General Land Office • Original Field Notes

Book Number

2

The images in this file are photographs of the notes of the original surveys of the State of Nebraska on file in the Office of the Nebraska State Surveyor located in Lincoln, Nebraska.

The original surveys in Nebraska began in the mid 1850's and were completed in the mid 1880's. The Nebraska office of the Surveyor General was closed June 30, 1886.

Cover
Must not
be over
8 7/8 inches
high or
it will not
fit shelves

3

2 3

Field Notes
of
West boundary of Nebr
and
41st Parallel N. Latitude
from the
25th to the 27th deg. Long.
West from Washington

Chaffee
1869

Contract No. 19 Dated May 29 1869

Ex B.

Camp^d.

(9)

(97)

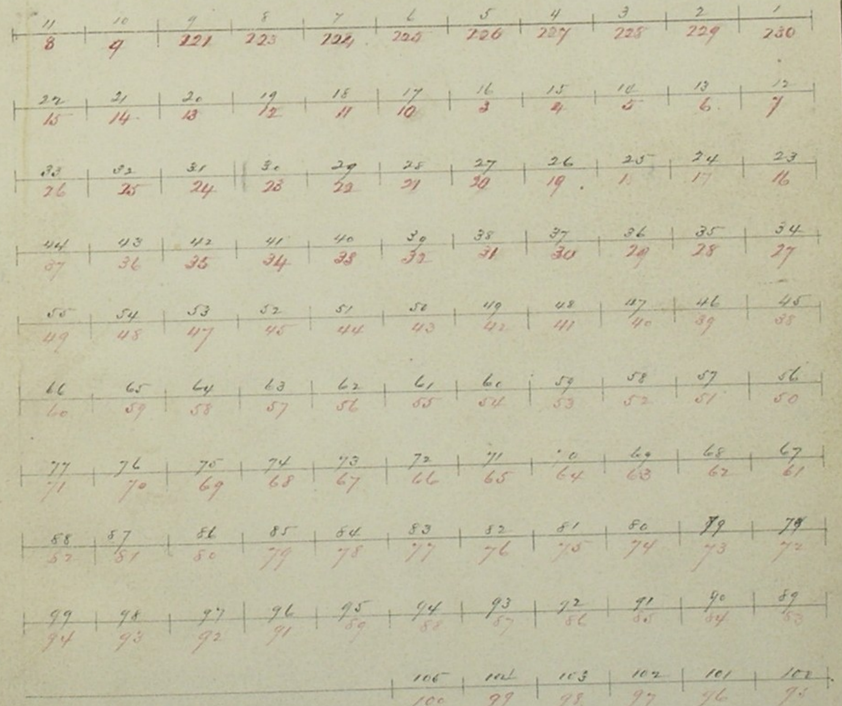
Boundary of Nebraska, Colorado & Wyoming.
O. N. Chaffee, Contract 19, May 29. 1869

2

INDEX

41st PARALLEL

11 / 8	10 / 9	9 / 221	8 / 223	7 / 224	6 / 225	5 / 226	4 / 227	3 / 228	2 / 229	1 / 230
22 / 15	21 / 14	20 / 13	19 / 12	18 / 11	17 / 10	16 / 3	15 / 4	14 / 5	13 / 6	12 / 7
33 / 26	32 / 25	31 / 24	30 / 23	29 / 22	28 / 21	27 / 20	26 / 19	25 / 18	24 / 17	23 / 16
44 / 37	43 / 36	42 / 35	41 / 34	40 / 33	39 / 32	38 / 31	37 / 30	36 / 29	35 / 28	34 / 27
55 / 49	54 / 48	53 / 47	52 / 45	51 / 44	50 / 43	49 / 42	48 / 41	47 / 40	46 / 39	45 / 38
66 / 60	65 / 59	64 / 58	63 / 57	62 / 56	61 / 55	60 / 54	59 / 53	58 / 52	57 / 51	56 / 50
77 / 71	76 / 70	75 / 69	74 / 68	73 / 67	72 / 66	71 / 65	70 / 64	69 / 63	68 / 62	67 / 61
88 / 82	87 / 81	86 / 80	85 / 79	84 / 78	83 / 77	82 / 76	81 / 75	80 / 74	79 / 73	79 / 72
99 / 94	98 / 93	97 / 92	96 / 91	95 / 89	94 / 88	93 / 87	92 / 86	91 / 85	90 / 84	89 / 83
					105 / 100	104 / 99	103 / 98	102 / 97	101 / 96	100 / 95



Plat. Chaf.

Connect with Bar Yoke & Set Mean^d Cor^l on N. Platte, when such?

27th MERIDIAN

20	119	40	135	60	151	80	168	100	189	120	203		
19	118	39	134	59	151	79	167	99	188	119	202	139	219
18	116	38	133	58	150	78	167	98	187	118	201	138	218
17	116	37	132	57	149	77	166	97	186	117	200	137	217
16	115	36	131	56	149	76	165	96	185	116	199	136	217
15	114	35	130	55	148	75	164	95	184	115	198	135	216
14	114	34	129	54	147	74	163	94	183	114	197	134	215
13	113	33	128	53	147	73	162	93	182	113	196	133	214
12	112	32	127	52	146	72	161	92	181	112	196	132	213
11	111	31	126	51	145	71	160	91	180	111	195	131	212
10	110	30	125	50	144	70	159	90	179	110	195	130	212
9	109	29	125	49	143	69	157	89	177	109	194	129	211
8	108	28	124	48	142	68	157	88	176	108	193	128	209
7	107	27	124	47	141	67	156	87	175	107	193	127	209
6	107	26	123	46	141	66	155	86	174	106	192	126	208
5	106	25	123	45	140	65	155	85	173	105	192	125	208
4	105	24	122	44	139	64	154	84	173	104	191	124	206
3	104	23	122	43	138	63	153	83	171	103	191	123	205
2	103	22	121	42	137	62	153	82	170	102	190	122	205
1	102	21	120	41	136	61	152	81	169	101	190	121	204

