

BEGIN RESPONSIVE

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
ARIZONA STATE OFFICE

9630 (942)
Group 715

November 28, 1994

Memorandum

To: Chief, Office Section, Branch of Cadastral Survey

From: Chief Cadastral Surveyor

Subject: Notice of Cancellation of Surveys, Navajo Special Meridian, Arizona

Effective November 28, 1994, the surveys of the following townships of the Navajo Special Meridian, Arizona are cancelled.

Surveyed Townships

T. 1 N., Rs. 7, 9, 10, and 11 W.
T. 2 N., Rs. 7, 10, and 11 W.
T. 3 N., Rs. 6, 7, 10, and 11 W.
T. 4 N., Rs. 6, 10, and 11 W.
*T. 5 N., Rs. 6, 10, and 11 W.
T. 6 N., Rs. 6, 7, 9, 10, and 11 W.
T. 7 N., Rs. 7, 9, 10, and 11 W.

Partially Surveyed Townships

T. 1 N., Rs. 5, and 8 W.
T. 2 N., Rs. 5, 8, and 9 W.
T. 3 N., Rs. 5, 8, and 9 W.
T. 4 N., Rs. 5, 7, 8, and 9 W.
T. 5 N., Rs. 5, 7, 8, and 9 W.
T. 6 N., Rs. 5, and 8 W.
T. 7 N., Rs. 5, 6, and 8 W.

Also effective November 28, 1994, the suspension is lifted on the plat approved June 23, 1933, and accepted January 6, 1934, T. 5 N., R. 10 W.

*Portions of T. 5 N., R. 10 W., were resurveyed in 1933 under Group 183 and in 1940-42 under Group 235 for the primary purpose of preserving the identification of the Boundary of Canyon De Chelly National Monument. The portions of those surveys resurveyed in 1991-92 under Group 715, plat accepted August 16, 1994, and the subdivision of sections 10, 22, 25 and 26 in the 1940-42 resurvey are the only portions of the Navajo Special Meridian that remain uncanceled.

This cancellation is to include the 1869 survey of the South and West Boundaries, by Treaty of June 1, 1868, and the subsequent 1919-20 resurvey of the West Boundary of the Navajo Indian Reservation.

Townships surveyed or partially surveyed in New Mexico under the Navajo Special Meridian were cancelled by Memorandum dated June 17, 1936 under memorandum file #1643519 "E" and included the following townships:

T. 1 N., Rs. 1, 2, and 3 W.	T. 9 N., Rs. 1, 2, 3, and 4 W.
T. 2 N., Rs. 1, and 5 W.	T. 10 N., Rs. 1, 2, 3, 4, and 5 W.
T. 3 N., Rs. 1, and 5 W.	T. 11 N., Rs. 1, 2, 3, 4, and 5 W.
T. 4 N., Rs. 1, 2, and 5 W.	T. 12 N., Rs. 3, 4, and 5 W.
T. 5 N., Rs. 1, and 2 W.	T. 13 N., Rs. 1, 2, 3, 4, and 5 W.
T. 6 N., Rs. 1, 2, 3, and 4 W.	T. 14 N., Rs. 3, 4, and 5 W.
T. 7 N., Rs. 1, 2, and 3 W.	
T. 8 N., Rs. 1, 2, 3, and 4 W.	

By Directors' Letter dated May 11, 1951, the surveys executed in Arizona under the Navajo Special Meridian in Tps. 8, 9, 10, 11, 12, 13, 14, 15 N., Rs. 5, 6, 7, 8, 9, 10, and 11 W. were cancelled. In particular they are:

Surveyed

T. 8 N., Rs. 9, 10, and 11 W.
 T. 9 N., Rs. 9, 10, and 11 W.
 T. 10 N., Rs. 5, 9, and 10 W.
 T. 11 N., Rs. 5, 9, 10, and 11 W.
 T. 12 N., Rs. 9, 10, and 11 W.
 T. 13 N., Rs. 9, 10, and 11 W.
 T. 14 N., Rs. 5, 6, 7, 8, 9, 10, and 11 W.
 T. 15 N., Rs. 7, 8, 9, and 10 W.

Partially Surveyed

T. 8 N., Rs. 6, 7, and 8 W.
 T. 9 N., Rs. 5, 6, and 8 W.
 T. 10 N., Rs. 6, 7, 8, and 11 W.
 T. 11 N., Rs. 6, 7, and 8 W.
 T. 12 N., Rs. 5, and 6 W.
 T. 13 N., Rs. 5, 6, 7, and 8 W.
 T. 15 N., Rs. 5, 6, and 11 W.

Unsurveyed

T. 8 N., R. 5 W.
 T. 9 N., R. 7 W.
 T. 12 N., Rs. 7, and 8 W.

By Memorandum dated January 29, 1992, File No. 9630 (942), this office, Tps. 1 and 2 N., R. 6 W. were cancelled.

A copy of this memorandum will be placed at the front of each of the following original field note books, located at the Arizona State Cadastral Survey Office, containing the field notes of the affected surveys.

BOOK: 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 2627, 3342, 3502, 3966, 4288

The notation, "Cancelled November 28, 1994 per Memorandum File No. 9630 (942) Group 715, Arizona," will be made on the following plats:

Approved February 28, 1870

T. 1 N., Rs. 9, and 10 W.
 T. 2 N., R. 10 W.
 T. 3 N., R. 10 W.
 T. 4 N., R. 10 W.
 T. 5 N., R. 10 W.
 T. 6 N., R. 10 W.
 T. 7 N., R. 10 W.

Approved May 7, 1870

T. 6 N., R. 9 W.
 T. 7 N., R. 9 W.

Approved May 23, 1870

T. 1 N., R. 7 W.
 T. 2 N., R. 7 W.
 T. 3 N., Rs. 6, and 7 W.
 T. 4 N., R. 6 W.
 T. 5 N., R. 6 W.
 T. 6 N., Rs. 6, and 7 W.
 T. 7 N., R. 7 W.

Approved March 7, 1871

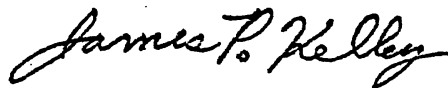
T. 1 N., R. 11 W.
 T. 2 N., Rs. 5, and 11 W.
 T. 3 N., Rs. 5, and 11 W.
 T. 4 N., Rs. 5, and 11 W.
 T. 5 N., R. 11 W.
 T. 6 N., R. 11 W.
 T. 7 N., R. 11 W.

The notation, "Cancelled November 28, 1994, except for those portions resurveyed in 1991-92, Group 715, plat accepted August 16, 1994, and the survey of the subdivision of sections 10, 22, 25 and 26 on this plat, per Memorandum File No. 9630 (942) Group 715, Arizona," will be made on the following plat:

T. 5 N., R. 10 W., approved December 3, 1943, and accepted December 23, 1943.

The notation, "Suspension Lifted, November 28, 1994, per Memorandum File No. 9630 (942) Group 715, Arizona," will be made on the following plat:

T. 5 N., R. 10 W., approved June 23, 1933, and accepted January 6, 1934.



James P. Kelley

1933

1933

1933

BOOK 1933

Navajo Indian
 Reservation
 In Arizona Territory

1933

Field notes of the Survey of the
 South and West Boundaries of the
 Navajo Indian Reservation, by E. A.
 Darling U.S. Surveyor and Astronomer
 under his contract with

Hon. Jos. S. Wilson
 Commissioner of the General Land
 office, dated Washington D.C. April 29, 1869

1933

1933

1933

BOOK 1933

Commenced July 31st
Completed August 17th 1869

Names of Assistants

W. S. Paul Compassman

John Howe }
Wm J. Ware } Chainmen

S. W. Shaper }
Pablo Jones } Cornermen
R. L. Darling }

Standard Chain carefully compared with
and adjusted to the Standard Chain at
the Surveyors General's office, Lawrence, Kansas

Measuring Chain carefully compared
with Standard Chain, every morning before
commencing work.

Observations made for Azimuth July 25th
 at the Astronomical Monument on South
 Boundary of Navajo Indian Reservation
 on the site of Old Fort Defiance (with a
 Transit of Troughton and Simms, man-
 ufacturers, London, Verniers reading to
 30") on δ Ursa Minoris R. A. $18^h 14^m$
 50^s , δ $86^\circ 36' 34''$, δ 51 Ceph. R. A.
 $6^h 37^m 34^s$, δ $87^\circ 14' 38''$)
 Chronometer slow on Mean Solar Time $13^m 26^s 6$.

