascend the same.
 - 62.00 Commence descent.
 - 68.00 Enter valley bears N. E. and S. N.
 - 80.00 Set a sandstone 19x10x5. in a mound of stone, marked "123" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; No natural objects convenient for bearings. Surface rolling. Soil sandy 3rd rate. Timber juniper and piñon.
-

10500.

South on 124th mile, true line. Va. 13° 40' E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

- 0.00 Leave valley and ascend ridge.
 15.00 Summit of ridge. bears E. and N.
 80.00 Set a pinake post 4 inches square.
 4½ ft. long. 12 inches in earth, marked
 "124" on the North side; "32° W. L." on
 the South; "ARIZ." on the West;
 "N. M." on the East; deposited un-
 marked stones; dug pits N. and S. 6 ft.
 dist; 2 ft. square. 12 inches deep; and
 raised a mound of earth, 5 ft. in
 diam. 2½ ft. high.
 No natural objects convenient for
 bearings.
 Surface rolling. soil sandy 3rd rate.
 Timber. juniper, and piñon.
-

10600.

South on 125th mile. two lines.

Ta. 13° 24' E.

- 80.00 Set a juniper post 4 inches square.
 4½ ft. long. 12 inches in earth, un-
 marked "125" on the North side; "32° W. L."
 on the South; "ARIZ." on the West;
 "N. M." on the East; deposited un-
 marked stones; dug pits N. and S. 6 ft.
 dist; 2 ft. square. 12 inches deep; and
 raised a mound of earth, 5 ft. in
 diam. 2½ ft. high.
 No natural objects convenient
 for bearings.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Surface rolling, soil sandy, 3rd rate.

Timber, juniper, and piñon.
August 9th 1875.

10750.

South on 126th mile, true line,
Ta. 13° 24' E.

80.00 Set a juniper post 4 1/2 inches square, 4 1/2 ft. long, 12 inches in earth, marked "126th" on the North side, "32° W.L." on the South; "ARIZ." on the West, "N.M." on the East; deposited marked stones; dug pits N. and S. 6 ft. dist; 2 ft. square 12 inches deep; and raised a mound of earth 5 ft. in diam., 2 1/2 ft. high.

No natural objects convenient for bearings.

Surface rolling, soil, ^{sandy} 3rd rate.
Timber, juniper and piñon.

10725.

South on 127th mile, true line,
Ta. 13° 24' E.

80.00 Set a juniper post 4 1/2 inches square, 4 1/2 ft. long, 12 inches in earth, marked "127th" on the North side; "32° W.L." on the South; "ARIZ."

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

on the West; "N. M." on the East;
 deposited marked stone; dug pits
 N. and S. 6 ft. dist; 2 ft. square, 12
 inches deep; and raised a mound
 of earth 5 ft. in diam, 2 1/2 ft high.
 No natural objects convenient for
 bearings.

Surface rolling. soil sandy 3rd rate.
 Timber, juniper, and piñon.

10720.

South on 128th mile, true line.
 Ta. 13° 24' E.

80.00 A juniper tree 26 inches in diam
 in place, marked "128" on the
 North side; "32° W. L." on the South
 "ARIZ." on the West; "N. M." on the
 East;

No natural objects convenient
 for bearings.

Surface rolling. soil sandy 3rd rate.
 Timber, juniper and piñon.

10700.

South on 129th mile, true line.
 Ta 13° 24' E.

80.00 Set a juniper post 4 inches
 square. 4 1/2 ft. long, 12 inches in
 diam; marked "129" on the North
 side; "32° W. L." on the South;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

"ARIZ." on the West; "N.M." on the East; deposited marker stone; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep; and raised a mound of earth 5ft. in diam, 2½ft. high.

No natural objects convenient for bearings.

Surface rolling, Soil sandy 3rd rate.

Timber, juniper and piñon.

10750.

South on 130th mile, true line.
Va. 13°24'E.

16.50 Indian trail bears N. N. and S. E.

80.00 Set a juniper post 4½ inches square, 6ft. long, 12 inches in earth, marked "130" on the North side; "32' W. L." on the South; "ARIZ." on the West; "N.M." on the East; deposited marked stone; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep, and raised a mound of earth, 5ft. in diam, 2½ft. high.

No natural objects convenient for bearings.

Surface rolling, soil sandy 3rd rate.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Timber, juniper and piñon.

10550.

South on 131st mile, true line,
 Va. 13° 24' E.

80.00 Set a juniper post, 4 1/2 inches square, 6ft. long, 12 inches in earth, marked "131" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; deposited marked stone, 4 1/2 feet N. and S. 6ft. dist; 2ft. square, 12 inches deep; and raised a mound of earth, 5ft. in diam., 2 1/2 ft. high.

No natural objects convenient for bearings.

Surface rolling, soil sandy 3rd rate.

Timber, piñon and juniper.
 August 10th 1875.

10550.

South on 132nd mile, true line,
 Va. 13° 24' E.

80.00 Set a juniper post, 4 inches square, 6ft. long, 12 inches in earth, marked "132" on the North side, "32° W. L." on the South; "ARIZ." on the West; "N. M." on

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

the East; deposited marked stones; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep, and raised a mound of earth, 5ft. in diam. 2 1/2 ft. high. No natural objects convenient for bearings.
 Surface rolling, soil sandy 2nd rate.
 Timber, juniper and piñon.

10600.

South on 133rd mile, true line.
 Va. 13° 28' E.

80.00 Set a juniper post 5 inches square, 7ft. long, 12 inches in earth; marked "133" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; deposited marked stones; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep; and raised a mound of earth 5ft. in diam. 2 1/2 ft. high.
 Surface rolling, soil sandy 3rd rate.
 Timber, juniper, and piñon.
 No natural objects convenient for bearings.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

10650. South on 134th mile, true line.
 Pa. 13° 30' E.
- 32.42 Pueblo Zuñi bears East. 11 miles
 28.33 chs.
- 48.80 Indian trail bears East. and N. E.
- 80.00 A piñon tree 7 inches in diam.
 in place, marked "134" on the
 North side; "32° W. L." on the South;
 "ARIZ." on the West; "N. M." on
 the East:
- No natural objects convenient
 for bearings.
- Surface rolling, soil sandy 3rd
 rate.
- Timber, juniper, and piñon.
-

10625. South on 135th mile, true line.
 Pa. 13° 20' E.
- 80.00 A juniper tree 6 inches in
 diam. in place, marked "135" on
 the North side; "32° W. L." on the
 South; "ARIZ." on the West; "N. M."
 on the East;
- No natural objects convenient
 for bearings.
- Surface gently rolling, soil
 sandy, 3rd rate.
- Timber, juniper and piñon.
-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

10350.

South on 136th mile. two lines.
 Va. 13° 18' E.

80.00 Set a Sandstone 18X10X4. 14
 inches in each, marked "136"
 on the North side: "32° W. L." on
 the South: "ARIZ." on the West;
 "N.M." on the East; dug pits
 N and S. 6ft. dist; 2ft. square.
 12 inches deep.

Surface gently rolling, soil
 sandy 3rd rate.

Timber. juniper and piñon.

No natural objects convenient
 for bearings.

August 11th 1875.

10300.

South on 137th mile. two lines.
 Va. 13° 18' E.

16.20 Astronomical station No. 4.

Observations were made for		
Azimuth,	see page	331
	" "	352
Latitude.	" "	331

Time.

August 12th and 13th 1875.

16.20 Astronomical monument No. 4.
 consisting of a Sandstone 20X12X6
 set 15 inches in earth, marked
 "136.20" 35° 1' 38" N. L. on the West
 side. "32° W. L." on the South; "ARIZ."

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

on the West; "N. M." on the East, and "A. S." 1875" on the top, dug pits N. and S. 6 ft. dist; 2 ft. square 12 inches deep.

No natural objects convenient for bearings.

63.70 Road from Linn, to Prescott. bears East, and West; set a juniper post 4 inches square, 6 ft. long, 12 inches in earth, marked "136.80" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; deposited marked stone; dug one pit North; 6 ft. dist; 2 ft. square, 12 inches deep, and raised a mound of earth, 5 ft. in diam. 2½ ft. high.

No natural objects convenient for bearings.

80.00 Set a Sandstone 20 x 11 x 5, 15 inches in earth, marked "137" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; dug pits N. & S. 6 ft. dist; 2 ft. square, 12 inches deep.

No natural objects convenient for bearings.

Surface rolling, soil sandy 3rd rate. Timber, juniper and piñon. August 12th and 13th, 1875.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

10350.

South on 138th mile. true line.
Va. 13° 18' E.

80.00 Set a Sandstone 20X10X4. 15 inches in each, marked "138" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft square, 12 inches deep.

No natural objects convenient for bearing.

Surface rolling. soil sandy 3rd rate. Timber, juniper and piñon.

10525.

South on 139th mile. true line.
Va. 13° 18' E.

80.00 Set a Sandstone 28X14X4. 21 inches in each, marked "139" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep.

No natural objects convenient for bearing.

Surface rolling. soil gravelly 3rd rate.

Timber, juniper, and piñon.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
10500.		South on 140 th mile, two lines. Ta. 13° 18' E.
80.00		Set a Sandstone 22X20X4, 16 inches in earth, marked "140" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; dug pits ^{N. and S.} 6ft. dist; 2ft. square, 12 inches deep. No natural objects convenient for bearings. Surface rolling, soil sandy 3 rd rate. Timber, juniper and piñon.
9800.		South on 141 st mile, two lines. Ta. 13° 30' E.
5.30		Arroyo course S. E. and S.
15.80		Leave same 100 lbs. wide.
40.60		Arroyo 20 lbs. wide, course S. E.
80.00		Set a Sandstone 14X10X8, 9 inches in earth, marked "141" on the North side, "32° W. L." on the South, "ARIZ." on the West; "N. M." on the East; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep. No natural objects convenient for bearings. Surface rolling, soil sandy 3 rd rate. Timber, juniper and piñon.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

9700. South on 142nd mile, true line.
Ca. 13° 30' E.

80.00 Set a juniper post 6 inches square, 7ft. long, 12 inches in each, marked "142" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; ^{deposited marked stone;} dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep. ^{and raised mound of earth, 5ft. in diam., 2 1/2 ft. high.}
No natural objects convenient for bearings.

Surface rolling, soil, sand, 3rd rate, Timber juniper and piñon.
August 14th 1875.

9650. South on 143rd mile, true line.
Ca. 13° 30' E.

80.00 Set a juniper post, 4 1/2 inches square, 7ft. long, 12 inches in each, marked "143" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; deposited marked stone; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep; and raised a mound of earth, 5ft. in diam., 2 1/2 ft. high.

No natural objects convenient for bearings.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

Surface rolling. soil sandy 3rd rate.
Timber. juniper and piñon.

9700.

South on 144th mile, true line.
Ta. 13° 30' E.

80.00 Set a juniper post 4½ inches square. 6ft. long. 12 inches in earth, marked "144" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East. deposited marked stone; dug pits N. and S. 6ft. dist; 2ft. square. 12 inches deep; and raised a mound of earth, 5ft. in diam. 2½ ft high. No natural objects convenient for bearings.

Surface rolling. soil sandy 3rd rate.
Timber. juniper, and piñon.

9700.

South on 145th mile, true line.
Ta. 13° 30' E.

80.00 Set a juniper post. 4 inches square. 6ft. long. 12 inches in earth marked, "145" on the North side; "32° W. L." on the South. "ARIZ." on the West; "N. M." on the East; deposited marked stone; dug pits N. and S. 6ft. dist; 2ft. square.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

12 inches deep; and raised a mound of earth; 5ft. in diam 2 1/2 ft. high.

No natural objects convenient for bearings.

Surface rolling. soil sandy. 3rd rate Timber, juniper and piñon.

9680.

South on 146th mile. true line. Va. 13° 30' E.

28.60 Road from Tuzi to Camp A-hacko. bears N. E. and S. N. set a juniper post 4 1/2 inches square, 6ft. long. 12 inches in earth marked "146.36" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; deposited marked stone; dug one pit North; 6ft. dist; 2ft. square, 12 inches deep, and raised a mound of earth, 5ft. in diam. 2 1/2 ft. high.

No natural objects convenient for bearings.

78.50 Leave timber E and N. and enter valley.

80.00 Set a juniper post 4 inches square, 6ft. long. 12 inches in earth, marked "146" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Surface rolling. soil sandy 3rd rate.
Timber. juniper and piñon.

9700. South on 144th mile, two lines.
Va. 13° 30' E.
- 80.00 Set a juniper post 4½ inches square. 6ft. long. 12 inches in earth, marked "144" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East. deposited marked stone; dug pits N. and S. 6ft. dist; 2ft. square. 12 inches deep; and raised a mound of earth, 5ft. in diam. 2½ft high. No natural objects convenient for bearings.
- Surface rolling. soil sandy 3rd rate.
Timber. juniper and piñon.
-

9700. South on 145th mile, two lines.
Va. 13° 30' E.
- 80.00 Set a juniper post. 4 inches square. 6ft. long. 12 inches in earth marked. "145" on the North side; "32° W. L." on the South. "ARIZ." on the West; "N. M." on the East; deposited marked stone; dug pits N. and S. 6ft. dist; 2ft. square.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

12 inches deep; and raised a mound of earth; 5ft. in diam. $2\frac{1}{2}$ ft. high.

No natural objects convenient for bearings.

Surface rolling. soil sandy. 3rd rate
Timber, juniper and piñon.

9680.

South on 146th mile, true line,
Ca. $13^{\circ} 30' E$.

28.60 Road from Tuzi to Camp A-
hacho, bears N. E. and S. N. set
a juniper post $4\frac{1}{2}$ inches square,
6ft. long. 12 inches in earth mark-
ed "146.36" on the North side; " $32^{\circ} W.L.$ "
on the South; "ARIZ." on the West;
"N.M." on the East; deposited
marked stones; dug one pit North,
6ft. dist; 2ft. square, 12 inches deep,
and raised a mound of earth,
5ft. in diam. $2\frac{1}{2}$ ft. high.

No natural objects convenient
for bearings.

78.50 Leave timber E and N, and enter valley.

80.00 Set a juniper post 4 inches
square, 6ft. long. 12 inches in
earth, marked "146" on the North
side; " $32^{\circ} W.L.$ " on the South; "ARIZ."
on the West; "N.M." on the East;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

deposited marked stone; dug pits N. and S. 6ft. dist; 2ft. square. 12 inches deep; and raised a mound of earth, 5ft. in diam. 2 1/2 ft. high.

No natural objects convenient for bearings.

Surface rolling. soil, sandy, 3rd rate.

9650.

South on 147th mile, two lines.

Ca. 13° 30' E.

78.30 Luni river 20 hrs. ride. 2ft. deep. high sandy banks. swift muddy current, course S. N.

80.00 Set a square post 4 inches square 5ft. long, 12 inches in earth, marked "147" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; deposited marked stone; dug pits N. and S. 6ft. dist; 2ft. square. 12 inches deep. and raised a mound of earth, 5ft. in diam. 2 1/2 ft. high.

No natural objects convenient for bearings.

Surface gently rolling. soil 2nd rate.

Vegetation; good grass.

Observed polaris; see page. 328

August 15th 1875.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

9620. South on 148th mile, true line.
Pa. 13° 30' E.

26.25 Arroyo 20 br. wide course S. N.
80.00 Set a quincier post 4 1/2 inches square, 5 ft. long, 12 inches in cath, marked "148" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; deposited marked stone; dug pits N. and S. 6 ft. dist; 2 ft. square, 12 inches deep; and raised a mound of earth, 5 ft. in diam. 2 1/2 ft. high.
No natural objects convenient for bearings.
Surface level, soil 1st rate.
Vegetation: good grass.

9620. South on 149th mile, true line.
Pa. 13° 30' E.

60.00 Leave bottom and enter timber, bears E. and N.
80.00 Set a "Scoria" rock 18 x 14 x 6, 14 inches in the cath, marked "149" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6 ft. dist; 2 ft. square, 12 inches deep.
No natural objects convenient for

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
		<p>beaunigo.</p> <p>"Deer Spring" is situated about 2 miles West of this monument. Surface level. Soil 1st rate. Vegetation: good grass, and some juniper and piñon.</p> <hr/>
9700.		South on 150 th mile true line, Va. 13° 30' E.
13.45		Indian trail bears E. and N.
23.00		Foot of cliff of igneous rock and ascend.
10150.	34.20	Summit of same. bears E. and N. the variation of the needle here changes to 13° E. on account of local attraction.
80.00		Set an igneous rock 30x22x16, in a mound of stones, marked "150" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; No natural objects convenient for beaunigo. Surface, broken and rocky. Soil 3 rd rate. Timber, juniper and piñon.
10180.		South on 151 st mile. true line,

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
		Ta. $12^{\circ}45' E$.
49.00		Descend ledge of Malpais. bears E. and N.
9800. 59.30		Foot of same.
65.00		Arroyo 10 lks. wide. course West.
73.00		Ascend Sandstone ridge bears E. and N.
80.00		Set a Sandstone $30 \times 14 \times 6$. in a mound of stone, marked "151" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N.M." on the East;
		No natural objects convenient for bearings.
		About 1 mile East of this monument is a spring and the ruin of what had been a stone Pueblo.
		Surface broken and stony; soil 3 rd rate;
		Timber, piñon, and juniper.
10000.		South on 152 nd mile. true line.
		Ta. $13^{\circ}30' E$.
80.00		Set a juniper post $4\frac{1}{2}$ inches square. 6 ft. long, 12 inches in earth, marked "152" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N.M." on the East;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

deposited a marked stone; dug pits N. and S. 6ft. dist; 2ft. square 12 inches deep; and raised a mound of earth 5ft. in diam. 2 1/2 ft. high. No natural objects convenient for bearings.

Surface rolling. soil sandy 3rd rate. Timber, juniper and piñon.

10050.

South on 153rd mile, true line.

Ca. 13° 30' E.

80.00 Set a juniper post, 4 inches square, 6ft. long, 12 inches in earth, marked, "153" on the north side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; deposited marked stone, dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep, and raised a mound of earth 5ft. ^{2 1/2 ft. high} in diam. No natural objects convenient for bearings.

Surface rolling, soil sandy, 3rd rate. Vegetation: juniper, piñon, and some cactus.

10050.

South on 154th mile, true line.

Ca. 13° 30' E.

80.00 Set a juniper post 4 1/2 inches

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

square. 7ft. long, 12 inches in
 earth, marked "154" on the North
 side, "32° W.L." on the South;
 "ARIZ." on the West; "N.M." on
 the East; deposited marked
 stone; dug pits N. and S. 6ft.
 dist; 2ft. square, 12 inches deep,
 and raised a mound of earth
 5ft. in diam. 2½ ft. high.
 No natural objects convenient
 for bearings.
 Surface rolling, soil sandy 3rd
 rate.
 Timber, juniper and piñon.
 August 16th 1875.

10300.

South on 155th mile, true line,
 Va. 13° 30' E.
 3648 Indian trail bears N. N. E. and S. S. N.
 80.00 A piñon tree 10 inches in diam.
 in place, marked "155" on the
 North side; "32° W.L." on the South,
 "ARIZ." on the West; "N.M." on
 the East;
 No natural objects convenient
 for bearings.
 Surface rolling, soil sandy, 3rd rate.
 Timber, juniper and piñon.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

10500. South on 156th mile, true line.
 Va. 13° 30' E.
- 0.10 Arroyo 120 lbs. wide course North.
- 73.00 Leave same course N. and N.E.
- 80.00 Set a juniper post, 5 inches square, 7 ft. long, 12 inches in earth marked "156" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; deposited marked stones; dug pits N. and S. 6 ft. dist; 2 ft. square, 12 inches deep; and raised a mound of earth 5 ft. in diam. 2 1/2 ft. high.
- No natural objects convenient for bearings.
- Surface broken, soil sandy, 3rd rate.
 Timber juniper and piñon.
-

10525. South on 157th mile, true line.
 Va. 13° 30' E.
- 80.00 Set a juniper post 4 1/2 inches square, 6 ft. long, 12 inches in earth, marked "157" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; deposited marked stones; dug pits N. and S. 6 ft. dist; 2 ft. square, 12 inches deep; and rais-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

ed a mound of earth, 5 ft. in
 diam. 2 1/2 ft. high.
 No natural objects convenient
 for bearings.
 Surface rolling, soil gravelly
 3rd rate.
 Timber, juniper and piñon.

10600.

South on 158th mile, true line
 Ta. 13° 30' E.

80.00 Set a juniper post 4 1/2 inches
 square, 6 ft. long, 12 inches in
 diam, marked "158" on the North
 side; "32° W. L." on the South;
 "ARIZ." on the West; "N. M." on
 the East; deposited marked
 stones; dug pits N. and S. 6 ft.
 dist; 2 ft. square, 12 inches deep;
 and raised a mound of earth
 5 ft. in diam. 2 1/2 ft. high.
 No natural objects convenient
 for bearings.
 Surface rolling, soil sandy 3rd rate.
 Timber, juniper, and piñon.

10520.

South on 159th mile, true line,
 Ta. 13° 30' E.

80.00 Set a juniper post 4 inches

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

square. 7ft. long. 12 inches in
 earth, marked "159" on the North
 side; "32° W.L." on the South;
 "ARIZ." on the West; "N.M." on
 the East; deposited marked stone.
 dug pits N. and S. 6ft. dist. 2ft.
 square. 12 inches deep; and raised
 a mound of earth, 5ft. in diam.,
 2½ ft. high.

No natural objects convenient
 for bearing.

Surface rolling. soil sandy. 3rd rate.
 Timber, juniper and piñon.

10675.

South on 160th mile, true line.
 Ta. 13° 15' E.

80.00 Set a juniper post. 4 inches square
 7ft. long. 12 inches in earth, mar-
 ked "160" on the North side; "32°
 W.L." on the South; "ARIZ." on
 the West; "N.M." on the East;
 deposited marked stone; dug
 pits N. and S. 6ft. dist; 2ft square
 12 inches deep; and raised a
 mound of earth, 5ft. in diam.,
 2½ ft. high.

No natural objects convenient
 for bearing.

Surface rolling. soil sandy 3rd rate.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Timber, juniper and piñon.

10450.

South on 161st mile, true line,
 Va. 13° 15' E.

80.00 A juniper tree 4 inches in
 diam. in place, marked "161" on
 the North side; "32° W. L." on the
 South; "ARIZ." on the West;
 "N. M." on the East.

No natural objects convenient
 for bearings.

Surface, rolling. soil sandy 3rd rate
 Timber, juniper and piñon. some
 good grass.

August 17th 1875.

10300.

South on 162nd mile, true line,
 Va. 13° 15' E.

80.00 Set a juniper post, 4 inches
 square, 6 ft. long, 12 inches in
 diam., marked "162" on the North
 side; "32° W. L." on the South;
 "ARIZ." on the West; "N. M." on
 the East; deposited marked
 stone; dug pits N. and S. 6 ft.
 dist; 2 ft. square, 12 inches deep;
 and raised a mound of earth
 5 ft. in diam., 2 1/2 ft. high.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

No natural objects convenient
for bearings.

Surface rolling. soil sandy. 3rd rate
Timber juniper and piñon.

10225.

South on 163rd mile. true line,
Ca. 13° 15' E.

80.00 Set a juniper post 6 inches
square. 7 ft. long. 12 inches in
circumference, marked "163" on the North
side; "32° W. L." on the South;
"ARIZ." on the West; "N. M." on
the East; deposited marked stones,
and pits N. and S. 6 ft. dist; 2 ft.
square, 12 inches deep; and rais-
ed a mound of earth, 5 ft in diam.,
2 1/2 ft. high.

No natural objects convenient
for bearings.

Surface rolling. soil sandy 3rd rate.
Timber, juniper and piñon.

10150.

South on 164th mile, true line,
Ca. 13° 15' E.

29.70 Edge of rocky cañon. course
S. N. and descend.

72.00 Leave same; 80 ft. deep.

80.00 Set a Sandstone. 40 x 20 x 8. in

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

a mound of stouck, marked "164" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings; Surface broken and stony, soil 3rd rate, Timber juniper and piñon.

10140

South on 165th mile. true line. Va. 13° 15' E.

47.00 Descend into valley. bears E. and N.

63.25 Enter valley, and leave timber bears E. and N.

79.00 Arroyo 20 mi, wide course S. N.

80.00 Set a Sandstone 28X10X8. 21 inches in each. marked "165" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dig pits N. and S. 6ft. dist; 2ft. square. 12 inches deep.

No natural objects convenient for bearings.

Surface broken and stony, soil 3rd rate.

Timber. juniper and piñon.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

9900. South on 166th mile, true line.
 Va. $12^{\circ}48'E$.
- 44.65 Arroyo 15 lbs, wide course West.
- 63.00 Enter timber and begin ascent
 of mesa.
- 80.00 Set a Sandstone $30 \times 18 \times 12$, in a
 mound of stones, marked "166" on
 the North side; "32' W.L." on the
 South; "ARIZ." on the West; "N.M."
 on the East:
- No natural objects convenient
 for bearings.
- Surface in valley level. soil 1st rate
 excellent grass.
-

- South on 167th mile, true line.
 Va. $12^{\circ}48'E$.
- 7.50 Top of Mesa. bears E and W.
- 80.00 Set a Trap rock $18 \times 14 \times 6$ in a
 mound of stones, marked "167" on
 the North side; "32' W.L." on the
 South; "ARIZ." on the West;
 "N.M." on the East:
- No natural objects convenient
 for bearings.
- Surface broken and stony. soil
 3rd rate.
- Timber. juniper and piñon.
- August 18th 1875.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

10175. South on 168th mile, true line,
Va. 13° E.
- 80.00 Set a Sandstone 28X18X6 in
a mound of stone, marked
"168" on the North side; "32"
W.L. on the South; "ARIZ." on
the West; "N.M." on the East.
No natural objects convenient
for bearings.
Surface broken and stony. soil
3rd rate.
Timber. juniper and piñon.
-
10260. South on 169th mile, true line,
Va. 13° E.
- 24.15 Descend ledge of sandstone
beats N.E. and S.W.
- 35.00 Foot of same.
- 80.00 Set a Sandstone 16X16X10 in
a mound of stone, marked
"169" on the North side; "32" W.L.
on the South; "ARIZ." on the
West; "N.M." on the East;
No natural objects convenient
for bearings.
Surface broken and stony. soil
3rd rate.
Timber. juniper and piñon.
-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

9900. South on 170th mile, two lines.
Va. 13° 30' E.

80.00 Set a Sandstone 30x10x3. 21 inches in earth, marked "170" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft. square. 12 inches deep.

No natural objects convenient for bearings.

Surface broken. soil sandy 3rd rate. Timber, piñon, and juniper. Grass excellent;

9825. South on 171st mile, two lines.
Va 13° 30' E.

30.00 Leave timber tract N.E. and S.W. and enter Pariso valley.

80.00 Set a Sandstone 30x10x3. 21 inches in earth, marked "171" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits - N. and S. 6ft. dist. 2ft. square. 12 inches deep.

No natural objects convenient for bearings.

Surface level. soil 1st rate. Vegetation: excellent grass,

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
9750		South on 172 nd mile, true line. Va. 13° 30' E.
10.30		Lariso Arroyo 15 krs, wide course West, water in holes.
14.25		Arroyo 20 krs, wide course N. N., water in holes.
14.60		Leave valley and enter timber at foot of hill. bears E. and N.
42.30		Road from Pito Quemado to Camp Apache. bears E. and N. set a Sandstone 28 X 16 X 4. 21 inches in each. marked 171.53 on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug one pit North. 6ft. dist: 2ft. square. 12 inches deep. No natural objects convenient for bearings.
80.00		Set a Sandstone 24 X 14 X 5, in a mound of stone, marked "172." on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East: No natural objects convenient for bearings. Surface rolling. soil sandy 3 rd rate. Timber. juniper and piñon.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
9950.		South on 173 rd mile, two lines. Va. 13° 30' E.
80.00		Set a juniper post, 4 inches square. 7 ft. long. 12 inches in earth, marked "173" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East, deposited marked stones; dug pits N. and S. 6 ft. dist: 2 ft. square 12 inches deep; and raised a mound of earth 5 ft. in diam. 2 1/2 ft. high. No natural objects convenient for bearings. Surface rolling. soil sandy 3 rd rate Timber, juniper and piñon. August 19 th 1875.

10100.

South on 174th mile, two lines.
Va. 13° 30' E.

80.00 Set a Sandstone 14x10x8, 8 inches in earth, marked "174" on the North side; "32° W.L." on the South. "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6 ft. dist: 2 ft. square. 12 inches deep.
No natural objects convenient for bearings.
Surface level soil sandy 3rd rate.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Timber. juniper and piñon.

10150.

South on 175th mile. true line.
 Va. 13° 30' E.

80.00 Set a juniper post 4 inches square, 6 ft. long, 12 inches in earth, marked "175" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East deposited marked stone; dug pits N. and S. 6 ft. dist; 2 ft. square, 12 inches deep, and raised a mound of earth and stone 5 ft. in diam. 2½ ft. high. No natural objects convenient for bearings.

Surface level, soil sandy, 3rd rate.
Timber juniper and piñon.

South on 176th mile. true line.
 Va 13° 30' E.

80.00 Set a sandstone 24x12x4, 18 inches in earth, marked "176" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6 ft. dist; 2 ft. square, 12 inches deep. No natural objects convenient for

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

beavies.
 Surface rolling, soil sandy 3rd
 rate.
 Timber, juniper and piñon.

10100. South on 177th mile, true line
 Va. 13° 30' E.
- 80.00 Set a sandstone 20X14X3, in a
 mound of stones, marked "177" on
 the North side; "32° W.L." on the
 South; "ARIZ." on the West; "N.M."
 on the East:
 No natural objects convenient
 for beavies.
 Surface level and stony soil 3rd
 rate.
 Timber scattered juniper and
 piñon.
-

10150. South on 178th mile, true line.
 Va. 13° 12' E.
- 9.08 Astronomical station No. 5. Obser-
 vations were made for
 Azimuth; see page, 328
 Latitude; see page, 353
 Time; Observations made, but record lost.
 August 20th 1875.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

9.08 Astronomical monument No. 5, consisting of a Sandstone 34X12X7 set 12 inches in earth and stone, marked "177.11' 34° 26' 12" N.L." on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; "A.S. 1875" on the top, and raised a mound of stone.