25th MERIDIAN

20	258	40	278	60	298		
19	257	39	277	59	297		
18	256	38	276	58	296		
17	255	37	275	57	295		
16	254	36	274	56	294		
15	253	35	273	55	293		
14	252	34	272	54	292		
13	251	33	271	53	291		
12	250	32	270	52	290		
11	249	31	269	51	289		
10	248	30	268	50	288		
9	247	29	267	49	287	69	307
8	246	28	266	48	286	68	306
7	245	27	265	47	285	67	305
6	244	26	264	46	284	66	304
5	243	25	263	45	283	65	303
4	242	24	262	44	282	64	302
3	241	23	261	43	281	63	301
2	240	22	260	42	280	62	300
1	239	21	259	41	279	61	299

Field Notes of Walton Boundary Survey of Nebraska.

Beginning at the Astronomical Station at Julesburg, Colorado, in Longitude 25° 18' 30".90 West from Washington & 40° 59' 1".56 N. Latitude, I make the following observations for its location.

S.E. Corner of South Depot building Union Pacific R.R. bears S 29° 35' W. dist 3.50 ch.

S.E. Corner of North depot building U.P. R.R. bears S. 58° 29' W. dist. 2.01 ch.

N.W. Corner N. Depot building U.P.R.R. bears S 80° 48' W. dist. 2.17 ch.

S.E. Corner of an old log building bears N. 78° 30' W. dist. 64 lks.

Fort Sedgwick Flag Pole bears S. 22° W.

Magnetic Declination = 14° 47' 20" E

From the Astronomical Station I run North on a true Meridian determined by three independent observations of Star α Ursae Minoris.

20 00 Enter broken Sand Hills.

89 65 Intersect the 41st Parallel N. Latitude that being the Calculated meridional distance to the 41st Parallel.

At this point I turn off an angle

Ch.	L.	
10	47	of 90° towards the East & measured to the Position of the 16th mile Post West of the 25th Meridian West of Washington; 16 miles 10.47 ch. being the Computed distance from the Meridian of Tulsburg Astronomical Station to the 25th Meridian.

The 16th Post is of Cottonwood 8 ft. long 6×7 inches square, duly inscribed, planted in the Earth three feet, with a mound of sand raised around it 3 ft. high, with a piece of charred wood at its base, and pits dug Each side on the boundary, as per instructions.

No other witnesses near.

Soil sandy & worthless.

Declination of Magnetic Meridian = 14° 48' 35" E.

Transit line Continued Eastward.

Ch.	L.	
15	00	Leave sand hills – Enter rolling ground.
80	00	Offset 0.88 links = 0.58 ft. towards the North to Position of 15th Mile Post West of 25th Meridian, on the 41st Parallel. The 15th Post is of cotton wood 8 ft. long 6×8 inches square, duly inscribed, planted in the Earth 3 feet, surrounded by a mound of sand 3 ft. high, with a piece of charred wood at its base, & pits dug Each side on the Parallel as per instructions.

No other objects for witnesses.

Magnetic Declination = 14° 48' 55" E.

Soil Worthless.

Transit Line Continued Eastward

Ch	L.	
80	00	Offset 3.5 lks. towards the North to the Position of 14th Mile Post West of 25th Meridian on the 49th Parallel, and planted the Post, which is of cottonwood 8 ft. long 6x8 in. sq. duly inscribed, three ft. in the Earth, surrounded by a mound of earth three feet high, with a stake of charred wood at its base, & Pits dug each side on the line, as per instructions.
		No other witnesses.
		Surface rolling; soil 3d rate.
		Mag. Declination = 14° 42′ 50″ E.

Transit line Continued Eastward.

Ch.	L.	
80	00	Offset 7.9 lks. towards the North to the Position of the 13th Mile Post West of the 25th Meridian on the 49th Parallel.
		Placed Post of Spruce, 8 ft long 6x8 inches, duly inscribed, three feet in the Earth, surrounded by a mound of Earth three ft. high, with a stake of charred wood at its base, & Pits dug Each side on the line as per instructions.
		No other Witnesses.
		Surface gently rolling; Soil 3d rate.
		Magnetic Declination 14° 32′ 42″ E.

Transit line continued Eastward

ch.	li.	
1	50	A small Pond of water 1 ft deep - 50 links wide & 1½ ch. long, bearing N. 20° W.
80	00	Offset 14 lks. to the Position on 41st Parallel of the 12th Mile Post west of 25th Meridian. Placed Post, of Cottonwood, 8 ft. long 6x7 inches, duly inscribed, 3 ft deep in the ground, surrounded by a mound of earth three ft. high, a charred stake at its base, and pits dug each side on the line as per instructions. No other Witnesses. Surface nearly flat; soil 3d rate. Magnetic Declination 14° 23' 36" E.

