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3709

Book "A"

4-679

BOOK 3709

FIELD NOTES

OF THE SURVEY OF

3709

"BAT CAVE"

Guano Deposit

and

Segregation of same from

Sections 11 and 14 of

TOWNSHIP 14 NORTH, RANGE 20 WEST,

Of the Gila and Salt River Base and Meridian,

In the State of Arizona,

EXECUTED BY

Sidney E. Blout,

U.S. Cadastral Engineer,

3709

In the capacity of U. S. Surveyor, under Special Instructions dated October 8, 1924, issued by the United States Surveyor General to govern surveys included in Group No. 132, Arizona, which were approved by the Commissioner of the General Land Office, October 30, 1924, and Assignment Instructions dated March 16, 1925

Survey commenced April 2, 1925.

Survey completed April 2, 1925.

INDEX DIAGRAM.

Township _____, Range _____

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

BOOK 3709

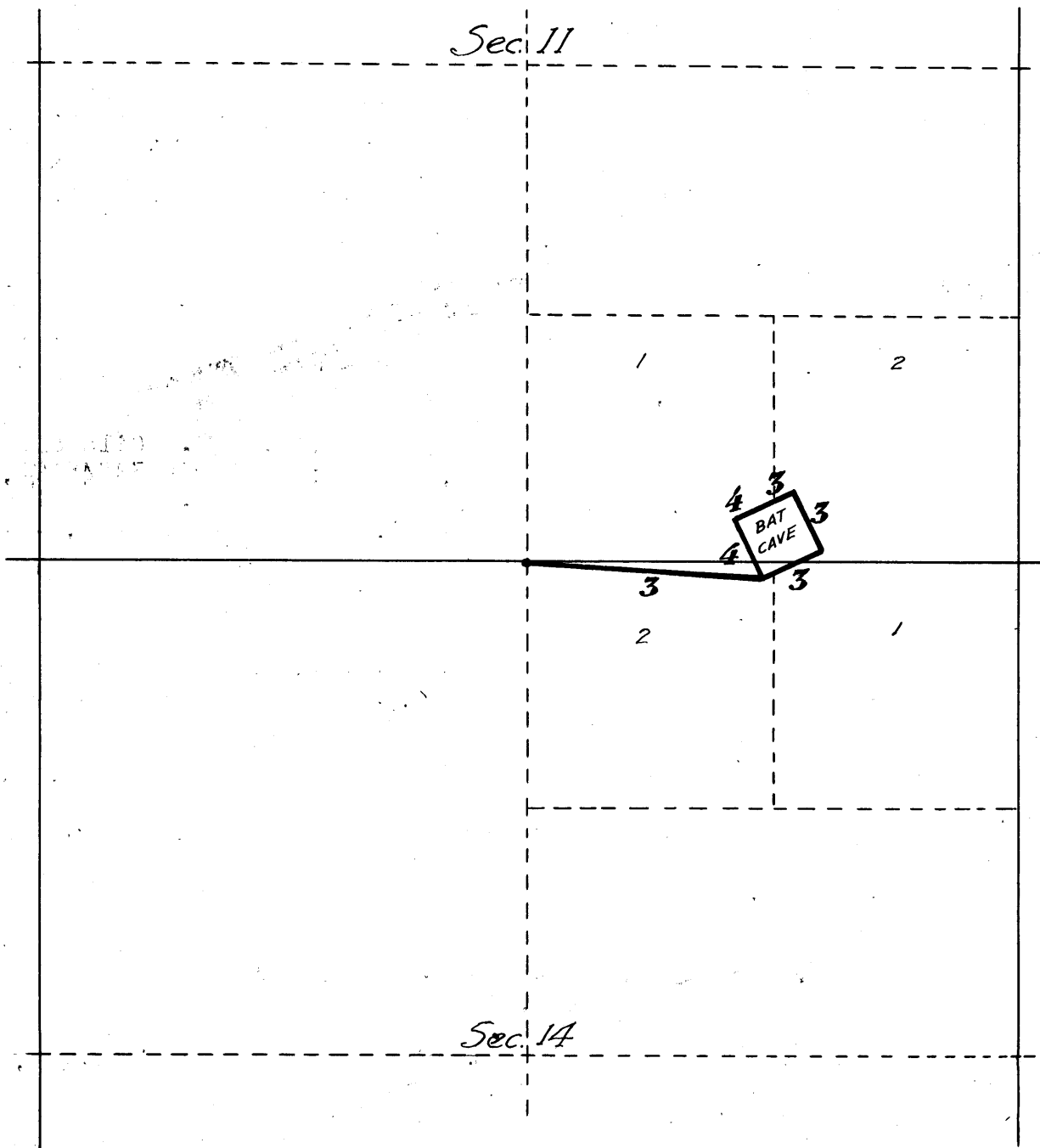
Book "A"

1 A

Group 132 - Arizona

Frac'l. Township 14 North - Range 20 West.