No natural objects convenient for bearings.

20.00 Soda Spring in a cañon, one mile East.

62.00 Ascend Mocha bears N. N. and S. E.

70.50 Summit of same; 300 ft. high

80.00 Set a Sandstone 24X20X10, in a mound of stone, marked "178" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East:

No natural objects convenient for bearings.

Surface level and stony, soil 3rd rate:

Vegetation; a few scattered junipers and some grass.

10450.

South on 179th mile, true line.
Ta. 12° E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

80.00 Set an Igneous rock $40 \times 30 \times 25$,
 in a mound of stones, marked
 "179" on the North side; "32° W.L."
 on the South; "ARIZ." on the
 West; "N.M." on the East;
 No natural objects convenient for
 bearings. High peak on Sierra Latib. bears $S. 65^{\circ} 8' E$.
 Surface rolling and stony. Soil 3rd rate.
 Vegetation, scattered junipers, and
 some grass.

10600.

South on $180^{\frac{1}{2}}$ miles, two lines.
 $\text{Ta. } 12^{\circ} 6' E$.

80.00 Set a Lava stone $30 \times 16 \times 8.22$ inches
 in earth, marked "180" on the North
 side; "32° W.L." on the South; "ARIZ."
 on the West; "N.M." on the East.
 dug pits N. and S. 6 ft. dist. 2 ft.
 square. 12 inches deep.
 No natural objects convenient
 for bearings.
 Surface gently rolling. Soil 2nd rate.
 Vegetation, excellent grass.

10525.

South on $181^{\frac{1}{2}}$ miles, two lines.
 $\text{Ta. } 12^{\circ} 21' E$.

80.00 Set a Lava stone $25 \times 12 \times 5.19$
 inches in earth, marked "181"

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

on the North side: "32° W.L." on
 the South: "ARIZ." on the West;
 "N.M." on the East; dug pits
 N. and S. 6ft. dist. 2ft. square.
 12 inches deep. "

No natural objects convenient
 for bearings.

Surface rolling and stony.
 Soil 3rd rate.

Timber, a few scattered junipers
 and piñons.

10600.

South on 182nd mile, true line.
 Va. 13° 15' E.

63.20 Arroyo 40 hrs, wide course East.
 a large pool of water 2000 chs
 E of line.

80.00 Set a sandstone 24x10x6. 18 inches
 in each. marked "182" on the
 North side: "32° W.L." on the South;
 "ARIZ." on the West; "N.M." on
 the East: dug pits N. and S. 6ft.
 dist: 2ft. square. 12 inches deep.

No natural objects convenient
 for bearings.

Surface rolling. soil 3rd rate.

A few scattering juniper trees.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

10550. South on 183rd mile. true line.
 Va. 13° 15' E.
- 38.00 Rocky Arroyo 120 hrs. wide course
 East.
- 80.00 Set a Sandstone 28X10X8 in a
 mound of stones marked "183" on
 the North side: "32° W.L." on the
 South: "ARIZ." on the West:
 "N.M." on the East:
 No natural objects convenient
 for bearings.
 Surface rolling and stony, soil
 3rd rate.
 Timber scattering juniper and
 pines.
 August 21st 1875.
-
10600. South on 184th mile. true line.
 Va. 13° 9' E.
- 66.40 Arroyo 20 hrs. wide course East.
- 80.00 Set a Granite stone 25X14X8.19
 inches in each, marked "184" on
 the North side: "32° W.L." on the
 South: "ARIZ." on the West: "N.M."
 on the East: dug pits N. and S.
 6ft. dist: 2ft. square. 12 inches deep.
 No natural objects convenient
 for bearings.
 Surface rolling and stony, soil

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
		<p>3rd rate. Timber, juniper and piñon.</p> <hr/>
10750.		<p>South on 185th mile, two lines. Ta. 13° 9' E.</p>
80.00		<p>Set a Lava stone 18 X 14 X 6. 14 inches in earth, marked "185" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6 ft. dist; 2 ft. square, 12 inches deep. No natural objects convenient for bearings. Surface rolling and stony. Soil 3rd rate Timber juniper, and piñon.</p> <hr/>
10730.		<p>South on 186th mile, two lines. Ta. 13° 9' E.</p>
22.80		<p>Point of a Mesa, which bears N. N. and S. N.</p>
80.00		<p>Set a Lava stone 24 X 15 X 8, 18 inches in earth, marked "186" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6 ft. dist; 2 ft. square.</p>

WESTERN BOUNDARY OF NEW MEXICO TERRITORY

Altitude. Chains.

12 inches deep.

No natural objects convenient
for bearings.Surface rolling and stony. soil
3rd rate.Timber scattering junipers and
piñons.

Excellent grass.

10750.

South on 187th mile, true line.
Va 13° 9' E.59.50 Foot of Moca, bears E. and N. and
ascend.80.00 Top of same: 275 ft high. and set
a Lava stone 18x18x10 in a
mound of stone, marked "187" on
the North side; "32° W.L." on the
South; "ARIZ." on the West; "N.M."
on the East;No natural objects convenient
for bearings.Surface rolling. soil 2nd rate.Vegetation scattering junipers and
piñon trees, and good grass.Observed polaris see page 328August 22nd 1875.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

11025. South on 188th mile, two lines.
 Va. 13° 55' E.

34.00 Descend Mocha bears N. N. and S. E.

40.00 Top of same about 150 ft. high.

55.00 Ascend low ridge bears N. N. and S. E.

80.00 Set a Lava stone 24x12x10, 18 inches in each, marked "188" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; dug pits N. and S. 6 ft. dist; 2 ft. square, 12 inches deep.

No natural objects convenient for bearings.

Surface broken and stony, soil 3rd rate. Timber, a few juniper and piñon trees.

10925. South on 189th mile, two lines.
 Va 13° 21' E

21.00 Ascend Mocha bears E. and N.

25.20 Top of same 200 ft. high.

38.00 Descend low slope of Mocha bears N. and S.

80.00 Set a Lava stone 14x10x5, in a mound of stone, marked "189" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M."

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

on the East:
No natural objects convenient for bearings.
Surface broken and stony, soil 3rd rate.

11170. South on 190th mile, true line.
Va. 10° 24' E.
7.75 Summit of Kocsa bears N. N. N. and S. S. E.
80.00 Set a Lava stone 20x10x6. in a mound of stones, marked "190" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East:
No natural objects convenient for bearings.
Surface rolling and stony, soil 3rd rate.
Timber, juniper and piñon.

11300 South on 191st mile, true line.
Va. 10° 20' E.
28.00 Va. 10° 18' E.
41.00 Va. 13° 22' E. local attraction.
56.40 Nagow road from Salt ponds to Milligan's ranche, ^{road} bears N. E. and S. N. set a Lava stone

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

18X16X10. in a mound of stones
marked "190.70" on the North side;
"32° W.L." on the South; "ARIZ."
on the West; "N.M." on the
East:

No natural objects convenient
for bearings.

80.00 Set a Lava stone 20X14X10. in
a mound of stones, marked "191"
on the North side; "32° W.L." on
the South; "ARIZ." on the West;
"N.M." on the East;

No natural objects convenient
for bearings.

Surface level and stony. soil 3rd rate
Vegetation, juniper and piñon, and
Good grass.

11300. South on 192nd mile, two lines,
Va. 12° 20' E.

~~43.00~~ ~~Acad Mesa, bears E. and N.~~

~~80.00~~ ~~Summit of same, 300ft. high, and~~

80.00 set a Lava Stone 25X12X8. in a
mound of stones, marked "192"
on the North side; "32° W.L." on
the South; "ARIZ." on the West;
"N.M." on the East;

No natural objects convenient
for bearings.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Surface level and stony soil
3rd rate.
Vegetation, good grass.

11100. South on 193rd mile, true line.
Ta. 10° 30' E.

80.00 Set a Lava stone 16 X 12 X 10, in
a mound of stones marked
"193" on the North side; "32° W.L.",
on the South; "ARIZ." on the
West; "N.M." on the East:
No natural objects convenient
for bearings.
Surface level and stony soil 3rd
rate.
Vegetation, good grass.
August 23rd 1875.

11150. South on 194th mile, true line.
Ta. 13° 20' E.

43.00 Ascend Mesa, bears E. and N.
80.00 Summit of same 350 ft. high, and
set a Lava stone 16 X 10 X 10 in a
mound of stones, marked "194"
on the North side; "32° W.L." on
the South; "ARIZ." on the West;
"N.M." on the East.
No natural objects convenient

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
		<p>for beaviesgo. Surface broken and rocky. soil 3rd rate. Vegetation scattering juniper and piñon. Good grass.</p> <hr/>
11500.		<p>South on 195th mile. true line. Va. 14° E.</p>
20.00		Descent into cañon.
54.00		Bottom of same. course S. N.
67.00		Summit of same. and begin descent of Mesa. bears N. N. and S. E.
80.00		Set a Lava stone 30X20X12 in a mound of stones. marked "195" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East: No natural objects convenient for beaviesgo. Surface broken and stony. soil 3 rd rate. Timber. juniper and piñon. <hr/>
11400.		<p>South on 196th mile. true line. Va. 13° 10' E.</p>
46.00		Foot of Mesa. bears N. E. and S. N.
80.00		Set a Lava Stone 24X8X6, 18 inches

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

in earth, marked "196" on the North side; "32° W.L." on the South. "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6 ft. dist; 2 ft. square, 12 inches deep. No natural objects convenient for bearings. Surface broken and stony, soil 3rd rate. Timber, juniper and piñon.

11150.

South on 197th mile. true line. Va. 12° 36' E.

24.00 Acacia Mocha bears N.N. and S.E.
 42.00 Top of same, about 225 ft. high.
 80.00 Set a Lava stone 25x13x10 in a mound of stone, marked "197" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings. Surface broken, soil 2nd rate. Timber, a few scattering juniper and piñon.

Note:
 See Book 4210
 for resection station
 in 1931 of the
 197 mile mon.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
11380.		South on 198 th mile tree line. Va. 12° E.
9.00		Descend Moca. bears S.E. and N.N.
45.50		Foot of same.
59.40		Arroyo 10 hrs. wide course N.N.
80.00		Set a Lava stone 26x16x9. in a mound of stones, marked "198" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings. Surface broken and rocky. soil 3 rd rate. Vegetation. juniper and piñon and a few live oak bushes. August 24 th 1875.

11050		South on 199 th mile, tree line. Va. 13° 10' E.
80.00.		Set a Lava stone 14x8x8. 9 inches in earth, marked "199" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep. No natural objects convenient for bearings.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Surface rolling soil 2nd rate.
Timber, juniper and piñon.

11100.

South on 200th mile. true line.
Ta. 12° 33' E.

80.00 Set a Lava stone 18x10x6. 14 inches
in each, marked "200" on the North
side; "32° W.L." on the South; "ARIZ."
on the West; "N.M." on the East;
dug pits N. and S. 6 ft. dist.
2 ft. square; 12 inches deep.

No natural objects convenient
for bearings.

Surface rolling soil 2nd rate.
Timber, juniper and piñon.

11100.

South on 201st mile, true line.
Ta. 12° 30' E.

11.25 Arroyo 40 lbs. wide course N. E.

50.30 Foot of N. E. slope of a Mesa,
which bears N. E. and S. E.

75.40 Leave slope of Mesa, which bears
S. S. E.

80.00 Set a Lava stone 18x8x6. in a
mound of stones, marked "201"
on the North side; "32° W.L." on
the South; "ARIZ." on the West;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

"N.M." on the East;
 No natural objects convenient
 for bearings.
 Surface rolling and stony. soil
 3rd rate.
 Vegetation, juniper and piñon
 trees, and excellent gramma
 grass.

11200.

South on 202nd mile, true line.
 Va. 12° 30' E.

80.00

Set a Lava stone 24x16x4, in
 a mound of stones, marked
 "202" on the North side; "32° W.L."
 on the South; "ARIZ." on the
 West; "N.M." on the East;
 No natural objects convenient
 for bearings.
 Surface level. soil 2nd rate.
 Vegetation, excellent gramma grass.

11260.

South on 203rd mile, true line.
 Va. 12° 30' E.

80.00

Set a Lava stone 16x8x8, 11 inches
 in earth, marked "203" on the
 North side; "32° W.L." on the
 South; "ARIZ." on the West; "N.M."
 on the East; dug pits N. and

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

S. 6ft. dist; 2ft. square. 12 inches deep.

No natural objects convenient for bearings.

Surface level. soil 1st rate; Vegetation, excellent Gramma grass.

Observed Polaroid see page 328 August 25th 1875.

11350.

South on 204th mile. true line. Va. 12° 30' E.

21.00 Road from Fort Tularosa to Camp Apache, bears N. N. and S. E. set a Lava stone 24x12x8. 18 inches in earth; marked "204.26" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; dug one pit North, 6ft. dist; 2ft. square. 12 inches deep;

No natural objects convenient for bearings.

54.00 Round conical mound of Lava about 40ft. high bears East. 3.50 chs dist;

80.00 Set a Lava stone 12x10x6. 8 inches in earth, marked "204" on the North side; "32° W. L." on the South;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

"ARIZ." on the West: "N.M." on the East: dug pits N. and S. 6ft. dist: 2ft. square. 12 inches deep:

No natural objects convenient for bearings.

The West end of Escudilla Peak bears S. $40^{\circ}26'$ N. and the Eastern end of the same bears S. $20^{\circ}25'$ N.

Surface level. soil 1st rate. Vegetation. excellent grass.

South on 205th mile true line. Va. $12^{\circ}27'$ E.

11400.
80.00 Oct a Lava stone 12x10x8, 8 inches in earth, marked "205" on the North side: "32° W.L." on the South: "ARIZ." on the West: "N.M." on the East: dug pits N. and S. 6ft. dist: 2ft. square. 12 inches deep:

No natural objects convenient for bearings.

Surface level. soil 2nd rate. Excellent grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

11500. South on 206th mile, true line.
Va. $12^{\circ}27'E$.
- 18.00 Gate timber bears E. and N.
- 80.00 Set a Lava stone $24 \times 18 \times 5$.
in a mound of stone marked
"206" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East:
No natural objects convenient for bearings.
Surface rolling, soil 1st rate.
Timber, scattering growth of yellow ^{pine} fir, and oak.
Excellent gamma grass.
-

11700. South on 207th mile, true line.
Va. $12^{\circ}30'E$.
- 31.00 Foot of the main range of the "Sierra de Latil" mountains bears E. and N. and ascend.
- 80.00 Set a Lava stone $30 \times 20 \times 10$ in a mound of stone, marked "207" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; from which a Yellow pine 3 inches in diam. bears S. $71^{\circ}E$. 28 lks. dist; an Oak 10 inches in diam. bears N. $10^{\circ}12'E$. 34 lks. dist; an Oak

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

10 inches in diam, bears S. 42° 30' N.
14 lks. dist:

Surface rolling, soil 2nd rate
excellent grass.

Timber: Yellow pine, Oak, Juniper
and Piñon.

12250.

South on 208th mile, true line.
Ta. 11° 36' E.

80.00 Set a Lava stone 25 X 13 X 9 in
a mound of stone, marked
"208" on the North side; "32° W. L."
on the South; "ARIZ." on the
West; "N. M." on the East; from
which an Oak 12 inches in
diam, bears S. 20° N. 28 lks. dist;
a Yellow pine 10 inches in diam.
bears N. 44° 9' N. 45 lks. dist; a Yel-
low pine 10 inches in diam,
bears East, 65 lks. dist;

Surface broken and stony, soil 3rd
rate, good grass.

Timber Yellow and White pine,
Oak, Juniper and Piñon.

12700.

South on 209th mile, true line.
Ta. 13° 40' E.

13200. 40.00

Summit of ridge; bears E. and N.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

- 42.00 Descend into cañon.
 75.00 Bottom of cañon course S. N.
 78.00 A Spring about 10 rods West of line.
 80.00 Set a Lava stone 24x18x5 in a mound of stones, marked "209" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; from which a Yellow pine 30 inches in diam. bears S. 72° E. 67 lks. dist; a Yellow pine 6 inches in diam. bears N. 84° 52' N. 40 lks. dist; a Yellow pine 28 inches in diam. bears N. 8° 30' N. 58 lks. dist;
 Surface broken and stony. soil 3rd rate. good grass,
 Juniper, pine, oak, aspen, and cottonwood.
 August 27th 1875.

12350.

South on 210th mile, true line.
 Va. 13° 40' E.

- 10.00 Leave cañon, bears E. and N.
 80.00 Set a Granite stone 22x16x10.15 inches in earth, marked "210" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6 ft. dist; 2 ft. square. 12

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

inches deep; from which a
 yellow pine 18 inches in diam.
 bears S. 71° E. 7 lks. dist; a
 yellow pine 5 inches in diam.
 bears S. 80° 10' N. 43 lks. dist; a
 yellow pine 18 inches in diam.
 bears N. 32° E. 13 lks. dist;
 Surface somewhat broken, soil
 1st rate, good grass.
 Timber, pine, oak and aspen.

12525.

South on 211th mile, true line.
 Va. 12° 10' E.

80.00 Set a Granite stone 30 X 24 X 18.
 in a mound of stones, marked
 "211" on the North side; "32° W. L.",
 on the South; "ARIZ." on the
 West; "N. M." on the East; from
 which a yellow pine 10 inches
 in diam. bears N. 38° E. 22 lks.
 dist; a yellow pine 8 inches in
 diam. bears S. 40° 5' E. 17 lks. dist;
 an Oak 4 inches in diam. bears
 S. 18° 10' N. 28 lks. dist;

Surface rolling and stony, soil
 1st rate.

Vegetation, pine, oak, aspen, and
 cottonwood, and excellent grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
12600.		South on $2\frac{1}{2}$ miles, true line. Va. $11^{\circ}50'E$.
27.00		Descend into valley, course S. E.
38.00		Bottom of slope.
40.00		Begin ascent.
68.00		Summit of slope, and leave valley.
80.00		Set a Lava stone $30 \times 24 \times 6$ in a mound of stones, marked "212" on the North side; " $32^{\circ}W.L.$ " on the South; "ARIZ." on the West; "N.M." on the East; from which an Oak 5 inches in diam. bears N. $13^{\circ}30'N$. 67 lks. dist: a Yellow pine 24 inches in diam. bears N. $57^{\circ}E$. 67 lks. dist: a Yellow pine 8 inches in diam. bears S. $32^{\circ}15'N$. 59 lks. dist:
		Surface rolling and stony, soil 2 nd rate.
		Timber, yellow and white pine, oak and aspen, good grass.
12550.		South on $2\frac{1}{3}$ miles, true line. Va. $12^{\circ}6'E$.
4.30		Begin descent into valley.
40.00		Leave timber at foot of slope, bears E. and N., and enter valley.
57.60		Brook 10 lks. wide course West.
80.00		Set a Granite stone $34 \times 19 \times 14$.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

25 inches in earth, marked "213" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East. dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep; from which the East end of Cozcuquilla mountain peak bears N. 50° 47' N.

No natural objects convenient for bearings.

Surface 1st half mile rolling, soil 2nd rate. 2nd half mile level soil 1st rate.

Timber, white and yellow pine, oak and aspen. excellent grass.

12200

South on 2 1/4th mile, true line, Va. 12° 35' E.

22.00 Leave valley E. and N. and enter timber, and ascend slope.

36.00 Summit of slope, bears E. and N.

80.00 Set a Lava stone 24x10x8. 18 inches in earth, marked "214" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft. square 12 inches deep;

No natural objects convenient

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

~~400 chains~~
 Surface rolling. soil 2nd rate.
 Timber. pine, oak, and aspen.
 Excellent grass.
 From the corner a Yellow pine
 16 inches in diam, bears N. 52° N.
 45 lrs. dist: a Yellow pine 14 inches
 in diam, bears S. 62° 30' N. 64 lrs
 dist: a Yellow pine 22 inches in
 diam. bears S. 84° 45' E. 72 lrs. dist:

2500.

South on 215th mile, true line.

Va. 12° 30' E.

0.00 Foot of a high steep conical
 peak. Offset 30.00 chs. East. to
 avoid the peak, which is un-
 passable for the line, thence South
 on offset line.

80.00 Place for corner on inaccessible
 slope. impossible to establish.
 Surface rocky and mountainous.
 Soil, 3rd rate.

Timber. white and yellow pine.
 oak, aspen, and spruce.

August 28th 1876.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

12650.

South on 216th mile. offset line.
Pa. $12^{\circ} 30' E$.

80.00 Back West 30.01 chs. to line, the
1/2 in. having been allowed for the
incongruity of the meridians, cal
culations as follows.

Offset made at 214 miles $\times 52'' = 3^{\circ} 5' 28'' =$
distance South.

$37^{\circ} 0' 00'' =$ Latitude of initial point.

$33^{\circ} 54' 32'' =$ Latitude of point where offset was made.

Return to line at 216 miles $\times 52'' = 3^{\circ} 7' 12'' =$ dist. South

$37^{\circ} 0' 00'' =$ Latitude of initial point.

$33^{\circ} 52' 48'' =$ Latitude of point where I returned to
line.

As cosine of Lat. $33^{\circ} 54' 32'' = .8299310$

; Longitude 30 chs. = 30.

:: cosine of Lat. $33^{\circ} 52' 48'' = .8302150$

; Required dist. = 30.01

Hence the discrepancy = .01 chs. or 1/2 in. and
set a Granite stone $28 \times 14 \times 8$ in
a mound of stones, marked "216" on
the North side; "32° W.L." on the
South; "ARIZ." on the West; "N.M."
on the East; from which a yellow
line 12 inches in diam. bears
N. $19^{\circ} 52' E$. 11 hrs. dist; a yellow
line 16 inches in diam. bears
N. $62^{\circ} 30' N$. 33 hrs. dist; a yellow
line 10 inches in diam. bears
S $18^{\circ} 35' E$. 42 hrs. dist;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Surface very much broken by precipitous ledges and cañons.
 Soil 2nd rate.
 Timber, white and yellow pine, oak, aspen, cedar, and piñon.
 From this point I continue South on true line.

12300. South on 217th mile, true line.
 Va. 13° 35' E.

- 00.34 A yellow pine 6 inches in diam.
- 58.00 Bottom of cañon, a brook 10 lks wide course S. N.
- 59.00 Ascend ridge.
- 80.00 On slope of ridge bears N. E. and S. and set a Granite stone 32x24x11 in a mound of stones, marked "217" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; from which a yellow pine 14 inches in diam, bears S. 22° E. 50 lks. dist; a yellow pine 20 inches in diam, bears S. 50° N. 90 lks. dist; a yellow pine 24 inches in diam, bears N. 33° 38' N. 113 lks. dist.

Surface broken, mountainous, and rough. soil 3rd rate.
 Timber, white and yellow pine, oak,

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

aspen, fir, and cedar.

12075

South on 218th mile, true line
 Va. 13° 5' E.

60.00 Descend slope.

69.00 Enter valley, bears N. N. and S. E.
 and leave timber.

70.30 Brook 10 hrs. ride, course S. E.

80.00 Set a Granite stone 34 x 12 x 8 in

a mound of stones, marked
 "218" on the North side; "32° W. L."
 on the South; "ARIZ." on the
 West; "N. M." on the East;

No natural objects convenient
 for bearings.

Surface broken, rocky, and unou-
 tainous. Soil 2nd rate.

Timber, white and yellow pine,
 oak, aspen, and willow.

Excellent grass.

11600.

South on 219th mile, true line.
 Va. 13° E.

1.00 Begin ascent of mountain ridge
 bears N. N. and S. E.

14.20 Brook 5 hrs. ride course N. E.

40.00 Indications of copper. 20 rods. Hill
 of lead.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

- 12400.49.00 Summit of ridge, bears N. N. and S. E.
- 80.00 Set a Granite stone 26X12X7 in a mound of stones, marked "219" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East;
- No natural objects convenient for bearings.
- Surface broken, rocky, and mountainous, soil 3rd rate.
- Timber, white and yellow pine, oak, aspen, and cottonwood on the slope.
- August 29th 1875.
-

11700. South on 220th mile, two lines.
Va. 13° E.
- 3.65 Descend into cañon.
- 28.80 Bottom of cañon, and cross brook 1500 ft. wide course N. E.
- 31.20 Ascend ridge, bears E. and N. and extends about 1/2 mile S. E.
- 63.00 Summit of ridge.
- 80.00 Set a Granite stone, 24X16X3, in a mound of stones, marked "220" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

from which a Yellow pine 10
 inches in diam. bears N. 50° N.
 49 lrs. dist: a Yellow pine 24
 inches in diam. bears S. $34^{\circ} 12'$ N.
 30 lrs. dist: a Yellow pine 9
 inches in diam. bears S. $27^{\circ} 30'$
 E. 63 lrs. dist:
 Surface broken and moun-
 tainous. soil 3rd rate.
 Timber, white and yellow pine,
 oak, aspen, cottonwood, and willow.

12150.

South on 221st mile, true line,
 Va. $12^{\circ} 20'$ E.

10.00 Yellow pine 24 inches in diam.
 13.18 An Oak 7 inches in diam.
 24.70 A yellow pine 18 inches in diam.
 52.60 A yellow pine 24 inches in diam.
 73.52 A yellow pine 14 inches in diam.
 80.00 Set a Basalt rock 20X14X10 in a
 mound of stones, marked "221" on
 the North side: "32° W. L." on the
 South: "ARIZ." on the West: "N.M."
 on the East: from which a
 yellow pine 24 inches in diam.
 bears S. 74° N. 20 lrs. dist: a yellow
 pine 14 inches in diam. bears
 N. $43^{\circ} 30'$ N. 57 lrs. dist: a yellow
 pine 8 inches in diam. bears

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

S. $78^{\circ} 56' E$. 72 hrs. dist.
 Surface rolling, soil 2nd rate.
 Excellent grass.
 Timber, yellow pine, oak, cedar,
 fir, and aspen.

12100. South on 222nd mile, true line,
 Va, $12^{\circ} 32' E$.
- 15.00 Foot of a round hill bears E. and
 N. and ascend.
- 25.40 Top of same, and descend.
- 41.00 Leave hill, bears E. and N.
- 50.25 An oak 9 inches in diam.
- 62.93 A yellow pine 23 inches in diam.
- 64.15 An oak 5 inches in diam.
- 80.00 Set a Basalt rock $24 \times 10 \times 6$ in a
 mound of stones, marked "222" on
 the North side; " $32^{\circ} W.L.$ " on the
 South; "ARIZ." on the West; "N.M."
 on the East; from which a yellow
 pine 16 inches in diam. bears
 S. $47^{\circ} E$. 12 hrs. dist; a yellow pine
 10 inches in diam. bears N. $77^{\circ} 27' E$.
 42 hrs. dist; a yellow pine 24 inches
 in diam. bears S. $72^{\circ} 50' N$. 133 hrs.
 dist.
 Surface rolling, soil 1st rate, ex-
 cellent grass.
 Timber, pine, oak, and cedar.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

August 30th 1875.

11840.

South on 223rd mile. true line.
Va. 12° 6' E.

- 7.17 A yellow pine 8 inches in diam.
- 15.12 A cedar 18 inches in diam.
- 24.10 A cedar 42 inches in diam.
- 70.30 A double yellow pine, each 8 inches in diam.

73.91 A yellow pine 20 inches in diam.

80.00 Set a Granite stone, 18X10X10 in a mound of stone, marked "223" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; from which a cedar 40 inches in diam. bears N. 47° N. 87 lks. dist; a yellow pine 8 inches in diam bears S. 63° 42' N. 29 lks. dist; a yellow pine 7 inches in diam. bears S. 43° 30' E. 49 lks. dist.

Surface rolling, soil 2nd rate, excellent grass.

Timber yellow pine, oak, cedar, piñon, and aspen.

11400

South on 224th mile, true line.
Va. 12° 24' E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

- 12.00 Edge of deep precipitous cañon descends East; measure a base of 12.00 chs. West, to a point from which flag in line bears S. 13° 50' E. Cotangent of 13° 50' E. = $4.0610100 \times 12 = 48.73$ the distance across cañon.
- 60.73 Across cañon to summit of mountain ridge, bears E. and N. This cañon, is 700 ft. deep with a small stream of water in the bottom, course East, and a water-fall 8.00 chs. West of line.
- 61.00 Begin descent of slope.
- 77.35 An oak 9 inches in diam.
- 80.00 Set a Metamorphic rock, 18x18x12, in a mound of stones, marked "224" on the North side; "32° W. L.", on the South; "ARIZ." on the West; "N.M." on the East; from which a piñon 7 inches in diam. bears S. 41° 44' E. 14 lks. dist; a piñon 8 inches in diam. bears N. 87° 20' N. 21 lks. dist; a piñon 6 inches in diam. bears N. 31° N. 20 lks. dist; Surface broken and rocky. Soil 3rd rate. Good grass. Timber, piñon, oak, cedar, piñon and aspen.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
11180.		South on 225 th mile, true line, Va 13° E.
32.00		Arroyo 80 lks. wide course S. N.
54.00		Arroyo 148. lks. wide course S. N.
59.72		A yellow pine 19 inches in diam.
80.00		Set a Granite stone 24X14X6, in a mound of stones, marked "225" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; from which a piñon, 8 inches in diam. bears N. 83° N. 56 lks. dist; a piñon, 8 inches in diam, bears S. 65° N. 52 lks. dist; a yellow pine 8 inches in diam, bears S. 34° 30' E. 61 lks. dist; Surface broken and stony, soil 3 rd rate, good grass, Timber, pine, oak, piñon, and cedar. Observed Polariz. see page, 328 August 31 st 1875.
10575.		South on 226 th mile, true line, Va. 12° 48' E.
6.40		Descend into cañon
11.00		Brook 10 lks. wide, in bottom of cañon, course S. E.
37.00		Leave cañon.
49.00		Descend into valley.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

80.00 Set a Granite stone 18x10x6. in a mound of stone, marked "226" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; from which a yellow pine 30 inches in diam. bears N. 41° 10' E. 14 krs. dist; a yellow pine 28 inches in diam. bears S. 22° 52' E. 34 krs. dist:
 Surface broken and stony. soil 3rd rate.
 Timber oak, pine, cedar, piñon, cottonwood, and willow.