Transit line continued Eastward.

ch.	li.	
80	00	Offset 22 lks. to the Position on 41st Parallel of 11th Mile Post west of the 25th Meridian. Placed Post of Cottonwood 8 ft. long 6x7 in. sq. duly inscribed, 3 ft. deep in the ground, surrounded by a mound of Earth 2 ft. high, a charred stake at its base, & pits dug each side on the line as per instructions. No other Witnesses. Soil 3d rate; surface nearly flat. Mag. Declination = 14° 19' 00" E.

Transit Line continued Eastward.

ch	Lk.	
80	00	Offset 31 lks. towards the north, to the Position on 41st Parallel of the 10th Mile Post west of 25th Meridian, and planted Post of Cottonwood 8 ft. long 6x8 inches sq. duly inscribed, 3 ft in the ground, surrounded by a mound of earth 3 ft. high, with a charred stake at its base, & pits dug each side on the line as per instructions.

No other witnesses.

Surface nearly flat; soil apparently good.

Mag. Declination 14° 14' 30" E.

Transit line continued Eastward.

ch.	Lk.	
46	58	Transit line intersects U.P.R.R.
46	93	Intersection of Boundary & U.P.R.R.
		R.R. track bears S.~~N.~~ 24 & N.~~E.~~ E. 35° 59' 52"
80	00	Offset 43 lks. towards the north to the Position of 41st Parallel of the 9th Mile Post west of 25th Meridian, and planted post of Cottonwood 8 ft. long 6x8 inches sq. duly inscribed, three ft in the ground, surrounded by a mound of earth 3 ft. high, with charred stake at its base & pits dug each side on the line as per instructions. No other witness objects.

Surface flat & Marshy.

Magnetic Decn. 14° 15' E.

O. N. Chaffee.

July 23d 1869.

Transit Line running Westward

Ch.	Lk.	
		Beginning at the intersection of the Meridian of Sulzburg Astronomical Station with 41st Parallel N. Latitude, I lay off an angle of 90° towards the West, and along the line
2	00	Leave sand hills & enter rolling surface.
69	55	Offset 0.9 lks. to Position of 17th Mile Post west of 25th Meridian & on the 41st Parallel, and placed post of Norway Pine, of full prescribed dimensions duly inscribed, three feet in the ground with a lime stone slab at its foot, 12 x 12 x 3 in. marked "H"; surrounded by a mound of earth three ft. high, and pits dug each side on the line as per instructions.

Witness. Water-tank House N.P.R.R. N.E. Corner bears S. 46° 50' W. dist 34.30 ch

Sand Bluffs N.W. 6 ch.

Magnetic declination 14° 44' 15" E.

Transit line Continued Westward.

Ch.	Lk.	
11	08	Transit line intersects N.P.R.R. track.
11	03	Boundary intersects R.R. track.
		Bearing of R.R. track S.E. & N.W. 27° 26' 15"
53	52	Lodgepole Creek 25 lks. wide. runs South
80	00	Offset 3½ lks. to Position on 41st Parallel of 18th Mile Post west of 25th Meridian, and placed post of Norway Pine 8 ft long 6 x 6 in. duly inscribed, 3 ft deep in the ground & surrounded by a mound of earth three feet high, with a lime stone slab 15 x 15 x 3" marked H at its base, and pits dug each side on the line as per instructions.

Fault House N.P.R.R. bears N 66° 35' E.

Surface nearly level; soil 2d rate

Magnetic declination 14° 43' 30" E.

July 27th 1869.

C. N. Chaffee.

Transit line continued Westward.

ch	lk.	
50	00	Surface rolling.
80	00	Offset 8 lks. to Position on 41st Parallel of 19th Mile Post West of 25th Meridian and placed post, of Norway Pine of full prescribed dimensions, duly inscribed 3ft. deep in the ground, surrounded with a mound of earth 3ft. high, with a charred stake at its base, and pits dug each side on the line, as per instructions,

Tank House N.P.R.R. bears N. 79° 38' E.

Soil poor – gradually rising toward S.W.

Mag. Declination 14° 43' 45" E.

Transit Line Continued Westward.

ch	lk.	
40	00	Enter table land.
80	00	Offset 14 lks. to Position on 41st Parallel of 20th Mile Post West of 25th Meridian and marked the point by a Post of Norway Pine ~~Post~~ 8ft. long 6"x6" sq., duly inscribed planted 3ft. in the ground, with a charred stake at its base, & surrounded by a mound of earth 3ft high, & pits dug each side on the line as per instructions.

No other witnesses near.

Magnetic declination = 14° 43' 45" E.

July 28th 1869.

O. N. Chaffee.

Transit Line Continued Westward.

ch.	lk.	
80	00	Offset 22 lks. towards the North to the position on 41st Parallel of 21st Mile Post West of 25th Meridian, and marked the point by a Post of Norway Pine 8ft. long 6x6" sq. duly inscribed, planted 3ft. in the ground, with charred cedar stake at its base, surrounded by a mound of Earth 3ft. high, & pits dug each side on the line, as per instructions.

No other Witnesses.

Surface nearly flat; soil poor.

Magnetic Declination 14° 51' 15" E.

Transit line continued Westward.

ch	lk.	
42	60	Dry creek ~~bottom~~ bed, descends S.E. 15 lks. wide bearing N 44° W.
45	00	Red gravel bank 9 chains distant towards the South — 7 ch. in extent & 30 ft. high.
80	00	Offset 31 lks. northward to Position on 41st Parallel of 22d. mile Post West of 25th Meridian, and marked the point by a Post of Norway Pine 8ft long 6 in. sq. duly inscribed, planted 3ft. in the ground, with charred cedar stake at its base, surrounded by a mound of earth 3ft. high, & pits dug each side on the line, as per instructions.