• INDEX DIAGRAM •



————— Surveyed under this group.

————— Accepted surveys.

Survey herein described was executed on April 2, 1925 by Sidney E. Blout, U.S. Cadastral Engineer, using a Buff Rocky Mountain Favorite solar transit No. 16724, with U-shape standards, $4\frac{1}{2}$ inch horizontal circle, 4 inch vertical circle, and improved Smith solar attachment. All azimuth determinations are accomplished with the solar attachment, except the special observations on Polaris, upon which to test the solar apparatus.

The instrument was examined, tested on the true meridian at the Federal building at Phoenix, Arizona, found correct and was approved by the Assistant Supervisor of Surveys for Arizona, and California, March 16, 1925, conditional upon satisfactory field tests.

PRELIMINARY FIELD TEST OF BUFF TRANSIT NO. 16724.

April 1, 1925: Examine the adjustments of the transit and correct the level and collimation errors: then, to test the solar apparatus by comparing its indications, resulting from solar observations made during a.m. and p.m. hours with a meridian established by observations on Polaris, proceed as follows:

At camp in NW $\frac{1}{4}$ of sec. 17, T. 16 N., R. 19 W., Gila and Salt River Base and Meridian, Arizona; latitude $34^{\circ}45'N.$, and longitude, $114^{\circ}15'56''W.$, set off $34^{\circ}45'N.$ on the lat. arc; $4^{\circ}40'N.$ on the decl. arc, and at 4h. 30m. p.m., l.m.t., determine a meridian with the solar, and mark a point thereof on a peg driven firmly in the ground about 5 chs. N.

At the same station, at 6h. 51m. p.m., l.m.t., observe Polaris at western elongation, making four observations, two each with telescope in direct and reversed positions, and mark the mean point in the line thus determined on a peg driven in the ground about 5 chs. N.

Azimuth of Polaris at western elongation $= 1^{\circ}20'6''$.

April 2, 1925: At 6h. 30m. a.m., lay off the azimuth of Polaris $1^{\circ}20'$ to the east, and mark the true meridian thus determined on the peg already set about 5 chs. N. on which the meridian falls $1\frac{1}{2}'E.$ of the mark determined by the solar.

At 7h. 00m. a.m., l.m.t., set off $34^{\circ}45'N.$ on the lat. arc, $4^{\circ}55'N.$ on the decl. arc, and determine a meridian with the solar, and mark the direction thereof by a nail driven in the stake already set about 5 chains N. This mark falls $0\frac{1}{2}'E.$ of the meridian established by the Polaris observation.

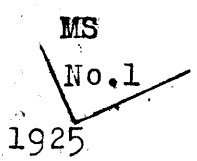
Since the solar apparatus by a.m. and p.m. observations defines positions for meridians which agree within $1\frac{1}{2}''$ with the true meridian determined by the Polaris observations; conclude that the adjustments of the instrument are satisfactory.

All measurements are made with a Lufkin 5-chain steel tape compared with a Chesterman standard steel tape and found correct. The measurements are made on the slope, the vertical angles determined with clinometer, and the slope measurements properly reduced to true horizontal distances.

Survey of "BAT CAVE" Guano Deposit Tract in secs.11 and 14, Township 14 North, Range 20 West.

The following notes describe the survey of Bat Cave Guano deposit, comprizing the mineralized area in the S $\frac{1}{2}$, SE $\frac{1}{4}$ Sec.11, and N $\frac{1}{2}$ NE $\frac{1}{4}$ sec.14, T.14 N., R.20 W. for the purpose of segregating same from the Santa Fe Pacific Railroad Company's primary list selection 54, Phoenix 043042:

Begin at the SW.corner of the Tract in sec.14, and set an iron post 3 ft.long, 1 in. in diam., 6 ins.in the ground to bed rock, deposit a stone marked with a cross (x) at base of post, and raise a mound of stone, 4 ft. base, 2 ft.high around post, for cor.No.1 (SW.cor.) of BAT CAVE guano deposit tract, marked on brass cap,



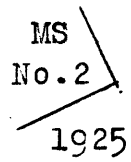
from this tract cor,

The $\frac{1}{4}$ sec.cor. of secs.11 and 14, T.14 N., R.20 W., brs.N.86° 48'W., 19.22 chs.dist., and is an iron post 1 in.in diam., projecting 30 ins.above ground, firmly set in ground and mound of stone, properly marked on brass cap, and witnessed by a mound of stone, N.of cor. No bearing trees.