Observed δ Ursa Minoris, Upper Transit	$9^h 26^m .05^s$
Observed 51 Ceph. Lower Transit	$9. 48. 00$
Difference in time of observation	<u>21. 55</u>
Reduction to Sidereal Time	<u>3. 6</u>
Sidereal Time	21. 58. 6
Difference in Meridian passage	<u>23. 04</u>
	<u>m 1. 5. 14</u>

Computation

$\Delta 65^\circ 47' 15'' = 98' 1 \text{ Log.}$	=	2.99167
$\text{Cos } \delta \ 86^\circ 36' 38''$	=	8.77175
$\text{Cos } \delta \ 87^\circ 14' 24''$	=	8.68254
$\text{Sec } \delta \ 35^\circ 46' 20''$	=	0.09073
$\text{Cosec. } 6^\circ 08' 47''$	=	<u>0.97034</u>
Error 32.14		1.50703

Since the observed interval between
 the two stars is too small, the Telescope
 pointed to the West of the True Meridian
 $32'' 14$.

Magnetic Variation $13^\circ 45'$ East.

BOOK 1933

From a stone, $42 \times 12 \times 12$, set as Astronomical Monument on South Boundary of the Navajo Indian Reservation, on the site of old Fort Defiance, I run a random line East on said Boundary, setting temporary half mile and mile corners, at every 40 and 80 chains at 30 miles from the above named point, in order to determine the meridian of "Bear Springs" which is to be the East Boundary of the said Reservation, I run South, Var $13^{\circ} 40'$ East on Meridian to the Parallel of "Bear Springs". I found by measurement that I was 64.74 chains West of "Bear Springs" at New Fort Wingate. I therefore retraced my steps to the point on South Boundary, from which I started South and run East 64.50 chains to the Meridian passing through Fort Wingate and established a monument to mark the South East Corner of the Navajo Indian Reservation, as follows

Set a Sand Stone, $40 \times 30 \times 10$ inches in the earth, marked on the North East "S. E. C. A. R." and six notches on the North and East. Built mound of earth four feet at base and two and a half feet in height. Dig pits on the North, South, East and West.

Field Notes of the South Boundary of the Navajo Indian Reservation - 1933

BOOK 1933

notches; built mound of stone around and dug pits on the East and West sides ten links from base of mound, for the 31st mile corner and corner to Secs. 35 and 36
Surface broken, Prairie, Soil, 3rd rate

West on mile no. 32 South Boundary of Sec. 35

Var. 13^o 45' East

3.20

Bend in Cañon Bonita

In order to determine distance across Cañon, set flag on West Bank of same, then offset South 5 chs. thence West 19 chs. then offset North to line on South side of Cañon

22.00

Across Cañon, course West, South West

Enter timber, bears North and South

40.00

Set sand stone, 20 x 14 x 6 for 1/4 sec. cor. as per instructions

80.00

Set sand stone, 18 x 14 x 4, marked on the East "32 mi" on the West four notches built mound of earth around same and dug pits on the East and West sides ten links from base of mound for the 32nd mile corner and corner to Secs 34 and 35

Surface broken and mostly covered with Cedar and Piñon, 3rd rate - Soil 3rd rate

West on mile no. 33, South Boundary of Sec. 34

Var. 13^o 45' East

7.50

Summit of Bluff, 250 feet

20.00

Foot of same, bears North and South

40.00

Set sand stone, 14 x 12 x 3, for 1/4 sec. cor as per instructions

44.50

Prairie - Course North

78.25

Prairie, course North

80.00

Set sand stone, 16 x 14 x 3 marked on the

Surface broken, mostly prairie, a portion being covered with Cedar and Pinon, 3rd rate - Soil 3rd rate.

West on mile no. 30 - South Boundary of Sec. 31 -
 Va. 13° 45' East

40.00 Set chained post and built mound for 1/4 sec. corner, as per instructions.

56.50 Summit of Rise - Course North and South
 62.50 Ranner, 50 links wide - Course North and South

66.00 Ranner, 25 lks. wide - Course North and South

80.00 Set sand stone, 24 x 10 x 3 marked on the East "30 m" on the North and West 6 notches; built mound of earth around same and dug pits on the North, East and West, ten links from base of mound, for the 30th mile corner and corner to secs. 31 and 36.

Township no. 1, North Ranges 5 and 6 West.

Surface rolling, Prairie. Soil 2nd rate.

New Mexico

N72

West on mile no. 31. South Boundary of Sec. 36
 Va. 13° 45' East.

40.00 Set sand stone, 16 x 10 x 3, for 1/4 sec. cor., as per instructions

44.00 Foot of bluff, running North and South
 52.50 Top of same

53.50 Foot of same

59.50 Intersect Road running between New Fort Wingate and Old Fort Defiance.

64.50 Astronomical Monument on site of Old Fort Defiance

66.75 In Arroya, 50 lks. wide with running water Course South, South East

80.00 Set sand stone 16 x 14 x 3 marked on the East "31 m", on the West five

N73

Arizona

East "33 m" on the West three notches, built mound of earth around same and dug pits on the East and West sides, ten links from base of mound, for the 33rd mile corner and corner to secs. 33 and 34
 Surface rolling and mostly covered with Cedar and Pinon, 3^d rate
 Sol 3^d rate.

West on mile no. 34, South Boundary of Sec. 33
 Var. 13° 45' East.

- 33.30 Prairie, course North
- 40.00 Set sand stone 24 x 14 x 3, for 1/4 sec. cor, as per instructions
- 80.00 Set sand stone 18 x 12 x 3, marked on the East "34 m" on the West two notches; built mound of earth around same and dug pits on the East and West sides, ten links from base of mound, for the 34th mile corner and corner to secs. 32 and 33.
 Surface rolling and covered with Cedar and Pinon, 3^d rate. Sol 3^d rate.

West on mile 35, South Boundary of Sec. 32
 Var. 13° 45' East

- 23.00 Yellow Pine, 2 1/2 feet in diam. in line - two notches on East and West
- 36.40 Prairie - course North
- 37.00 same Course North
- 40.00 Set sand stone 24 x 10 x 4, for 1/4 sec. cor. as per instructions
- 69.00 Prairie, course North
- 80.00 Set sand stone, 18 x 12 x 4 marked on the East "35 m" on the West and North, built mound same and dug pits on the East and West sides

Field Notes of the South Boundary of the Navajo Indian Reservation

BOOK 1938

ten links from base of mound, for the 35th mile corner, and corner to Secs. 31 and 32
Surface rolling, covered with Cedar and Pinon timber, 3^d rate, Soil 3^d rate.

West on mile no 36. South Boundary of sec. 31
Var. 13° 45' East

19.50

Cañon, course North

40.00

Set sand stone 17 x 15 x 3, for 1/4 sec. cor. as per instructions

80.00

Set sand stone, 20 x 20 x 5, marked on the East side "36 m" on the North and West six notches; Built mound of earth around same, and dug pits on the North East and West sides, ten links from base of mound, for the 36th mile corner and corner to Secs. 31 and 36, Township No 1 North Ranges 6 and 7 West.
Surface rolling and covered with cedar and Pinon - 3^d rate. Soil 3rd rate.

West on mile no 37, South Boundary of sec 36
Var. 13° 45' East

40.00

Set sand stone, 24 x 16 x 6, for 1/4 sec. cor. as per instructions

80.00

Set sand stone, 18 x 12 x 4, marked on the East "37 m", on the West five notches; Built mound of earth around same, and dug pits on the East and West sides, ten links from base of mound, for the 37th mile corner and corner to sections 35 and 36. Surface rolling and heavily timbered with pine - 1st rate
Soil 3rd rate -

West on mile no. 38, South Boundary of Sec. 35
Var. 13° 45' East.

40.00 Set sand stone, 24 x 16 x 6, for 1/4 sec. cor, as per instructions.

80.00 Set sand stone, 18 x 12 x 4, marked on the East "37 m", on the West five notches; built mound of earth around same, and dug pits on the East and West sides, ten links from base of mound, for the 37th mile corner and corner to sec. 35 and 36
 Surface rolling and heavily timbered with Pine - 1st rate - Soil 2nd rate.