A dry creek 3 chains South.

No other Witnesses. Gravel & poor soil.

Magnetic Declination 14° 55' 30" E.

Transit Line Continued Westward

Ch.	Lks.	
27	00	Enter Plateau of high land.
45	00	Surface gradually sloping S.W. to the Valley of the S. Platte R.
80	00	Offset 43 lks. to the position on 41st Parallel of 23d Mile Post west of the 25th Meridian, and marked the point by planting a post of Norway Pine, 8ft. long 6 in. sq. duly inscribed, three feet in the ground, with a charred cedar stake at its base, surrounded by a mound of earth 3 ft. high, with pits dug each side on the line, as per instructions. Soil poor.
		No other Witnesses.
		Magnetic declination 14° 49' 45" E.

Transit line Continued Westward.

Ch.	Lks.	
8	40	Gully 3/4 chain wide.
9	20	Enter low ground – wet at some seasons.
19	00	Begin to ascend a slope of 4½°.
38	00	Top of ridge. Post Sedgwick S. 86° 12' E. Whole surface much broken.
78	00	Dry creek (drains S.E.) – gravel bottom 50 lks. wide.
80	00	Offset 55 lks. to position on 41st Parallel of 24th Mile Post West of 25th Meridian, and marked the point by planting a Post of Norway Pine 8 ft. long, ~~5 ft~~ 6 in. square, duly inscribed, three feet in the ground, with charred cedar stake at its ~~base~~ post, surrounded by a mound of earth 3 ft. high, and pits dug each side on the line, as per specifications.
		A bank of reddish sand & gravel directly South about 15 ch. distant.
		No other witnesses.
		Soil worthless.
		Mag. declination 14° 47' 15" E.

Transit line Continued Westward.

Ch.	lks.	
11	00	Enter a sharp ascent – slope 8°
20	40	Top of ridge – Sloping westward at the same angle.
28	70	Dry creek 10 lks. wide N. 40° W.
38	00	Surface much broken – Worthless soil.
44	00	Top of knoll paved with cobble stones.
50	00	A crooked & nearly dry creek –
80	00	Offset. 71 lks. to the northward to the position on 41st Parallel of 25th mile Post West of 25th Meridian, & marked the point by planting 3 ft deep in the ground a Post of Norway Pine 8 ft. long 6 in. sq. duly inscribed with a charred stake at its foot, surrounded by a mound of earth 3 ft high, and pits dug each side on the line as per instructions.

No other ~~instructions~~ Witnesses.

Magnetic declination 14° 43' 15" E.

Transit line Continued Westward.

Ch	lks	
3	80	Small dry creek.
9	70	do do do.
30	00	Enter low ground.
52	00	Dry creek bed. 30 lks wide.
61	00	Begin to rise among bluffs & knolls.
64	78	Fort Sedgwick bears S. 64° 20' E.
72	00	Dry creek – gravelly bottom.
79	50	Rising.
80	00	Offset 87 lks. to position on 41st Parallel of 26th mile Post west of 25th Meridian, and marked the point by planting a duly inscribed Post of Norway Pine 8 ft. long 6 in. sq. 3 ft. deep in the ground with a stake of charred wood at its base, surrounded by a mound of earth 3 ft. high, & pits dug each side on the line, as per Contract.

No other witnesses.

Magnetic declination 14° 50' 00" E.

At this Point I take two observations of α Ursae Minoris for true Meridian & ascertain that the Transit line has deflected from its true direction 3' 25".

July 29th 1869.

O. M. Chaffee.

Transit line continued Westward after 3' 25" correction is applied

ch	lks.	
10	00	Enter high plateau.
80	00	Offset 104 lks. towards north to the position on 41st Parallel of 27th Mile Post west of 25th Meridian, & marked the point by planting a Post of Norway Pine, duly inscribed, 8ft long 6 in. square, 3ft. deep in the ground, with a chamed stake at its base, surrounded by a mound of earth 3ft. high, and pits dug each side on the line, as per instructions.

No other Witnesses.

Magnetic declination = 14° 57' 00" E.

At this point I transfer the transit line to the Tangent to the curve of the 41st Parallel, by turning off from the Transit line East towards the North an angle 89° 51' 50", the convergence of the meridians at this point & the place of starting being 8' 13".4. From the Meridian at this point so determined, I lay off towards the east an angle of 90° at the 27th mile Post, & proceed on the tangent as before.

New Tangent line prolonged Westward.

ch	lks.	
22	00	Dry creek –
32	00	Begin descent into a valley.
58	00	Bed of dry creek – bearing N. & S.
60	00	Begin ascent from valley.
80	00	Offset 0.9 lks. towards north to the position on 41st Parallel of 28th mile Post west of 25th Meridian, & mark the point by planting a post of Norway Pine, duly inscribed, 8ft. long 6 in. sq. 3ft. in the ground, with a chamed stake at its base, surrounded by a mound of Earth, with pits dug Each side on the line, as per contract & instructions.

Soil worthless – Surface over the last mile very much broken.

No objects for Witnesses.

Mag. Declination 14° 50' 30" E.