From cor. No.1 of "Bat Cave" guano deposit tract, The center of opening into "Bat Cave" brs.N.12 $\frac{1}{2}$ °E., 2.30 chs.dist.

Thence, N.64°30'E., on true line, on line 1-2 of tract in sec.14. Over stony mountainous land, thru. scattering undergrowth. Descend 12 ft., over NE. slope.

- 0.900 Bottom of ravine, 10 lks.wide, course N.80°W.
- 2.440 Ascend about 50 ft., over SW.slope to cor.No.2 of tract.
- 2.440 Intersect subdivision line, bet.secs.11 and 14 at a point 21.39 chs.S.89°57'E.from the $\frac{1}{4}$ sec.cor.of said secs., hereinbefore described.
- 4.515 Continue line and measurement in sec.11. Set an iron post, 3 ft.long, 1 in. in diam., over a cross (x) marked on surface rock, and raise a mound of stone 6 ft.base, 2 $\frac{1}{2}$ ft.high around post for cor.No.2 (SE.cor.) of "Bat Cave" guano deposit tract, marked on brass cap,



Thence, No.25°30'W., on true line, on line 2-3 of tract in sec.11. Over stony mountainous land, thru.scattering undergrowth. Ascend 10 ft.over SW. slope.

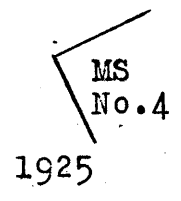
- 1.000 Spur, slopes SW.
- 3.250 Descend 30 ft., over NW. slope.
- 3.250 Bottom of ravine, 5 lks.wide, course SW.
- 4.515 Ascend about 6 ft., over SE.slope, to Set an iron post, 3 ft.long, 1 in.in diam., 26 ins.in the ground for cor.No.3 (NE.) cor.of Bat Cave guano deposit tract, marked on brass cap,



Raise a mound of stone, 2 ft.base, 1 $\frac{1}{2}$ ft.high, SW.of cor. Thence, S.64°30'W., on true line, on line 3-4 of tract, in sec.11.

4 Survey of "BAT CAVE" Guano Deposit Tract in secs.11 and 14,
Township 14 North, Range 20 West.

4.515 Over stony mountainous land, thru scattering undergrowth. Ascend 55 ft., over SE slope, to Set an iron post, 3 ft. long, 1 in. in diam., over a cross (x) marked on surface rock, and raise a mound of stone 5 ft. base, 2 1/2 ft. high around post for cor. No. 4 (NW. cor.) of Bat Cave guano deposit tract, marked on brass cap,



3.350 Thence, S. 25° 30' E. on true line, on line 4-1 of Tract in sec. 11. Over stony mountainous land, thru scattering undergrowth. Descend 65 ft., over SE slope, Intersect the Subdivision line bet. secs. 11 and 14 at a point 18.69 chs. S. 89° 57' E. from the 1/4 sec. cor. of said secs., hereinbefore described. Continue line and measurement in sec. 14. 3.650 Bottom of ravine, 25 lks. wide, course N. 80° W. Ascend 15 ft., over N. slope, to 4.520 Intersect cor. No. 1 (SW. cor.) of the tract in sec. 14, the place of beginning. Land, mountainous. Soil, rocky, 4th rate. Timber, none. Undergrowth, greasewood and scrub palo verde.

FINAL FIELD TEST OF BUFF TRANSIT No. 16724.

April 2, 1925: Set up transit on the meridian established April 1, 1925, at camp in the NW 1/4 of sec. 17, T. 16 N., R. 19 W., as hereinbefore described; and at 3h. 30m. p.m., l.m.t., set off 34° 45' N. on the lat. arc; 5° 02' N. on the decl. arc, and determine a meridian with the solar, which, by comparison falls 1' W. in angular measure, of the true meridian. As all solar observations on this day come within 1' of the true meridian, conclude that the instrument is not only in satisfactory adjustment, but that said adjustment has been maintained throughout the field work on this day.

Survey of "BAT CAVE" Guano Deposit Tract in secs.11 and 14,
Township 14 North, Range 20 West.