10300.

South on 227th mile. true line.
 Va. 12° 30' E.

8.00 A creek 30 krs. wide, low gravelly banks, clear, swift, current, gravelly bottom, about 10 inches deep, course S. S. E.
 10.00 Ascend hill, bears N. N. and S. E.
 20.00 Commence descent of same.
 48.00 Foot of hill, and enter bottom, bears N. N. and S. E.
 57.00 Creek 40 krs. wide, course S. N.
 58.20 Leave bottom, and ascend mountain, bears E. and N.
 71.00 Arroyo 40 krs. wide, course N. N.
 80.00 Set a Sandstone 18x12x8 in a

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

mound of stumps, marked "227" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; from which a yellow pine 14 inches in diam. bears S. 51° E. 26 lks. dist: a yellow pine 11 inches in diam. bears S. 69° 40' E. 36 lks. dist: a yellow pine 16 inches in diam. bears N. 67° 36' E. 38 lks. dist:

Surface broken and rocky, soil 3rd rate, except in bottom which is level, soil gravelly 2nd rate, Timber, pine, oak, cedar, piñon, aspen, cottonwood, and willow, Wild grape and hop vine, and brush in the bottom.

Sept. 2nd 1875.

10380.

South on 228th mile, true line. Va. 12° 30' E.

55.00 Arroyo 80 lks. wide course N. N.
 80.00 Set a hard Sandstone, 18 X 15 X 12 in a mound of stumps, marked "228" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; from which an oak 12 inches in

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

diam. bears $S 70^{\circ} N$. 26 hrs. dist.;
 an oak 12 inches in diam. bears
 $N. 34^{\circ} 3' N$, 18 hrs. dist.; an oak 14
 inches in diam. bears $N. 54^{\circ} E$.
 28 hrs. dist.;
 Surface broken, and mountain-
 ous. soil 3rd rate.
 Timber, white and yellow pine,
 oak, spruce, and aspen.
 Sept. 3rd 1875.

-
11700. South on 229th mile, two lines.
 $Pa. 13^{\circ} E$.
11925. 44.00 Summit of mountain, bears $N. E$.
 and $S. N$.
- 49.40 A yellow pine 10 inches in diam.
 and descend into cañon, course
 $S. E$.
- 65.45 Bottom of cañon.
- 67.00 Ascend side of cañon.
- 76.40 Leave cañon.
- 80.00 Set a Granite stone $20 \times 12 \times 4$ in
 a mound of stones, marked "229"
 on the North side; "32° W. L." on
 the South; "ARIZ." on the West;
 "N. M." on the East; from which
 a yellow pine 7 inches in diam.
 bears $S. 59^{\circ} E$. 43 hrs. dist.; a yellow
 pine 16 inches in diam. bears

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

S. $27^{\circ}27'$ N. 37 lrs. dist: a yellow pine 14 inches in diam. bears N. 44° N. 36 lrs. dist:
 Surface broken and stony soil 3rd rate.
 Timber white and yellow pine, spruce, cedar, piñon, and oak.

11800.

South on 230^{th} mile, two lino. Va. 13° E.

- 18.94 A yellow pine 10 inches in diam.
 - 51.00 Arroyo 8.00 chs. wide course N. E.
 - 59.57 A yellow pine 21 inches in diam.
 - 65.20 An oak 15 inches in diam.
 - 80.00 Set a Sandstone $22 \times 18 \times 12$. in a mound of stones, marked "230" on the North side: " 32° W. L." on the South: "ARIZ." on the West: "N.M." on the East; from which a piñon 14 inches in diam. bears N. $59^{\circ}13'$ N. 42 lrs. dist: a yellow pine 18 inches in diam. bears S 70° E. 50 lrs. dist: no other trees convenient.
 Surface rolling soil 2nd rate. good grass.
 Timber. pine, oak, piñon, and cottonwood.
 Sept. 4th 1875.
-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
11700.		South on $231^{\frac{3}{4}}$ miles, true line. Pa. $13^{\circ}30'E$.
	0.00	Edge of cañon with precipitous sides. course S. N. measure a base of 5.06 chs. East. to a point from which flag in line on opposite side bears S. $15^{\circ}4'N$. Sotangent of $15^{\circ}4' = 3,7147561 \times 5.06 = 18.80$ the distance across cañon.
	18.80	Across cañon. course N. est. 60 ft. deep. with a Spring 30.00 chs. N. est. of line.
	40.65	A yellow pine 4 inches in diam.
11500	73.00	Edge of cañon. course E. and N. and descend.
	80.00	Set a Granite stone. $18 \times 15 \times 6$. in a mound of stones. marked. "231" on the North side; "32° W.L." on the South, "ARIZ." on the West; "N.M." on the East; the corner falls on the slope of the side of the cañon. No natural objects convenient for bearings. Surface broken. and rocky. soil 3 rd rate. Timber white and yellow pine, cedar. and piñon; and in the cañons walnut. cotton wood. ash. Hack berry. willow. and wild apple.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
10900.		South on 232 nd mile, true line. Va, 13° 10' E.
10480	20.00	Bottom of cañon course. Met. a brook 5 lks. wide, course N. E.
	21.10	Begin ascent of mountain, bears E. and N.
11480.	78.00	Top of mountain bears E. and N.
	80.00	Set a Metamorphic stone 18x14x8, in a mound of stones, marked "232" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; from which a piñon 10 inches in diam bears S. 37° N. 9 lks. dist; a yellow pine 4 inches in diam, bears N. 79° 6' E. 38 lks. dist; a cedar 8 inches in diam, bears S. 86° N. 18 lks. dist; Surface broken, and stony, soil 3 rd rate. Timber, white and yellow pine, oak, spruce and cedar, and piñon.
11425.		South on 233 rd mile, true line. Va, 12° 55' E.
	30.20	Edge of cañon and descend.
	34.00	Bottom of same. 80 ft. deep, course S. N.
	43.60	Leave cañon.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
80.00	<p>Set a Granite stone, 26x16x8, in a mound of stones, marked "233" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; from which an oak, 10 inches in diam, bears S. 59° E. 58 lbs. dist; a yellow pine 8 inches in diam, bears N. 73° 55' E. 84 lbs. dist; an oak 10 inches in diam, bears N. 74° N. 25 lbs. dist;</p> <p>Surface rolling and stony. soil 3rd rate.</p> <p>Timber, pine oak, piñon cedar, and spruce.</p> <p>Sept. 5th 1875.</p>	
11300.	<p>South on 234th mile, true line, Ta. 13° E.</p> <p>20.25 A yellow pine 15 inches in diam.</p> <p>28.60 Descend ledge 40 ft. high, bears E. and N.</p> <p>43.75 A yellow pine 10 inches in diam.</p> <p>47.82 A yellow pine 12 inches in diam.</p> <p>80.00 Set a Sandstone, 30x24x4 in a mound of stones, marked "234" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; from which a</p>	

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

yellow pine 9 inches in diam.
 bears N. 69° E. 44 lks. dist; a yellow
 pine 26 inches in diam.
 bears S. $21^{\circ} 15'$ E. 49 lks. dist; an
 oak 9 inches in diam. bears
 S. $68^{\circ} 50'$ N. 25 lks. dist;

Surface rolling, soil 1st rate,
 Timber, pine, oak, cedar, piñon,
 and willow, excellent grass,
 Sept. 7th 1875.

11125.

South on 235th mile, true line,
 Pa, $12^{\circ} 55'$ E.

13.00 Enter small valley, course N. est,

24.00 Leave same and enter timber,

38.00 Leave timber and enter valley
 course N. est;

44.00 Leave valley and enter timber
 bears E. and N.

44.67 A pine 25 inches in diam.

45.85 A pine 13 inches in diam.

50.00 Edge of cañon, and descend.

10900. 62.60 Bottom of same, and "small stream
 5 lks. wide, course N. est.

70.00 Leave cañon course N. est.

80.00 Set a Granite stone $19 \times 15 \times 10$, in
 a mound of stone, marked, "235"
 on the North side; "32' W. L." on
 the South; "ARIZ." on the N. est;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

"N.M." on the East;

No natural objects convenient for bearings.

Surface broken, and rocky. soil 3rd rate.

Timber, white and yellow pine, spruce and oak, besides willow and walnut in the cañon.

10980.

South on 236th mile, true line.

Ba. 12° 55' E.

8.00 A brook 5 lrs. wide course N. N.

80.00 A yellow pine 10 inches in diam. in place, marked "236" on the North side; 32° W. L. on the South; "ARIZ." on the West; "N.M." on the East; from which a yellow pine 8 inches in diam. bears N. 30° 42' E. 14 lrs. dist; an oak 12 inches in diam. bears N. 87° 30' N. 27 lrs. dist; a yellow pine 10 inches in diam. bears N. 86° E. 82 lrs. dist; Surface broken, and rocky. soil 3rd rate.

Timber, pine spruce, oak, cedar, and piñon.

Sept. 8th 1875.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

11870. South on 237th mile. true line.
Va. 12° 54' E.
11900. 12.50 Summit of mountain.
21.23 A yellow pine 8 inches in diam.
Va. 11° 50' E.
31.08 Yellow pine 21 inches in diam.
51.50 Descend mountain slope, bears
E. and N.
80.00 Set a Granite stone 20x20x18,
in a mound of stones, marked
"237" on the North side; "32° W. L."
on the South; "ARIZ." on the
West; "N.M." on the East:
No natural objects convenient
for bearings.
Surface broken, and rocky, soil
3rd rate.
Timber white and yellow pine,
spruce, cedar, piñon, and oak.
-

11670. South on 238th mile. true line.
Va. 13° E.
- 21.00 Foot of mountain; approx 10
mi. wide course S. E.
21.20 Ascend mountain slope.
11435. 47.00 Summit bears N. N. and S. N.
47.12 A spruce tree 24 inches in diam.
55.08 A yellow pine 13 inches in diam.
61.60 Leave mountain summit, and de.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

ascend.

79.60 Bottom of cañon. course N. E.
stream 10 lks. wide.80.00 Set a Grey Granite stone
18x12x4 in a mound of stones,
marked "238" on the North side;
"32° W. L." on the South; "ARIZ." on
the West; "N.M." on the East;
from which a maple tree 10
inches in diam, bears S. 40° 23' N.
29 lks. dist.; a spruce 10 inches
in diam, bears S. 75° 30' E. 21 lks.
dist.; and a spruce 26 inches in
diam, bears N. 5° N. 50 lks. dist.
Surface very rough and rocky.
Soil 3rd rate.Timber; spruce, piñon, cedar, pine,
and some maple.
Sept. 9th 1875.

10760.

South on 239th mile. two linc.
Va. 12° E.

0.00 Ascend bluff.

11330. 8.00

Top of bluff. bears E. and N. and
descend.

10825. 22.65

Foot of bluff. and cañon. with
stream which runs North, and
course from the West, and as-
cend.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
11120.	31.57	Top of bluff. bears E. and N.
	34.65	A spruce 7 inches in diam.
	41.96	A yellow pine 10 inches in diam.
	58.20	A spruce 24 inches in diam.
	80.00	Set a wal pair stone 15x15x10 in a mound of stones, marked "239" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; from which a spruce 18 inches in diam. bears N. 28° 48' N. 63 lks. dist.; no other natural objects convenient for bearings.
		Surface very broken and rocky. Soil 3 rd rate.
		Timber; piñon, cedar, pine, spruce and a few maple, and quaking aspen.
11715.		South on 240 th mile. true line. Ta. 13° E.
	22.43	A spruce 16 inches in diam.
	23.68	A spruce 10 inches in diam.
	27.50	A yellow pine 19 inches in diam.
12085.	43.00	Edge of bluff. bears S. N. and N. E. and descend.
	80.00	Set a wal pair stone 20x18x15 in a mound of stones, marked

WESTERN BOUNDARY OF NEW MEXICO TERRITORY!

Altitude. Chains.

"240" on the north side; ^{"32° W.L." on the "log" side;} ARIZ.
 on the West; "N.M." on the East; from which a yellow
 pine 19 inches in diam. bears N. 44° N. 19 lbs. dist.; a yellow pine
 10 inches in diam. bears N. 52° E.
 9 lbs. dist.; a yellow pine 21 inches
 in diam. bears N. 77° 27' E. 21 lbs.
 dist.

Surface very much broken. soil
 3rd rate.

Timber; pine, spruce, oak, maple
 and aspen.

Sept. 10th 1875.

11480. South on 241st mile. tree line.
 Va. 12° 15' E.
11595. 1.70 Bottom of cañon course N. E. and
 ascend mountain slope.
- 14.20 A yellow pine 9 inches in diam.
- 22.90 A yellow pine 14 inches in diam.
- 31.00 Top of ridge, course N. and S. and
 ascends to the N. E. cañon on
 both sides of the ridge.
- 62.03 A yellow pine 8 inches in diam.
- 62.30 Leave ridge, and cross a cañon
 5.00 chs. West of its head, course
 of cañon N. N.
- 80.00 A spruce tree 12 inches in diam.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
		<p>in place. marked "241" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; from which a spruce 18 inches in diam, bears N. 46° 10' N. 25 lks. dist.; a spruce 14 inches in diam, bears N. 79° N. 29 lks. dist.; and a spruce 18 inches in diam, bears S. 89° E. 20 lks. dist.</p> <p>Surface very rough and broken. Soil 3rd rate.</p> <p>Timber: pine, spruce, fir, aspen, and oak.</p>
12190.		<p>South on 242nd mile, two linc. Va 13° 52' E.</p>
12500.	9.00	<p>Top of a peak, and the summit of the last range.</p>
	37.00	<p>Descend mountain, bears E. and N.</p>
	80.00	<p>Set a Senia rock 28X16X8, in a mound of stones, marked "242" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;</p> <p>No natural objects convenient for bearings.</p> <p>Surface broken and rocky. Soil 3rd rate.</p>

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Timber: pine, spruce, fir, oak, and
aspens.

Sept. 11th 1875.

South on 243rd mile, true line,
Ta. $13^{\circ} 30' E$.

11625. 7:00 Bottom of cañon, course N. and
ascend ridge.

11850. 21.20 Summit of ridge bears E. and N.
23.78 Begin steep descent of very pre-
cipitous ridge, bears E. and N. as
it is impossible to get a base
for triangulation, I set a flag in
line below, and leave a flag on
line at this point, and go below
to flag, from which flag I meas-
ure a base of 14.00 ch. East, from
which point, flag on mountain
above, bears N. $10^{\circ} 35' N$.

Cotangent of $10^{\circ} 35' = 5.3520626 \times 14 = 74.93$
the distance between flags, $74.93 +$
 $23.78 = 98.71$ total distance. I then
measure back North on line, 18.71
ch, and at

80.00 Set a Granite stone $20 \times 18 \times 18$, in
a mound of stones, marked "243"
on the North side; "32° W. L." on
the South; "ARIZ." on the West;
"N. M." on the East;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

No natural objects convenient
for bearings.

Surface very rocky and moun-
tainous. soil 3rd rate.

Timber; pine, oak, cedar. and
oak brush

10500.

South on 244th mile, true line.
Pa. $13^{\circ}48'E$

2.00 Foot of mountain bears E . and
 N . and cuts open country, al-
most devoid of timber, and
very much broken, by numerous
cañons, with the whole surface
covered by loose stones.

18.71 Flag from which the preced-
ing triangulation was made.

75.00 Descend into valley course $S.E.$

80.00 Set a Scoria rock $18 \times 10 \times 6$ in a
mound of stones, marked "244" on
the North side; $32^{\circ} W.L.$ on the
South; "ARIZ." on the West; "N.M."
on the East; from which an
oak 18 inches in diam. bears
 $S. 48^{\circ} E. 41$ lks. dist.; an oak 16 inches
in diam. bears $S. 70^{\circ} 10' N. 61$ lks.
dist.; an oak 14 inches in diam.
bears $N. 70^{\circ} N. 79$ lks. dist.

Surface rolling and stony. soil

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
		3 rd rate. Timber; scattering cedars, and oak. good grass.
10000.		South on 245 th mile, two mio. Va. 13° 45' E.
1.40		Bottom of valley, an an Arroyo course S. E.
3.20		Arroyo 20 krs. wide. course S. S. E.
4.00		Indian Trail course N. N. and S. E.
7.50		Ascend slope.
16.00		Leave valley. course S. E.
39.00		Descend into valley.
52.00		Bottom of same; a brook 30 krs. wide. course S. E.
69.00		Leave valley. course N. N. and S. E.
76.50		Arroyo 20 krs. wide course S. E.
80.00		Set a Sandstone boulder 16 X 14 X 6 in a mound of stones, marked "245" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East;
		No natural objects convenient for bearings.
		Surface somewhat broken. soil 3 rd rate.
		Timber in the valleys pine, cedar, fir, oak, and willow.
		Sept. 12 th 1875.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
9625.		South on 246 th mile, true line, Pa. 12 1/2' E.
28.00		Enter timber bear Co. and N.
30.30		Amojo 15 hrs. wide course S. E.
34.00		Leave timber bear Co. and N.
50.20		Astronomical station No. 6.
		Observations were made for.
		Azimuth; see page. 331
		Latitude; see page. 334
		Time; see page. 331
		Sept. 13 th and 14 th 1875.
50.20		Astronomical monument No.
		6. consisting of a hard Sand-
		stone 32X16X12 set in the ground
		with a mound of stones sur-
		rounding it, marked "245.63" "33° 26'
		22" N.L." on the North side;
		"32° W.L." on the South; "ARIZ." on
		the West; "N.M." on the East; AS ¹⁸⁷⁵
		from which mountain peak bears
		S. 26° 47' N.
		a cedar 10 inches in diam. bears
		S. 69° E. 12 hrs. dist.; a cedar 36
		inches in diam. bears N. 51° E.
		96 hrs. dist.
80.00		Set a hard Sandstone 18X12X3
		in a mound of stones, marked
		"246" on the North side; "32° W.L."
		on the South; "ARIZ." on the
		West; "N.M." on the East;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

No natural objects convenient
 for bearings.
 Surface rolling and stony. soil
 3rd rate.
 Timber; pine, cedar, piñon and
 oak. very scattering. Good grass.

9700. South on 247th mile. true line.
 Va. 12° 15' E.

35.00 Ascend low bluff, course E. and N.

42.40 Summit of same.

57.00 Begin descent of same

63.00 Foot of same. bears E. and N.

80.00 Set a hard Sandstone 22x16x5.
 in a mound of stones, marked
 "247" on the North side; "32° W.L."
 on the South; "ARIZ." on the West;
 "N.M." on the East;

No natural objects convenient
 for bearings.
 Surface rolling and stony. soil
 3rd rate.
 Vegetation a few scattering cedars
 and oak. Good grass.

9725. South on 248th mile. true line.
 Va. 13° 15' E.

54.00 Descend into rocky cañon.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
9300.	63.00	Bottom of same, and a brook 15 lks. wide, course East;
	67.00	Ascend.
	78.00	Leave cañon bears E. and N. 800 ft. deep.
	80.00	Set a Trap rock 26X10X6, in a mound of stones, marked "248" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;
		No natural objects convenient for bearings.
		Surface broken and rocky, soil 3 rd rate.
		Vegetation scattering cedars, with good grass.
		South on 249 th mile, true line, Ta. 13° 30' E.
10100	16.00	Summit of a hill, bears E. and N.
	42.00	Arroyo 15 lks. wide course East.
	75.00	Begin descent into cañon, bears E. and N.
	80.00	Set a Scoria stone 24X18X12, in a mound of stones marked "249" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;
		No natural objects convenient

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

for bearings.
 Surface broken and stony, soil
 3rd rate.
 Vegetation a few scattering cedars
 and good grass.

9800. South on 251st mile, true line.
Ta. 13° 15' E.
- 15.00 Bottom of cañon, a brook 10 krs.
 wide course S. E.
- 27.00 Brook 10 krs. wide course N. E.
- 32.00 Leave cañon, bears E. and N.
- 80.00 Set a Granite stone 20 X 12 X 5 in
 a mound of stone, marked "250"
 on the North side; "32° W. L." on the
 South; "ARIZ." on the West; "N.M."
 on the East;
 No natural objects convenient
 for bearings
 Surface broken and stony, soil
 3rd rate.
 Timber, a few pine, cedar, and oak
 trees, good grass.
-

9900. South on 251st mile, true line.
Ta. 12° 30' E.
- 8.00 Arroyo 90 krs. wide course N. E. and N.
- 61.00 Descend into cañon.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
65.00		Bottom of same. 130 lks. wide and ascend.
75.50		Leave same course East.
80.00		<p>Set a hard Sandstone 14x12x12 in a mound of stone, marked "251" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; from which a cedar 24 inches in diam. bears S. 80° 17' N. 117 lks. dist.; a cedar 22 inches in diam. bears S. 27° 4' N. 36 lks. dist.; a mountain peak bears S. 70° 32' N.</p> <p>Surface rolling and stony. Soil 3rd rate.</p> <p>Vegetation, a few scattering cedars and oak, and good grass.</p> <p>Sept. 15th 1875.</p>
10000.		<p>South on 252nd mile, true line. Ta. 12° 24' E.</p>
2.00		Descend into deep Arroyo, course East;
12.00		Bottom of same 260 lks. wide.
21.00		Leave same.
38.00		Foot of slope course S.E. at the point of a range of hills extending North west,
47.28		Edge of cañon, bears E. and N.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY

Altitude.	Chains.	
		and descend.
80.00		Set a Trap rock 30X20X8 in a mound of stones, marked "252" on the South side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings. Surface broken and stony, soil 3 rd rate, excellent grass. Timber; a few scattering oaks and cedars.
10400.		South on 253 rd mile. true line, Pa. 12° 24' E.
10150.	3.50	Bottom of cañon
10280.	9.00	Leave same course East,
	24.00	Descend into cañon,
10000.	26.00	Bottom of same course East,
10260.	30.25	Leave same,
	53.80	Descend into cañon,
10080.	56.00	Bottom of same course East,
10360.	72.00	Leave same,
80.00		Set a Scoria stone, 14X12X8. in a mound of stones, marked "253" on the South side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
		<p>beavings. Surface rolling and stony. soil 3rd rate. Timber: oak, cedar, and pine, scattering. Good grass.</p> <hr/>
10400.		<p>South on 254th mile. true line, Ta. 12° 18' E.</p>
	21.00	<p>Descend into cañon, course East.</p>
10150.	32.00	<p>Bottom of same, 84 lbs. wide.</p>
10400.	40.60	<p>Leave same.</p>
	62.70	<p>Descend into cañon, bears N. N. and S. E.</p>
9980.	73.00	<p>Bottom of same, course S. E.</p>
	74.10	<p>Begin ascent.</p>
	80.00	<p>Set a Trap rock 20x11x3. in a mound of stones, marked "254" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East;</p> <p>No natural objects convenient for beavings. Surface broken and stony. soil 3rd rate. Timber: scattering cedar, pine, and oak. Excellent grass.</p> <hr/>

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

10025. South on 255th mile, true line.
 Va. 12° 30' E.
- 43.20 Enter cañon course S. E.
9975. 47.85 Bottom of same.
- 54.50 Leave same course S. E.
10020. 60.00 Begin descent into cañon, course
 East.
9900. 77.60 Bottom of same.
- 80.00 Set a Granite stone, 18 X 13 X 4, in
 a mound of stones, marked
 "255" on the North side; "32° W. L."
 on the South; "ARIZ." on the
 West; "N. M." on the East;
 No natural objects convenient
 for bearings.
 Surface very broken, and rocky
 soil 3rd rate.
 Timber; scattering cedars, and
 oak, and some mescal. Excel-
 lent grass.
 Sept. 16th 1875.

9920. South on 256th mile, true line.
 Va. 13° 24' E.
10200. 20.00 Leave cañon course E. and N.
- 21.00 At this point the surface of
 the country becomes exceedingly
 rough, and very much broken,
 by numerous precipitous cañons.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

zone of which, are absolutely
 impassable; the large cañon
 about 2500 ft. deep, of the Cas-
 tra branch of the San Fran-
 cisco river being about 5 miles
 South, with a large number of
 branch cañons, coming in
 from both sides, and as it
 is impossible to carry the
 line further, by direct measu-
 rement, I select a point on
 line to which I make a tri-
 angulation, the point being
 on a mountain South, I then
 measure a base of 283.00 chs;
 East, to a point from which
 the point on line bears S. 11° 1' N.
 $\text{cotangent of } 11^\circ 1' = 5.1365763 \times 283. =$
 1453.65 chs, continuing the base
 to 400.00 chs, the point on line
 bears S. 15° 23' N.
 $\text{cotangent of } 15^\circ 23' = 3.6346064 \times 400. =$
 1453.84 the mean of these two
 triangulations gives the distance
 to the point on line as 1453.74
 chs, or 18 miles 13.74 chs.
 Sept. 17th 18th and 19th 1875. I then
 proceed to the point on line, to
 which the triangulation was
 made, and continue the line

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

From 34.74 chs. on the 274th mile.
Observed Polariz. see page 328
 Sept 20th 1875.

South on 274th mile, true line.
 Pa. 13° 15' E.

10800. 34.74

Point on line to which triangulation was made. on West slope of a hill.

80.00

Set a mica schist stone 22x16x4 in a mound of stones, marked "274" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; from which a yellow pine 28 inches in diam. bears N. 14° 30' W. 27 lbs. dist.; a yellow pine 19 inches in diam. bears N. 60° E. 59 lbs. dist.; an oak 8 inches in diam. bears S. 82° 10' W. 48 lbs. dist.

Surface broken and rocky. soil 3rd rate.

Timber; pine, piñon, cedar, oak. Vegetation manzanita, mesquite plants.

10650.

South on 275th mile, true line.
 Pa. 13° 10' E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

17.00 Summit of the Divide between the waters of the San Francisco, (Eastern branch of) and Gila. Divide bears E. and N.

10800. 17.00 Mountain peak 28.00 chs. West

19.80 Begin descent to the Southward.

35.00 Highest point of Mt. Moulton peak. bears East. 29.37 chs. dist.

10300. 69.00 Enter cañon course S.E. and S.

80.00 Set a Trap rock 18x10x8 in a mound of stones, marked "275" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N.M." on the East;

No natural objects convenient for bearings.

Surface broken and rocky. soil 3rd rate.

Vegetation. pine, cedar, piñon, oak, willow, manzanita, mesquite and many plants.

Good grass.

10250. South on 276th mile. true line. Ta. 13° 20' E.

8.70 Begin ascent from cañon.

10450. 17.00 Summit of ridge of the cañon. course S. A.

17.40 Descend side of cañon

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

- 9750. 36.00 Bottom of cañon course S. N. and ascend.
- 10000. 54.72 Summit of ridge bears N. E. and S. N. and descend into cañon.
- 80.00 Set a Trap rock 28X14X4, in a mound of stones, marked "276" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East.
No natural objects convenient for bearings.
Surface broken and rocky. Soil 3rd rate.
Vegetation consists of a scrubby growth of oak, manzanita, cedar, and mesquite. Good grass.

- 9700. South on 277th mile, true line. Pa. 13° 20' E.
- 8700. 28.50 Bottom of slope, and an Arroyo 30 hrs. wide course S. N.
- 33.00 Begin ascent of ridge bears N. E. and S. N.
- 8950. 52.00 Summit of ridge.
- 53.00 Descend slope bears N. E. and S. N.
- 8300. 74.00 Bottom of slope; brook 15 hrs. wide. course S. N.
- 79.20 Ascend ridge bears N. E. and S. N.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
80.00		<p>Set a hard Sandstone 28X14X3. in a mound of stones, marked "277" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings. Surface broken and stony, soil 3rd rate. Vegetation, oak, manzanita and mesquite.</p>
8300.		<p>South on 278th mile, true line, Pa. 12° 57' E.</p>
8675.	19.00	Summit of ridge.
	20.80	Begin descent.
8325.	38.00	<p>Bottom of slope, and an Arroyo 20 hrs. wide, course S. N.</p>
	38.70	Ascend slope, bears N. E. and S. N.
8700.	54.00	Summit of same.
	55.20	Descend slope, bears N. E. and S. N.
	70.50	<p>Bottom of same, and an Arroyo 5 hrs. wide, course S. N.</p>
	77.10	Same Arroyo course S. N.
80.00		<p>Set a Scoria stone 20X12X10. in a mound of stones, marked "278" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;</p>

WESTERN BOUNDARY OF NEW MEXICO TERRITORY!

Altitude. Chains.

No natural objects convenient
for bearings.
Surface broken and stony. soil 3rd
rate.

Vegetation, cedar, mesquite and
maguey. Good grass.
Sept. 21st 1875.

8300.

South on 279th mile, true line.
Ta. 11° E.

47.00 A Brook 10 kts. wide course S. N.
and S.

65.00 Leave same. course S. and S. N.

80.00 Set a Granite stone 20x11x8. in
a mound of stones, marked "279"
on the North side; "32° W.L." on
the South; "ARIZ." on the West;
"N.M." on the East;

No natural objects convenient
for bearings.
Surface broken and rocky. soil 3rd
rate.

Vegetation, a few cedars, with mes-
quite and maguey.

8100.

South on 280th mile, true line.
Ta. 13° 10' E.

40.00. A brook 40 kts. wide. course N. N.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
80.00		Set a Trap rock 86X10X3. in a mound of stones, marked "280" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings. Surface broken, and stony. soil 3 rd rate. A few cedar trees.
8400.		South on 281 st mile, true line. Ta. 13° 20' E.
0.00		Ascend ridge bears N. N. and S. E.
8650.	27.00	Summit of same.
8650.	74.00	Begin descent of slope. bears N. E. and S. N.
80.00		Set a Trap rock 24X12X3. in a mound of stones, marked "281" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings. Surface broken and stony. soil 3 rd rate. Timber, a few scattering oaks, and cedars. Good grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
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No natural objects convenient for bearings.
 Surface broken and stony. soil 3rd rate.
 Vegetation, cedar, mesquite and mesquite. Good grass.
 Sept. 21st 1875.