Transit line continued Westward.

ch	lk.	
1	50	A deep gulley.
80	00	Offset 3½ lks. to the Northward to the Position on 41st Parallel of 29th Mile Post West of 25th Meridian, & marked the point by planting a post of Norway pine, duly inscribed, 8ft. long 6 in. sq. three feet deep in the ground with a stake of chained pine at its base, surrounded by a mound of Earth 3ft. high, and pits dug Each side on the line, as per contract and instructions.
		No other Witnesses.
		Magnetic declination 14° 44' 15" E.

Transit line continued Westward.

		Surface much broken into small knolls and ridges.
80	00	Offset 8 lks. to the position on 41st Parallel of 30th Mile Post West of 25th Meridian, and marked the point by planting a post of Norway pine, duly inscribed, 8ft. long 6 in. sq. 3ft. deep in the ground, with a stake of chained wood at its base, surrounded by a mound of Earth, and pits dug Each side on the line, as per contract & instructions.
		No other Witness objects.
		Soil apparently poor.
		Magnetic Declination = 14° 28' 30" E.

Transit line Continued Westward.

ch	lks.	
26	20	Dry sand bed of creek running in a crooked & broken valley across the line. Found water about 20 ch. South of the line by digging a foot deep.
80	00	Offset 14 lks. towards North to the position on 41st Parallel of 31st Mile Post West of 25th Meridian, & mark the point by planting a post of Norway pine, duly inscribed, 8 ft. long 6 in. sq. 3 ft. deep in the ground, with a charred stake at its base, surrounded by a mound of earth 3 ft. high, and pits dug Each side on the line as per Contract & instructions.

Surface along the last mile very uneven. No permanent witness objects near.

Magnetic Declination = 14° 24' 15" E.

Transit line continued Westward.

ch.	lk.	
1	45	Make the following Observations.
		Knoll No. 1 — N. 6° 10' W.
		" No. 2 — N 67 40 W.
		" No. 3 S 70 33 W.
20	00	Bottom of Valley extending to the S. Platte.
22	00	Begin ascent — Slope 12° —
		2 Chains south of line a bank of gravel 40 ft. high, 3 ch. in extent.
31	00	Knoll No 1. N. 6° 10' E.
		" No 2. N. 60 39 W.
		" No. 4. S. 51 53 W.
70	00	Surface very irregular - soil worthless.
80	00	Offset 22 lks. towards north to the position on 41st Parallel of 32d mile post, west of 25th Meridian, & marked the same by planting a post of Norway pine, duly inscribed, 8 ft long 6 in. sq. 3 ft deep in the ground, with a charred stake at its base, surrounded by a mound of earth 3 ft. high, & pits dug ~~dug~~ Each side on the line as per contract & instructions.

No other Witnesses.

Magnetic declination 14° 22' 30" E.

Transit line continued Westward.

Ch	lks.	
0	90	I make following observations.
		Knob No 1. before noted N. 26° 17' E.
		do 2 do N. 33 32 W.
		do 4 do S 45 3 W.
		do 5 N 55 34 W.
31	00	Bottom of Valley, much broken.
52	00	Another ravine – Surface towards the south much broken.
63	00	Top of a high ridge.
80	00	Offset 31 lks. towards North to the position on 41st Parallel of 33d mile Post West of 25th Meridian, & mark the point by planting a post of Norway pine, duly inscribed, 8ft. long 6 in. sq. 3ft deep in the ground, with a charred stake at its base, surrounded by a mound of earth 3 ft. high, and pits dug Each side on the line, as per Contract and instructions.

Soil, gravel – worthless.
No other Witnesses.
Mag. declination 14° 32' 45"

Transit line continued Westward.

ch.	lks.	
23	00	Dry creek in valley. 2 ch. south of this point bank of limestone 15 ft. high, & Extending a distance of 5 chains.
42	00	Top of ridge made of knolls.
45	00	Placed peg, & quit for the night.

July 30th 1869.

Observed a Ursae Minoris with transit for true Meridian, and ascertained the Error of transit line to be 3' 57"

O.N. Chaffee.

Beginning this A.M. with Meridian deduced from observations, I Extend the transit line West through the point of quitting yesterday, but parallel to the tangent to the curve at 34th mile

65	00	Post. Cross dry creek. descends South
80	00	Offset 31 lks. to position of 41st parallel of 34th mile post West of 25th Meridian, & mark the same by planting 3ft deep in the ground, a post of Norway pine, 8ft long 6 in. sq. duly inscribed, surrounded by a mound of earth 3ft. high, with a bit of stone marked T at its base, & pits dug each side of per instructions. No other Witnesses.

Mag. declination = 14° 43' 00" E.

Transit line Continued Westward.

The transit line is carried on in a direction parallel to the tangent to the curve at the 34th mile post & at a distance of 31 lks. south of it, on account of the broken surface making it difficult to change to the tangent.

20 00 Cross Small dry creek. descends South

29 00 Another creek - banks much broken.

56 50 Large dry creek bed 1.5 ch. wide.

80 00 Offset 32 lks. to position on 41st parallel of 35th mile post west of 25th Meridian, & marked the same by a post of Norway pine 8 ft. long 6 in. sq. duly inscribed, planted 3 ft. deep in the ground, with a stake of charred wood at its base, surrounded by a mound of earth, and pits dug each side on the line as per instructions & contract. No other witnesses.

Magnetic declination 14° 34' 30" E.

Transit line Continued Westward.

Ch lks.