West on mile no. 38, South Boundary of sec. 35
 Var. 13° 45' East.

40.00 Set sand stone, 17 x 16 x 5 for 1/4 sec. cor, as per instructions.

80.00 Set sand stone, 15 x 14 x 5 marked on the East "38 m", on the West four notches; built mound of earth around same and dug pits on the East and West sides, ten links from base of mound, for the 38" mile corner and corner to Secs. 34 and 35. Yellow Pine, 10 in in dia. N. 10° E. 45 lks. Yellow pine, 15 ins. in dia. S. 20° W. 49 lks.
 Surface gently rolling and covered with Pine timber 1st rate. Soil 2nd rate.

West on mile no. 39, South Boundary of sec. 34
 Var. 13° 45' East

40.00 Set sand stone, 27 x 10 x 5, for 1/4 sec. cor, as per instructions

80.00 Set sand stone, 16 x 14 x 8, marked on the East "39 m" on the West three notches built mound of earth around same and dug pits on the east and West sides, ten links from base of mound for the 39" mile corner and corner to

BOOK 1933

secs. 33 and 34

Yellow Pine, 18 ins, in dia. N. 24° W. 64
 lbs. yellow Pine, 16 ins in dia. S. 17° E. 49 lbs.
 Surface rolling, covered with Pine,
 1st rate. Soil 2nd rate

West on mile no. 40, South Boundary of
 Sec. 33

Var. 13° 45' East

40.00 Get sand stone, 26 x 12 x 3, for 1/4 sec. cor. as
 per instructions

80.00 Get sand stone, 18 x 16 x 3, marked on the
 East "40 m" on the West two notches.
 Built mound of earth around same
 and dug pits on the East and
 West sides, ten links from base
 of mound, for the 40th mile corner
 and corner to secs 32 and 33.
 Yellow Pine, 16 ins, in dia. S. 42° E. 47 lbs.
 Yellow Pine, 14 ins in dia. N. 20° W 35 lbs.
 Surface gently rolling, covered with
 Pine, 1st rate, Soil 2nd rate.

West on mile no. 41, South Boundary
 of sec 32,

Var. 13° 45' East

40.00 Get sand stone, 16 x 14 x 3 and for 1/4 sec
 cor, as per instructions

80.00 Get sand stone, 28 x 26 x 3, marked on
 the East "41 m" on the West one
 notch, Built mound of earth around
 same and dug pits on the East and
 West sides ten links from base of mound
 for the 41st mile corner and corner to
 Secs. 31 and 32.
 Yellow Pine, 10 ins. in dia. N. 31°
 W. 62 lbs. yellow Pine 14 ins. in dia.,
 S. 10° E. 38 lbs.
 Surface gently rolling and covered
 with Pine, 1st rate. Soil 2nd rate.

West on mile no. 42, South Boundary
of Sec. 31
Var. $13^{\circ} 45'$ East

40.00 Get sand stone, $14 \times 12 \times 3$, for $\frac{1}{4}$ sec. cor,
as per instructions

80.00 Get sand stone $20 \times 18 \times 4$, marked on the
East "42 m", on the North and West
piñon notches, built mound of earth around
same and dug pits on the North, East
and West sides, few links from base
of mound, for the 42nd mile corner +
corner to Secs. 31 and 36,
Township no 1 North Ranges 7 and 8
West

Yellow Pine, 8 ins. in dia. N. 27° W. 75 lbs.
Yellow Pine, 12 ins. in dia. S. 42° E. 36 "
Surface rolling, covered with pine, 1st rate
Soil 2nd rate.

West on mile no. 43 South Boundary
of Sec. 36
Var. $13^{\circ} 45'$ East

40.00 Get sand stone, $24 \times 16 \times 4$, for $\frac{1}{4}$ sec. cor,
as per instructions

80.00 Get sand stone, $34 \times 18 \times 2$, marked on the
East "43 m", on the West five notches
built mound of earth around same
and dug pits on the East and West
sides, few links from base of mound
for the 43rd mile corner and corner to
secs. 35 and 36

Yellow Pine 9 ins. in dia, N. 40° W. 44 lbs.
Yellow Pine, 14 ins. in dia, S. 18° E. 63 lbs.
Surface rolling, covered with pine
timber 1st rate. Soil 2nd rate.

West on mile no. 44, South Boundary
of Sec. 35
Var. $13^{\circ} 45'$ East

40.00 Get sand stone, $36 \times 30 \times 4$, for $\frac{1}{4}$ sec. cor.
as per instructions

BOOK 1983

41.50 Prairie, course N.W.
 Set
 50.00 Set sand stone, 18 x 16 x 3, marked on the East "44 mi" on the West four notches, built mound of earth around same, and dug pits on the East and West sides ten links from base of mound, for the 44th mile corner and corner to Secs. 34 and 35
 Yellow Pine, 17 ins in dia. S. 41°, E. 29 lbs. Yellow Pine, 11 ins. in dia. N. 34° W. 63 lbs.
 Surface gently rolling, covered with Pine Timber, 1st rate, Soil 3rd rate

West on mile no. 45, South Boundary of sec. 34
 Va. 13° 45' East

2.50 Leave Pine timber and enter Cedar and Piñon
 40.00 Set sand stone, 30 x 12 x 6, for 1/4 sec. cor. as per instructions
 Prairie, course N.W.

41.50
 50.00 Set sand stone, 18 x 16 x 3, marked on the East "44 mi," on the West four notches, built mound of earth around same, and dug pits on the East and West sides, ten links from base of mound, for the 44th mile corner and corner to Secs. 34 and 35 -
 Yellow Pine, 17 ins. in dia. S. 41° E. 29 lbs.
 Yellow Pine, 11 ins in dia. N. 34° W. 63 lbs.
 Surface gently rolling covered with Pine Timber 1st rate - Soil 3rd rate

West on mile no. 45, South Boundary of sec. 34.
 Va. 13° 45' East

2.50 Leave Pine timber and enter Cedar and Piñon
 40.00 Set sand stone - 30 x 12 x 6, for 1/4 sec. cor, as per instructions

- .80.00 Set sand stone, 28x25x16, marked on the East "45 m," on the West three notches, built mound of earth around same and dug pits on the East and West sides, few links from base of mound, for the 45th mile corner and corner to Secs 33 and 34. Surface rolling, covered with Cedar and Pinon, 3^d rate, Soil 3^d rate.
-
- West on mile no 46, South Boundary of sec. 33.
 Var. 13° 45' East
- 16.40 Little Colorado Cañon, 250 feet deep, sides almost perpendicular, course South, in order to determine distance across cañon, set flag on opposite side of same. Then run North 5 chs. Flag bears S. 69° 1/2 West, the distance over cañon is therefore 8 chs. Its general course is West
- 24.40 Leave same
- 40.00 Set sand stone 30x12x3, for 1/4 sec. cor, as per instructions.
- 53.00 Little Colorado Cañon, 450 ft deep, in order to determine distance over same, set flag on South side of Cañon, over bend in same, then run North 10 chs. Flag bears S. 75° W. The distance therefore is 37.32 chs.
- 80.00 Place for the 46th mile corner and corner to Secs. 32 and 33, in cañon. Impossible to establish same. Surface broken, mostly covered with Cedar and Pinon, 3^d rate - Soil 3^d rate.
-
- West on mile no. 47 South Boundary of Sec. 32
 Var. 13° 45' East
- 10.32 Top of Bluff -
- 10.70 Little Colorado cañon, 450 feet deep,

BOOK 1938

Course North, North West, In order to determine distance of same, set flag on opposite side of cañon, then run South 450 chs. Flag bears S. $76\frac{3}{4}$ W. The distance across cañon is therefore 19.03 chs.

29.70 Top of Bluff, There is a stream of clear water running through the cañon - about 20 fms wide with sandy bottom. The sides of the cañon are almost perpendicular.

40.00 Set sand stone, $24 \times 16 \times 6$, for $\frac{1}{4}$ sec. cor. as per instructions

51.50 Little Colorado Cañon, 500 ft. deep Course South West.

In order to determine distance over same, set flag on opposite bank of cañon, then run South 500 chs. Flag bears N. $74\frac{3}{4}$ W. The distance is therefore 18.33 chs.

69.83 Leave Cañon, bears S. S. W.

80.00 Set sand stone, $16 \times 13 \times 9$ marked on the East "47 m" on the West one notch, built mound of earth around same and dug pits on the East and West sides ten links from base of mound, for the 47th mile corner and corner to Secs. 31 and 32.