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Boundaries of "BAT CAVE" Guano Deposit Tract.

Latitudes, departures, and closing errors.

Line designated.	True course.	Dist.	Latitudes.		Departures.	
			N.	S.	E.	W.
1-2	N.64°30'E.	4.515	1.944		4.075	
2-3	N.25°30'W.	4.515	4.075			1.944
3-4	S.64°30'W.	4.515		1.944		4.075
4-1	S.25°30'E.	4.520		4.080	1.946	
Totals.			6.019	6.024	6.021	6.019
				6.019	6.019	
Error in latitude.			0.005			
Error in departure.					0.002	

AREA.

The area of the "BAT CAVE" Guano Deposit Tract surveyed as described in the foregoing notes is 2.04 acres.

GENERAL DESCRIPTION.

The guano deposit found in the S $\frac{1}{2}$ SE $\frac{1}{4}$ sec.11, and N $\frac{1}{2}$ NE $\frac{1}{4}$ sec.14, T.14 N., R.20 W. occurs in a large cave, presumably a steam blow-hole in the andesite flow which constitutes the principal formation of the west slope of the Chemehevis Mountains, on which slope the cave is located.

This cave, which is known as "Bat Cave" has for many years been the resort or breeding place of millions of bats which has resulted in the original debris in the cave becoming saturated to a greater or less extent with nitrates and phosphates leached from the overlying guano deposit. This deposit has an area of approximately 2940 square feet, the dimensions of the cave being 33x90x20 ft.high.

The dimensions of the cave and the exact location of its position having been determined, and a suitable allowance of space made outside for a car track and ore platforms to facilitate the convenient handling of the mineral, it was decided that a segregated area in

the form of a square tract, each side measuring about 300 feet in length would include the entire mineral deposit in question, and thus afford adequate protection to the Government's interests in the case.

The determining factors in the fixation of the position of the boundaries of the tract, being the bearing of the center line of the cave and the topographical features of the country in the immediate vicinity of the entrance to the cave; therefore, in the survey of same, the East and West boundaries of the tract are made parallel to the center line of the cave, and equidistant therefrom, and the North and South boundaries so placed as to include all portions of the cavern as well as the bottom land along the ravine leading to the entrance, by way of which access to the cave is gained.

BOOK 8709

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FIELD ASSISTANTS. to

Sidney E. Blout, U. S. Cadastral Engineer.

NAMES.	CAPACITY.
Frank T. Burgess,	First chainman,
A. L. Bailey,	Second chainman,
Homer Pepper,	Flagman.

CERTIFICATE OF U.S. CADASTRAL ENGINEER FOR

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I, Sidney E. Blout, U.S. Cadastral Engineer, hereby certify upon honor that, in pursuance of special instructions received from the U. S. Surveyor General, for Group 132, Arizona, bearing date of the 8th day of October, 1924, I have well, faithfully, and truly in my own proper person, and in strict conformity with said instructions, the Manual of Surveying Instructions, and the laws of the United States, surveyed all those parts or portions of

"BAT CAVE"

Guano Deposit Tract

in Sections 11 and 14 of

TOWNSHIP 14 NORTH, RANGE 20 WEST,

of the Gila and Salt River

Base and Meridian, in the State of Arizona, which are represented in the foregoing field notes as having been executed by me, and under my direction; and that all the corners of said survey have been established and perpetuated in strict accordance with the Manual of Surveying Instructions, and the special written instructions of the U. S. Surveyor General, for Group 132, Arizona, and in the specific manner described in the field notes, and that the foregoing are the original field notes of such survey.

Place: Phoenix, Arizona.

Date: April 16, 1926.

Sidney E. Blout
 U.S. Cadastral Engineer

APPROVAL.

OFFICE OF THE U.S. Supervisor of Surveys,

Denver, Colorado, April 20, 1926.

The foregoing field notes of the survey of

"BAT CAVE"

Guano Deposit Tract,

in Sections 11 and 14 of

TOWNSHIP 14 NORTH, RANGE 20 West,

of the Gila and Salt River Base and Meridian, in the State of Arizona,

executed by Sidney E. Blout, U.S. Cadastral Engineer,

under his special instructions dated Oct. 8, 1924, for Group 132, Arizona, having been critically examined, and the necessary corrections and explanations made, the said field notes, and the surveys they describe, are hereby approved.

Walter H. Johnson
 U.S. Supervisor of Surveys

~~I certify that the foregoing transcript of the field notes of the above-described surveys in~~

~~has been correctly copied from the original notes on file in this office.~~