80 00 Offset 32 lks. to position on 41st parallel of 36th mile post West of 25th Meridian, and marked the point by planting a post of Norway Pine 8 ft. long 6 in. sq. duly inscribed, 3 ft. in the ground, with a charred stake at its base, surrounded by a mound of earth 3 ft. high, and pits dug each side on the line, as per contract and instructions.

No other witnesses.

Magnetic declination = 14° 26' 0" E.

The surface over the last mile has been very uneven, much broken up into gullies & knolls, composed chiefly of gravel & sand. Soil poor.

Transit line continued Westward.

ch.	lks.	
3	00	Head of a small valley running S.
61	00	Knob of high ground, where fine limestone appears at surface.
80	00	Offset 38 lks. to position on 41st parallel of 37th Port West of 25th Meridian, and marked the same by planting a post of Norway pine, 8ft. long 6in. sq. duly inscribed, 3ft. deep in the ground, with a small piece of limestone marked H at its base, surrounded by a mound of earth 3ft. high, and pits dug each side on the line as per instructions.

No other witnesses.

Soil very poor.

Magnetic declination = 14° 27′ 45″ E.

Transit line continued Westward.

ch.	lks.	
5	00	A knoll bears S 17° 50′ E.
58	00	High ground; same knob S 31° 07′ E.
80	00	Offset 44 lks. north to position on 41st Parallel of 38th Mile Post west of 25th Meridian, and marked the same by planting a post of Norway pine 8ft. long 6 in. sq. duly inscribed, 3 ft deep in the ground, with a piece of water worn lime stone at its base, surrounded by a mound of earth 3ft. high, and pits dug each side, as per instructions & contract.

No other witnesses.

Magnetic declination 14° 27′ 00″ E.

Transit line continued Westward.

Ch.	lks.	
		Surface nearly level.
80	00	Offset 53 lks. towards the North to the Position on 41st Parallel of 39th Mile Post West of 25th Meridian, & marked the point by planting a Post of Norway Pine, duly inscribed, 8 ft. long 6 in. sq. 3 ft. deep in the ground, with a piece of limestone marked I at its foot, surrounded by a mound of earth 3 ft. high, and pits dug each side on the line as per contract & instructions.
		No other witnesses.
		Soil apparently good.
		Magnetic declination 14° 26′ 15″ E.

Transit Line continued Westward.

Ch.	lks.	
80	00	Offset 62 lks. to Position on 41st ~~Mile~~ ~~Post~~ Parallel of 40th Mile Post West of 25th Meridian, & marked the same by planting a Post of Norway Pine, duly inscribed, 8 ft. long 6 in. sq. 3 feet deep in the ground, with a piece of limestone marked I at its foot, surrounded by a mound of Earth 3 ft. high, with pits dug each side on the line, as per instructions.
		Surface through the last mile nearly level. Soil pretty good.
		No other witnesses.
		Magnetic declination = 14° 32′ 15″ E.
		July 31st 1869.
		I observe Star & Usual Mineris for True Meridian and ascertain the Error of Transit line to be 1′ 15″ north of true.
		O.N. Chaffee.

41st Parallel continued Westward

Transit line is transferred to the tangent to the curve at the 40th mile post, & prolonged Westward.

80 00 Offset 0.9 lks. to position on 41st Parallel of 41st mile Post west of 25th Meridian, and marked the same by planting a post of Norway Pine 8ft. long 6 in. sq. duly inscribed, 3ft. deep in the ground, with a piece of water marked lime-stone at its base, surrounded by a mound of earth 3ft. high, and pits dug each side on the line, as per contract and instructions.

Surface of ground gently rolling. Soil apparently pretty good.

No Witnesses near.

Magnetic declination 14° 39' 15" E.

41st Parallel continued Westward

Ch.	Lks.	
34	50	Dry Creek N.E. & S.W.
80	00	Offset 3½ lks. north to the position on 41st Parallel of 42nd mile Post west of 25th Meridian, & marked the same by planting a post of Norway pine, duly inscribed, 8ft. long 6 in. sq. 3 feet deep in the ground, with a piece of limestone marked H at its foot, surrounded by a mound of earth, with pits dug each side on the line, as per instructions.

Dry Creek extends along, from the crossing above, on the south side from 5 to 8 ch distant. Soil 2nd rate.

No other Witnesses near.

Magnetic declination 14° 28' 30" E.

41st Parallel Continued Westward.

Ch.	Lks.	
6	97	A knot trees S 1° 54' E.
27	00	A dry creek (noted on last mile) 50 lks. wide N.W. & S.E.
80	00	Offset 8 lks. to position on 41st parallel of 43d Mile Post West of 25th Meridian and marked the point by planting a post of Norway pine 8 ft. long 6 in. sq. duly inscribed, 3 ft. deep in the ground, with a piece of lime stone marked T at its base, surrounded by a mound of Earth 3 ft. high, with pits dug Each side on the line as per Contract.

Surface slightly rolling.

Soil 2d rate - very dry.

A spring of water N. from Post about 7 chains distant.

No objects for Witnesses.

Magnetic declination 14° 27' 45" E.

41st Parallel Continued Westward.

Ch.	Lks.	
7	00	Knoll trees S. 26° 25' E.
80	00	Offset 14 lks. to the position on 41st parallel of 44th mile post West of 25th Meridian, and mark the point by planting a post of Norway Pine 8 ft. long 6 in. sq. duly inscribed, 3 ft. in the ground, with a piece of limestone marked x at its base, surrounded by a mound of earth 4 ft. high, with pits dug each side on the line as per instructions.

No objects for Witnesses.

Soil 2d rate.