8300.		South on 279 th mile, true line. Ta. 11° E.
47.00		A Brook 10 hrs. wide course S. N. and S.
65.00		Leave same. course S. and S. N.
80.00		Set a Granite stone 20x11x8. in a mound of stones, marked "279" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;
		No natural objects convenient for bearings. Surface broken and rocky. soil 3 rd rate. Vegetation, a few cedars, with mesquite and mesquite.

8100.		South on 280 th mile, true line. Ta. 13° 10' E.
40.00.		A brook 40 hrs. wide. course N. N.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

80.00 Set a Trap rock 86X10X3. in a mound of stones, marked "280" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings. Surface broken, and stony. soil 3rd rate. A few cedar trees.

8400. South on 281st mile, true line. Va. 13°20' E.

0.00 Arcud ridge bears N. N. and S. E.

8650. 27.00 Summit of same.

8650. 74.00 Begin descent of slope. bears N. E. and S. N.

80.00 Set a Trap rock 24X12X3. in a mound of stones, marked "281" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings. Surface broken and stony. soil 3rd rate. Timber, a few scattering oaks, and cedars. Good grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

Sept 22nd 1875.

8500.

South on 282nd mile, two liic.
Ta. 13° 20' E.

8350.

20.00 Foot of slope bears N. E. and S. N.

29.63 Brook 5 lks. wide course S. N.

73.30 Brook 5 lks. wide course West;

80.00 Set a Sandstone 18x14x3. in a mound of stones, marked "282" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East;

No natural objects convenient for bearings.

Surface rolling and stony. soil 3rd rate.

Vegetation, scattering cedar trees and good grass.

8150.

South on 283rd mile, two liic.
Ta. 13° 15' E.

8000. 12.00 Brook 5 lks. wide course West,

62.00 Brook 10 lks. wide course S. N.

78.60 An Anoyo 40 lks. wide course West, and ascend ridge.

80.00 Set a Granite stone 18x16x6. in a mound of stones, marked "283" on the North side; "32° W. L."

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings.
 Surface broken, and stony. Soil 3rd rate.
 Vegetation, oak bushes, and maguays. Good grass.

8025.

South on 284th mile, two lines.
 Va. 12° 45' E.

8125.

6.00 Summit of ridge bears E. and N.

47.55 Brook 5 lks. wide course West.

69.00 Arroyo 10 lks. wide course West.

80.00 Set a Granite stone 22x14x6 in a mound of stones, marked "284" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings.
 Surface rolling and stony. Soil 3rd rate.
 Good grass.

8100.

South 285th mile, two lines.
 Va. 13° E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

72.00 Begin ascent of ridge, bears N. W. and S. E.

80.00 Set a Granite stone 24x12x4. in a mound of stones, marked "285" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East:

No natural objects convenient for bearings.

Surface rolling and stony, soil 3rd rate. Good grass.

Sept. 23rd 1875.

8180. South on 286th mile, true line. Pa. 13° E.

8500. 50.00 Summit of ridge bears E. and N.

67.00 Begin descent of slope, bears E. and N.

80.00 Set a Trap rock 20x10x6 in a mound of stones, marked "286" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East:

Surface, rolling and stony, soil 3rd rate.

Vegetation, Mesquite plants, and good grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
8075.		South on 287 th mile, true line. Ta. 12° 48' E.
7800.	6.00	Foot of slope, bears E. and N.
	58.00	Arroyo 40 lks. wide with a small stream of water, course N. est.
	80.00	Set a Trap rock 20x12x5, in a mound of stones, marked "287" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East. No natural objects convenient for bearings. Surface rolling and stony. Soil 3 rd rate. Vegetation, a few scattering cedars trees, and good grass.
7780.		South on 288 th mile, true line. Ta. 13° 30' E.
	10.66	High Sharp Peak bears S. 65° 12' N.
	46.00	Arroyo 60 lks. wide course N. est.
	80.00	Set a Granite stone 28x14x12, in a mound of stones, marked "288" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East. Surface rolling and stony. Soil 3 rd rate.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

No natural objects convenient
for bearings.
Vegetation: chia bushes and
mesquite plants, good grass.

7850. South on 289th mile, two line,
Va. 12° 50' E.

80.00 Set a Sandstone, 26x15x11, 19
inches in each, marked "289" on
the North side; "32° W.L." on the
South; "ARIZ." on the West;
"N.M." on the East; dug pits
N. and S. 6ft. dist; 2ft. square; 12
inches deep.

No natural objects convenient
for bearings.

Surface rolling and stony, soil
3rd rate.

Vegetation, a few cedars and
chia bushes, and several varieties
of mesquite plants, good grass.
Sept. 24th 1875.

7750 South on 290th mile, two line,
Va. 13° 12' E.

76.89 Chozo 30kx. wide course West.

80.00 Set a Granite stone 20x15x15, in
a mound of stones, marked

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

"290" on the North side; "32°
W.L." on the South; "ARIZ." on
the West; "N.M." on the
East;

No natural objects convenient
for bearings.

Surface rolling and stony,
Soil 3rd rate.

Vegetation, chia bushes and
mesquite plants.

7620.

South on 291st mile, true line.
Ba. 13° 10' E.

32.20 Arroyo 20 lxs. wide course West.

61.72 Arroyo 20 lxs. wide course West.

80.00 Set a Trap rock 22 X 12 X 8. in
a mound of stones, marked
"291" on the North side; "32° W.L."
on the South; "ARIZ." on the
West; "N.M." on the East;

No natural objects convenient
for bearings.

High Sharp Peak bears S. 81° 40' E.
Surface rolling and stony,
soil 3rd rate.

Vegetation, chia bushes, and
mesquite plants.
Good grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
7450.		South on 292 nd mile, true line. Ta. 12° 30' E.
41.50		Arroyo 20 lks. wide course N. & S.
69.76		Arroyo 16 lks. wide course N. & S.
80.00		Set a Granite stone 20x18x15, in a mound of stones, marked "292" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East.
		No natural objects convenient for bearings.
		Surface rolling and stony soil 3 rd rate.
		Vegetation china bushes, and maguey plants. Good grass.
		Sept. 25 th 1875.
7300.		South on 298 th mile, true line. Ta. 13° 6' E.
7.90		Arroyo 17 lks. wide course N. & S.
34.20		Arroyo 15 lks. wide course N. & S.
65.00		Arroyo 30 lks. wide course N. & S.
80.00		Set a Sandstone 26x12x8, in a mound of stones, marked "298" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;
		No natural objects convenient for bearings.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Surface rolling and stony.
soil 3rd rate.
Vegetation, chiuia bushes, ma-
guay, and cactus. Good grass.

4260.

South on 294th mile, true line.
Pa. 13° 6' E.

7.00 Descend bluff, 40ft. high. bears
E. and N.

46.25 Arroyo 24 br. wide course N. and
E.

65.00 Ascend clay ridge bears E. and
N.

79.30 Top of same.

80.00 Set a Granite stone 24x10x6, in
a mound of stone, marked
"294" on the North side; "32° W. L."
on the South; "ARIZ." on the
West; "N.M." on the East;

No natural objects convenient
for bearings.

Surface rolling and stony.
Soil 3rd rate.

Vegetation, chiuia and maguay
plants, and cactus.
Good grass.

7000.

South on 295th mile, true line.
Pa. 11° 40' E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

- 13.00 Leave bluff, and enter level valley covered with excellent grass.
- 54.00 Leave valley, course E. and N. and enter rolling country.
- 80.00 Set a Granite stone $24 \times 12 \times 10$, 18 inches in earth, marked "295" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep. No natural objects convenient for bearings.
Surface rolling. Soil 2nd rate. Vegetation. good grass.
-

7160.

- South on 296th mile, true line, Va. $12^{\circ} 23' E$.
- 80.00 Set a Granite stone $26 \times 14 \times 8$, 19 inches in earth, marked "296" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep. No natural objects convenient for bearings.
Surface level and stony. Soil 2nd rate. Vegetation. good grass. Sept 26th 1875.
-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

7140. South on 297th mile, true line,
 Va. $12^{\circ}35'E$.
- 11.00 Descend low bluff, bears E.
 and N.
- 29.00 Foot of bluff, bears N. E. and
 S. N. and enter the valley of the
 river Gila.
- 47.48 Astronomical monument. (Nit-
 well monument) consisting
 of a Granite stone $34 \times 26 \times 18$
 set in the earth and stone,
 and marked "296.59" " $32^{\circ}41'19"$
 N. L." on the North side; " 32° W. L."
 on the South; "ARIZ." on the West;
 "N. M." on the East; "W. C. A. S.
 1875" on the top, this monu-
 ment was placed at this point
 to render it conspicuous, as it
 is on the North side of a con-
 stantly travelled road, and it
 was impracticable to take the
 observations at this point, they
 having been made a short dist-
 ance South from this point at
 a place not well suited for a
 monument, on account of the
 overflow from the Gila river.
 No natural objects convenient
 for bearings.
- 47.88 South side of the road from

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Silver City to the Shifton
copper mines. bear E. and N.
set a Granite stone 26X20X12. in
a mound of stones, marked
"296.60" on the North side: "32° W.L."
on the South: "ARIZ." on the West:
"N.M." on the East:

No natural objects convenient
for bearings.

59.00 Arroyo 30 mi. wide, course West.

78.02 Astronomical station No. 7. Obser-
vations were made for

Azimuth; see page. 328

Latitude; see page. 355

Time; Observations made, but record lost.
Sept. 27th and 28th 1875.

80.00 Set a Granite stone, 15X15X15, in
a mound of stones, marked "297"
on the North side: "32° W.L." on
the South: "ARIZ." on the West:
"N.M." on the East:

No natural objects convenient
for bearings.

Surface level. soil 1st rate.

Vegetation, willow brush, and hop
vines.

7000.

South on 298th mile, true line,
Pa. 12° 30' E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

15.12 South bank of the Gila river. low gravelly banks. swift muddy current. about 3ft. deep. with a hard bottom. width of the river by triangulation is 1.94chs. the river flows West. and about 1/2 mile below turn N. N. near by which on the North side of the river. is the rancho house of J. Little. and ^{the} next rancho is Duane's. and next West. is Rancho Alvidrez. Butler and Bodaboltz. have a rancho about 1/2 miles East of the line at this point. and Arnold and Sido have a rancho about 2 miles East. the bridge over the Gila river. is about 5 miles East;

17.06 South bank of the river Gila.
 80.00 Set a Specular Granite stone 15x12x4. 10 inches in each. marked "298" on the North side; "32° W.L." on the South; "ARIZ." on the West; N. M. on the East; deep pits N. and S. 6ft. dist; 2ft. square. 12 inches deep. No natural objects convenient for bearings.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Surface level. Soil 1st rate bottom.

Vegetation, mesquite plants, cotton-wood, and willow. Good grass.

7000. South on 299th mile, true line. Pa. 12° 30' E.

58.00 Leave bottom, and ascend bluff.

7300. 69.00 Summit of bluff, 300 ft. high. bears E. and N. and enters high rolling plain.

80.00 Set a sandstone 16x12x4, in a mound of stones, marked "299" on the North side: "32° W. L." on the South: "ARIZ." on the West: "N. M." on the East:

No natural objects convenient for bearings.
Surface in the bottom level. Soil, 1st rate. the remainder rolling and stony, with 3rd rate soil. Good grass.

7300. South on 300th mile, true line. Pa. 12° 30' E.

71.00 Urongo 45 hrs. wide course West.

80.00 Set a Sandstone 20x10x4 in a mound of stones, marked

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

"300" on the North side: "32°
 W.L." on the South: "ARIZ." on
 the West: "N.M." on the East:
 No natural objects convenient
 for bearings.
 Surface rolling and stony.
 Soil 3rd rate.
 Vegetation, good grass.

7225. South on 301st mile, true line,
 Pa. 12° 30' E.

7.03 Old Apache Indian trail bears
 N. E. and S. W.

80.00 Set a Sandstone 16x12x3, in a
 mound of stones, marked "301"
 on the North side: "32° W.L." on
 the South: "ARIZ." on the West:
 "N.M." on the East:
 No natural objects convenient
 for bearings.
 Surface rolling and stony.
 Soil 3rd rate.
 Vegetation good grass.

7400. South on 302nd mile, true line,
 Pa. 12° 30' E.

80.00 Set a Sandstone 18x10x4 1/4 inches
 in earth, marked "302" on the

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

North side; "32° W.L." on the
 South; "ARIZ." on the West;
 "N.M." on the East; dug pits
 N. and S. 6ft. dist: 2ft. square,
 12 inches deep.

No natural objects convenient for
 bearings.

Surface rolling and stony.
 Soil 3rd rate.

Vegetation, good grass.

7250.

South on 303rd mile, true line.
 Va. 12° 30' E.

80.00 Set a Sandstone 18X10X8. in a
 mound of stones, marked "303" on
 the North side; "32° W.L." on the
 South; "ARIZ." on the West; "N.M."
 on the East:

No natural objects convenient
 for bearings.

Surface rolling and stony.
 Soil 3rd rate.

Vegetation, good grass.

7280.

South on 304th mile, true line.
 Va. 12° 30' E.

5.00 Chicago 150 lbs. wide course West.

20.00 Set a Sandstone 17X14X3. in

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

a mound of stone, marked
 "304" on the North side; "32° W.L."
 on the South; "ARIZ." on the
 West; "N.M." on the East:
 No natural objects conven-
 ient for bearings.
 Surface rolling and stony.
 Soil 3rd rate,
 Vegetation good grass.

7280.

South on 305th mile, true line,
 Pa. 12° 30' E.

54.00 Anoyo 200 lbs. wide course S. N.

80.00 Set a Sandstone 15x11x4. in
 a mound of stone, marked
 "305" on the North side; "32°
 W.L." on the South; "ARIZ." on
 the West; "N.M." on the East:
 No natural objects convenient
 for bearings.
 Surface rolling and stony.
 Soil 3rd rate,
 Vegetation good grass.

7375.

South on 306th mile, true line,
 Pa. 12° 30' E.

80.00 Set a Lava stone 15x13x7, 10 inches
 in earth, marked "306" on the

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

North side: "32° W.L." on the
 South: "ARIZ." on the West:
 "N.M." on the East; dug pits
 N. and S. 6ft. dist: 2ft. square.
 12 inches deep.

No natural objects convenient
 for bearings.

Surface rolling and stony.
 Soil 3rd rate.

Vegetation, good grass.

Sept. 29th 1875.

7500.

South on 307th mile, true line.

Pa. 12° 30' E.

39.35 Dos Cabezas peak bears S. 55° 38' E.

80.00 Set a sandstone 20x12x5 15 inches
 in earth, marked "307" on the North
 side: "32° W.L." on the South: "ARIZ."
 on the West: "N.M." on the East;
 dug pits N. and S. 6ft. dist: 2ft.
 square. 12 inches deep.

No natural objects convenient
 for bearings.

Surface broken and stony, soil
 3rd rate.

Vegetation, good grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

7530.

South on 308th mile, true line,
Ta. 12° 30' E.

33.00 Enter small level prairie
bears E. and N.

75.00 Leave same, bears E. and N.

80.00 Set a Sandstone 20X10X6, 15
inches in earth; marked "308"
on the North side; "32° W.L." on
the South; "ARIZ." on the
West; "N.M." on the East; dug
pits N. and S. 6ft. dist; 2ft.
square, 12 inches deep.

No natural objects convenient
for bearings.

Surface gently rolling, soil 2nd
rate.

Vegetation, good grass.

7500.

South on 309th mile, true line,
Ta. 12° 30' E.

80.00 Set a Sandstone 18X12X4, 14
inches in earth, marked "309" on
the North side; "32° W.L." on
the South; "ARIZ." on the West;
"N.M." on the East; dug pits
N. and S. 6ft. dist; 2ft. square
12 inches deep.

No natural objects convenient
for bearings.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

Surface level. soil 1st rate.
Vegetation good grass.

7560.

South on 310th mile, true line.
Ta. 12° 30' E.

80.00 Set a Sandstone 18x12x5, in a mound of stones, marked "310" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;

No natural objects convenient for bearings.

Surface gently rolling, soil 2nd rate.

Vegetation, good grass.

7650.

South on 311th mile, true line.
Ta. 12° 30' E.

49.00 Arroyo 160 lks. wide course N. E.

80.00 Set a Sandstone 14x12x4, in a mound of stones, marked "311" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;

No natural objects convenient for bearings.

Surface gently rolling, soil 2nd rate
Vegetation, good grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

7700.

South on $3\frac{1}{2}$ miles. true line,
 Pa. $12^{\circ}30' E$.

0.00 Conical peak, bears $S.48^{\circ}28' E$.

59.00 Arroyo 30 hrs. wide course $N. E$.

80.00 Set a Limestone $14 \times 14 \times 4$, in
 a mound of stones, marked
 "312" on the North side;
 "32° W.L." on the South; "ARIZ."
 on the West; "N.M." on the
 East;

No natural objects convenient
 for bearings.

Surface rolling and stony.
 Soil 3rd rate.

Vegetation, good grass.

7800.

South on $3\frac{1}{3}$ miles. true line,
 Pa. $12^{\circ}30' E$.

80.00 Set a Sandstone $20 \times 15 \times 4$ in a
 mound of stones, marked "313"
 on the North side; "32° W.L." on
 the South; "ARIZ." on the West;
 "N.M." on the East;

No natural objects convenient
 for bearings.

Surface rolling and stony.
 Soil 3rd rate.

Vegetation, good grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

7825. South on $3\frac{1}{4}$ miles, true line,
 Va. $12^{\circ} 30' E$.
- 18.00 Foot of low bluff, bears West, and
 ascend.
7880. 40.00 Summit of same, and descend.
- 67.20 Foot of bluff, and leave same.
- 80.00 Set a Lava stone $20 \times 10 \times 10$ in a
 mound of stones, marked "3/4" on
 the North side: "32° W.L." on the
 South: "ARIZ." on the West:
 "N.M." on the East:
 No natural objects convenient
 for bearings.
 Surface rolling and stony.
 Soil 3rd rate.
 Vegetation, good grass.
-

7750. South on $3\frac{1}{5}$ miles, true line,
 Va. $12^{\circ} E$.
- 62.40 Arroyo 100 yds. wide, course East.
- 80.00 Set a Limestone $18 \times 12 \times 12$ in a
 mound of stones, marked "3/5" on
 the North side: "32° W.L." on the
 South: "ARIZ." on the West:
 "N.M." on the East:
 No natural objects convenient
 for bearings.
 Surface rolling, soil 2nd rate.
 Vegetation, good grass.
-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

7825. South on 316th mile, true line.
Va. 13° E.

76.45 Arroyo 30 hrs. wide course N. E.

80.00 Set a Lava stone 24x14x8. in
a mound of stones, marked
"316" on the North side; "32° W.L."
on the South; "ARIZ." on the
West; "N.M." on the East;
No natural objects convenient
for bearings.
Surface level. Soil, 2nd rate.
Vegetation. good grass. ✓

7875. South on 317th mile, true line.
Va. 13° E.

20.00 Outcrop of Metamorphic rock
bears East, about 10.00 chs. dist.

63.20 Arroyo 25 hrs. wide course N. E.

76.30 Arroyo 30 hrs. wide course N. E.

80.00 Set a Limestone 19x14x5 in a
mound of stones, marked "317"
on the North side; "32° W.L." on
the South; "ARIZ." on the West;
"N.M." on the East;
No natural objects convenient
for bearings.
Surface rolling and stony.
Soil 3rd rate. Vegetation. good grass.
Sept. 30th 1875.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

8000. South on $3/8''$ wire, true line,
 Va. $12^{\circ}30' E$.
- 8.00 Anoyo 30 hrs. wide course N. E.
- 33.20 A large black rock on line.
- 36.00 Foot of the Peloncillo mountains
 bears N. N. and S. E. very steep
 and rough, set flag on line
 on the summit, and measure
 a base of 29.76 chs. to a point, from
 which flag bears S. $20^{\circ}14' N$.
- Per tangent of $20^{\circ}14' = \frac{2.7130487 \times 29.76}{80.74} =$
 $80.74 =$ distance to flag. $80.74 + 36.00$
 $= 116.74$ total distance.
- Circular peak, bears S. $68^{\circ}41' E$.
- 80.00 Place for corner on inaccessible
 slope. I therefore set for a Nit-
 uell corner, 36.74 chs. South of
 true place a Granite stone
 $27 \times 20 \times 18$ in a mound of stones,
 marked, "W.C. 318" on the North
 side; "32° W.L." on the South;
 "ARIZ." on the West; "N.M." on
 the East:
- No natural objects convenient
 for bearings.
- Surface very much broken, and
 stony.
- Vegetation, good grass.
- Soil 3rd rate.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

South on 319th mile, true line.
Ta. 12° 30' E.

9100. 36.74

Point on the summit of the mountains to which triangulation was made.

56.40

Begin descent of mountain as it is very precipitous and impracticable to measure. Place a flag on line at this point and also set a flag in line in the valley below, and from this latter flag I measure a base of 26.00 chs. East to a point from which the flag on mountain bears N. 10° 50' N.

Got angle of 10° 50' = $5.2256647 \times 26 = 135.87$ = distance to flag. $135.87 + 56.40 = 192.27$ the total distance.

By measuring back ^{32.27 chs.} south on line I am enabled to establish the monument for the 320th mile.

80.00

Place for ³¹⁹ corner on precipitous slope impossible to establish. Surface very broken and rocky. Soil north hill. No vegetation.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

8980. South on $320^{\frac{1}{4}}$ mile. true line.
 Va. $12^{\circ} 30' E.$
- 80.00 Set a Granite stone $19 \times 12 \times 6$ in a mound of stones, marked "320" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings. Surface very much broken, and rocky. soil northless. Vegetation, a few scattering cedars and a little grass.
-

- South on $321^{\frac{3}{4}}$ mile. true line.
 Va. $12^{\circ} 30' E.$
- 32.27 The point at foot of mountain from which the preceding triangulation was made.
- 34.00 Arroyo 40 lks. wide, course S.E.
- 76.35 Arroyo 25 lks. wide course East.
- 79.50 Road from Silver City, N.M. to Camp Bowie, Ariz. bears E. and N. a Shuig about 60.00 chs. East.
- 80.00 Set a Granite stone $20 \times 14 \times 10$ in a mound of stones, marked "321" on the North side; "32° W.L." on the South; "ARIZ." on the

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Act: "N.M." on the East;
 No natural objects convenient
 for bearings.
 Surface rough and broken.
 Soil 3rd rate.
 Scarcely any vegetation.

8120. South on 322nd mile, two lines,
 Va. 12° 30' E.

0.00 Foot of Steen's peak, and ascend.

9200. 42.94 Begin descent

80.00 Foot of Steen's peak, and set a
 Lava stone 20x14x5 in a mound
 of stone, marked "322" on the
 North side; "32° W.L." on the South;
 "ARIZ." on the West; "N.M." on
 the East:

No natural objects convenient
 for bearings.
 Surface rough, and broken, soil
 3rd rate,
 No vegetation.

8300 South on 323rd mile, two lines,
 Va. 12° 5' E.

37.00 Run off 10 hrs. wide, course S. E.

80.00 Set a Soap rock 18x11x3 in "

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

mound of stones, marked "323"
on the North side; "32° W.L." on
the South; "ARIZ." on the West;
"N.M." on the East;

No natural objects convenient for
bearings.

Surface rough and broken.

Soil 3rd rate.

No vegetation.

7830.

South on 324th mile. true line.

Pa. 12° 20' E.

41.00 Arroyo 10 lbs. wide course S. E.

80.00 Set a Trap rock 19x14x9 in a
mound of stones, marked "324"
on the North side; "32° W.L." on
the South; "ARIZ." on the West;
"N.M." on the East;

No natural objects convenient for
bearings.

Surface rolling and stony. soil
3rd rate.

No vegetation.

Observed Polar. see page. 328

Oct. 12th 1875.

7800.

South on 325th mile. true line.

Pa. 12° 24' E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
12.56	80.00	<p>Arroyo 10 hrs. wide course S. N.</p> <p>Set a Trap rock 18x12x10. 14 inches in earth, marked "325" on the North side; "32° W. L.", on the South; "ARIZ." on the West; "N. M." on the East: dug pits N. and S. 6 ft. dist; 2 ft. square, 12 inches deep. No natural objects convenient for bearings. Surface rolling and stony. Soil 3rd rate. No vegetation.</p> <hr/>
7780.		<p>South on 326th mile. true line. Pa. 12° 20' E.</p>
17.60	36.00	<p>Arroyo 10 hrs. wide course S. N.</p> <p>Foot of ridge bears E. and N. and ascend.</p>
8100.	61.00	<p>Summit of same. 350 ft. high. and descend.</p>
7800.	76.00	<p>Foot of same.</p>
80.00		<p>Set a Trap rock 18x14x3 in a mound of stones, marked "326" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East: No natural objects convenient for bearings.</p>

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Surface broken and rocky.
Soil 3rd rate.
Vegetation a few scattering ce-
dars.

7950.

South on 327th mile. two line.
Va. 13° E.

0.60 Arroyo 8 hrs. wide course S. N.

60.00 Dos Cabezas peak bears S. 86° 2' N.

80.00 Set a Trap rock 18 X 13 X 7 in a
mound of stones, marked "327"
on the North side; "32° W. L." on
the South; "ARIZ." on the West;
"N. M." on the East;

No natural objects convenient
for bearings.

Surface broken and stony. soil
3rd rate.

Vegetation, a few scattering ce-
dars.

7800.

South on 328th mile. two line.
Va. 12° E.

7750. 18.00 Leave foot hills of Peloncillo
mountains bear N. N. and S. E.
and enter level prairie.

64.98 Arroyo 20 hrs. wide. course West.

80.00 Set a Sandstone 20 X 10 X 4 in a

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

mound of stones, marked
 "328" on the North side; "32° W.L."
 on the South; "ARIZ." on the
 West; "N.M." on the East;
 No natural objects convenient
 for bearings.

Surface gently rolling, soil
 3rd rate.

Vegetation, cactus mesquero,
 and paluilla plants.

7700. South on 329th mile. true line,
 Va. 12° E.

9.80 Arroyo 40 hrs. wide course West;
 80.00 Set a Lava stone 18x10x6, 14
 inches in each, marked "329"
 on the North side; "32° W.L." on
 the South; "ARIZ." on the West;
 "N.M." on the East; dug pits
 N. and S. 6ft. dist; 2ft. square,
 12 inches deep.

No natural objects convenient
 for bearings.

Surface level, and gravelly.
 Soil 3rd rate.

Vegetation, cactus, and mescal.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

7630

South on 330th mile, true line.
 Va. 12° 10' E.

21.15 Arroyo 20 lks. wide. course West.

40.40 Road from Silver City to
 Camp Bowie. bear E. and N.
 the road forks about 2 miles
 West, the westerly branch run-
 ning to Pueblo Viejo, from Yila
 river, set a Lava stone 16X14X7
 11 inches in earth, ^{marked} "329.50" on the
 North side: "32° W.L." on the
 South: "ARIZ." on the West: "N.M."
 on the East: dug one pit North
 left. dist: 2 ft. square. 12 inches
 deep.

No natural objects convenient
 for bearings.

74.70 Arroyo 30 lks. wide course West.

80.00 Set a Trap rock 17X14X5 in a
 mound of stones, marked "330"
 on the North side: "32° W.L." on
 the South: "ARIZ." on the West:
 "N.M." on the East;

No natural objects convenient
 for bearings.

Surface level and gravelly, soil
 3rd rate.

Vegetation, cactus, and mesquite
 and good grass.

Oct. 2nd 1875.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

7600. South on 331st mile, two lines.
 Va. 12° 5' E.

80.00 Set a Trap rock 18X14X5 in a mound of stones. marked "331" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East:
 No natural objects convenient for bearings.
 Surface level and stony.
 Soil 3rd rate.
 Vegetation, cactus, and ma-
 guay, and good grass.

7530. South on 332nd mile, two lines.
 Va 12° 5' E.

80.00 Set a Sandstone 14X12X5. in a mound of stones. marked "332" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East:
 No natural objects convenient for bearings.
 Surface level and stony, soil 3rd rate.
 Vegetation, maquay, cactus, and good grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

7500. South on 333rd mile, true line.
 Va. 12:50' E.

65.60 Arroyo 15 lrs. wide course West.

70.83 Arroyo 18 lrs. wide course West.

80.00 Set a Trap rock 20X10X8 in a mound of stones, marked "333" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N.M." on the East;

No natural objects convenient for bearings.

Surface level and gravelly soil
 3rd rate.

Vegetation, good grass.

7450. South on 334th mile, true line.
 Va. 12° 50' E.

29.30 Arroyo 9 lrs. wide course West.

57.90 Arroyo 10 lrs. wide course West.

80.00 Set a Trap rock 14X12X8 in a mound of stones, marked "334" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N.M." on the East;

No natural objects convenient for bearings.

Surface level and stony soil
 3rd rate.

Vegetation, good grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

7300. South on 335th mile, true line
 Va. $12^{\circ}40' E$.

0.00 Gabilan peak bear S. $46^{\circ}41' E$.

3.00 Arroyo 15 lks. wide course N. est.

35.80 Arroyo 10 lks. wide course N. est.

80.00 Set a Trap rock $12 \times 8 \times 8$ in a mound of stones, marked "335" on the North side; " $32^{\circ} W. L.$ " on the South; "ARIZ." on the West; "N. M." on the East;

No natural objects convenient for bearings.

Surface level and stony, soil 3rd rate.

Vegetation mesquite, and creosote bushes.