Surface broken, covered with Cedar and Piñon, cañon excepted, 3^d rate. Soil 3^d rate.

West on mile no 48, South Boundary of Sec. 31
wa. $13^{\circ} 45'$ East

40.00 Set sand stone, $48 \times 8 \times 4$, for $\frac{1}{4}$ sec. cor. as per instructions

53.37 Cañon, 200 feet deep, Course S. E. In order to determine distance over same, set flag on West side of Cañon - then run

South 1.50 chs. Flag bears N. 76° W.
The distance is therefore 60.2 chs

69.40

Leave cañon, course South. Sides are almost perpendicular. There is a small stream running through the cañon.

80.00

Set sand stone, 50 x 30 x 16, marked on the East "48 m", on the North and West six notches; built mound of earth and stone around same, and dug pits on the North, East and West sides. Ten links from base of mound, for the 48th mile corner and corner to Secs. 31 and 36. Townships No. 1 to Secs. 31 and 36, Townships No. 1 North, Ranges 8 and 9 West Surface broken and covered with cedar and Pinon. B^d. rate, Soil 3^d rate.

A

West on mile no. 49, South Boundary of sec. 36
B^a. 13° 45' East

40.00

Set sand stone, 18 x 14 x 4 for 1/4 sec. cor. "B" as per instructions

80.00

Set sand stone, 38 x 14 x 4, marked on the East "49 m", on the West five notches; built mound of earth around same and dug pits on the East and West sides; ten links from base of mound, for the 49th mile corner and corner to Secs. 35 and 36. Surface broken, covered with Cedar and Pinon, B^d. rate, Soil 3^d rate.

C

West on mile no. 50, South Boundary of sec. 35
B^a. 13° 45' East

40.00

Set sand stone, 18 x 12 x 3, for 1/4 sec cor. as per instructions

B

BOOK 1933

- 50.50 Gule Colorado Cañon - 300 feet deep
Course South
- 52.50 Creek in same, 50 lbs. wide 1 foot deep
Clear water, gentle current and
Sandy bottom - Course W. N. W.
- 57.00 Leave River bottom - bears W. N. W.
- 66.50 Enter bottom and prairie, bears S. S. W.
- 75.75 Leave same W. S. W. Enter scattering
Pinon timber
- 80.00 Set sand stone, 24 x 18 x 3 marked on
the East "50 m", on the West four
notches; built mound of earth around
same and dug pits on the East
and West sides, ten links from base
of mound, for the 50th mile corner
and corner to secs. 34 and 35
Surface broken mostly and partly
covered with Cedar and Pinon timber,
3^d rate. Soil in bottoms 1st rate
and from appearances has been
well cultivated. Soil in timber 3^d rate

West on mile no. 51. South Boundary of
Sec. 34

ba. 13° 45' East

- 40.00 Set sand stone, 16 x 10 x 4, for 1/4 sec. cor,
as per instructions
- 50.50 Enter bottom and prairie, bears N. and S.
Leave Timber.
- 58.00 Colorado Creek, 30 chs. wide, Course S. W.
Banks perpendicular about 12 feet high
- 80.00 Set sand stone, 18 x 16 x 4 marked on the
East "51 m", on the West three notches;
built mound of earth around same
and dug pits on the East and West
sides, ten links from base of mound,
for the 51st mile corner and corner
to secs. 33 and 34
Surface broken; partly covered
with Cedar and Pinon

3^d rate - the balance being prairie
Soil 1st and 2nd rate.

West on mile no. 52, South Boundary
of sec. 33
Var. 13° 45' East

- 10.00 Enter upland bears N. and S.
- 13.00 Enter scattering Pinon timber, bears N. and S.
- 40.00 Set sand stone, 18 x 12 x 12, for 1/4 sec. cor, B
as per instructions
- 80.00 Set sand stone, 18 x 14 x 4, marked on
the East "52 m" on the West two
notches; built mound of earth
around same and dug pits on the
East and West sides, ten links
from base of mound, for the 52^d
mile corner and corner to Secs. 32 & 33.
Surface rolling, and partly covered
with Pinon, 3^d rate. Soil 2nd rate.

West on mile no. 53, South Boundary
of sec. 32.
Var. 13° 45' East,

- 40.00 Set sand stone, 14 x 12 x 3, for 1/4 sec. cor, B
as per instructions
- 80.00 Deposited marked stone, set chained
post, squared at top, marked on
the East "53 m" on the West one
notch; built mound of earth around
same and dug pits on the East
and West sides, ten links from
base of mound, for the 53^d mile
corner to Secs. 31 and 32
Surface rolling - scattering Pinon
3^d rate. Soil 2nd rate.

West on mile no 54, South Boundary
of sec. 31
Var. 13° 45' East

Field Notes of the South Boundary of the Navajo Indian Reservations

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A

- 25.00 Enter valley and Prairie, bears N. and S.
Leave timber.
- 40.00 Set chanced stake and built mound for $\frac{1}{4}$ sec. corner, as per instructions
- 78.50 Enter Indian cornfield of 50 acres.
- 80.00 Set sand stone, $16 \times 14 \times 4$, marked on the East "54 m" on the North and West six notches; built mound of earth around same and dug pits on the North, East and West sides, ten links from base of mound, for the 54" mile corner and corner to Secs. 31 and 36, Township no 1 North, Ranges 9 and 10 West.
Surface level and mostly prairie
Soil 1" rate

West on mile no. 55, South Boundary of Sec. 36

Var. $13^{\circ} 45'$ East

- 9.00 Leave cornfield
- 16.50 Bed of creek, 10 lks. wide, Course South
- 19.00 Enter upland and scattering Pinon timber. Bears N. and S.
- B 40.00 Set sand stone, $18 \times 12 \times 2$, for $\frac{1}{4}$ sec. cor. as per instructions
- C 80.00 Set sand stone, $24 \times 16 \times 4$, marked on the East "55 m" on the West five notches; built mound of earth around same and dug pits on the East and West sides, ten links from base of mound for the 55" mile corner to Secs. 35 and 36
Surface gently rolling, Partly covered with Pinon timber, 3" rate soil 2 $\frac{1}{2}$ " rate

West on mile no. 56, South Boundary of sec. 35

Var. $13^{\circ} 45'$ East

- 6.50 Leave scattering timber and enter valley.
Bears N. W. and S. E.

35.00 Enter upland and scattering Pinon
 timber, bears N. and S.
 40.00 Set sand stone, 34x10x6, for 1/4 sec. cor B
 as per instructions
 76.50 Leave timber and enter prairie
 80.00 Deposited marked stone, set chained
 post, squared at top, marked
 on East "56 m", on the West four D
 notches; Built mound of earth around
 same and dug pits on the East
 and West sides, ten links from base
 of mound, for the 56th mile corner
 and corner to secs. 34 and 35.
 Surface rolling, partly prairie and
 partly timber, 3rd rate, Soil 1st rate
 and 2nd rate

West on mile no. 57. South Boundary
 of Secs. 34 -
 Var. 13° 45' East

40.00 Set chained post and built mound, E
 for 1/4 sec. cor. as per instructions
 70.00 Enter Pinon timber, bears N. W. and S. E.
 80.00 Deposited marked stone, set chained D
 post, squared at the top, marked
 on the East "57 m", on the West three
 notches; Built mound of earth around same
 and dug pits on the East and West sides,
 ten links from base of mound for the 57th
 mile corner and corner to secs. 33 and 34
 Surface rolling, mostly Prairie. Soil 2nd rate.

West on mile no. 58, South Boundary
 of Secs. 33 -
 Var. 13° 45' East -

40.00 Set chained post and built mound for E
 1/4 sec. cor; as per instructions -
 49.50 Cañon, course S. E.
 52.00 Enter valley, bears N. and S.
 80.00 Set sand stone 14x12x9 marked on C

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the East "58 m", on the West two notches; Built mound of earth around same and dug pits on the East and West sides, ten links from base of mound, for the 58th mile corner and corner to Secs. 32 and 33. Surface level - Scattering Pinon timber, 3^d rate. Soil 2nd rate.