Magnetic declination 14° 24' 15" E.

41st Parallel continued Westward.

Ch.		
		Surface nearly level.
77	00	Approach rolling surface.
80	00	Offset 22 lks. to position on 41st Parallel of 45th mile post West of 25th Meridian, and mark the same by planting a post of Norway Pine, 8ft. long 6 in. sq. duly inscribed, 3 ft. deep in the ground, with a piece of water marked limestone at its base, surrounded by a mound of earth & gravel 3ft. high, with pits dug each side on the line as per contract & instructions.
		Soil 2nd or 3rd rate.
		No objects for Witnesses.
		Magnetic Declination 14° 08′ 30″ E.

41st Parallel continued Westward.

		Surface gently rolling.
80	00	Offset 31 lks. to position on 41st Parallel of 46th mile Post West of 25th Meridian, and mark the point by planting a post of Tamarack 8ft. long 6 in. sq. duly inscribed, 3ft. deep in the ground, with a piece of limestone marked H at its base, surrounded by a mound of earth 3ft. high, with pits dug each side on the line as per contract & instructions.
		Soil pretty good.
		No objects for Witnesses.
		Magnetic declination 14° 10′ 30″ E.

41st Parallel continued Westward.

ch.	lks.	
		Surface slightly rolling.
80	00	Offset 43 lks. to position on 41st Parallel of 47th Mile Post west of 25th Meridian, and mark the point by planting 3 ft in the ground a post of ~~Norway~~ White pine, 8 ft. long 6 in. sq. duly inscribed, with a charred stake at its base, surrounded by a mound of earth 3 ft. high, and pits dug each side as per contract & instructions.
		A small knoll 15 ft higher than post bears N. 45° W. distant 3 chains.
		No other witnesses.
		Magnetic declination 13° 54' 45" E.

41st Parallel continued Westward.

ch.	lks.	
		Surface nearly level.
36	00	Dry creek 20 lks. wide; bottom of creek 2 to 4 ft below general surface, running nearly parallel with line for 28 ch.
64	00	Line recrosses creek.
80	00	Offset 55 lks. to position on 41st Parallel of 48th mile post west of 25th Meridian and mark the same by planting 3 feet in the ground a post of Norway pine 8 ft. long 6 in. sq. duly inscribed, with a small piece of lime stone marked X placed at its base, surrounded by a mound of earth 3 ft. high & having pits dug each side on the line as per instructions & contract.
		Soil 2nd & 3rd rate.
		No other witnesses.
		Mag. Declination = 13° 54' 00" E.

41st Parallel continued Westward

Ch.	Lks.	
		Surface flat.
80	00	Offset 71 lks. to position on 41st Parallel of 49th mile Post west of 25th Meridian, & mark the point by planting 3 feet deep in the ground a post of Norway pine 8 ft. long 6 in. sq. duly inscribed, with a piece of lime-stone marked T at its base, surrounded by a mound of earth 3 ft. high, with pits dug each side on the line as per instructions & contract.
		Soil of poor quality.
		No other witnesses.
		Mag. declination 14° 3' 13" E.

41st Parallel continued Westward

Ch.	Lks.	
		Surface rolling.
22	00	Passed over a slight knoll nearly bare of vegetation; limestone gravel on surface, but no stones of any size exposed
80	00	Offset 87 lks. to position on 41st Parallel of 50th mile Post west of 25th Meridian, & mark the same by planting 3 ft. deep in the ground a post of Norway pine 8 ft. long 6 in. sq. duly inscribed, having a small piece of lime-stone marked T at its base, surrounded by a mound of earth 3 ft high, with pits dug each side on the line, as per instructions & contract.
		No objects for witnesses.
		Magnetic variation 14° 35' 28" E.

41st Parallel continued Westward

ch	lks.	
		Surface nearly flat.
80	00	Offset 106. lks. to position on 41st Parallel of 51st Mile Post West of 25th Meridian and mark the same by planting in the ground 3ft. deep a post of norway pine 8ft. long 6in. sq. duly inscribed, with a small piece of limestone marked T at its base, surrounded by a mound of earth 3ft. high & pits dug each side on the line as per contract & instructions.
		No other witnesses.
		Mag. Declination = 14° 58′ 16″ E.

41st Parallel continued Westward.

ch	lks.	
		Surface nearly flat.
80	00	Offset 126 lks. to position on 41st Parallel of 52d Mile Post west of 25th Meridian, & mark the same by planting in the ground 3ft. deep, a post of norway pine duly inscribed, 8ft. long 6in. sq. with a piece of charred wood at its base, surrounded by a mound of earth 3ft. high, and pits dug each side on the line, as per contract and instructions.
		No objects for witnesses. The transit line at offset is in the bed of a dry creek, in which we obtain water by digging two feet deep.
		Magnetic declination 15° 18′ 57″ E.

Observed for Time & Latitude

41st Parallel Continued Westward.

Near 52d Mile Post Observed for Time
Meridian & Ursae Minoris 20h 48m 00.0 sec
Chronometer Correction = −26 31.0
& compute azimuth of Star = 146° 17' E. of N.
From which I deduce the
direction of Transit line as
referred to meridian of this
point to be 90° 9' 3".
The direction as run from
the meridian of 40th Post 90 6 00.
Error in running 12 miles = 3' 3" N. of W.
August 3d 1869

Observed Eastern Elongation of & Ursae
Minoris & compute Az. = 1° 50' 44".
and determine thence
Error of transit line to be = 2' 43" N. of W.
Aug. 5th 1869.