7330. South on 336th mile, true line,
 Va. $12^{\circ}40' E$.

18.90 Arroyo 20 lks. wide course N. est.

35.00 Arroyo 25 lks. wide course N. est.

53.40 Arroyo 20 lks. wide course N. est.

55.78 Arroyo 20 lks. wide course N. est.

62.12 Arroyo 60 lks. wide course N. est.

72.30 Arroyo 45 lks. wide course N. est.

80.00 Set a Trap rock $14 \times 10 \times 10$ in a mound of stones, marked "336" on the North side; " $32^{\circ} W. L.$ " on

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

the South: "ARIZ." on the West;
"N.M." on the East:

No natural objects convenient
for bearings.

Surface level and gravelly, soil
3rd rate.

Vegetation, mesquite, and creosote
bushes.

7350.

South on 337th mile, true line.

Pa. 12° 40' E.

7.12 "Gabilan peak" bear. S. 74° 32' E.

34.00 Arroyo 200 lbs. wide course West.

70.60 Arroyo 25 lbs. wide course West.

80.00 Set a Trap rock 14x8x6 in a
mound of stumps, marked "337" on
the North side; "32° W.L." on the
South; "ARIZ." on the West, "N.M."
on the East:

No natural objects convenient
for bearings.

Surface level and gravelly,
Soil 3rd rate.

Vegetation mesquite, and creosote
bushes.

7350.

South on 338th mile, true line.

Pa. 12° 40' E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

18.58 Arroyo 150 lks. wide course West.
 58.43 Arroyo 80 lks. wide course West.
 80.00 Set a Trap rock 15x18x8 in a mound of stone, marked "338" on the North side; "32° ^{on the South.} W.L." "ARIZ." on the West; "N.M." on the East:

No natural objects convenient for bearings.
 Surface rolling and stony.
 Soil 3rd rate.
 Vegetation, mesquite and creosote bushes.
 Oct. 3rd 1875.

7350.

South on 339¹/₂ miles, true line.
 Va. 12° 40' E.

3.00 Road from Falcon to Camp Bowie, base E. and N.
 5.61 Astronomical station No. 8. Observations were made for
 Azimuth: see page. 332
 Latitude: see page. 356
 Time: see page. 332
 Oct. 4th 1875.

5.61 Astronomical monument No. 8, consisting of a Granite stone 24x10x10 set in the earth and stone, and marked "338.07 32° 5'

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

N.L. on the North side: "32° W.L." on the South: "ARIZ." on the West: "N.M." on the East: "A.S. 1875" on the top.

No natural objects convenient for bearings.

80.00 Set a Granite stone 20x18x7 in a mound of stones, marked "339" on the North side: "32° W.L." on the South: "ARIZ." on the West: "N.M." on the East:

No natural objects convenient for bearings.

Surface level and gravelly, soil 3rd rate.

Vegetation, mesquite and creosote bushes.

7280.

South on 340th mile, true line.
Pa. 12° 40' E.

5.30 Old road from Kalston to Camp Bowie, bears N.N. and S.E. and enters meadow called "Ciénega de San Simon" bears N.N. and S.E.

11.42 House bears S. 49° 34' E. about 15.00 chs. dist.

20.45 Rio de Sauz which is a brook 15 lks. wide, 4 ft. deep, course N.N.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Although there is water at this point; a short distance above and below there is none as the water runs and dries.

63.60 Leave meadow bears N. N. and S. E.

80.00 Set a Granite stone 20x12x5 15 inches in earth, marked "340" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep.

No natural objects convenient for bearings.

Surface level. Soil 12th rate bottom.

Vegetation, long grass, sunflowers, and weeds called tules.

7300. South on 341st mile, true line. Va 12° 40' E.

80.00 Set a Granite stone 15x11x7. 10 inches in earth, marked "341" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N. M." on the East; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep.

No natural objects convenient

WESTERN BOUNDARY OF NEW MEXICO TERRITORY!

Altitude.	Chains.	
		<p>for bearings.</p> <p>Surface level. Soil 2nd rate.</p> <p>Vegetation mesquite and creosote bushes. and good grass.</p> <hr/>
7380.		<p>South on 342nd mile, true line.</p> <p style="text-align: right;">Ca. 12° 40' E.</p> <p>80.00 Set a Granite stone 14x12x4 9 inches in each, marked "342" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist.; 2ft. square. 12 inches deep.</p> <p>No natural objects convenient for bearings.</p> <p>Surface level and gravelly.</p> <p>Soil 3rd rate.</p> <p>Vegetation mesquite and creosote bushes. and good grass.</p> <hr/>
7380.		<p>South on 343rd mile, true line.</p> <p style="text-align: right;">Ca. 12° 25' E.</p> <p>0.00 Peak in the Peloncillo range bears S. 54° 8' E.</p> <p>Peak in Chicaqua range bears S. 26° 38' A.</p> <p>80.00 Set a Sandstone. 14x10x8. 9</p>

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

inches in earth, marked "343"
 on the North side; "32° W.L.",
 on the South; "ARIZ." on the
 West; "N.M." on the East;
 dug pits N. and S. 6ft. dist.;
 2ft. square, 12 inches deep.
 No natural objects conven-
 ient for bearings.
 Surface level and gravelly.
 Soil 3rd rate.
 Vegetation, mesquite and cre-
 sote bushes, and good grass.

7425.

South on 344th mile two line.
 Va. 12° 25' E.

76.00 Leave bushes and enter open
 ground, bear E. and N.

80.00 Set a Granite stone 16X10X4
 11 inches in earth, marked
 "344" on the North side; "32° W.L.",
 on the South; "ARIZ." on the
 West; "N.M." on the East; dug
 pits N. and S. 6ft. dist.; 2ft.
 square, 12 inches deep.
 No natural objects convenient
 for bearing.
 Surface level. Soil 2nd rate
 Vegetation, mesquite and cre-
 sote bushes.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

7490. South on the 345th mile, true line
Va. $12^{\circ} 30' E$.
- 0.00 Peak in the Pedoncillo range,
bear $S. 71^{\circ} 10' E$.
Peak in Chinicahua range bear
 $S. 31^{\circ} 15' N$.
Highest point of Mt Graham
bear $N. 44^{\circ} 47' N$.
- 80.00 Set a Granite stone $16 \times 12 \times 4$ 11
inches in each, marked "345" on
the North side; "32° W.L." on the
South; "ARIZ." on the West; "N.M."
on the East; dug pits N. and
S. 6ft. dist.; 2ft. square, 12 inches
deep.
No natural objects convenient
for bearings.
Surface level, soil 1st rate.
Vegetation, good grass.
-

7525. South on 346th mile, true line,
Va. $12^{\circ} 30' E$.
- 43.00 Enter brush and rolling ground
bear E and N .
- 80.00 Set a Granite stone $16 \times 12 \times 4$
in a mound of stones, mar-
ked "346" on the North side; "32°
W.L." on the South; "ARIZ." on
the West; "N.M." on the East;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

No natural objects convenient for bearings.
 First 43.00 chs. level, 1st rate ground, with excellent grass, balance gently rolling, and 3rd rate soil, with mesquite and creosote bushes.
 Oct. 5th 1875.

7580.

South on 347th mile, true line, Va. 12° 30' E.

15.15 Arroyo 20 lks. wide, course N. E.
 70.25 Arroyo 10 lks. wide course N. E.
 80.00 Set a Sandstone 15x11x5 in a mound of stone, marked "347" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;
 No natural objects convenient for bearings.
 Surface gently rolling, and gravelly. Soil 3rd rate. Vegetation, mesquite and creosote bushes, and good grass.

7630.

South on 348th mile, true line, Va. 12° 30' E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

0.00 Highest point of Mt. Graham.
bear N. $43^{\circ} 10' N$,

80.00 Set a Granite stone $12 \times 8 \times 8$
in a mound of stones, mar-
ked "348" on the North side;
"32° W.L." on the South; "ARIZ."
on the West; "N.M." on the East.
No natural objects convenient
for bearings.
Surface level and gravelly.
Soil 2nd rate.
Vegetation. good grass.

7600.

South on 349th mile, true line.
Ta. $12^{\circ} 30' E$.

80.00 Set a Sandstone $14 \times 10 \times 8$ in a
mound of stones, marked "349"
on the North side; "32° W.L." on
the South; "ARIZ." on the West;
"N.M." on the East;
No natural objects convenient
for bearings.
Surface gently rolling. Soil
2nd rate.
Vegetation. good grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

7630.

South on 350th mile, true line.
Ta. 12°30' E.

80.00

Set a Granite stone, 12x10x8
in a mound of stones, mar-
ked "350" on the North side;
"32° W.L." on the South; "ARIZ."
on the West; "N.M." on the
East;

No natural objects convenient
for bearings.

Surface pretty rolling.

Soil 2nd rate.

Vegetation, a few scattering
creosote bushes and good
grass.

7630.

South on 351st mile, true line.
Ta. 12°30' E.

0.00

Round conical peak, in the
Pelouillo range, bears S. 29°30' E.

80.00

Set a Granite stone, 14x10x8,
in a mound of stones, mar-
ked "351" on the North side;
"32° W.L." on the South; "ARIZ."
on the West; "N.M." on the
East;

No natural objects convenient
for bearings.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Surface gently rolling. Soil 2nd rate.
Vegetation, scattering creosote bushes. and good grass.

7600.

South on 352nd mile, true line.
Ta. 12° 30' E.

80.00

Set a Granite stone 16x14x8 in a mound of stones, marked "352" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;

No natural objects convenient for bearings.

Surface gently rolling. Soil 2nd rate.

Vegetation. good grass.

7580.

South on 353rd mile, true line.
Ta. 12° 12' E.

80.00

Set a Granite stone 10x8x8 7 inches in earth, marked "353" on the North side; "32° W.L." on the South; "ARIZ." on the West;

"N.M." on the East; Aug pits. 4, and 8. 6ft. dist. 2ft. square. from which the round conical peak on the Peloncillo mountains, bears S. 44° 42' E.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
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No natural objects convenient for bearings.
 Surface level. Soil 2nd rate, vegetation. good grass.

7500. South on 354th mile, true line, Va. 12° 5' E.

80.00 Set a Granite stone 12x10x7, 8 inches in each, marked "354" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep.
 No natural objects convenient for bearings.
 Surface level. Soil 2nd rate, vegetation. good grass.

7480. South on 355th mile, true line, Va. 12° 5' E.

80.00 Set a Granite stone 12x8x6, 8 inches in each, marked "355" on the North side; "32° W.L." on the South side; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft. square, 12 inches deep.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

No natural objects convenient.
for bearings.
Surface level. Soil 2nd rate.
Good grass.
Oct 6th 1875.

7480. South on 356th mile. true line.
Pa. 12° 5' E.

80.00 Set a Granite stone 13x9x7
9 inches in earth, marked "356"
on the North side; "32° W.L." on
the South; "ARIZ." on the West;
"N.M." on the East; dug pits
N. and S. 6ft. dist; 2ft. square
12 inches deep.

No natural objects convenient
for bearings.
Surface level. Soil sandy 2nd rate.
Good grass.

7480. South on 357th mile. true line.
Pa. 12° 5' E.

80.00 Set a Granite stone, 13x11x7.
9 inches in earth, marked "357"
on the North side; "32° W.L."
on the South; "ARIZ." on the
West; "N.M." on the East; dug
pits N. and S. 6ft. dist; 2ft.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

square, 12 inches deep.
No natural objects convenient
for bearings.
Surface level. Soil 2nd rate.
Good grass.

7470. South on 358th mile, true line,
Ba, 12° 5' E.

80.00 Set a Scoria stone 12x8x8
8 inches in earth, marked
"358" on the North side; "32° W.L."
on the South; "ARIZ." on the West;
"N.M." on the East; dug pits
N. and S. 6ft. dist; 2ft.
square, 12 inches deep.
No natural objects convenient
for bearings.
Surface level. Soil 2nd rate.
Good grass.

7470. South on 359th mile, true line,
Ba, 12° 5' E.

80.00 Set a Scoria stone 12x8x8,
8 inches in earth; marked "359"
on the North side; "32° W.L." on
the South; "ARIZ." on the West;
"N.M." on the East; dug pits
N. and S. 6ft. dist; 2ft. square.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

12 inches deep.
 No natural objects convenient
 for bearings.
 Surface level. Soil 2nd rate.
 Good grass.

7470.

South on 360th mile, true line.
 Pa. 12° 5' E.

8.00 Enter stony ground (Lava)
 80.00 Set a Lava stone 22x20x12 in
 a mound of stone, marked
 "360" on the North side; "32° W. L." on the South; "ARIZ." on the West; "N.M." on the East;
 No natural objects convenient
 for bearings.
 Surface level. Soil 2nd rate.
 Good grass.

7470.

South on 361st mile, true line.
 Pa. 12° 5' E.

17.60 Leave stony ground,
 80.00 Set a Lava stone 16x10x4, 11
 inches in earth, marked "361" on
 the North side; "32° W. L." on the
 South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S.
 6ft. dist; 2ft. square, 12 inches deep.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

No natural objects convenient for bearings.
Surface level. Soil 2nd rate.
Good grass.

7500. South on 362nd mile, true line
Var. 12° 5' E.

80.00 Set a Lava stone 16X10X4.
11 inches in each, marked
"362" on the North side; "32° W.L."
on the South; "ARIZ." on the
West; "N.M." on the East;
dug pits N. and S. 6ft. dist;
2ft. square, 12 inches deep.
No natural objects convenient
for bearings.
Surface level. Soil 2nd rate.
Peak on Chihuahuan range
bears S 76° 5' N.
Peak on Peloncillo range bears
S. 16° 34' E.
Good grass.

7470. South on 363rd mile, true line,
Var. 12° 5' E.

80.00 Set a Lava stone, 17X12X4. in
a mound of stone, marked
"363" on the North side; "32° W.L."
on the South;

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

"ARIZ." on the West; "N.M." on the East;

No natural objects convenient for bearings.

Surface level. Soil 2nd rate.

Good grass.

7500. South on 364th mile, true line.
Pa. 12° 6' E.

80.00 Set a Lava stone 16X10X6. 11 inches in earth, marked "364" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; dug pits N. and S. 6ft. dist; 2ft. square. 12 inches deep.

No natural objects convenient for bearings.

Surface level. Soil 2nd rate.

Good grass.

Observed Solaris: see page 328
Oct 7th 1875.

7580. South on 365th mile, true line.
Pa. 12° 6' E.

44.35 Arroyo 15km. wide course West.

80.00 Set a Granite stone 15X11X8 10 inches in earth, marked "365"

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

on the North side: "32° W.L."
 on the South: "ARIZ." on the
 West: "N.M." on the East; dug
 pits N. and S. 6ft. dist; 2ft.
 square, 12 inches deep.
 No natural objects convenient
 for bearings.
 Peak in Peloncillo range
 bears S. 23° 38' E.
 Peak in Chihuahuana range
 bears N. 82° N.
 Surface level. Soil 2nd rate.
 Good grass.

7560.

South on 366th mile, true line,
 Pa. 12° 6' E.

80.00

Set a Granite stone 16x12x8,
 11 inches in earth, marked
 "366" on the North side; "32° W.L."
 on the South; "ARIZ." on the
 West; "N.M." on the East;
 dug pits N. and S. 6ft. dist;
 2ft. square, 12 inches deep.
 No natural objects convenient
 for bearings.
 Surface rolling. Soil 2nd rate.
 Good grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
7570.		South on 367 th mile, true line. Ca. 12° 10' E.
80.00		Set a Granite stone 18x10x10 in a mound of stones, marked "367" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings. Surface level. Soil gravelly 2 nd rate, Good grass.
7640.		South on 368 th mile, true line. Ca. 12° 15' E.
47.00		Foot of ridge, bear E. and N. and ascend.
8040. 61.00		Top of same 400 ft. high. and de- scend.
80.00		Set a Granite stone 24x12x10 in a mound of stones, marked "368" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings. Surface. 1 st 47.00 chs. level. Soil 2 nd rate, remainder, surface rough and broken. Soil worthless.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
7915.		South on 369 th mile, true line,
		Va. 12° 15' E.
7810.	7.00	Foot of ridge and enter
		prairie, bears E. and N.
	8.15	Arroyo 20 lks, wide course N. N.
	80.00	Set a Granite stone 18x14x5
		in a mound of stones,
		marked "369" on the North
		side; "32° W.L." on the South;
		"ARIZ." on the West; "N.M."
		on the East;
		No natural objects conve-
		nient for bearings.
		Surface broken prairie. Soil
		3 rd rate.
		Poor Grass.
<hr/>		
7860.		South on 370 th mile, true line,
		Va. 12° 6' E.
	31.00	Arroyo 18 lks, wide course N. N.
	41.60	Arroyo 90 lks, wide course N. N.
		and joins the first Arroyo
		about 15 chs. West;
	80.00	Set a Granite stone, 20x16x12
		15 inches in earth, marked
		"370" on the North side; "32° W.L."
		on the South; "ARIZ." on the
		West; "N.M." on the East; dug
		pits N. and S. 6ft. dist: 2ft.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

square, 12 inches deep.
 No natural objects convenient
 for bearings.
 Surface broken prairie. Soil 2nd
 rate. Poor grass.
 Oct. 8th 1875.

7880.

South on 371st mile, true line,
 Pa. $12^{\circ} 6' E$.

32.03 Arroyo 25 lks. wide course West.

53.24 Arroyo 16 lks. wide course N. N.
 and joins first Arroyo about
 8.00 chs. West.

77.00 Arroyo 30 lks. wide, course N. N. and
 joins first Arroyo about 20.00 chs.
 West.

80.00 Set a Granite stone $18 \times 10 \times 4$ in
 a mound of stone, marked.
 "371" on the North side; " $32^{\circ} W. L.$ "
 on the South; "ARIZ." on the
 West; "N.M." on the East;
 No natural objects convenient
 for bearings.
 Surface rough and broken.
 Soil 3rd rate.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
8000.		South on 372 ⁰⁰ mile, true line, Ta. 12° 6' E.
8.00		Arroyo 12 lrs. wide course West,
18.00		Arroyo 10 lrs; wide course N. N. and joins first Arroyo about 15.00 chs. West,
25.00		Foot of Peloncillo mountains bear E. and N. set flag in line on top of a high ledge and measure a base of 10.00 chs. West. to a point from which flag in line on mountain bears S. 23° 14' E. <u>Cotangent of 23° 14' = 2.3294311 X</u> <u>10 = 23.29 chs.</u> distance to flag on line. 23.29 + 25 = 48.29 total distance.
8825.	48.29	Summit of ledge 825 ft. high bear E. and N.
8975.	53.00	Summit of mountain bear E. and N.
53.50		Descend slope bear N. N. and S. E.
80.00		Set a Granite stone 22 X 14 X 8, in a mound of stones, marked "372" on the North side; "32° W. L.", on the South; "ARIZ." on the West; "N. M." on the East; No natural objects convenient for bearings.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Surface very broken and rocky. Soil worthless. Vegetation, very sparse, consisting of a few scrubby oak, and cedar trees.

8675. South on 373rd mile, two line. Va. 12° 6' E.

47.00 Foot of slope, and cross an Arroyo 20 lbs. wide course West. a small water hole 50 lbs. West of line.

47.10 Ascend slope, bear N.E. and S.W.

80.00 Set a Granite stone 28x12x8 in a mound of stones, marked "373" on the North side: "32° W.L." on the South: "ARIZ." on the West: "N.M." on the East: No natural objects convenient for bearings.

Surface very rough and broken Soil worthless. Oct. 9th 1875.

9350. South on 374th mile, two line. Va. 12° 6' E.

80.00 Set a Granite stone 23x14x10

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
		<p>in a mound of stones, marked "374" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;</p> <p>No natural objects convenient for bearings.</p> <p>Surface very rough and broken. Soil worthless.</p> <p>Vegetation scrubby piñon, oak, and manzanita.</p>
9625.		<p>South on 375th mile, true line, Va. 12° 6' E.</p>
36.00		<p>Summit of ridge, bears N. E. and S. N.</p>
10000 67.00		<p>Summit of mountain, bears N. E. and S. N.</p>
72.00		<p>Descend slope,</p>
80.00		<p>Set a Granite stone 24x24x5 in a mound of stones, marked "375" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;</p> <p>No natural objects convenient for bearings.</p> <p>Surface broken and rocky. Soil worthless.</p>

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Vegetation, scrubby piñon, oak,
manzanita, and mesquite.

South on 376^{th} mile, true line,
Pa. $12^{\circ} 30' \text{E}$.

- 99.00, 21.00 Summit of ridge bears E ,
and N , and descend.
- 9640, 40.00 Foot of ridge, on Arroyo 20 hrs,
ride, course East; and ascend.
- 9825, 49.00 Summit of ridge, bears E ,
and N , and descend.
- 9600, 56.00 Foot of same, and ascend.
- 9800, 65.00 Summit of ridge, bears E and N ,
and descend.
- 75.50 Foot of same, and ascend.
- 80.00 Set a Granite stone $17 \times 10 \times 8$,
in a mound of stones, marked
" 376 " on the North side; " 32°W. L. ",
on the South; "ARIZ." on the
West; "N.M." on the East;
No natural objects convenient
for bearings.
Surface broken and rocky.
Soil worthless.
Vegetation, sparse consisting of
piñon, oak, and manzanita.
-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
9600.		South on 377 th mile, true line, Pa. $12^{\circ} 30' E$,
9650.	10.00	Summit of ridge, bears E, and N.
	11.00	Descend slope,
	21.00	Foot of same, and an Arroyo 20 lks. wide course East.
	46.23	Arroyo 18 lks. wide course East.
	80.00	Set a Granite stone 18X12X4 in a mound of stone, marked "377" on the North side; "32' W.L.", on the South; "ARIZ." on the West; "N.M." on the East:
		No natural objects conven- ient for bearings. Surface broken, and rocky. Soil 3 rd rate, Vegetation, scrubby piñon, and oak.
9600.		South on 378 th mile, true line, Pa. $12^{\circ} 30' E$,
	3.00	Summit of low ridge bears E, and N. and descend.
	27.60	Foot of same, and an Arroyo 12 lks. wide, course East, and ascend.
	34.00	Summit of ridge, bears E, and

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

N.

36.80 Descend slope.

67.00 Foot of same, and an Arroyo 24 hrs. wide course East, and ascend.

72.00 Summit of small ridge, bears E. and N.

80.00 Set a Granite stone 16x16x10 in a mound of stones, marked "378" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East.

No natural objects convenient for bearings.

Surface broken and rocky. Soil 3rd rate.

Vegetation, scrubby piñon, oak, and cedar, and manzanita.

Oct. 10th 1875.

9700.

South on 379th mile; true line. $\text{Ta. } 12^{\circ} 30' \text{ E.}$

14.00 Begin descent.

8800. 34.50 Foot of slope, and enter valley bears E. and N.

80.00 Set a Scoria stone 20x12x6 in a mound of stones, marked "379" on the North side; "32° W.L." on the South; "ARIZ." on the West.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

"N.M." on the East:
 No natural objects convenient
 for bearings.
 Surface broken and rocky.
 Soil 3rd rate.
 Vegetation, sparse, consisting
 of piñon, oak, cedar, and man-
 zarita.

8750.

South on 380th mile, two lines.
 Va. $12^{\circ} 30' E$.

8.00 Arroyo 30 lks. wide course West.
 28.12 Arroyo 15 lks. wide course West.
 40.84 Arroyo 10 lks. wide course West.
 65.46 Arroyo 20 lks. wide course West.
 and ascend

73.00 Cross ridge at the summit
 bear E. and N.

80.00 Set a Scoria stone 24X24X10
 in a mound of stone, mar-
 ked "380" on the North side;
 "32° W.L." on the South; "ARIZ."
 on the West; "N.M." on the
 East:

No natural objects convenient
 for bearings.
 Surface broken and rocky.
 Soil 3rd rate.
 Vegetation, few scattering cedar and oak trees.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
8800		South on 381 st mile, true line, Ta. 12° 30' E.
52.70		Arroyo 10 lks. wide course S. N.
65.40		Arroyo 10 lks. wide course S. N.
66.20		Ascend mountain bears E. and N.
80.00		Set a Granite stone 17x8x7 in a mound of stones, marked "381" on the North side; "32° W. L.", on the South; "ARIZ." on the West; "N. M." on the East; No natural objects convenient for bearings. Surface broken and rocky. Soil northless. Vegetation, scrubby piñon, oak, cedar, and manzanita.
9000.		South on 382 nd mile, true line, Ta. 12° 30' E.
9150.	5.00	Enter plateau on the moun- tain side.
	14.00	Leave same, bears E. and N. and ascend.
9375.	25.36	Summit of mountain bears E. and N.
	27.00	Begin descent.
	37.10	Foot of slope, and an Arroyo 10 lks. wide course S. N. permanent

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
		water 5.00 chs. West.
50.25		Arroyo 10 lks. wide course West.
70.15		Arroyo 8 lks. wide course West.
71.00		Ascend ridge bears East N.
80.00		Set a Sandstone 66x40x18 in a mound of stone, mar- ked "382" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East: No natural objects conve- nient for bearings. Surface broken, and rocky. Soil worthless. Vegetation. piñon, cedar, oak, and manzanita. Good grass. Oct. 11 th . 1875.
9200.		South on 383 rd mile, true line. Pa. 12° 30' E.
9600.	6.00	Summit of ridge bears E. and N.
	30.60	Began descent of slope.
8680.	55.75	Foot of slope, and an Arroyo 25 lks. wide, course West, run- ning water 2.00 chs. East, com- ing out of the rock.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

80.00 Set a Granite stone 16X12X7 in a mound of stones, marked "383" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East;

No natural objects convenient for bearings.

Surface broken, and rocky.

Soil 3rd rate.

Vegetation, piñon, cedar, oak, and manzanita,

Good grass.

8700.

South on 384th mile, true line. Va. 12° 24' E.

44.00 Ascend ridge bear E. and N.

9300. 63.00 Summit of same and descend into cañon.

8900. 77.60 Bottom of cañon, course West, and ascend.

80.00 Set a Granite stone 24X12X7 in a mound of stones, marked "384" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects convenient for bearings.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

Surface broken and rocky.
Soil 3rd rate.
Vegetation, piñon, oak, cedar,
and manzanita, Good grass.

9000. South on 385th mile, true line,
Ta. 12° 30' E.

9400. 27.00 Summit of ridge, bear
E. and N. and descend
slope.

35.50 Foot of slope and ascend,

9350. 44.00 Summit of ridge and
descend, ridge bears E. and
N.

80.00 Set a Granite stone 20x12x5,
in a mound of stones, mar-
ked "385" on the North side;
"32° W. L." on the South; "ARIZ."
on the West; "N. M." on the
East:

No natural objects convenient
for bearings.

Surface broken and rocky.
Soil 3rd rate.
Vegetation, piñon, oak, and
manzanita.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.	
8700.		South on 386 th mile, true line, Va, 12° 30' E.
8550.	11.75	Foot of slope, and an Arroyo 10 lrs. wide course N.E. and ascend mountain.
9200.	56.00	Summit of same, bears E. and N.
57.60		Descend slope, bears E. and N.
80.00		Set a Granite stone. 48x48x40 in a mound of stones, mar- ked "386" on the North side; "32° W.L." on the South; "ARIZ." on the West; "N.M." on the East; No natural objects conven- ient for bearings. Surface broken, and rocky. Soil 3 rd rate. Vegetation, cedar, piñon, oak, and manzanita.
9000.		South on 387 th mile, true line, Va, 13° E.
18.00		Foot of slope, and an Arroyo 20 lrs. wide, course S.E. and ascend,
64.00		Summit of ridge, bears E. and N. and descend,

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.

Chains.

80.00 Set a Granite stone, 19x15x7
 in a mound of stones,
 marked, "387" on the North
 side; "32° W.L." on the South;
 "ARIZ." on the West; "N.M."
 on the East;
 No natural objects convenient
 for bearings.
 Surface broken, and rocky.
 Soil 3rd rate.
 Vegetation, scattering cedar
 and oak.
 Oct. 12th 1875,

8750,

South on 388th mile, true line.
 Va, 13° E.

70.20 Arroyo 20 lbs. wide course West.

73.00 Ascend slope, bear. E. and
 N.

80.00 Set a Granite stone 17x13x9
 in a mound of stones,
 marked "388" on the North side;
 "32° W.L." on the South; "ARIZ." on
 the West; "N.M." on the East;
 No natural objects convenient
 for bearings.
 Surface broken, and rocky.
 Soil 3rd rate.
 Vegetation scattering cedar, and oaks.
 Good grass.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

- South on 389th mile, true line.
Ta. 13° E.
- 8.00 Arroyo 15 lks. wide course Acet.
and ascend.
- 31.00 Summit of a Mesa, bears
E. and N.
- 34.00 Descend slope.
- 40.00 Foot of slope, and ascend.
- 45.50 Summit of ridge bears E. and
N. and descend.
- 48.35 Foot of slope, and ascend.
- 54.60 Summit of slope, bears E. and
N. and descend.
- 61.00 Foot of slope.
- 80.00 Set a Granite stone 20x11x6,
in a mound of stone, mark-
ed "389" on the North side: "32° W. L."
on the South: "ARIZ." on the
West: "N. M." on the East:
No natural objects convenient
for bearings.
Surface broken and rocky.
Soil 3rd rate.
Vegetation, scattering oak, ce-
dars, and manzanitas.
Good grass.
-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

South on $390^{\frac{1}{2}}$ mile, true line,
 Va. $11^{\circ} 30' E$.

13.50 Astronomical station No. 9.
 Observations were made for.
 Azimuth; see page 322
 Time; see page 322
 Latitude; see page 357
 Oct. 13th and 14th 1875.

13.50 Astronomical monument
 consisting of a Granite stone
 $38 \times 20 \times 18$ set in the earth and
 stone, and marked "389.17"
 $31^{\circ} 21' 18" N.L.$ on the North
 side; $32^{\circ} W.L.$ on the South;
 "ARIZ." on the West; "N.M." on
 the East; "A. S. 1875" on the
 top. No natural objects convenient for bearings.