West on mile no. 59, South Boundary of sec. 32
 Var. 13° 45' East

B 40.00 Get sand stone, 14 x 12 x 3, for 1/4 sec. cor, as per instructions

C 80.00 Get sand stone, 16 x 12 x 8, marked on the East "59 m", on the West side notch; Built mound of earth around same and dug pits on the East and West sides, ten links from base of mound, for the 59th mile corner and corner to Secs. 31 and 32. Surface level. Scattering Pinon timber, 3^d rate - Soil 2nd rate.

West on mile no. 60, South Boundary of sec. 31
 Var. 13° 45' East

17.00 Top of Bluffs bears N.E. and S.W.

E 40.00 Get charred post and built mound for 1/4 sec. cor. as per instructions.

A 80.00 Get sand stone, 18 x 14 x 4, marked on the East "60 m", on the North and West six notches; Built mound of earth around same and dug pits on the North, East and West sides, ten links from base of mound, for the 60th mile corner and corner to Secs. 31 and 36, Township No 1 - North Ranges 10 and 11 West. Surface rolling. Scattering Pinon timber 3^d rate - Soil 2nd rate

West on mile No. 61, South Boundary
of Sec. 36,
Var. $13^{\circ} 45'$ East

15.00

Top of Bluff, bears N. and S.

40.00

Set sand stone - $28 \times 18 \times 6$, for $\frac{1}{4}$ sec. B
cor., as per instructions

61.50

Ranrio, course S.W.

50.00

Set sand stone, $18 \times 16 \times 4$, marked on
the East "61 m", on the West five
notches; Built mound of earth around
same and dug pits on the East and C
West sides, ten links from base of
mound for the 61st mile corner to secs
35 and 36

Surfacer rolling, Scattering Pinon
timber, 3^d rate, Soil 2^d rate.

West on mile No. 62, South Boundary
of Sec. 35-

Var. $13^{\circ} 45'$ East

5.00

Trail bears N.E. and S.W.

40.00

Set South West Corner of the Reservation

Deposited sand stone $12 \times 10 \times 4$,
3 feet in the earth, marked "N. R."

Set a Cedar post 9 feet long, and
chained at the bottom, $2\frac{1}{2}$ feet
in earth, said post was squared
and leveled at the top and marked
on the East "61 1/2 m", on the North,
S. W. cor. "N. R.", and on the West "1869."

Built conical mound, $4\frac{1}{2}$ feet
high and 6 feet at base; dug
pits $2\frac{1}{2}$ feet square and 2 feet
deep, on the North, South, East
and West sides, 6 feet from base
of mound.

From which,

North end of Ridge bears N. $40^{\circ} 31' E$,

South point of Mountain bears

N. $34^{\circ} \frac{1}{2}$ East

North point of Mountain bears N. $29^{\circ} 07' E$.

East end of Squash Mountain Bears
N. 15° W.

Peak on Squash Mountain Bears
N. 22° 30' W.

North End of "Mesa Baca," Bears
N. 39° W.

North end of Ridge of baked clay
Bears N. 44° W.

General Description of the South Boundary of the Reservation.

From the South East corner to the 6th
mile corner, the line passes over a
broken and 3^d. rate land, with a
few scattering Pinon and Cedar
trees. In the next sixteen miles of
the Boundary, the line passes over a
prairie country, soil of the 1st and
2nd. rate, a large portion of which has
been under cultivation some years past.
There are lakes in the valley, which
afford an abundance of water.

The balance of the line passes over a
country, mostly covered with Pinon
and yellow Pine timber, soil 3^d, 2nd
and 1st. rate. There are a few fine
valleys, which are generally small.

Observations made at the South West corner of the Navajo Indian Reservation for Azimuth on δ Ursa Minoris, R.A. $18^h 14^m 46^s$ d. $86^{\circ} 36' 38''$) and δ Cephei (R.A. $6^h 37^m 59^s$ d. $87^{\circ} 14' 08.6$) August 8th 1869

Chronometer slow on Mean Solar Time	11. 56. 2	^m ^{Sec}
Observed δ Ursa Minoris, Upper Transit	9. 4. 35	^m ^{Sec}
Observed δ Cephei, Lower Transit	9. 26. 34	^m ^{Sec}
Reduction to Federal Time -	21. 59. 4	
Federal Time	22. 03. 4	
Difference in R.A.	23. 13	
Difference	1. 10	

Computation

$\Delta 70^{\circ} \times 15 = 1050$	Log =	3. 02 119
Cos. $\delta 86^{\circ} 36' 38''$	=	8. 77 175
cos. $\delta 87^{\circ} 14' 08.6$	=	8. 68 323
Sec. $\phi 35^{\circ} 46' 20''$	=	0. 09 073
Cosec. $60^{\circ} 9' 13''$	=	0. 97 0 00
Error $34^{\circ} 43'$	=	1. 53 690

As the difference in time of transit was less than the difference in Right Ascension, the error of Azimuth is West of the true Meridian, $34^{\circ} 43'$

Magnetic Variation $14^{\circ} 36'$ East.

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From the South West corner of Reservation
run North on the West Boundary of same
on mile no. 1
var. $14^{\circ} 36'$ East

- 6.00 Leave scattering Pinon timber and enter valley
bears N.E. and S.W.
- 50.50 Trail, bears S. S.W.
- 71.00 Prairie, Course W. S.W.
- 80.00 Deposited marked stone, set charred post
squared at the top, marked on the South
"1 m"; built mound of earth around same
and dug pits on the North and South
sides, ten links from base of mound,
for the 1st mile corner.
Surface gently rolling, mostly Prairie
Soil 1st rate.

North on West Boundary, mile no. 2
var. $14^{\circ} 36'$ East

- 16.50 North point of Ridge bears N. $47^{\circ} 50'$ E.
North point of Ridge of Red Clay S. 69°
W.
- 46.50 Prairie with running water. Course West
- 80.00 Deposited marked stone, set charred
post, squared at the top, marked
on the South "2 m"; built mound of
earth around same and dug pits and
dug pits on the North and South sides,
ten links from base of mound, for the
2nd mile corner
Surface gently rolling Prairie Soil 1st rate

North on West Boundary, mile no. 3.
var. $14^{\circ} 36'$ East

- 80.00 Deposited marked stone, set charred
post, squared at the top, marked
on the South "3 m." built mound
of earth around same and dug
pits on the North and South sides,
ten links from base of mound for the
3rd mile corner. Surface level Prairie
Soil 1st rate

North on West Boundary, mile no. 4
 Var. $14^{\circ} 36'$ East

80.00 Deposited marked stone, set charred post, squared at the top, marked on the South "4 m," built mound of earth around same and dug pits on the North and South sides, ten links from base of mound for the 4th mile corner.

Surface gently rolling. Prairie. Soil 1st rate
 Right point of "Mesa Calabaza" bears North $16^{\circ} 30'$ W.

Peak on same, bears N. $26^{\circ} 10'$ W.
 Right point of "Mesa Vaca," bears N. 46° W.

North on West Boundary, mile no. 5.
 Var. $14^{\circ} 36'$ East

80.00 Deposited marked stone, set charred post, squared at the top, marked on the South "5 m," built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 5th mile corner.

Surface gently rolling - Prairie
 Soil 1st rate.

North on West Boundary mile no. 6
 Var. $14^{\circ} 36'$ East.

42.00 Trail bears East and West

68.00 Trail bears E. and W.

80.00 Deposited marked stone, set charred post, squared at the top marked on the South "6 m," built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 6th mile corner.

Surface gently rolling. Prairie soil 1st rate.

80.00 North on West Boundary, mile no. 7
 Var. $14^{\circ} 36'$ East
 Deposited marked stone, set charred post, and squared at the top, marked on the South "7 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 7th mile corner.
 Surface gently rolling, Prairie Soil 1 rate

80.00 North on West Boundary, mile no. 8
 Var. $14^{\circ} 36'$ East
 Deposited marked stone, set charred post, squared on the top, marked on the South, "8 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 8th mile corner.
 Surface gently rolling, Prairie, Soil 1st rate
 "Mesa Vaca" bears N. $180^{\circ} 10'$ W.
 "Mesa Calabaza," bears N. $30^{\circ} 35'$ W.

80.00 North on West Boundary, mile no. 9
 Var. $14^{\circ} 36'$ East
 Deposited marked stone, set charred post, squared at the top, marked on the South "9 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 9th mile corner.
 Surface gently rolling, Prairie, Soil 1 rate

80.00 North on West Boundary, mile no. 10
 Var. $14^{\circ} 36'$ East
 Deposited marked stone, set charred post, squared at the top, marked on the South "10 m"; built mound

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? (Mile No. 11)

of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 11th mile corner.
Surface gently rolling. Prairie soil 1" rate

North on West Boundary, mile no. 12
Var. 14° 36' East

50.00

Deposited marked stone, set charred post squared at the top, marked on the South "12 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 12th mile corner.

North on West Boundary, mile no. 13
Var. 14° 36' East

48.50

Prairie, course West -

50.00

Deposited marked stone, set charred post, squared at the top, marked at the South "13 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 13th mile corner.

Surface gently rolling. Prairie soil 1" rate.

North West Boundary, mile no. 14
Var. 14° 36' East

15.00

Prairie, course West

50.00

Deposited marked stone, set charred post, squared at top, marked on the South "14 m"; built mound of earth around same, and dug pits on the North and South sides, ten links from base of mound, for the 14th mile corner.

Surface gently rolling. Prairie, Soil 1" rate.

North on West Boundary, mile no. 15

80.00

Var. $14^{\circ} 36'$ East
 Deposited marked stone, set charred post squared at the top, marked on the South "15 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 15th mile corner.
 Surface gently rolling. Prairie Soil 1" rate.

15.00

80.00

North on West Boundary, mile no. 16
 Var. $14^{\circ} 36'$ East
 Prairie, course S. S. W.
 Deposited marked stone, set charred post, squared at the top, marked on the South "16 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 16th mile corner.
 Surface level. Prairie, Soil 1" rate.

23.50

80.00

North on West Boundary, mile no. 17.
 Var. $14^{\circ} 36'$ East
 Prairie - course East
 Deposited marked stone, set charred posts squared at the top, marked on the South "17 m"; built mound of earth around same, and dug pits on the North and South sides, ten links from base of mound, for the 17th mile corner.
 Surface level - Prairie. Soil 1" rate.

80.00

North on West Boundary, mile no. 18
 Var. $14^{\circ} 36'$ East
 Deposited marked stone, set charred post squared at top marked on the South "18 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound

the 18th mile corner
Surface gently rolling. Prairie. Soil 1st rate

80.00

North on West Boundary, mile no. 19
Var. 14° 36' East

Deposited marked stone, set chained post, squared at the top, marked on the South "19 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound for the 19th mile corner.

Surface gently rolling. Prairie, soil 1st rate.

80.00

North on West Boundary, mile no. 20
Var. 14° 36' East

Deposited marked stone, set chained post squared at the top, marked on the South "20 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound for the 20th mile corner

80.00

North on West Boundary, mile no. 21
Var. 14° 36' East

Deposited marked stone, set chained post, squared at the top, marked on the South "21 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 21st mile corner.

Surface gently rolling - Prairie
Soil 1st rate.

80.00

North on West Boundary, mile no. 22
Var. 14° 36' East

Deposited marked stone, set chained post, squared at the top, marked on the South "22 m" built mound of earth around

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same and dug pits on the North and South sides, ten links from base of mound, for the 23rd mile corner. Surface gently rolling. Prairie. Soil 1st rate

North on West Boundary, mile no. 23
 Va. 14° 36' East

80.00 Deposited marked stone, set charred post, squared at the top, marked at the South "23 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 23rd mile corner. Surface gently rolling. Prairie. Soil 1st rate

North on West Boundary, mile no. 23
 Va. 14° 36' East

80.00 Deposited marked stone, set charred post, squared at the top, marked on the South "23 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 23rd mile corner. Surface gently rolling. Prairie. Soil 1st rate

North on West Boundary, mile no. 24.
 Va. 14° 36' East

80.00 Deposited marked stone, set charred post, squared at the top, marked on the South "24 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 24th mile corner. Surface level - Prairie. Soil 1st rate

North on West Boundary; mile no. 25
 Va. 14° 36' East

17.00 Top of Bluff, bears E. and W.
 57.00 Prairie. Course N-E.

80.00

Deposited marked stone, set chained post, squared at the top, marked on the South "25 m"; Built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 25" mile corner.
Surface mostly rolling. Prairie. Soil 1" rate.

North on West Boundary, mile no 26
Va. 14° 36' East

80.00

Deposited marked stone, set chained post, squared at the top, marked on the South "26 m"; Built mound of earth around same and dug pits on the North and South sides ten links from base of mound, for the 26" mile corner
Surface level. Prairie. Soil 1" rate

North on West Boundary, mile no 27
Va. 14° 36' East

4.25

Creek course N.E.

80.00

Foot of Bluff

Deposited marked stone, set chained post, squared at the top, marked on the South "27 m"; Built mound of earth around same, and dug pits on the North and South sides, ten links from base of mound, for the "27" mile corner
Surface level. Prairie - Soil 1" rate

North on West Boundary, mile no. 28
Va. 14° 36' East

40.00

Top of Bluff Extends N.W. and S.E.

80.00

Deposited marked stone, set chained post squared at the top, marked on the South "28 m"; Built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 28" mile corner
Surface somewhat broken. Prairie
Soil 2nd rate

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North on West Boundary, mile no. 29

Var. $140^{\circ} 36'$ East

51.65 Stone column, bears N. 86° W.

80.00 Deposited marked stone, set chained post, squared at the top, marked on the South "29 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 29th mile corner

Surface level. Prairie. Soil 1st rate.

North on West Boundary, mile no. 30

Var. $140^{\circ} 36'$ East

11.40 Stone column bears S. $54^{\circ} 30'$ W.

73.50 Top of Bluff. Extends N. N. W. and S. S. E.

80.00 Deposited marked stone, set chained post, squared at the top, marked on the "30 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 30th mile corner

Surface rough. Prairie. Soil 2nd rate

North on West Boundary, mile no 31

Var. $140^{\circ} 36'$ East

50.00 Scaver Bluff

52.00 Trail, bears East and West

80.00 Deposited marked stone, set chained post, squared at the top, marked on the South "31 m"; built mound of earth around same and dug pits on the North and South sides ten links from base of mound, for the 31st mile corner

Surface rough. Prairie. Soil 2nd rate

North on West Boundary, mile no. 32

Var. $140^{\circ} 36'$ East

6.00 Dry Creek Course N.E.

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15.00
80.00

Foot of Bluff, 400 feet high
Deposited marked stone, set chained post, squared at the top, marked on the South "32 m"; built mound of earth around same, and dug pits on the North and South sides ten links from base of mound, for the 32nd mile corner.
Surface broken - Prairie - Soil 3^d rate

80.00

North on West Boundary mile no 33
Co. 14th 36' East
Deposited marked stone, set chained post, squared at the top, marked on the South "33 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound for the 33^d mile corner
Surface rolling Prairie. Soil 2nd rate

54.30
80.00

North on West Boundary, mile no. 34
Co. 14th 36' East
" Mesa Ventana, bears N. 11th 35' E.
Deposited marked stone set chained post, squared at the top, marked on the South "34 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 34th mile corner
Surface broken. Prairie, Soil 3^d rate

80.00

North on West Boundary, mile no. 35
Co. 14th 36' East
Deposited marked stone, set chained post squared at the top, marked on the South "35 m"; built mound of earth around same and dug pits on the North and South sides ten links from base of mound, for the 35th mile corner.

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Surface level. Prairie Soil 1st rate

North on West Boundary, mile no 36
Var. 14° 36' East

80.00 Deposited marked stone, set charred post, squared at the top, marked on the South "36 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 36 mile corner

Surface level, Prairie Soil 1st rate -
Ruins of a Pueblo Town.

North on West Boundary, mile No. 37
Var. 14° 36' East

22.40 Trail bears N.W. and S.E.

80.00 Deposited marked stone, set charred post, squared at the top, marked on the "37 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound for the 37th mile corner.

Surface level. Prairie Soil 1st rate.

North on West Boundary, mile no. 38.
Var. 14° 36' East.

80.00 Deposited marked stone, set charred post, squared at the top, marked on the South "38 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 38th mile corner.

Surface level. Prairie Soil 1st rate

North on West Boundary, mile No. 39
Var. 14° 36' East

12.00 "Mesa Ventana" bears N. 16° E.

80.00 Deposited marked stone set charred post, squared at the top, marked

on the South "39 m"; Built mound of earth around same and dug pits on the North and South, ten links from base of mound, for the 39th mile corner.