36.00 Bottom of Guadalupe cañon.
 ascends S. N.

41.25 Old road in the cañon, bears
 N. E. and S. N.

41.50 Set a Granite stone, $48 \times 20 \times 15$
 in a mound of stones, mar-
 ked "389.52" on the North side;
 $32^{\circ} W.L.$ on the South; "ARIZ."
 on the West; "N.M." on the
 East; and raised a mound
 of stones 3ft. high, and 5ft.
 in diam. from which a syc-
 more 14 inches in diam. bears

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

- S. $21^{\circ} 30'$ E. 61 krs. dist.; a sycamore 16 inches in diam. bears S. $81^{\circ} 52'$ E. 108 krs. dist.; an ash 10 inches in diam. bears South. 350 krs. dist.
- 45.00 Ash tree 10 inches in diam.
- 45.25 Stream 20 krs. wide, course S. N.
- 46.80 Leave valley, and ascend hill.
- 54.00 Summit of same. bears N. E. and S. N. and descend into cañon.
- 60.00 Bottom of cañon, course S. N. and ascend ridge.
- 72.50 Summit of ridge. bears E. and N. and descend.
- 80.00 Set a Sandstone $22 \times 16 \times 8$. in a mound of stone, marked "390" on the North side; " 32° W. E." on the South; "ARTZ." on the West; "N.M." on the East; No natural objects convenient for bearings.
- Surface broken and rocky.
- Soil 3rd rate.
- Vegetation, good grass, and scattering cedars, and in the cañon (Guadalupe) sycamores, walnuts, ash, maple, and pines.
-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

South on $39\frac{1}{2}$ mile. two lines.
Ka. $11^{\circ}30'E$.

7.85 Arroyo 10 lks. wide, with water in hole. course S. N.

24.00 Bottom of a narrow, shallow cañon. course S. N. and ascend ridge.

33.00 Summit of ridge, bears N. E. and S. N.

48.31 Intersect the international boundary between the United States and Mexico, at $31^{\circ}20'$ North Latitude, 1 mile, and 70.16 chs. East of the Astronomical monument, situated near the South edge of Guadalupe cañon, and set a Granite stone $68 \times 24 \times 18$ in the east and stone, and raised a mound of stone, 5 ft. in diam. and 3 ft. high, and marked the monument.

" 32° L. W." "U. S." "^N 390. 48.31 ^{Chs.} on the North side; " $31^{\circ}20'$ L. N." "N. Mex." on the East; "Mexico." on the South; "1875 Arizona" on the West; from the monument thus established, an oak 5 inches in diam. bears S. $70^{\circ}15'$ N. 70 lks. dist; an oak 10 inches in diam.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude. Chains.

bear S. $29^{\circ} 55'$ E. 82 krs. dist.; an oak 6 inches in diam. bear N. 12° N. 134 krs. dist.; an oak 5 inches in diam. bear N. $63^{\circ} 13'$ E. 126 krs. dist.

A Shinarump rock bear N. $31^{\circ} 50'$ E. about 10 miles dist; a high conical mountain peak. bear N. $2^{\circ} 52'$ E. about 12 miles dist; The monument is situated on the North slope of a range of high hills. bearing E. and N. and about 1 mile South of Guadalupe cañon.

Surface very broken, and rocky. Soil 3rd rate.

Vegetation on the hills consists of scattering and scrubby oak and cedar, with poor grass. but in the cañons, is a luxuriant growth of ash, walnut, piñon, cottonwood, sycamore, willow, and undergrowth, with vines and creepers, and most excellent grass.

Oct. 17th and 18th 1875.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Altitude.	Chains.

PAGES 267 thru 327
are blank
and were not scanned

Station Date 187... Observer

Instrument No.

Star. Clamp. Dec'l. Transit. Level. Aa. Bb. Cc. Comp'd A. R. Chron Corr. Remarks.

BOOK 2627

Observations on the
Eastern elongation of Polaris.

Date	Latitude	Mean Time.			Azimuth
		L.	M.	S.	
1875					
July 10	37° 0' 00"	11	53	32	1° 42' 10"
" 17	36° 32' 10"	11	26	9	1° 41' 32"
" 27	36° 1' 45"	10	47	6	1° 40' 50"
Aug. 6	35° 21' 44"	10	2	52	1° 39' 58"
" 15	34° 52' 11"	9	32	43	1° 39' 10"
" 20	34° 26' 10"	9	13	23	1° 38' 50"
" 22	34° 17' 23"	9	5	26	1° 38' 30"
" 25	34° 3' 30"	8	53	43	1° 38' 5"
" 31	33° 44' 21"	8	30	13	1° 37' 50"
Sept. 20	33° 2' 11"	7	11	45	1° 37' 00"
" 28	32° 41' 18"	6	40	28	1° 36' 30"
Oct. 1	32° 18' 16"	6	28	50	1° 36' 00"
" 7	31° 43' 29"	6	5	25	1° 35' 25"

Station Date 187 Observer

Instrument No.

BOOK 2627

Star.	Clamp.	Dec'l.	Transit.	Level.	Aa.	Bb.	Cc.	Comp'd A. R.	Chron Corr.	Remarks.
-------	--------	--------	----------	--------	-----	-----	-----	--------------	-------------	----------

Observations for establishing the meridians of the several stations along the Boundary line. Upon the Meridians thus established with the combined Zenith Meridian Instrument (Wurdeman No 16), the determinations for Latitudes were made and the Surveyors Instruments tested.

July 8th 1875

γ Aquilar	+10° 18'	^h 12 - ^m 32 - ^s 54.50	+ 10.45	^h 12 - ^m 32 - ^s 58.73	- 6.22
α Aquilar	+8° 32'	12 57 15.50	+ 10.15	12-37 20.48	- 6.18
R Cephei	+77° 20'	13 6 53.54	- 68.59	13 5 39.01	- 6.04

Azimuth (did into) 23.28 = 5' - 49.2 Correction.

July 23, 75

α Scorpi	- 26-9'	^h 8 - ^m 16 - ^s 22.4	- 1-2.2	^h 8 15 58.36	+ 38.16
β Draconis	+69-22'	8 20 10.0	+ 1-39.3	8 22 26.93	+ 37.63

Azimuth 64.63

μ Aquari	- 9° 27'	12 39 33.20	- 45.22	12 39 25.25	+ 37.27
ν Cygni	+40-41'	45 16.00	+ 6.28	45 59.91	+ 37.63
β Cygni	+ 38-8'	54 5.00	+ 3.14	54 48.58	+ 37.44
α Cephei	+ 62 3'	13 7 24.00	+ 59.67	13 9 1.14	+ 37.47

Azimuth 62.98 = 15' - 44.7 correction

1st Feb

2nd Feb

Station Date 187 Observer
 Instrument No.

BOOK 2627

Star.	Clamp.	Dec'l.	Transit.	Level.	Aa.	Bb.	Cc.	Comp'd A. R.	Chron Corr.	Remarks.
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July 30th, 75

β Groom 2320	+	68° 8'	^{h m s} 7-31-25.5	-	145.70			^{h m s} 7 31 43.64	^s -27.56	
α Herculis	+	46 37	42 50.8	+	18.57			42 46.60	-28.03	
α Scorp'ii	-	26 9	50 6.8	-	112.48			48 26.92	-27.40	

Azimuth $75.80 = 18' - 57''$ Correction.

August 12th 1875

α Androm	+	^{o ' "} 28-24	^{h m s} 2 42-24	-	5-5			^{h m s} 2-36-15.6	^{m s} -6-2.85	
γ Pegasi	+	14-30	47-23	-	12.97			41 7.0	-6-3.03	
α Capri.	+	55-51	3 13-20	+	22-97			3 7 40.2	-6-2.77	
ϵ Piscium	+	7-13	3 36-59	-	17.78			30 38.3	-6-2.94	

Azimuth $37.15 = 9' - 17''$ Correction.

Septth 1875

γ Aquilae	+	^{o ' "} 10-18	^{h m s} 8 0 55	+	21.45			^{h m s} 8-5-36.76	+5-3.21	
α Aquilae	+	8-32	5-18	+	23-10			9 58.15	+5-3.25	

Azimuth $55. = 13' - 45''$ Correction.

REDUCTION OF TRANSIT OBSERVATIONS in the Meridian.

Station Date 187 Observer

Instrument No.

BOOK 2627

Star. Clamp. Dec'l. Transit. Level. Aa. Bb. Cc. Comp'd A. R. Chron Corr. Remarks.

October 5th 1875

1	Cephei	+	65-33	h m s 9-46-47.8	+	22.11		h m s 9-47-27.58	+	17.67	
2	Pisc. Austr	-	30-17	9 52 58.3	-	17.62		52 58.27	+	17.59	
2	Begasi	+	14-31	10 0 31.8	-	5.52		10 0 43.85	+	17.57	
0	Cephei	+	67-26	14 56.0	+	25.92		15 39.46	+	17.54	

Azimuth $17.32 = 4' 20''$ correction.

October 14th 1875

R	aquila	-	7-18	h m s 5-57 59.7	-	35.51		h m s 5-57-31.93	-	---	
γ	aquila	+	10-29	6 7 59.0	-	20.62		6 7 39.04	+	0.66	
2	aquila	+	8-33	6 12 21.7	-	22.91		6 12 0.45	+	1.66	
2	Dracoin	+	69-57	6 14 4.6	+	145.39		6 15 57.08	+	1.09	

Azimuth $57.44 = 14' 21''$ correction.

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 BOOK 2627

REDUCTION OF TRANSIT OBSERVATIONS in the Meridian.

Station: _____ Date: _____ 187 _____ Observer: _____
 Instrument: _____ No. _____

Star.	Clamp.	Dec'l.	Transit.		Level.	Aa.	Bb.	Cc.	Comp'd A. R.		Chron. Corr.	Remarks.	
U.S.C. Survey Nos	B.A.C. Nos.	A. P. D.	Gr. 12	Gr. 6	Gr. 7	Gr. 7 new	Rad 1	Rad 2	Arm	Wash	Wells	Wain	Adopted N. P. D.
1523		48 53					0.09						00.09
1529	6213	82 47					21.41	21.32					21.36
1530	6223	65 36 16.48	15.57	15.48	16.61	16.90			15.57				16.09
1540	6255	40 56 31.65	27.28		27.51		27.97						27.59
1549	6316	24 30 57.68	57.51				57.81	57.43	49.21				57.34
1576	6204	48 41 30.39					29.29						29.84
1582	6427	57 35 29.30				30.69	32.66	30.14	29.26			W.M. 31.56	30.60
-	6426	57 19 45.28				48.27	(67.20)	47.39	46.87	47.49			47.40
1597	6473	48 33 23.50					22.33						22.91
1606	6496	32 21 1.10	1.50		00.98		1.67		2.41				1.53
1621													-
1631	6581	51 4 2.56			4.59		3.59	3.63	3.08	4.28			3.62
1639	6599	52 5 16.25	14.81	17.01	18.18				15.59	16.48	17.47		16.81
1650	6637	63 58 31.74				33.88			32.62				33.20
1654	6648	60 37 17.49	16.58						16.84	18.98			17.47
1660													-
1661	6667	53 55 50.33				52.25			51.55	55.07		W.M. 55.31	53.39
1663													-
1666	6674	65 35 11.68	10.48	12.36	13.23	12.78		11.57	12.41	12.17			12.08
1668	6687	37 55 59.33	59.84		61.94		61.40		60.16				60.53
1670		39 57					38.81						38.81
1671	6709	70 29 52.79				53.55			51.61	54.10			53.01
1680													-
1690	6731	45 34 45.12					47.92					W.M. 14.52	46.52
1691	6754	44 46 19.99					16.82						16.29
1699													-
1702	6784	56 23 40.16			42.95	43.53		43.67	46.08				43.28
1710	6794	71 10 8.66			12.38			10.01	6.88	12.21			11.84
1714	6817	49 43 1.61	00.60				2.48			2.75			2.07
1715	6827	66 14 39.71			42.52				41.76		W.M. 43.31		42.18
1724	6825	81 57 35.97	37.26	36.96	37.94	37.77		40.03	28.13	37.17			37.18
1727	6847	32 48 12.50				13.40	13.58		13.06				13.22
1733	6851	55 14 54.34			52.51			40.03	57.70	57.97			52.23
1737													-
1738	6875	53 17 51.02				55.56		54.14	51.36	53.63	W.M. 56.57		54.22
1742	6879	62 35 22.02	23.99		26.32				23.84	22.90			24.23
1746	6893	83 4 19.49	21.96			24.61			21.00	23.08			23.06
1748													-
1750	6905	25 31 44.14		43.57		44.00	45.19		44.39				44.26
1752	6915	54 22 15.12				16.17		14.29	12.33	14.73			14.89
1756													-
1763	6932	28 22 2.03	00.95		1.99		2.76	2.72	0.53	1.72			1.81
1764	6957	61 40 59.00				59.00			59.54				59.18
1766	6962	43 33 40.37				42.14	42.47		39.62				41.53
1768	6965	43 38 10.32	11.23		11.75	13.43	13.67		11.06	13.29	13.78		12.03
1773	6966	64 47 14.72			18.92								18.92
1775	6980	29 44 34.08					31.12	30.75	28.93				30.93
1784	6986	50 1 16.04				15.40		15.21	13.49				15.03
1787	7022	50 8 32.39	31.67	32.40			32.39	31.66	31.23	33.71	32.88		32.29
1789	7029	58 12 40.60			44.03			42.23	44.73				43.39

Station Date 187 Observer BOOK 2627

Instrument No. 338-348 *Blank*

Observations on Polaris at Station No 2 Luncha Mountain
 July 26th 1875, M. S. T. Chron. No 288 Jno Kutton London, for determining
 the value of a revolution of the micrometer.

Star.	Clamp.	Dec'l.	Transit.	Level.	Aa.	Bb.	Cc.	Comp'd A. R.	Chron Corr.	Remarks.
Rev or Lun	Obs. time	Chr. slow	N. S. L. of Obs. time	Sid. Time	Line of elong.	Dist in Time	Chron Corr.	Value in Time		
30	10 53 48.5	+ 37.4	10 54 25.9	19 4 37.57				4 22.5		m s 3 52.7
29	10 57 40.5	+ 37.4	58 17.9	8 30.16				0 29.8		49.1
28	11 1 32.	+ 37.4	11 2 9.4	12 19.29		19 9 00		3 19.3		52.1
27	5 20.5	+ 37.4	5 57.9	16 11.42				7 11.4		(30.8)
26	8 58.5	+ 37.4	9 35.9	19 49.21				10 42.2	- 0.2	56.1
25	12 46.5	+ 37.4	13 23.9	23 38.64				14 38.6	- 0.5	52.1
24	16 38.5	+ 37.4	17 15.9	27 31.27				18 31.3	- 1.1	45.2
23	20 24	+ 37.4	21 1.4	31 17.39				22 17.4	- 2.0	47.9
22	24 13	+ 37.4	24 50.	35 16.62				26 6.6	- 3.3	43.8
21	27 57.5	+ 37.4	28 34.9	38 52.13				29 52.1	- 5.1	45.2
20	31 44.5	+ 37.4	32 21.9	42 39.76				33 39.8	- 7.5	51.1
19	35 37.5	+ 37.4	36 14.9	46 33.39				37 33.4	- 10.0	41.0
18	39 20.5	+ 37.4	39 57.9	50 17.01				41 17.0	- 13.1	Mean = 48.8
17	Clouds									

Sid time of elongation $5^h 56^m$
 R & W. M. M. M. M. $1-13 = 7-09 + 12$

Arguments $1^{\circ} - 41' - 13''$

Mean value of one revolution $3-48.8 = 228.8$
 $\log 228.8 = 2.35946$
 $\cos D. = 8.37500$
 $15 \log = 1.17609$
 $\hline 1.91055$

Equals = 81.08

Mean value of one division of
 Level used 2.48

Station Date 187 Observer

Instrument No.

Star.	Clamp.	Dec'l.	Transit.	Level.	Aa.	Bb.	Cc.	Comp'd A. R.	Chron Corr.	Remarks.

PAGES 338 thru 348
 are blank and were
 not scanned.

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 pages
 338-348
 are blank.

BOOK 2627

Reduction of ~~Prime Meridian~~ Observations. Western Boundary of New Mexico Territory.

Station Rio de San Juan Date July 10th 1875 Instrument Hurdeman No 16 Observer John A. Clark

Star.	Clamp.	T. S. Catalog.	k.	Micrometer Chron. Corr. Readings	Leveling A. B. M. S.	Hour and Angle. Declination	Halfum Dec. of E. Declination	Level.	Micrometer Ar. Ce. Correction.	Latitude.	V.	V.V.	Remarks.
1371				<i>Surroundings</i>		46° 52' 01.06							
1379				24 79	14	27 9 29.77	37° 0'	"	"	37° 0' 18.07	-2.29	5.24	
				24 21.5	21.5			-4.04	0	23.32			
1408				2039.5	16.5	19 46 20.30	12						
1412				3784.	20	54 38 6.01	37	-4.34	11	47.39	21.42	+ .06	.00
1439				1941	14	53 32 22.36	57						
1442				3212	23	20 11 12.69	36	-4.96	8	35.39	17.95	-2.41	5.81
1466				1944	17	46 4 24.23							
1476				2694	22.	27 47 38.45	36	-6.20	4	23.58	18.99	-1.31	1.71
1492				2464	20	22 29 5.83	59	-7.44	0	46.43	18.67	-1.69	2.85
1496				2349.5	19.5	51 30 13.53	36						
1506				3052.5	11	45 30 25.93	7	-6.00	7	14.94	20.22	-1.4	.02
1516				1979.8	22.5	28 44 44.43	37						

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BOOK 2627

Reduction of ~~Prime Vertical~~ ^{Smith-Meridian} Observations. Western Boundary of New Mexico Territory.

No 2 of Sanich Mountain Date July 24th 1875 Instrument Burdeman No 16 Observer John A. Black

Star.	Clamp.	T.	k.	Micrometer Chron. Corr. Readings	Leveling Transit. No.	Leveling A. R. S.	Hour and Angle. Declinations	Half Day Dec. of E. Declinations	Level.	Micrometer Cor. Correction	Latitude.	V.	V. V.	Remarks.
5432				Swind's Dist. 2453.5	23	17	34° 10' 35.88	"			0 1 "			
5479				2817	13.5	26	34 5 41.84	36-15		+ 4	86 19 60.77	+3.41	11.63	
5546				1835.3	3	26	38 20 58.96	13	2.17	+ 6	60.65	+3.79	14.36	
5619				2031.	25	14	34 16 12.80	18	+4.96	+ 1	60.19	+3.33	11.09	
1389				2718	18	20	7 27 49.79							
1398				3268	18.5	19.5	65 19 28.86	23	-1.86	- 3	55.46	-1.40	1.96	
1406				2626	0	0	73 19 1.82							
1407				2926.5	0	0	- 0 43 18.37	36	57.72	+ 2	53.52	-3.34	11.15	
1413				1631.8	19	19.5	36 5 56.10							
1423				3341.5	19	20.	36 57 6.31	31	- 34	- 11	57.58	+ 0.72	.52	
1432				3921	22.5	16.5	25 39 52.00							
1435				1098	15	24	46 21 53.07	36 0	-1.86	+ 19	55.39	-1.47	2.16	
1442				2710.3	22	17	4 15 6.54							
1461				1530	21	19	68 12 54.29	36 14	-1.86	+ 5	55.51	-1.35	1.82	
1472				1988	22	18.5								
1481				2772.5	18	22			- 29	+ 5				Star placed not entirely determined.

NSO

1490	2419	20	22.5	0 41 22.33	72 1 00.70	36 21	11.51	- 3.10	- 1	12.30	56.11	- 75	56
	2597.3	17.5											
1516	3493	19	21	28 44 47.68									
1521	1391	18.5	21	43 26 51.54	36 5	50.69	- 2.97	+ 14	12.36	59.67	+ 2.81		7.89
1525	2741	13	26.5	31 22 31.58									
1527	1972.5	26.5	13.	41 7 0.88	36 14	46.73	+ 6.00	+ 5	11.62	58.35	+ 1.49		2.02
α Lyrae	646	20	19	38 40 7.60									
β Lyrae	4100	18	22	33 13 8.20	35 56	37.90	- 1.86	+ 23	20.60	56.64	- 0.22		0.5

Latitude for this station becomes $\dots\dots\dots 36-19-56.86 \pm$
 Giving the first set the weight of one pair, the resulting
 Probable error $\pm .33$

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Reduction of Prime Vertical Observations. Western Boundary of New Mexico Territory.

No 3

Station Los Alamos Date July 30th & 31st 1875 Instrument Murdeman No 16 Observer John W. Clark

Star. B. A. C.	Clamp.	T. S. Catalogue	k.	Micrometer Chron. Cor.	Leveling A. H.	Hour and Angle.	Half Sun Dec. of L.	Level.	Micrometer Corrections	Latitude.	V.	V. V.	Remarks.
α Lyrae	July 30 th			Suns v. Disc.									
β Lyrae				3301.5	13.5	38° 40' 9.10"	35 56	+15.50	"	35-45-	+2.19	4.79	
				1563.	10.5	33 13 9.70	39.40						
6534				1385.3	19	31 33 34.50	35 51		- 6	10.42	+ 1.44	2.07	
6571				3527.	7	31 4 36.20	50	+ 14.26	- 5	53.47	- 2.81	7.89	
6593				2298.8		40 8 33.41	36		+ 8	18.03	- .66	.43	
6624				2257.		40 7 53.80	36		- 4	34.98	- 3.51	12.32	
6765				3021.5		38 22 30.90							
6784				1591.8	13	33 26 19.50	35 54		- 9	39.74	- 1.21	1.46	
6813				3128.	8	38 24 9.60	55 14.50	+ 21.08	- 10	22.93	+ 4.90	94.01	
6849				2045		38 9 22.50	47 51.00		- 3	03.77	+ .52	.31	
6860				1896.3		38 7 25.10	46 52.30		- 2	03.47	+ 2.16	4.66	
6765				3021.5		38 22 30.94							
6800				2979	13	33 7 32.98	35 45		- 0	17.23	- 1.96	3.84	
6813				3128		38 24 9.60	45 51.29	+ 21.08	- 1	00.42	+ 4.20	17.64	
6849				2045	8	38 9 22.50	58 27.74		+ 6	18.74	- .19	.03	
6860				1896.3		38 7 25.10	37 29.04		+ 7	19.03	+ 1.40	1.96	
5986	July 31 st			2358.5	24.5	31 16 12.67	38 26.22						
6062				1359.		40 0 39.73	35 38	- 5.90	+ 6	45.30	- 2.12	1.49	
6068				1460.5	13.5	40 1 59.96	39 6.31		+ 6	4.14	- 3.20	10.21	

Reduction of Zenith Meridian Observations. Western Boundary of New Mexico Territory.

No. 4

Station *Zuni Village* Date *August 13, 1875* Instrument *Reichenow* Observer *John M. Clark*

Star.	Clamp.	T.	k.	Micrometer Readings	Transit.	Leveling	Hour and Angle	Declination	Declination	Level.	Micrometer Corr.	Latitude.	V.	V.V.	Remarks.
<i>Arcturus</i>				<i>Suns & Stars.</i>											
5788				29 29.5 20 07.	13.5 11.5	19 20.5	33° 45' 6.27 36 5 59.52	34 55 32.89	"	- 9.00	+ 6 14.07	35° 1' -37.96	- .04	.00	
5834				2777	21	11	36 57 8.40								
5842				21 95.5	7	25	33 14 12.98	35 5 40.69		- 4.96	- 3 55.80	39 93	+ 1.93	3.72	
5863				3114	11	21	32 37 50.43								
5886				2406	23.5	8.5	37 15 47.31	34 56 48.87		+ 3.10	+ 4 47.09	39 06	+ 1.06	1.12	
5929				2453.3	23	9.5	38 58 20.17								
5962				3389.	11	21.	30 51 52.81	34 55 16.49		+ 2.17	+ 6 19.43	38 09	+ .09	.01	
5986				1577.5			31 16 14.74	35 7 27.45			- 5 55.13	34 49	- 3.51	12.32	
6062				3099			40 0 40.14	35 6 24.65			- 4 50.14	36 99	- 1.01	1.02	
6068				3197		18	40 2 23.6	16 44.67			- 15 12.25	34 90	- 3.40	9.61	
6087				2383.5		13	30 42 7.16	7 4.76		- 2.48	- 5 29.87	37 37	- .63	.39	
6147				849.3			30 32 47.00	17 24.78			- 15 51.99	35 27	- 2.73	7.45	
6178				2373.5	12	22	31 22 34.14								
6193				2465.3	24	9.5	38 44 27.88	35 3 30.82		+ 2.78	- 1 58.32	35 28	- 2.72	7.40	
6392				2337.0			37 28 37.03	35 4 26.92							
6394				2288.5	14.5	20	37 27 58.52	34 56 35.61			+ 4 56.02	38 65	+ .65	.42	
6426				1904.5	26.	9	32 40 16.82	35 4 7.67		+ 7.11	- 2 35.71	38 74	+ .74	.54	
6427				3067			32 24 34.20	34 56 16.36			+ 5 15.68	38 87	+ .87	.75	
												39.15	+ 1.15	1.32	

352

6495
6534
6567
6581
S. braconis
S. aquilae
6771
6800
6851
6915
6998
7029
7061
7131
7132
7167
S. cygnus
S. cygnus

3545	15	20	39	2	49.00	35	18	13.56	-16	42.40	34.88	-3.12	9.73
1073	23	12	31	33	37.63	14	14	24.72	+3.72	50.45	37.99	-.01	.00
1645			31	25	59.94	14	14	49.67		115.59	37.80	-.20	.04
3035			38	56	1.72	11	11	0.83		23.65	40.90	+2.90	8.41
2932.8	25	11	67	26	35.89						38.80	+ .80	.64
1776	17	19	2	52	5.10	35	9	20.44	+7.44	49.08			
2678	17.5	19	37	3	18.27								
2097.5	23	14	33	7	38.96	35	5	28.61	+4.63	55.39	37.85	-.15	.22
1782.3	15.5	22	34	45	15.08								
3217	28	10	35	37	51.88	35	11	33.48	+7.11	2.05	38.54	+ .54	.29
2441	15.5	22.5	34	35	42.17	6	6	47.07	+6.82	14.67	39.22	+1.22	1.49
2863.5	16.5	17	31	47	22.74								
1839.3	22.5	15	38	1	57.92	34	54	40.33	+3.41	55.31	39.06	+1.06	1.12
2754	13	26	31	8	19.72								
2971.5	27	10	31	5	22.43	34	53	21.74		14.30	38.52	+ .52	.27
1535			38	38	23.77	51	51	53.10	+2.48	42.50	38.08	+ .08	.01
3085	21	17.5	40	41	21.10								
1510	22	16.5	29	43	2.92	35	12	12.01	+5.88	38.66	38.93	+ .93	.86

The mean latitude - giving each quadruplicate the weight of two pairs, and the duplicate that of unity, is

Probable error ± .17

35° - 1' - 38.00" E

6486
6466
6491

3442.3
3104.
1388.5

7
21

25
13.5

36 49 6.14
36 44 34.74 34-40
32 31 15.95 37 55.34

11.04
37 55.34

-6.52
-13 55.25
-11 35.63

9.17 -2.97
13.19 + .95

8.82
.90

6571
6599

2075
2589.5

19
10

15
24

31 4 40.72
37 54 50.04 34-29 45.38

-6.20 -3 28.63

10.55 -1.65

2.72

6698
6777

2169.5
2276.8

14.5
12.5
12
15

20
22
22
19.5

34 11 25.75
34 42 41.83 34 27 3.79

-9.30
-9.00

-0 43.51

10.98 -1.26

1.59

Combining the observations in the same manner as those at Geni and most of the other stations, the latitude becomes... 34° 26' 12.264"

Probable error ± .12

Reduction of ~~Prime Vertical~~ ^{Zenith-Meridian} Observations. Western Boundary of New Mexico Territory.

No. 6
Station

Four Peaks Date September 14th - 1875 Instrument Meridian No. 16 Observer John W. Black

Star.	Clamp.	T. C.C. Ref.	k.	Micrometer Chron. Comp. Readings	Transit St	Leveling A.R. S	Hour and Angle Declination	Halfsum Dec. of L. Declination	Level.	Micrometer Ar. Co. Correction	Latitude.	V.	V.V.	Remarks.
7029 7103		1749 1753		22.01 38 10.3	20 10	14 25	35° 37' 58.29	"	-6.20	-10 57.57	"			This star could not be identified in any of the catalogues
7194 7213				2984.5 1874.	14 15	20 20	31 47 29.48 34 49 39.76	33° 18' 34.62	-6.82	+ 7 57.58	33° 26' 18.38	-3.24	10.50	
				3658 1094.5	19.5 10	15 24.5	30 16 6.36 36 2 10.83	33 9 8.59	-6.20	+ 17 19.50	21.89	+ .27	.07	354
		1852 1862		1565.8 3582.3	22 25.5	13 9.5	26 38 2.30 40 41 28.71	33 39 45.50	+15.50	- 13 37.69	23.31	+ 1.69	2.86	
7260		1852		1565.8 1546.	22 25.5	13 9.5	26 38 2.30 40 13 56.47	33 25 59.38	+15.50	+ 8.03	22.91	+ 1.29	1.66	

The simple mean makes the Latitude 33° 26' - 21.62 ±
Probable error ± .85

REQUISITION OF JAMES M. ... OPERATIONS ... MARIANO BOUTIQUELLO OF NEW MEXICO ...

Reduction of Prime Vertical Observations. Western Boundary of New Mexico Territory.

Renith-Meridian

No. 7

Station Gila river

Date September 27th 1875

Instrument

Spurdenian No 16

Observer John H. Belack

Star.	Clamp.	T. S. Catalog.	k.	Micrometer Chron. Corr. Reading	Transit.	Leveling A. B.	Hour and Angle Declination	Halfsum Dec. of I. Declinations	Level.	Micrometer An. Cor. elevation	Latitude.	V.	V.V.	Remarks.
	Sept. 27			Sun & Divs	S	Sept 27								
6427				18.00	20.5	13	32 24 39.34	32 48 58.67	-11.45	-7	26.574 32 41 20.68	+	2.43	
6429				29.01.5	4	30	33 13 18.01	32 48 58.67						
6468				25.57	20.5	13	33 48 46.73							
6497				7.61.5	4	30	31 58 28.38	32 53 37.55	-11.45	+12	07.67 18.43	-	.47	
6534				26.02.8	4	30	31 33 43.30	41 15.01			22.13 22.13	+	9.06	
		1657		22.39	16.5	19.5	29 22 54.18	43 36.93	-3.10	-2	13.50 20.83	+	2.92	
		1664		25.67	16.5	19.5	36 4 19.69	32 43 36.93						
		1718		23.99.5	7	29	8 08 30.99							
		1727		22.38.3	27	9.5	57 12 00.89	40 15.94	-2.77	+1	05.37 18.59	-	.28	
		1771		31.34.8	15	21.5	25 12 54.82	32 35 58.06						
		1779		23.31.5	17	19.5	39 59 1.31	32 19.56	-5.58	+9	06.53 20.57	+	1.93	
		1788		17.87	17.5	20.	39 51 44.30	41 5.44						
		1802		23.68.	15.5	22.	25 23 9.58	37 26.94	-5.58	+3	55.60 16.96	-	4.66	
7164				24.10	12	26.5	31 52 5.41							
7204				23.88.8	19	19	33 30 27.59	41 16.50	-8.97	+4	8.60 16.13	-	12.89	
7399				39.84	25	15	34 22 41.50							
7465				9.59	10	30	31 41 01.53	1 50.82	-5.58	-20	26.64 18.60	-	.27	

355

Sept-28th

Sept-28th

6427
6429

1854
2978

15
17.5

20
17.5

32 24 89.57
33 13 18.03 32 48 58.70

1982 + 70

.49

6468
6497
6534

2989
1172.5
3030.

15.5
15

19
20.5

33 48 46.76
31 58 28.41 32 53 37.58
31 33 43.33 41 15.04

2085 + 173

2.99

1634
1653

1426
5279.8

17.5
15

18.5
21.5

38 56 9.27
26 1 37.65 32 28 53.46

20.55 + 1.43

2.04

regular

1718
1727

1132.5
2910.8
2739.5

10.5
21.5

26.5
15.5

8 32 31.85
8 8 37.01 32 52 16.38
57 12 0.92 40 15.96

18.54 - .58
1922 + .10

.33
.01

1730
1736

2517
2403.5

18.5
16

19
21

34 45 22.31
30 38 49.20 32 42 5.75

15.92 - 3.20

10.24

1771
1779
1788

3180.8
2372.3
1837.

16.5
16.5

21
21.5

25 12 54.84
39 59 1.34 32 50 58.09
39 51 44.33 32 19.58

20.06 + 94

.88
.26

7164
7204

2321
2301

18
15

20
22.5

31 52 5.52
33 30 27.72 32 41 16.62

19.26 + .14

.02

But giving the double sets the weight of single pairs, the result for the latitude at this station is

32° 41' 19.12 ±

Probable error ± .08

Department of Earth and Atmospheric Sciences, University of Iowa, Iowa City, Iowa

Reduction of Prime Vertical Observations. Western Boundary of New Mexico Territory.

Meridian

No 8

Station San Simon Date October 4th 1875 Instrument Meridian Observer John M. Clark

Star.	Clamp.	T. S. Cat.	k.	Micrometer Chron. Corr. Readings	Transit.	Leveling	Hour and Angle. Declination	Alt. of H. Declination	Level.	Micrometer Alt. Correction	Latitude.	V.	V.V.	Remarks.
B. A. C.					N	A. R. S								
6480				Sumner's Disk 3420.5	24	7.5	32-44' 41.97"	1	+11.16	-3	32° - 5' 31.73"	-1.43	2.04	
6491				2429	16.5	15	32 31 20.24 32 9 12.71	2						
6534				2848	17	15	31 33 43.46 32 2 31.85	2	+9.59	+2	32.91	+2.61	6.81	
6553				1480	23	9.5	32 18 33.39 31 56 8.42	31		+9	32.73	+2.43	5.90	
		1642		1824.8	17.5	15	37 54 56.26	58	+12.07	+7	31.32	+1.02	1.04	
		1653		2866	25	8	26 1 37.84 31 58 17.05	58						
		1673		3030	9.5	25	19 30 17.19		+6.82	+7	29.43	-0.87	.75	
		1683		1921.3	30.5	4	44 25 28.87 31 57 53.03	57						
		1693		2247.8	13	21.5	45 13 59.47		-91	+3	27.94	-2.36	5.57	
		1705		2764.5	21	14	18 49 59.20 32 1 59.33	1						
		1713		2027.5	19.5	15.5	40 17 13.56		+26	+4	31.62	+1.32	1.74	
		1717		2642.5	16	19.	23 45 30.40 32 1 21.98	1						
		1740		2233.5	19.5	16	36 42 21.43		-62	+1	31.72	+1.42	2.02	
		1741		2521.5	15.5	20	27 24 49.67 32 3 35.55	3						
		1753		1866.3	19.5	16	35 38 0.31		-62	+6	25.41	-4.89	23.91	
		1766		2879.	15.5	20	28 19 10.46 31 58 35.38	58						

1796	2138	18	18	38 2 8.00	32 2	3.10	-26	+ 3	27.41	30.25	-0.5	.00
1812	2649.5	18	18.5	26 1 58.19	32 2	3.10	-26	+ 3	27.41	30.25	-0.5	.00
	3213.8	19	18	30 16 9.03								
	1419.5	17	19.5	33 30 28.42	31 53	18.72	-91	- 11	47.31	30.50	+ 2.0	.04
1873	1849	26	11	58 57 19.94								
1876	2815.3	10	27.5	5 0 38.55	31 58	59.24	-1.53	+ 6	31.83	29.54	- 7.6	58
1977	1532	23.5	15.5	45 2 45.94								
1929	3197.5	17	22.5	18 45 43.77	31 54	14.85	+1.53	+ 11	15.36	31.74	+1.44	2.07
1963	3848.5	13	26.5	11 29 20.18								
1969	1539.3	29	11.	52 17 10.58	31 53	15.38	+ 3.10	- 12	13.63	32.11	+1.81	3.27
	3099.5	26.5	13.5	32 34 6.47								
	3111.	14.5	25.5	32 34 16.11	32 15	14.25		- 9	45.74	29.75	- .55	.30
	1655.			31 56 22.04	32 15	19.07	+1.24	- 9	50.41	29.90	- 4.0	.16

Taking the first and last pairs as single ones the Latitude is $31^{\circ}-5'-30.30 \pm$
 Probable error $\pm .16$

7194
7204

7721
7731
7843

Requestion of Library Acquisitions Organization of the University of New Mexico, Albuquerque, N.M.

Reduction of **Prime Vertical** Observations. Western Boundary of New Mexico Territory.

No. 9 Station *Guadalupe Canon* Date *Oct 14th* 1875 Instrument *Murkman* Observer *John M. Lusk*

Star.	Clamp.	T. <i>C.S. Cat. 4</i>	k.	Micrometer Coar. Readings	Transit. A	Declivity A.R.	Hour and Angle. Declination	Hour Dec. of Declinations	Level.	Micrometer Co. Correction	Latitude.	V.	V.V.	Remarks.
7131	Oct 13			S. + Div. 2060.5	24	15	21° 8' 29.92	31° 36' 18.40	+19.84	-7	31° 21' 16.54	-1.62	2.62	Micrometer reversed.
+ 7132				1836.8	31	8	31 5 32.62	28 49.75		-9	18.60	+ .44	.19	
7164				3222.										
7029	Oct 14			2884.8	19	20	31 47 32.52	28 1.24		-6	18.40	+ .24	.06	
+ 7131				2096.3	27	11.5	31 8 29.97	26 32.59	+7.73	-5	21.58	+ 3.42	11.69	Micrometer reversed.
7132				1872.3	26	13	31 5 32.67	30 18.45		-9	18.14	- .02	.00	
7164				3223.	19	20	31 52 6.94	28 49.80	+7.44	-7	20.40	+ 2.24	5.01	
		1842		2354.8	19.5	19.5	36 2 10.57	20 8.06	+8.97	+1	17.93	- .23	.05	W S
		1852		2505.	27	12.5	26 38 5.55	31 20						
		1858		3094.5	15	24	12 5 44.61							
		1861		1508.	28	11	50 15 18.46	31 10	+4.96	+10	19.81	+1.65	2.72	
		1919		1813.5	20	21	23 5 50.12							
		1930		2907.	20	21	39 51 32.55	28 41.23	-1.24	-7	16.88	-1.58	2.50	Evidently the measured is not identical with the one catalogued.
		1931		2962	18.5	23	19 45 56.07	14 22.08	+ .93	+8				
		1934		1676.3	23.5	17.5	42 42 48.10	31 14						
		1940		3019.5	25	16	40 35 26.67		+1.24	-7	18.52	+ .36	.13	
		1948		1866.5	17	24	24 22 42.98	31 29						
		1960		2872	24	16.5	55 12 57.73		+4.63	-5	17.83	- .33	.11	
		1967		2113	20	20	7 39 44.21	21 26						

358-361
are blank

2073 & 2089 are
not sufficiently
well determined
for incorporation

31° 21' 18.16 ± 11
Probable error!!

pages 358-361
are blank.
BOOK 2627
BOOK 2627

1972	2701	18	23	-1 30 20.85	15	36.65	+4.63	+ 5	40.21	21.49	+3.33	11.09
1976	1862	26.5	14	64 1 34.16	31	15	36.65	+4.63	+ 5	40.21	+3.33	11.09
1987	2417	22	19.5	20 22 12.30								3.84
1998	2420.5	20.	21	42 20 28.90	31	21	20.61	+ 93	- 0	1.42	+1.96	3.84
2001	2873.5	23	17.5	62 11 5.77								.02
2007	1875.	20	21.	0 44 54.48	31	28	20.12	+2.80	- 6	44.89	18.03	.02
2031	2847	17	24	18 52 55.24								9.00
2038	1965.5	24	17	48 37 52.19	31	15	23.71	+0.00	+ 5	57.45	21.16	9.00
2012	1355.5			53 15 42.84								2.89
2049	3576			53 45 41.74	31	13	9.92		+ 8	8.02	19.86	2.89
2054	2559			9 10 35.96	28	28	8.85	+1.86	- 6	52.39	18.32	.02
2060	1614.5	25	16.5	39 43 1.80								
2073	3019.	19	21.5					+3.72				
2085	2201.5	22	19	45 43 9.80								
2089	2498.5	20	21.5									
	1828.5	17.5	24.5	31 8 4.70								
	2411.5	26.5	15.	31 42 19.21	31	25	11.95	+2.77	- 3	56.41	18.31	.02

Give the double sets the weights of single pairs, and the latitude at this stations will be

8141
8159

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Instruments,

For running the line, a transit theodolite No. 123 made by Audeman of Washington was used.

The vernier reads to 20" and the cross wires are cut on the glass. In very rough country a solar transit, made and fitted up expressly for this boundary line, by H. and L. C. Guley, of Troy, New York, was used.

For time I had autton chronometer No. 288.

The elevations were taken by a Sixes Aneroid barometer. As I had no aneroid barometer with which to compare it, I do not consider the results reliable, further than to show the relative heights.

For latitude observations, a zenith meridian instrument No. 16, made by Audeman of Washington, was used. The focal length of the in-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

strument is 26 inches.

A four pole steel chain, with
brazed links and swags, so that
in a rough country it could
be used as a two pole chain,
was used for the measurements.
The chain was kept in correct ad-
justment by frequent comparisons
with a steel tape line, which
had previously been compared by
us, with the Standard Yard in
the office of the Surveyor General
of New Mexico, at Santa Fe, N. Mex.

Stone covers were put in wherever
it was practicable, I having in pla-
ces packed stone on pack animals
a distance of twenty miles. As it
was impossible to take any way-
on through the country, 33 pack
animals were used. And at Tuzi,
where we had to store provisions
to take us through the mountains,
South of there, the animals were
so heavily laden that it was im-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

possible to spare any to pack stone, and thus being no stone in that region, I was compelled to put in posts for monuments.

General Description.

The initial point is situated about one half mile South of San Juan river, on what was evidently, at some former period, a plateau of Sandstone strata, which is now everywhere washed out, leaving rugged ridges, and rough barren hills. The river flows here through a slight cañon, with Sandstone bluffs of some 400 ft. in height. The valley of the river is narrow, and the soil very sandy, still cottonwood and willow present in places a luxuriant growth. The river is about 100 yds. wide, with an average depth of about 4 ft. has ordinarily a swift, clear current, and runs in a generally N. N. course over a bed of boulders and sand, during the rainy

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

season which set in this year on the 4th of July, the water ^{is} surcharged with mud, and becomes chemically, as well as mechanically impure. It is inhabited by several species of peculiar looking fishes, some of which attain a large size. He found float gold in its sand, but the indications were that it was not in paying quantities.

There is but little game, the Navajo's on one hand, and the Utes on the other, having long since destroyed the little that a naturally barren and destitute country produced.

The Astronomical observations for the "Initial point" were made in the river valley, at a point bearing N. 43° 52' E. and 49.62 chains distant from the Initial monument. The character of the country was such that this was the nearest available spot for the purpose.

From the Initial monument the line runs for about 6 miles, over rough, barren, sandstone hills, thence over a rolling prairie, covered with good grass, but destitute of water, for a

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

distance of $12\frac{1}{2}$ miles, where it entered a more elevated region, which slopes East from the Pariso mountains, and which is much broken by cañons, trending westward through beds of sandstone. This rough surface is generally covered with piñon, and juniper brush, and is well watered. Here a few Hogans (Navajo houses) were seen. These are temporary settlements, occupied for a season only at most, to herd stock, or raise patches of corn and beans.

At a point $24\frac{1}{2}$ miles from the beginning, the line enters an open valley, presenting here and there, ledges of sandstone, and outcrops of Igneous rock. This valley is about 10 miles wide and descends North Eastward towards the San Juan.

On the $34\frac{1}{2}$ miles, the line enters the foot hills, covered with patches of sage brush of the Tuzicha mountains, which have here a generally East, and West range. For the next $26\frac{1}{2}$ miles, the line is continuously in the mountains. These are covered especially on the North side of the peaks and ranges, with a dense growth of ^{piñon} cedar, scrub oak, yellow pine,

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

aspen, and spruce. Numerous springs
 and rivulets, were met with on
 both sides of the water-shed, and
 occasionally little lakes many thous-
 ands of feet above the valleys be-
 low. Amidst this luxuriant growth
 of timber are valleys of excellent
 grass, affording fine pasturage
 which the Navajo's turn to ac-
 count during the summer months.
 There is a great quantity of Yel-
 low pine, especially on the very
 tops of the mountains, but it is
 likely to be soon destroyed, from
 the habit the Navajos have of
 peeling its bark as far up as
 they can reach, and use the in-
 side of the bark for food. Here
 were also seen the sweat houses
 of the Navajos, which they use in
 the treatment of several diseases.
 These sweat houses have heretofore
 been referred to as having been
 built and occupied by a Lilliputian
 race. The general trend of the Tuni-
 cha mountains, where the line
 leaves them which is over a basaltic
 cliff, about 700 ft. high, and almost
 perpendicular is N. N. and S. E. From
 the foot of this range, it enters

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

rolling ground covered with yellow pine, and crosses the West spur of an isolated double mountain. At 63 miles, 55 chains, an open valley was entered, in which at 67 miles and 60 chains is the divide between the waters of the Cañon de Shelby, and the Rio Puerco of the West. Cañon de Shelby heads about 8 miles West of the 66th mile monument.

Thence South for 20 miles the boundary falls in the valley of the Black Lake run. This valley is only a few miles wide and is bounded on the West by a continuous ridge thickly covered with piñon, and cedar, while on the East spurs of the Tuuñica mountains are present, in the shape of immense perpendicular walls and columns of blood red sandstone. There is a great deal of sage and other coarse underbrush in this valley, but it nevertheless furnishes excellent grazing ground. At 86 miles 32 chs. Navajo Agency at Old Fort Defiance, bears West 2 miles, and 1.42 chs. distant. The agency is a collection of adobe buildings and is situated at the mouth of a picturesque little cañon, known as the "Cañon

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Bonito," On the 93rd mile, the boundary line crosses the wagon road leading from Ft. Huigate, (locally designated as "Ojo del Oso" or Bear Spring) to Cañon Bonito or Ft. Defiance, and just East of several Sandstone pinnacles known as the "Haystacks,"

On the 96th mile the line enters a broken country, destitute of water and covered with a very dense growth of piñon and juniper, of a scrubby growth; in the valleys lying among these broken hills is a great abundance of grama and other nutritious grasses. This character of country is maintained as far as the valley of the Turco, and in this whole distance only one permanent water was found; that, a spring of pure water just East of the line, bubbling out in the head of a cañon, leading down to the Turco.

Following the line along the 113th mile, the valley of the Turco is entered over a precipitous bluff of Sandstone about 700 ft. high. The valley is a little more than a mile in width, and descends in a

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

South Westerly direction, The river as the name implies is a dirty stream, with high sandy bank, and affords water only during the rainy season. The mail route from Ft. Huachuca to Prescott, leads along this river valley. Continuing South from the valley of the Puerco, the line falls West of a series of Sandstone bluffs 500 or more feet high, and ascends to the divide between the valleys of the rivers Puerco and Zuñi. The region here between these two valleys, consists for the most part of rolling sand hills densely covered with juniper and piñon. It affords much good grass, but is entirely destitute of living water. Here deer were met with. This divide is neutral ground between the Navajos and Zuñis, evidenced by the fact that when the valley of the Puerco, was left, the last Navajo trace was left also. At the point 133 miles 32.42 chs. the Indian Pueblo of Zuñi bears East. 11 miles 28.33 chs. distant. This village is situated on a knoll in the valley of the Zuñi river. - is a compactly built town of adobe and stone, and contains about three thousand in-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

habitants. These people have extensive herds of sheep, goats, cattle, and horses, besides cultivating the soil to a considerable extent - raising wheat, corn, beans, and water-melons, and this too for the most part without irrigation, which is effected by planting ^{the} seed very deep. The soil seems to be an interminable bed of sand, - the river except in the rainy season is only a dry water course.

The line on the 146th mile, enters the valley of the Zuñi river, bearing N. E. and S. W. This valley affords excellent pasturage, and if water was available, could be made valuable for the production of the cereals. Here the general character of the country undergoes a considerable change. Ascending from the Zuñi valley, sand-stone bluffs are not encountered, but in their stead extensive plateaus of lava, which is generally and aptly called "meal flat".

East of the 151st mile, and about a mile distant, is a fine large spring near the seat of an ancient Pueblo, now entirely in ruins.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

From this point Southward for a distance of 21 miles along the line to the valley of the Gaiiso, the country is sandy, broken up in places by erosion into Arroyos and Sandstone cañons, and covered with juniper and piñon trees. There is fine grazing here, as is also the case in the valley of the Gaiiso, which runs Westward, but does not carry water sufficient for agricultural purposes. In this valley especially in the neighborhood of Gaiiso spring which is West of the line, there is much sage, and other under-bush.

About a mile East of 178th mile is a considerable Sandstone cañon opening into the Gaiiso valley, in which there is a large soda spring. The country hence to the foot of the Escudilla, is composed mostly of "mal pais" plateaus, affording much grass, and covered in some places with large stretches of juniper and piñon, water is scarce, there being near the line, but one spring, it is on the East side and near the road leading to Gillespie's ranch.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

On the 202nd and 203rd miles, the line runs a few chains East of a large meadow, called the "Sierra Anaiilla" formed by scarp from the main mass of the Escudilla mountains, lying a few miles distant and a little West of South. Leaving the Sierra, the line passes through a labyrinth of mountains for nearly fifty miles. They are very broken, presenting a succession of elevated peaks and ranges, deep ravines and great cañons. From the tops of the ranges to the bottom of the cañons adjacent, the perpendicular distance in some instances is as much as 3500 ft. - commonly about 2000 ft. The mountains are for the most part heavily timbered with yellow pine, scrub oak, cedar, spruce, etc. besides particular-ly on the South faces of the Peaks and ranges, the forms of vegetation peculiar to Northern Sonora such as manzanita, mesquite plants, larrea, and the like. This region is well watered, and affords an abundance of a great

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

variety of grasses, among them the black gramma, and at this day probably exceed all other places in the United States for game. Of the larger kinds are the bear, the elk, black and white tailed deer, of the smaller are an abundance of turkey, three or four species of quail and the white winged pigeon. The streams are well stocked with fishes peculiar to the waters of the Gila; real mountain trout were taken in some of them.

The general trend of the mountains is Northeast, and Southwest, though often twisted, and folded, and contorted, till the direction is in many places reversed. The Southeast face of this range is very precipitous, and marked in many places by perpendicular basaltic bluffs. The volcanic rock seems to have forced up the Sandstone formation, though limestone is visible in places.

Between two deep and narrow valleys, at a point 28 miles and 40. chs. from the beginning, indications of copper were seen, and also a vein of silver, in a narrow gorge some

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

2000 ft. deep on the 256th mile, opening Southwaly into the cañon of the Eastern branch of the San Francisco river.

Near the end of the 241st mile the line crosses the Western side of one of four peaks, which form a prominent, and well defined land mark, in this rough and contorted mountain mass. They are easily recognized at a great distance from every direction, and constitute an eternal monument for this portion of the boundary line.

For the next 18 miles, over which the line was triangulated, the country presents a sort of plain, or irregular plain, cut up into deep narrow and impassable cañons, through the central one of which, running here nearly East and West, the Eastern branch of the San Francisco river makes its way.

This river compared with the Gila is an insignificant stream; nevertheless it is very rapid, and affords a great deal of water.

On the 275th mile, the divide between the Eastern branch of the San

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Francisco and Gila rivers is reached. The line hence at first descends over a rough and barren series of mountains, with the general trend North-west, and Southeast, then over mountain drift of boulders and sand, and enters the Gila valley on the 297th mile. The general width of the Gila valley is about 3 miles, and is of a very rich sandy soil, supporting a dense growth of cottonwoods, willow reeds, rushes, and vines. Settlements have here been made, and corn, melons, and vegetables were growing in abundance. The river was swift and muddy (it being the rainy season) about 50 yds. wide, 4 ft. deep, with gravelly and sandy banks and bottom. Its general course is West to North west. I crossed it with my pack train, on a bridge about 5 miles East of the line.

From the Gila the line runs over a rolling prairie, covered with cactus and mescal, crossing the Peloncillo range on 319th mile, and Steens peak on the 322nd mile. It then enters the valley of the San Simon crossing the meadow or Pienega of San Simon, about 15. chs. West of

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

John Brisben's rancho, on the 340th mile, in this valley is a stream which rises out of the ground, and entirely disappears, it is not well defined or connected, and in most places has the appearance of a disconnected Arroyo. It is generally known in this country by the name of the San Simón; it is laid down on the map of the General Land Office, as the Rio San Domingo; it is also frequently called Rio de Sanz. This region to the point where the line again enters the Peloncillo mountains, consists of a high rolling plain about 25 miles in width, and bounded on the West by the Chiricahua mountains, and on the East by the Peloncillo mountains. Numerous triangulations were made to the prominent peaks, and points in both of these ranges, so that the ranges themselves could be properly located therefrom. This plain is destitute of timber, and almost destitute of water, and is covered with cactus, mesquite, and creosote bushes. On the 372nd mile the line again enters the Pelon-

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

cillo mountains, the line runs through a very rough and broken country of igneous rock, and scattering and scrubby oak, cedar, and manzanita; affording water in occasional springs and holes in the rock.

The Guadalupe cañon is reached on the 390th mile, it descends to the South-west, and contains a fine stream of pure water, and supports a very luxuriant growth of grass; different varieties of the mesquite; and cottonwood, sycamore, walnut, ash, willow and oak. At this place is a most conspicuous place, on the South side of the road running through the cañon, a very large and enduring monument, built entirely of stone, the position of the monument thus established is such that no person could go through the cañon without seeing it. The tumular monument is located at about 1 mile South of the cañon on the Northern slope of a range of high rugged and stony hills, trending East and West.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

A large rectangular area with a red border and light blue horizontal ruling, intended for a map or survey notes.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

List of names.

A list of the names of the individuals employed to assist in running, measuring, or marking the lines and monuments described in the foregoing field notes of the Western Boundary of New Mexico, showing the respective capacities in which they acted.

John H. Clark.	Assistant Astronomer.
George H. Pratt.	Asst. Surveyor, and Topographer.
Richard Butler.	Chainman.
Antonio Trujillo.	Chainman.
Frank Kuntz.	Flagman.
Ramiro B. Read.	Axe-man.
Marcos Ribera.	Axe-man.
Jose de Jesus Herrera.	Axe-man.
Benito Archuleta.	Packer.
Seferino Alarid.	Packer.
Jesus Jimenez.	Packer.
Jose Oliver.	Packer.
William Henry Louisa.	Cook.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Oath of Assistants.

We hereby certify that we assisted Chandler Robbins, U. S. Astronomer, and Surveyor, in surveying, measuring and marking the Western Boundary of New Mexico, being that portion of the 32^d of West Longitude included between the 37^o of North Latitude, and the 31^o 20' of North Latitude, and that the said Boundary line has been in all respects, to the best of our knowledge and belief, well and faithfully surveyed, and the boundary monuments planted according to the instructions furnished by the Hon. Commissioner of the General Land Office.

George K. Pratt, Asst. Surveyor, & Topographer.

Richard Butler, Shaman.

Antonio Trujillo, Shaman.

Frank Kauter, Flagman.

Maurice B. Read, Axeman.

Macedonio Ribera, Axeman.

Jose de Jesus Herrera, Axeman.

Benito Archuleta, Packer.

Seferino Alarid, Packer.

Jesus Jimenez, Packer.

Jose Olvera, Packer.

William Henry Louine, Cook.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Territory of New Mexico. }
 County of Grant. }

On this 21st day of October, A. D. 1875, at Silver City, County and Territory aforesaid, before me, the undersigned Notary Public, appointed by the executive authority and under the laws of the Territory of New Mexico, and duly qualified to take acknowledgements, personally came George H. Pradt, to me known the person subscribed to the foregoing certificate, and also personally came Richard Butler; Antonio Tuzillo; Frank Hunter; Maurice B. Read; Basilio Ribera; Jose de Jesus Herrera; Benito Archuleta; Severino Alaid; Juan Jimenez; Jose Oliver; and William Henry Loumer; satisfactorily proven to me to be the persons, who subscribed to the foregoing certificate, and who severally acknowledged before me, that they executed and subscribed to the same, for the purposes therein mentioned.



Julius C. Leary,
 Notary Public
 Grant County,
 N. M.

WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Oath of Assistant Astronomer.
 I John H. Clark do hereby certify
 that I assisted Chandler Robbins,
 U.S. Astronomer, and Surveyor, in
 making observations and redect-
 ions, for the determination and
 establishment of the Western Bound-
 ary of New Mexico, being that por-
 tion of the 32° of West Longitude
 included between the 37° and 31°20'
 parallels of North Latitude, and
 that to the best of my knowledge
 and belief they are well and faith-
 fully done, and the monuments
 planted according to the deduced
 results, and the instructions furnish-
 ed by the Hon. Commissioners of the
 General Land Office.

John H. Clark,
 Asst. Astronomer.

Shown to and subscribed before me
 Clerk of the Supreme Court of the
 District of Columbia, this 21st of March
 1876.

R. J. Mayo, Clerk.
 by L. S. Williams, Asst. Clerk.



WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Oath of Astronomer and Surveyor.
 I Chaudler Robbins, U.S. Astronomer
 and Surveyor, do solemnly swear that
 in pursuance of a contract with the
 Hon. Commissioners of the General Land
 Office, bearing date April 12th 1875 and
 in strict conformity to the laws of
 the United States, and the instruct-
 ions furnished by the said Commis-
 sioners, I have faithfully surveyed, mark-
 ed and established the Western Bound-
 ary of New Mexico, being that portion
 of the 32nd of West Longitude, included
 between the 37th and 31st 20' parallels of
 North Latitude, and do further sol-
 emnly swear that the foregoing are
 the true and original field notes
 of such survey.

Chaudler Robbins,
 U.S. Astronomer and
 Surveyor.

Shown to and subscribed before me Clerk
 of the Supreme Court of the District of
 Columbia, this 21st day of March, 1876.

A. J. Waigo, Clerk,
 by L. S. Williams, Asst. Clerk.



WESTERN BOUNDARY OF NEW MEXICO TERRITORY.

Department of the Interior
General Land Office
March 27th 1876

The foregoing field notes of the survey of the West Boundary of the Territory of New Mexico, executed by Chandler Robbins, Astronomer and Surveyor under his contract with the Commissioner of the General Land Office dated April 12th 1875, having been examined and found correct, are hereby approved.

U. J. Baxter
Acting Commissioner

Retracement and Reestablishment of Portion of Arizona and New Mexico Boundary Line Bet. 357 Mile Cor. and 364 Mile cor.

June 1, 1910: Acting on information that many of the cor. on the Arizona and New Mexico bdy. line, on which the lines of Tp. 29 S. R. 22 W. must close, need to be relocated, I begin at the 357 mile cor., previously described, and set off 31°49'N. on lat. arc; 22°02.5'N. on decl. arc; and, at 3h 00m p.m., l.m.t., determine a meridian with the solar.

retracing
Thence South on a random line on the 358th mile of the Arizona and New Mexico bdy. line.

Level prairie.

80.00 Find small porous malpais lying loosely on ground, ^{nearby} with traces of marks described by surveyor general for this cor. There are no traces of its original location. Set a temp. 358 mile cor.

79.80 Thence South on a random retracement line on 359th mile. Falls 48 lks. E. of 359 mile cor. ^{which is a malpais 15x7x6 ins.,} stone, lying on ground, marked as described by the surveyor general but with no trace of its original location.