Surface level. Prairie. Soil 1st rate.

North on West Boundary, mile No. 40
 Va. 14° 36' East

32.00 Enter Indian cornfield. Extend E and W.

36.00 Creek with running water, 10 links wide
 Course East

42.00 Leave corn-field.

50.00 Deposited marked stone, set charred post, squared at the top, marked on the South "40 m"; Built mound of earth around same and dug pits on the North and South, ten links from base of mound, for the 40th mile corner.
 Surface level. Prairie. Soil 1st rate.

North on West Boundary, mile No. 41
 Va. 14° 36' East

80.00 Deposited marked stone, set charred post, squared at the top, marked on the South "40 m"; Built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 41st mile corner.

Surface level. Prairie. Soil 1st rate.

North on West Boundary, mile No. 42.
 Va. 14° 36' East

80.00 Deposited marked stone, set charred post, squared at the top, marked on the South "42 m"; Built mound of earth around same and dug pits on the North and South sides, ten links from base of mound for the 42nd mile corner.

Surface level. Prairie. Soil 1st rate.

North on West Boundary, mile no. 43
 bearing $14^{\circ} 36'$ East
 80.00 Deposited marked stone, set charred post, squared at the top, marked on the South "43 m"; Built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 43rd mile corner.
 Surface level. Prairie. Soil 1st rate.

North on West Boundary, mile no. 44
 bearing $14^{\circ} 36'$ East
 80.00 Deposited marked stone, set charred post, squared at the top, marked on the South "44 m"; Built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 44th mile corner.
 Surface level. Prairie. Soil 1st rate.

North on West Boundary, mile no 45
 bearing $14^{\circ} 36'$ East
 80.00 Deposited marked stone set charred post, squared at the top, marked on the South "45 m"; Built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 45th mile corner.
 Surface level. Prairie. Soil 1st rate.

North on West Boundary, mile no. 46,
 bearing $14^{\circ} 36'$ East
 80.00 Deposited marked stone, set charred post squared at the top, marked on the South "46 m"; Built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 46th mile corner. Surface level. Prairie. Soil 1st rate.

North on West Boundary, mile no. 47.
 Va. $14^{\circ} 36'$ East.

12.50

Rainie - Course East

80.00

Deposited marked stone, set charred post, squared at the top, marked on the South "47 m"; Built mound of earth around same and dug pits on the North and South sides, ten links from base of mound for the 47th mile corner. Surface rolling. Prairie. Soil 1st rate.

North on West Boundary, mile no. 48
 Va. $14^{\circ} 36'$ East

5.00

Foot of Bluff. Bears N.E. and S.W.

57.50

Mountain "Ventana", bears N. 37° East

80.00

Deposited marked stone, set charred post, squared at the top, marked on the South "48 m"; Built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 48th mile corner. Surface broken. Prairie. Soil 3d. rate.

North on West Boundary, mile no. 49
 Va. $14^{\circ} 36'$ East.

80.00

Deposited marked stone, set charred post, squared at the top, marked on the South "49 m"; Built mound of earth around same and dug pits on the North and South sides ten links from base of mound, for the 49th mile corner. Surface rolling. Prairie. Soil 2nd rate.

North on West Boundary, mile no. 50
 Va. $14^{\circ} 36'$ East

80.00

Set sand stone, $16 \times 14 \times 7$, marked on on the South "50 m"; Built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 50th mile corner. Surface broken. Prairie. Soil 3d. rate

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North on West Boundary, mile no. 51
 Var. $14^{\circ} 36'$ East.

40 Canon course West.
 18.00 Canon course N. E.
 58.00 Foot of Bluff. Bears N. E. and S. W.
 80.00 Set sand stone, $16 \times 13 \times 6$ marked on the South "51 m", built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 51st mile corner.
 Surface Broken. Prairie Soil 3^d rate.

North on West Boundary, mile no 52
 Var. $14^{\circ} 36'$ East

80.00 Deposited marked stone, set chained post, and squared at the top, marked on the South "52 m"; built mound of earth around same, and dug pits on the North and South sides, ten links from base of mound, for the 52nd mile corner.
 Surface Broken. Prairie Soil 3^d rate.

North on West Boundary, mile no 53
 Var. $14^{\circ} 36'$ East

54.00 Foot of perpendicular bluff, 250 feet high impossible to climb same, I therefore offset East 54 chains, thence North on offset line 2 miles and 26 chains at this point I offset West to Boundary, and set sand stone, $18 \times 12 \times 4$, marked on the South "55 m"; built mound and dug pits on the North and South sides, ten links from base of mound, for the 55th mile corner. Said corner is on high plateau. Impossible to establish 53^d and 54th mile corners.
 Surface Broken - Prairie Soil. 3^d rate.

Miles }
 54 & 55 } ?

North on West Boundary, mile no. 56.

80.00 Va. 14° 36' East
 Set sand stone, 22 x 10 x 4, marked on the South "56 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 56th mile corner.
 Surface rolling. Prairie. Soil 2nd rate.

North on West Boundary, mile no. 57
 Va. 14° 36' East

80.00 Set sand stone, 24 x 14 x 3, marked on the South "57 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 57th mile corner.
 Surface rolling. Prairie. Soil 2nd rate

North on West Boundary, mile no. 58
 Va. 14° 36' East

80.00 Set sand stone, 16 x 14 x 4, marked on the South "58 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 58th mile corner.
 Surface rolling. Prairie. Soil 2nd rate.

North on West Boundary, mile no. 59
 Va. 14° 36' East

80.00 Set sand stone 24 x 10 x 4, marked on the South "59 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 59th mile corner.
 Surface rolling. Prairie. Soil 2nd rate.

North on West Boundary, mile no. 60
 Va. 14° 36' East

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50.00 Set sand stone, 18x16x4, marked on the South "60 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound for the 60th mile corner.
Surface rolling. Prairie. Soil 2nd rate

North on West Boundary, mile no. 61
Co. 14th 36' East

67.00 Leave Bluff and enter valley "Du Chille"
50.00 Set sand stone, 24x12x3, marked on the South "61 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound for the 61st mile corner.
Surface gently rolling. Prairie.
Soil 1st rate.

North on West Boundary, mile no. 62
Co. 14th 36' East

20.50 Spring Ravine, course N.E.
50.00 Set sand stone 18x12x3, marked on the South "62 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 62nd mile corner.
Surface rolling. Prairie Soil. 2nd rate.

North on West Boundary, mile no. 63
Co. 14th 36' East.

50.00 Set sand stone, 14x12x3, marked on the South "63 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 63rd mile corner.
Surface rolling. Prairie. Soil 2nd rate.

North on West Boundary, mile no. 64
 Var. $14^{\circ} 36'$ East.
 80.00 Set sand stone, $16 \times 15 \times 4$, marked on
 the South "64 m"; built mound of
 earth around same and dug pits
 on the North and South sides, ten
 links from base of mound, for the
 64th mile corner.
 Surface rolling. Prairie. Soil 1st rate.

North on West Boundary, mile no 65
 Var. $14^{\circ} 36'$ East
 80.00 Set sand stone, $14 \times 12 \times 3$, marked on
 the South "65 m"; built mound of
 earth around same and dug pits
 on the North and South sides,
 ten links from base of mound, for
 the 65th mile corner.
 Surface mostly level. Prairie. Soil 1st rate

North on West Boundary, mile no. 66,
 Var. $14^{\circ} 39'$ East.
 80.00 Set sand stone, $18 \times 14 \times 3$ marked on
 the South "66 m"; built mound
 of earth around same and dug
 pits on the North and South sides,
 ten links from base of mound, for
 the 66th mile corner.
 Surface level. Prairie. Soil 1st rate.

North on West Boundary, mile no. 67
 Var. $14^{\circ} 43'$ East
 80.00 Riv. "Dw Chille", 4.50 chs. wide, course N. W.
 80.00 Set sand stone, $18 \times 12 \times 3$, marked
 on the South "67 m"; built mound
 of earth around same and dug
 pits on the North and South sides,
 ten links from base of mound,
 for the 67th mile corner.
 Surface level. Prairie. Soil 1st rate.

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<p>80.00</p>	<p>North on West Boundary, mile no 68. Var. $14^{\circ} 43'$ East Set sand stone, $16 \times 13 \times 4$, marked on the South "68 m"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 68th mile corner. Surface level. Prairie. Soil 1st rate.</p>	
<p>16.00</p>	<p>North on West Boundary, mile no. 69 Var. $14^{\circ} 46'$ East Leave valley and ascend bluff, Bears E. and W.</p>	
<p>75.00</p>	<p>Cañon 150 feet deep. Course S. W. In order to determine distance over cañon, set flag on opposite side of same, then run East 7 chs. Flag bears $N. 26^{\circ} W.$ The distance over cañon is therefore 14.31 chs.</p>	
<p>50.00</p>	<p>Place for corner in cañon. Impossible to establish same. Surface broken. Prairie. Soil 3rd rate.</p>	
<p>9.31</p>	<p>North on West Boundary mile no. 70 Var. $14^{\circ} 36'$ East Leave Cañon, course S. W.</p>	
<p>80.00</p>	<p>Set sand stone, $20 \times 12 \times 5$, marked on the South "70 m"; built mound of earth around same and dug pits on the North and South sides ten links from base of mound, for the 70th mile corner. Surface broken and rocky. Prairie. Soil 1st rate</p>	
<p>50.00</p>	<p>North on West Boundary, mile no 71 Var. $14^{\circ} 47'$ East Set sand stone, $20 \times 12 \times 4$, marked on the South "71 m"; built mound of earth around same and dug pits on the North and South sides</p>	

ten links from base of mound, for the 71st mile corner. Surface broken. Prairie Soil 3^d rate

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North on West Boundary, mile no. 72
 Va. 14° 47' East

4.00 Ravine, course West.

80.00 Set sand stone 18 x 15 x 3, marked on the South "72 mi.", built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 72nd mile corner. Surface level and rocky. Prairie Soil 3^d rate

North on West Boundary, mile no. 73.
 Va. 14° 50' East

80.00 Set sand stone, 16 x 14 x 3, marked on the South "73 mi.", built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 73^d mile corner - Surface level. Prairie. Soil sandy and 3^d rate.

North on West Boundary, mile no. 74
 Va. 14° 53' East

80.00 Set sand stone, 16 x 15 x 4, marked on the South "74 mi.", built mound of earth around same and dug pits on the North and South ten links from base of mound, for the 74th mile corner. Surface level. Prairie. Soil sandy and 3^d rate.

North on West Boundary, mile 75
 Va. 14° 53' East.

80.00 Set sand stone, 17 x 14 x 3, marked on the South "75 mi.", built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 75th mile corner. Surface level and Rocky. Prairie Soil 3^d rate.

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80.00

North on West Boundary, mile no. 76
 Va. $14^{\circ} 53'$ East

Set sand stone $20 \times 18 \times 3$, marked on the South "76 m," built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 76th mile corner.
 Surface broken and rocky. Prairie Soil 3^d. rate

80.00

North on West Boundary, mile no. 77
 Va. $14^{\circ} 36'$ East

Set sand stone, $16 \times 14 \times 3$, marked on the South "77 m," built mound of earth around same and dug pits on the North and South sides, ten links from base of mound for the 77th mile corner.
 Surface broken and rocky, Prairie Soil 3^d. rate

80.00

North on West Boundary, mile no. 78
 Va. $14^{\circ} 59'$ East

Set sand stone, $25 \times 18 \times 2$, marked on the South "78 m," built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 78th mile corner.
 Surface broken and rocky, Prairie Soil 3^d. rate

80.00

North on West Boundary, mile no. 79.
 Va. $14^{\circ} 59'$ East.

Set sand stone, $25 \times 16 \times 4$, marked on the South "79 m," built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 79th mile corner.

Surface broken and rocky. Prairie
Soil 3^d rate.

80.00 North on West Boundary, mile No. 80
Var. 14th 59' East.
Marked "80 m," on flat rock, and
built mound of stone over same,
for the 80th mile corner.
Surface broken and rocky. Prairie.
Soil 3^d rate.

80.00 North on West Boundary, mile no. 81
Var. 14th 59' East
Marked "81 m" on flat rock, and
built mound of stone over same,
for the 81st mile corner.
Surface level and rocky. Prairie. Soil 3^d rate.

40.00 North on West Boundary, mile no. 82
Var. 14th 59' East
80.00 Prairie, course West. 1.50 chs. wide
Set sand stone, 14x12x3, marked on the
South "82 m"; built mound of earth
and stone around same, and dug
pits - on the North and South sides,
ten links from base of mound for the
82nd mile corner.
Surface level and rocky. Prairie.
Soil 3^d rate.

15.50 North on West Boundary, mile no. 83
Var. 15th 00' East
27.00 Enter bottom, bears East and West.
28.50 Dry Creek, course West.
80.00 Leave bottom, bears East and West.
Set sand stone, 18x14x3, marked on
the South "83 m"; built mound
of earth around same and dug
pits - on the North and South sides,
ten links from base of mound, for
the 83rd mile corner.

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Surface in Cotton, level, the balance being rolling. Prairie. Soil 1st + 2nd rates

North on West Boundary, mile no. 84
Pa. 15th 00' East.

So. 00

Set sand stone, 18x14x10, marked on South "84 mi"; built mound of earth around same and dug pits on the North and South sides, ten links from base of mound, for the 84th mile corner.

Surface rolling. Prairie. Soil 2nd rate

North on West Boundary, mile no. 85
wa. 15° 00' East.

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65.75 To the 37th Parallel of North Latitude
116.32 chs. North of Astronomical
Station, and set a sand stone 40 x
24 x 6, marked on the South "N.W. cor
H.R." on the West "1869", on the East
"37° N. L." Deposited a sand stone,
marked "N.W.C." 2 ft. in earth. Built
mound of earth, 2 feet high and 6 feet
at base. Dug pits on the North, South,
East and West sides, ten links from base
of mound.

Surface rolling. Soil 2nd rate. Same.

General Description of the Western Boundary
The first twenty five miles of the line runs
through an almost level valley, that
has a gradual rise for about ten miles
from the South West corner, and from
this point the waters run into the Rio
"San Chille". Soil 1st and 2nd rate.

The line then runs along, close to the bluffs
on the West side of the above named
river, and finally on the 67th mile
crosses the same. From this point, the
line passes over a rolling country, soil
2nd and 3^d rate.

We hereby certify that we assisted, E. N.
Darling, U. S. Surveyor and Astronomer
in surveying the South and West Boundaries
of the Navajo Indian Reservation, lying
in the Territories of New Mexico and Arizona,
and that the said boundaries have been
in all respects to the best of our knowledge
and belief, and faithfully surveyed, and
the Boundary monuments planted
according to the instructions furnished

BOOK 1933

by the Commissioner of the General Land
Office

W. P. Paul

Compassman

John Houser

Cyrus J. Glare

Chainmen

J. W. Shafer

Pablo Jones & his marks

R. C. Darling

Cornermen

Signed and sworn to, before me,
on the Rio Du Chille Township 11 North
Range 10 West, in the Territory of
Arizona, this 28th day of October, 1869

Eberd N. Darling

U. S. Surveyor

I, Eberd N. Darling, U. S. Surveyor, do solemnly
swear that in pursuance of a contract with
Hon. Jos. S. Wilson, Commissioner of the General
Land Office, Washington, D. C. and in
strict conformity to the laws of the United
States and the instructions furnished by
said Commissioner, I have faithfully surveyed
the South and West Boundaries of the Navajo
Indian Reservation in the Territories of
New Mexico and Arizona and do further
solemnly swear that the foregoing are the
true and original notes of such survey

Eberd N. Darling

U. S. Surveyor.

Subscribed and sworn to before me,
a Notary Public for the County of Bernalillo
Territory of New Mexico, this 6th day of
November 1869 Thomas McLean

Notary Public

Department of the Interior
General Land Office
December 10. 1869

The foregoing field notes of the survey of the South and West Boundaries of the Navajo Indian Reservation in the Territories of New Mexico and Arizona executed by Eberd N. Darling U. S. Surveyor and Astronomer in accordance with his contract dated April 29. 1869. and the 2nd article of the Treaty with the Navajo Tribes of Indians, dated June 1 - 1868, having been critically examined and the necessary corrections and explanations made they and the survey they describe, are hereby approved.

Jos. P. Wilson
Commissioner.

Department of the Interior
General Land Office
February 26th 1871

A True Copy

J. A. Williamson
Commissioner