80.00 Set a temp. 359 mile cor.

79.70 Thence South on a random retracement line on 360th mile. Falls .70 lks. E. of 360 mile cor., which is a malpais stone 22x20x12 ins., firmly set in a mound of stone on stony ground, and marked as described by the surveyor general.

I raise a mound of stone, 2 ft. base, 1 1/2 ft. high, W. of cor.
Pits impracticable.

From 357 mile cor. previously described, therefore S. 0°10'W. on a true line on 358th mile.

Over level prairie.

79.90 Set a malpais stone, 18x10x6 ins., 12 ins. in the ground for the 358 mile cor., mkd. ARIZ on W., N.MEX on E., 358 on N., and 32° WL on S.; dig pits 24x24x12 ins., N. and S. of stone, 6 ft. dist.; and raise a mound of earth, 4 ft. base, 2 ft. high, W. of cor.

Land, level.

Retracement and Reestablishment of Partion of Arizona and
New Mexico Boundary Line South of 357 mile cor.

Soil, sandy loam, 1st rate.

No timber.

Thence S.0°10'W. on a true line on 359th mile.

Over level prairie.

79.90 Set a malpais 15x7x6 ins., 10 ins. in the ground for the
359 mile cor., mkd. ARIZ on W., N MEX on E., 359 on N. and
32° WL on S., faces; dig pits 24x24x12 ins., N. and S. of
stone, 6 ft. dist.; and raise a mound of earth, 4 ft.
base, 2 ft. high, W. of cor.

Land, level.

Soil, sandy loam, 1st rate.

No timber.

Thence S.0°10'W. on a true line on 360 th mile.

44.00 Enter malpais strewn land, bears SW. and NE., ascend

79.90 360 mile cor., previously described.

Land, level and rough.

Soil, brown loam and rocky red loam, 1st to 4th rate.

No timber.

June 1, 1910.

June 2, 1910: At this cor., I set off 31°46.5'N. on lat.
arc; 22°08.5'N. on decl. arc; and, at 7h 00m a.m., 1 m.t.,
determine a meridian with the solar.

Thence South on a random retracement line on 361st mile.

Over rolling rocky land.

47.00 Leave malpais covered land, bears NW. and SE.

79.90 Falls 24 lks. E. of the 361. mile cor., which is a malpais
stone 10x10x6^{ins.}/_{above} ground, firmly set and mkd. as
described by the surveyor general.

I dig pits 24x24x12 ins., N. and S. of stone, 6 ft. dist.;
and raise a mound of earth, 4 ft. base, 2 ft. high, W. of
cor.

Bearing of this mile is S.0°10'W., 79.90 chs. long.

Retracement and Reestablishment of Portion of Arizona and
New Mexico Boundary Line South of 357 mile cor.

Soil, rocky, red loam, and gravelly loam, 2nd to 4th rate.
No timber.

79.95 Thence South on a random retracement line on 362nd mile.
Falls 26 lks. E. of malpais stone 18x18x6 ins., mkd. as
described by the surveyor general for this cor., but lying
on the ground with no trace of its original location.
80.00 Set a temp. 362 mile cor.

Thence South on a random retracement line on 363rd mile.
80.00 Make thoro search, but find no trace of 363 mile cor.,
Set a temp. 363 mile cor.

Thence South on a random retracement line on 364th mile.
79.85 Falls 70 lks. E. of the 364 mile cor., which is a malpais
stone 15x10x6 ins., set in a small mound of stone, and mkd
as described by the surveyor general.

This stone I set 10 ins. in the ground in the same place
and dig pits 24x24x12 ins. N. and S. of stone, 6 ft. dist;
and raise a mound of earth, 4 ft. base, 2 ft. high, W. of
cor.

Reestablishing from the 361 mile cor., previously described.
S. 0° 10' W. on a true line on 362nd mile.

Over rolling land descending bears NW. and SE.

79.95 Set a malpais stone 18x12x6 ins., 12 ins. in the ground for
for the 362 mile cor., mkd. ARIZ on W., N MEX on E., 362 on
N., and 32° WL on S. faces; dig pits 24x24x12 ins., N. and S.
of stone, 6 ft. dist.; and raise a mound of earth, 4 ft.
base; 2 ft. high, W. of cor.

Land, rolling.

Soil, loose gravelly loam, 2nd rate.

No timber.

Thence S. 0° 10' W. on a true line on 363rd mile.

Over smooth prairie land.

79.95 Set a quartzite boulder 16x11x5 ins., 11 ins. in the ground
for the 363 mile cor., mkd. ARIZ on W., N MEX on E., 363 on

Retracement and Reestablishment of Portion of Arizona and
New Mexico Bdy. Line Bet. the 357 Mile cor. and The 364 Mil

N., and 32° WL on S. faces; dig pits $24 \times 24 \times 12$ ins., N. and
S. of stone, 6 ft. dist.; and raise a mound of earth, 4
ft. base, 2 ft. high, W. of cor.

Land, smooth .

Soil, loose gravelly loam, 2nd rate.

No timber.

Thence $S. 0^{\circ} 10' W.$ on a true line on the 364th mile.

Over level land.

79.95 Intersect 364. mile cor., previously described.

Land, level.

Soil, brown loam, 1st rate.

No timber.

All except the 361st mile from the 357 mile cor to the
364 mile cor., necessarily were rerun in order to
reestablish the missing cors.

South Boundary of Fractional T. 29 S. R. 22 W.

Beginning at the cor. of Ts. 29 and 30 S. Rs. 21 and 22 W.,
previously described, lat. $31^{\circ} 43' 55'' N.$ long. $109^{\circ} 02' W.$, mag.
decl. $12^{\circ} 50' E.$

Thence West on a true line bet. secs. 1 and 36 in. R. 22 W.

Descend bears NW. and SE. with mesquite undergrowth.

40.00 Set a quartzite boulder $12 \times 8 \times 8$ ins., 8 ins. in the ground
for the $1/4$ sec. cor., mkd. $1/4$ on N. face; dig pits 18×18
 $\times 12$ ins., E. and W. of stone, 3 ft. dist.; and raise a mou
mound of earth, $3 \frac{1}{2}$ ft. base, $1 \frac{1}{2}$ ft. high, N. of cor.

Leave mesquite brush bears NE. and SW.

44.00 Arr-oyo , 25 lks. wide, course NW., thence level.

80.00 Set a quartzite boulder $15 \times 9 \times 5$ ins., 10 ins. in the ground
for the cor. of secs., 1, 2, 35 and 36, mkd. with 1 notch on
E. and 5 on W. 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, smooth slope and level.

South Boundary of Fractional T. 29 S. R. 22 W.

Soil, gravelly and sandy loam, 1st and 2nd rate.
Timber, mesquite undergrowth.

Thence West on a true line bet. secs. 2 and 35. Level.

24.34 Intersect Arizona and New Mexico Bdy. line, 10.52 chs.
N. 0° 10' E. of the 363 mile cor., previously described.

Set a malpais stone 18x9x8 ins., 12 ins. in the ground for
the closing cor. of Ts. 29 and 30 S. R. 22 W. on Arizona
and New Mexico bdy. line, mkd. CC on E., ARIZ on W., and
with 6 grooves on N. and S. faces; dig pits 30x24x12 ins.
crosswise on each line, N. and S., 4 ft., and E. of stone,
8 ft. dist.; and raise a mound of earth, 5 ft. base, 2
1/2 ft. high, E. of cor.

Land, level.

Soil, sandy, loam, 1st rate.

No timber.

June 2, 1910, 11h 30m a.m.

Latitudes, departures and closing errors.

Line designated.	Bearing.	Distance.	Latitudes.		Departures.	
			N.	S.	E.	W.
N. Bdy. of Tp.	S. 89° 44' W.	103.30		0.11		103.30
W. Bdy. of Tp. or Arizona line From stand. CC to 357 mile cor.	S. 0° 03' W.	10.61		10.61		0.01
From 357 M. cor. to 361 M. cor.	S. 0° 10' W.	319.60		319.60		0.93
From 361 M. cor. to CC on S. bdy.	S. 0° 10' W.	149.38		149.38		0.43
S. Bdy. of Tp.	East	104.34			104.34	
E. Bdy. of Tp.	North	479.54	479.54			
Convergency						0.09
Totals			479.54	479.70	104.34	104.26
Error in lat.				479.54		104.34
				0.16		
Error in departure						0.42

665

Retracement of N. Edy. of T. 30 S., R. 22 W.

Chains.

RECEIVED
B.L.M. AZ STATE OFFICE

AUG 14 1978

10:00 A.M.
PHOENIX, ARIZONA

stone, 14x8x8 ins. above ground, firmly set, mkd. and witnessed as described in the official record. To better perpetuate this cor., against this stone, set an iron post, 3 ft. long, 3 ins. dia., 32 ins in the ground for the 363 mile cor., with brass cap mkd.

363M
ARIZ; N M

1923

Land, level.

Soil, sandy and gravelly loam, 2nd and 3rd rate.

No timber.

Undergrowth, mesquite and Spanish dagger.

Resurvey of Part of Arizona-New Mexico State Boundary.

Since some of the original mile corners on the state boundary are not firmly enough set, and the bearing is not correctly given, from the 363 mile cor., I retrace S. 0° 10' W. on 364th mile.

79.94 Intersect the 364 mile cor.

Thence South on the 365th mile.

80.06 The 365 mile cor., bears West, 55 lks. dist.

Thence South on the 366th mile.

80.00 The 366 mile cor., bears West, 26 lks. dist.

Thence South on the 367th mile.

79.98 The 367 mile cor. bears West, 28 lks. dist.

Thence South on the 368th mile.

79.03 The 368 mile cor. bears West, 25 lks. dist.

Thence South on the 369th mile.

80.00 The 369 mile cor., previously described, bears West, 33 lks. dist.

Resurvey of Part of Arizona-New Mexico State Boundary.

Chains:

- Thence N. $0^{\circ} 14'$ E. on 369th mile, over gently rolling land, through scattered undergrowth.
- 11.90 To the closing cor. of Ts. 30 and 31 S., R. 22 W., previously described.
- 66.70 Road to Turner Wright's house, bears E. and W.
- 67.40 Corral bears E., 1 ch. dist.
- 68.40 Turner Wright's house bears E., about 3 chs. dist.
- 72.70 Fence, bears N. and W..
- 73.20 Dry wash, 30 lks. wide, course W., ascend
- 80.00 Intersect the 368 mile cor., which is a granite stone, 12x8x8 ins., loosely set in small mound of stone, and mkd. ARIZ on W., N M on E., and 368M on N. faces. To better perpetuate this cor., against this stone, set an iron post, 3 ft. long, 3 ins. dia., with mkd. stone, 6 ins. in the ground to bedrock, and in a mound of stone 6 ft. base, 2½ ft. high, for the 368 mile cor., with brass cap mkd. .
- 368M
ARIZ:N M
- 1923
- Land, rolling.
- Soil, sandy clay loam, 2nd rate, black loam, 1st rate, and stony, 3rd rate.
- Timber, sparse piñon and oak.
- Undergrowth, oak, Spanish dagger and cacti.
-
- N. $0^{\circ} 11'$ E. on 368th mile, ascending N. slope, over rolling land, through scattered undergrowth.
- 2.00 Spur, projects W., descend.
- 7.30 Dry wash, 10 lks. wide, 40 ft. below spur, course SW., ascend S. slope.
- 18.00 Fence, bears N. 15° W., and S. 15° E.
- 19.00 Sp r, 125 ft. above wash, projects SW., descend.
- 33.26 Fence, bears NE. and SW.
- 53.70 Road, bears NE. and SW.
- 54.00 Road, bears NW. and SE.
- 79.03 Intersect the 367 mile cor., which is a granite stone,

RECEIVED

S.L.M. AZ STATE OFFICE

AUG 14 1978

10:00 A.M.
PHOENIX, ARIZONA

Resurvey of Part of Arizona-New Mexico State Boundary.

Chains.

14x10x8 ins., loosely set and mkd. ARIZ on W., N M on E., and 367M on N. faces. To perpetuate this cor., against this stone, I set an iron post, 3 ft. long, 3 ins. dia., with mkd. stone, 30 ins. in the ground for the 367 mile cor., with brass cap mkd.

367M
ARIZ:N M

1923

Land, rolling, partly mountainous.

Soil, stony and sandy loam, 2nd to 4th rate.

No timber.

Undergrowth, oak, Spanish dagger and cacti.

N. 0° 12' E., on 367th mile, over slightly rolling land through dense undergrowth, and along wire fence.

10.50 Dry wash, 20 lks. wide, 4 ft. deep, course NW.

16.30 Wire fence turns East.

20.00 Dry wash, 30 lks. wide, course W.

20.92 Road, bears N. 52° E., and S. 52° W.

28.20 Lee Burrow's house, bears East, 9.50 chs. dist.

67.30 Dim road, bears NW. and SE.

72.85 Dry wash, 20 lks. wide, course NW.

79.70 Dry wash, 20 lks. wide, course NW.

79.98 Intersect the 366 mile cor., which is a granite stone, 16x12x8 ins., loosely set and mkd. ARIZ on W., N M on E. and 366M on N. faces. To perpetuate this cor., against this stone, set an iron post, 3 ft. long, 3 ins. dia., 30 ins. in the ground with mkd. stone, with brass cap mkd.

366M
ARIZ:N M

1923

Land, rolling.

Soil, sandy and gravelly loam, 2nd rate.

No timber.

Undergrowth, mesquite, sotol and Spanish dagger.

N. 0° 11' E. on 366th mile, over slightly rolling land, through dense undergrowth.

Resurvey of Part of Arizona= New Mexico State Boundary.

Chains,

- 25.20 Dry wash, 20 lks. wide, course W.,
- 43.60 Road, bears E. and W.
- 80.00 Intersect the 365 mile cor., which is a granite stone, 12x10x10 ins., loosely set and mkd. ARIZ on W., N M on E., and 365M on N faces. To perpetuate this cor., against this stone, set an iron post, 3 ft. long, 3 ins. dia., with mkd. stone, 32 ins. in the ground for the 365 mile cor., with brass cap mkd.

365M
ARIZ:N M

1923

Land, rolling.

Soil, sandy and gravelly loam, 2rd rate.

No timber.

Undergrowth, mesquite, sotol and Spanish dagger.

N. 0° 24' E. on 365th mile, over slightly rolling land, through dense undergrowth.

- 15.40 Road, bears NW. and SE.
- 37.20 Middle of Skull Cañon wash, 3 chs. wide, course NW.
- 48.00 Road, bears NW. and SE.
- 59.20 Fence, bears E. and W., about 20 lks. E., it turns N.
- 80.06 Intersect the 364 mile cor., which is a granite stone, 10x8x6 ins., above ground, firmly set, mkd. and witnessed as described in the notes of C. W. Devendorf, U. S. Deputy Surveyor. To better perpetuate the cor., against this stone, set an iron post, 3 ft. long 3 ins. dia., with mkd. stone, 30 ins. in the ground for the 364 mile cor., with brass cap mkd.

364M
ARIZ: N M

1923

Land, level and rolling.

Soil, sandy and gravelly loam, 2nd rate.

No timber.

Undergrowth, mesquite, sotol and Spanish dagger.

Resurvey of Part of Arizona-New Mexico State Boundary.

Chains.

N. 0° 10' E. on 36⁴th mile, over level land, through scattered undergrowth.

14.50 Dry wash, 10 lks. wide, course NW.

18.40 Dry wash, 10 lks. wide, course NW.

40.00 Wire fence, bears N. 0° 10' W., and S. 6° 10' E.

79.67 Dry wash, 40 lks. wide, course NW.

79.94 Intersect the 363 mile cor., previously described.

Land, level.

Soil, sandy clay loam, 2nd and 3rd rate.

No timber.

Undergrowth, cacti, Spanish dagger and sage.

Subdivision of T. 30 S., R. 22 W.

From the cor. of secs. 35, 36, 1 and 2 on S. bdy. of Tp., previously described,

N. 0° 01' W. bet. secs. 35 and 36, descending NE. slope, through scattered timber and undergrowth.

17.00 Dry wash, 50 lks. wide, 30 ft. below cor., course NW.

21.40 Fence, bears NE. and SW.

28.00 Dry wash, 20 lks. wide, course NW., ascend.

28.50 Fence, bears N^W. and SE.

30.00 Dime road, bears NW. and SE.

40.00 Set an iron post, 3 ft. long, 1 in. dia., 8 ins. in the ground to bedrock, and in a mound of stone, 4 ft. base, 28 ins. high, for the $\frac{1}{4}$ sec. cor., with brass cap mkd.

$\frac{1}{4}$
S35:S36

1923

From which

An oak, 10 ins. dia., bears S. 16° E., 346 lks. dist., mkd. $\frac{1}{4}$ S 36 B T,

An oak, 24 ins. dia., bears S. 22° W., 100 lks. dist., mkd. $\frac{1}{4}$ S 35 B T.

56.00 Hill, 275 ft. above last wash, bears E. and W., descend.

77.50 Dry wash, 20 lks. wide, 285 ft. below hill, course W.

Chains

- 17.14 Point for Carpenter station 0 Mi. + 74.00 chs.; the iron post has been removed.
- 20.00 Set a concrete monument, in a form 8 ins. upper diam., 1 1/4 ins. lower diam., 36 ins. long, 26 ins. in the ground, with inscribed bronze tablet seated in the top, mkd. Mi. Cor. No. 329 + 20.00 chs.
- 43.50 Telephone line, bears N. and S.
- 47.30 Arroyo, course N.; begin ascent.
- 50.80 Ledge rock, outcrop bears N. and S.; steep ascent.
- 69.10 Top of sharp lava rock ridge, bears N. and S.; descend.
- 77.20 Small arroyo, course N.; ascend gradually.
- 82.60 I advance this monument from the 80.00 ch. point in order to conform with the record distance (8.54 chs.) by Robbins, 1875, east from his established position for the Corner of the Four States.

The point (82.60 chs.) falls on bare ground; there is no visible evidence of the Darling 330th Mi. Cor.

Set a concrete monument, in a form 8 ins. upper diam., 1 1/4 ins. lower diam., 36 ins. long, 26 ins. in the ground, with inscribed bronze tablet seated in the top, mkd. Mi. Cor. No. 330.

331st Mile.

N.89°57'W., on true line, on the 331st Mile.

Ascending gradually over bare ground.

8.54 The monument at the Corner of the Four States, Colorado, New Mexico, Arizona, and Utah.

A concrete monument, 1 1/4 ins. sq. at the top, 19 ins. sq. at the ground surface, standing 20 ins. above ground, firm foundation. Seated in the top, - a standard General Land Office bronze tablet, 3 1/2 ins. diam., now badly mutilated. The field note record calls for the following marks:

FOUR CORNERS

UTAH	COLO
ARIZ	N MEX
1931	1934

From the center of the monument -

A reference monument bears West, 1.14 chs. dist.; a standard General Land Office bronze tablet, 3 1/2 ins. diam., seated in a concrete base, top flush with the ground, top 12 ins. sq.; tablet mkd. REFERENCE No. 2 - 1931 - 1934; an arrow pointing to the corner.

A similar reference monument bears East, 1.14 chs. dist.; tablet mkd. REFERENCE No. 1 - 1931 - 1934; an arrow pointing to the corner.

October 28, 1947.

Memorandum.

1868: Darling's terminal monument, his Astronomical Monument No. 11, for the intersection of the 109th Meridian west from Greenwich was placed at his station 331 st Mi. Cor. plus 60.00 chs.

1875: Chandler Robbins, U. S. Surveyor and Astronomer, having derived a new longitude determination measured west from Wilson Peak (Shiprock) in northwesterly New Mexico, placed the intersection with

"T"
 4-679

157 110

BOOK A-253

FIELD NOTES

OF THE SURVEY OF THE

*Subdivision and
Meander lines*

*of
Township No. 43 South
Range No. 26 East.*

Of the *Salt Lake Base* Meridian,
In the state of Utah

AS SURVEYED BY

Hubert R. Page and James M. Lentz, United States Deputy Surveyors

Their Contract No. *215*, dated *October 29*, 1899

Survey commenced *March 26th*, 1899

Survey completed *March 29th*, 1899

6-151
*meander high 7-47-476
" low 1-29-551
Camp 1-19-552
meander high 1-29-301
" low 7-28-451
U.S. Poly - 3-29-111*

Subdivision of T. 43 S., R. 26 E., continued

Chains

2 grooves on the S. faces, raised
a mound of stone 2 ft. base,
1 1/2 ft. high, 1/2 ft. of cor.

Pits impracticable.

Land mountainous

Soil, stony

3rd rate

No timber

Mountainous land

80.00 chs.

Hence the run

West bet. secs. 22nd & 27.

Descending along S. slope
of ridge, over stony soil.

1940

Right bank of San Juan river
below the 200 ft. below Closing Cor.

Set a sand stone 16 x 10 x 5 ins.
11 ins. in the ground for

meander Cor. to frac. secs.

22nd & 27, marked m.c. on N.
with 1 groove on S. faces.

raised a mound of stone
2 ft. base, 1 1/2 ft. high E. of cor.

Pits impracticable.

Land mountainous

Soil stony

3rd rate

No timber

mountainous land 19.40 chs.

From the Closing Cor. bet.
secs. 22nd & 27.

The run

N. 0° 01' E. along the Utah Colorado
boundary line.

3930

Right bank of San Juan river.

Set a sand stone 16 x 8 x 4 ins.

11 ins. in the ground for

Meander Co. Tol. 27. D. 43 S, R. 26 E. ^{Utah Colorado boundary line.}
 marked. M.C. 43 S on S, Cor. E.
 U.R. 26 E. S. 27. on N. with 4 grooves
 on the N. faces.

raised a mound of stone
 2 ft. base, 1 1/2 ft. high N. of cot.

Pits impracticable.

From this point he cannot get
 a satisfactory base for
 triangulation.

Therefore he proceed to the
 Common Cot to Utah, Colorado, New
 Mexico ^{and} Arizona

Which we identify by stone
 mound and pieces of broken stone
 together with the location as
 described by A. J. Ames who
 informed us that the Indians
 had broken the marked
 stone.

He reestablished the cot.
 as follows.

Set a sand rock 24 x 8 x 6 ins.

In a mound of rock for common
 cot. to Utah, Colorado, New Mexico
 and Arizona, marked Utah on
 N. W. Colorado on N. E.
 New Mexico on S. E.

Arizona on the S. W. faces,
 and raised a mound of stone
 6 ft. base, 4 ft. high around the
 cot. in which was also placed a stone
 36 x 10 x 5 ins. marked with the
 names of the party, from which
 the south side of Chimney Rock
 on the south end of the Alt. Mts in
 Colorado bears 71° 45' 40" E.

The ship rock of New Mexico the highest
 point of which is just visible

Exterior South Bay of 32^d St. R 20th S. W. P. W.

- Chains
- 20.00 Set a sand stone 19x13x6 in 12 in deep in the ground South of Island in Rio San Juan
3.00 the dist for 1/6 sec Cor. Mtd 1/6 on S face
- 40.00 Set a sand stone 21x17x13 in 14 in deep in the ground. 4.00 the South of ancient ruins for 1/4 sec Cor. Mtd 1/4 on S face, raised mid of stone.
- 60.00 Set a sand stone 20x20x17 in 17 in deep in the ground for 1/6 sec Cor. Mtd 1/6 on S face.
Sine ascends East slope.
- 80.00 Set a sand stone 29x23x16 in 20 in deep in a mid of stone on rocky ridge for closing Cor to Secs 19+20. Mtd C.C. with 4 notches on E and 2 notches on W face.
Land mostly river bottom soil 1st rate.
Rock ridge barren soil no rate good land.

Whist on a true line on the S Bay of sec 20.
Va 14-15 E

- 7.00 Sine descends
- 18.00 very channel of deep gage course. St.
- 20.00 Set a sand stone 18x12x6 in 12 in deep in the ground for 1/6 sec Cor. Mtd 1/6 on S face
- 23.00 The 350th mile Cor on the Colorado and New Mexico body line.
- 38.40 High mound of sand stone with large boulder marked for Cor to Colorado. Utah, Arizona and New Mexico.
Land rough and broken.
Soil sandy and barren. No rate.

I now return to the Standard Cor to 35th St
Rs 17+18 W. which is a sand stone 20x20x15 in set 18 in deep in the ground. Mtd S.C. with 6 notches on the S. E + W. face with a mound of stone alongside, and after carefully setting the adjustments of my instrument by comparison with a Meridian established by observation from

Field notes of the 37th Parallel of Ct. S.

river, but north of line.

1240 Over bend in river, high banks,
course NW.

3000 Leave valley of San Juan, bears
north

8000 Offset from tangent to Parallel
to 33rd mile corner. Marked stone
5 x 3 x 1 - 330M - and deposited it 3 1/2

feet in earth. Built conical
mound of earth, 11 feet high, over
same. Dig pits, 10 lbs East, and
West, from base of mound, 2 feet
square, and 18 in deep. Set sand
stone 25 x 12 x 8, projecting 8 in above
mound, marked on the north, south,
West, and East sides - C-NM-1868 -
330M - respectively.

etc natural objects near.

Surface gently rolling, last rock
broken. Soil 2nd rate

385
from the 103° to 109° of W. S., from Greenwich

West on 33 1/2 mile.

Variation 115° 07' East.

38.46 Dry bed of creek, sandy bottom,
course NW.

50.00 Leave dry bed of creek, low banks
course NW + West.

80.00 Offset from tangent to Parallel, to
33 1/2 mile corner. Marked stone -

8 x 5 x 1 1/2 - 331M - and deposited it 3 1/2
feet in earth. Built conical
mound of earth, 11 feet high, over
same. Dig pits 10 lbs East
and West, from base of mound,
2 feet square, and 18 in deep. Set
sand stone 30 x 14 x 8, projecting
8 in above mound, marked on the
north, south, West, and East sides
C-NM-1868 - 331M - respectively.
etc natural objects near.
Surface broken. Soil 3rd rate.

Field notes of the 37th Parallel of Ct. L.

rives, but north of line.

1240 Over bend in river, high banks,
course NW

3200 Leave valley of San Juan, bear
north

3200 Offset from tangent to Parallel
to 33rd mile corner. Marked stone
5 x 3 x 4 - 330M - and deposited it 3 1/2

feet in earth. Built conical
mound of earth, 4 feet high, over
same. Dug pits 10 lbs East, and
West, from base of mound, 2 feet
square, and 18 in deep. Set sand
stone 26 x 2 x 8, projecting 8 in above
mound, marked on the north, South,
West, and East sides - c-NM-1868 -
330M - respectively.

etc natural objects near.

Surface gently rolling. Last sock
broken. Soil 2nd rate

from the 103° to 109° of W. L., from Greenw.

West on 33rd mile

Variation 140° 07' East

38.40 Dry bed of creek, sandy bottom,
course SW.

50.00 Leave dry bed of creek, low banks
course NW + West.

80.00 Offset from tangent to Parallel, to
33rd mile corner. Marked stone -

5 x 5 x 4 - 331M - and deposited it 3 1/2
feet in earth. Built conical

mound of earth, 4 feet high, over

same. Dug pits 10 lbs East

and West, from base of mound,

2 feet square, and 18 in deep. Set

sand stone 30 x 14 x 8, projecting

8 in above mound, marked on the

North, South, West, and East sides

c-NM-1868-331M - respectively.

etc natural objects near.

Surface broken. Soil 3rd rate.

386
ECCX 2627
Field notes of the 37th Parallel of Ct. D.

West on 332 mile

1. Variation $14^{\circ}07'$ East.
2. To 109° of West Longitude from Greenwich, according to astronomical observation, and computations, made for Longitude near the 37th Parallel, and the observations made for Latitude. I established astronomical monument ct. 11. at this point, for the corner to the Territories of Colorado, New Mexico, Arizona & Utah.

Deposited sand stone $12 \times 10 \times 8 - 3ft$ in earth, engraved with a chisel $109^{\circ}WL - NM - C - U - A - 1868$. Set a sand stone 5 feet 10 in in length by 18×10 in, $2\frac{1}{2}$ feet in earth, durably engraved with a chisel on the NE "Colorado" - $331M - Rocks -$ on the SE "New Mexico" $37^{\circ}N1 -$ on the SW "Arizona" - 1868 , on the NW "Utah" - $109^{\circ}W1$.

118

from the 103° to 109° of W. L. from Greenwich

Built a circular mound of cobble stone 7 feet at base, and 3 feet high. Dug pits, 6 feet from base of mound, on the north, south, West & East sides, 2 feet square, and 18 in deep.

The monument is situated on the high lands near a ridge that can be seen for some distance from the East, and about $1\frac{1}{2}$ miles SW from the Rio San Juan.

- BEARINGS -

South Point of ridge, bears $N 87^{\circ} W$.
North Point of ridge, bears $N 05^{\circ} W$.
Highest Peak Sierra Satra, bears $N 10^{\circ} E$.

Some column of rock, on same range, bears $N 11^{\circ} E$.

Some column of rock on same range, East of same, bears $N 48^{\frac{1}{2}} E$.

Field notes of the 37th Parallel of N. L.

Point of bluff, on East side of valley,

bears N 55 E, about 30 miles dist.

North Point of high Plateau, bears

N 52 E

South Point of high Plateau, bears

S 88½ E

North Point of high Ridge, bears S 78¾ E.

Conical Peak in Sierra de la Plata, bears

S 10½ W.

Conical Peak in Sierra de la Plata, bears

S 23 W.

J

We hereby certify, that we as-
sisted Chas. C. Darling, Survey-
or and Astronomer, in surveying
the North boundary of New Mex-
ico, which is the 37th Parallel of
North Latitude, between the 103rd
and 109th of West Longitude from
Greenwich. That said line, has
been in all respects, to the best
of our knowledge and belief,
well and faithfully surveyed,
and the monuments planted
according to the instructions fur-
nished by the Commissioners of
the General Land Office.

(Signed) Jno E. M. Manus }

(Signed) North A. Haight } Chairman

(Signed) Robert Darling }

(Signed) Samuel Meyers } Co. Surveyors

(Signed) Otto Mangold }

(Signed) John E. Jones }

(Signed) Joel B. Dornall } Flagmen.