O. N. Chaffee.

41st Parallel Continued Westward.

ch	lks.	
		Surface nearly level.
~~80~~	~~00~~	Transfer the transit line to a Tangent to the curve at 52d mile post & prolong it westward.
80	00	Offset 0.9 lks. to position on 41st Parallel of 53d mile post west of 25th Meridian and mark the point by planting 3 feet deep in the ground a post of norway pine 8ft. long 6in. sq. duly inscribed, with a small piece of stone marked T at its base, surrounded by a mound of earth 3ft. high, and pits dug Each side on the line, as per contract and instructions. No other objects for witnesses.

Mag. Declination = 15° 2' 20" E.

41st Parallel Continued Westward.

		Surface nearly flat.
32	50	Small conical knoll 8 ch. northward.
80	00	Offset 3½ lks. to position on 41st Parallel of 54th mile Port west of 25th Meridian, and mark the same by planting 3 ft. deep in the ground, a post of Norway pine 8 ft. long 6 in. sq. duly inscribed, surrounded by a mound of earth 3 ft. high, having a small piece of limestone marked H at its base, & pits dug each side on the line, as per instructions.
		No other objects for witnesses.
		Mag. Declination 15° 8′ 40″ E.

41st Parallel continued Westward.

ch.	lks.	Surface nearly flat.
80	00	Offset 8 lks. to position on 41st Parallel of 55th Mile Port west of 25th Meridian, and mark the point by planting in the ground a post of Norway pine 8 ft. long 6 in. sq. duly inscribed, with a piece of limestone marked T at its base, surrounded by a mound of earth, 3 ft. high, with pits dug each side on the line as per contract & instructions.
		No objects for witnesses.
		Magnetic Variation = 14° 37′ 00″ E.

41st Parallel continued Westward.

ch.		
24	00	Bank of earth 40 ft high N. 15° W. about 2 miles distant.
80	00	Offset 14 lks. to position on 41st Parallel of 56th Mile Post west of 25th Meridian and mark the point by planting 3 ft deep in the ground a post of Norway pine 8 ft. long 6 in. sq. duly inscribed, a small piece of lime stone marked T placed at its base, surrounded by a mound of earth 3 ft. high, and pits dug each side on the line as per instructions. No objects for witnesses. Soil 2nd rate. Magnetic declination = 14° 44' 20" E.

41st Parallel continued Westward.

ch.		
61	00	Dry creek about 4 ft below general level. Conspicuous banks noted on last page bear N. 45° E.
80	00	Offset 22 lks. to position on 41st Parallel of 57th mile post west of 25th Meridian, and mark the point by planting 3 ft. deep in the ground a post of Norway pine 8 ft. long 6 in. sq. duly inscribed, witnessed by a small piece of limestone marked T placed at its foot, surrounded by a mound of earth 3 ft. high, and pits dug each side on the line as per contract. No witness-objects. Soil poor. Magnetic declination = 14° 46' 00" E.

41st Parallel continued Westward

ch		
53	55	Conspicuous Bluffs before noted, N. 60 E.
80	00	Offset 31 lks. towards north to the position on 41st Parallel of 58th mile post west of 25th Meridian, and mark the point by planting 3 ft. deep in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a small piece of lime stone marked T being placed at its base, surrounded by a mound of earth 3 ft. high, with pits dug each side on the line as per instructions.
		Soil poor – No objects for witnesses.
		Magnetic declination = 14° 47′ 30″ E.

41st Parallel continued Westward

		Surface nearly flat.
80	00	Offset 43. lks north to position on 41st Parallel of 59th mile post west of 25th Meridian, and mark the point by planting 3 ft. deep in the ground a Norway pine post 8 ft. long 6 in. sq. duly inscribed, having a small piece of lime stone marked T at its base, surrounded by a mound of earth 3 ft. high, with pits dug each side on the line as per contract instructions.
		2nd rate soil.
		No objects for witnesses.
		Magnetic declination = 14° ~~48′~~ 43′ 30″ E.

41st Parallel continued Westward

ch.		
		Transit line prolonged.
80	00	Offset 55 lks. towards north to the position on 41st Parallel of 60th Mile Post west of 25th Meridian, & mark the point by planting 3ft deep in the ground a post of Norway pine 8ft. long 6in. sq. duly inscribed, with a small piece of limestone marked T placed at its foot, surrounded by a mound of earth 3ft. high, and pits dug each side on the line as per instructions.

Soil 2d or 3d rate.

No objects for witnesses.

Magnetic declination = 14° 53' 30" E.

41st Parallel continued Westward.

ch.		
		Transit line prolonged.
80	00	Offset 71 lks. to position on 41st parallel of 61st Mile Post west of 25th Meridian, & mark the same by planting 3ft. deep in the ground a post of Norway Pine 8ft. long 6in. sq. duly inscribed, a piece of limestone marked T being placed at its foot, a mound of earth raised around it 3ft. high, and pits dug each side on the line, as per contract.

Soil very hard & dry.

No objects for witnesses.

Magnetic declination = 15° 3' 15" E.

At 18h 51m 43ss by Chronometer 386. – correction – 27m 00.4 Sobrerve Star α Ursae Minoris for Azimuth and compute the same to be 1° 47' 54" E.

whence I deduce Error of Transit line from 52d Post to be 6' 13" S of E.

August 9th 1869.

O. N. Chaffee.

41st Parallel continued Westward.

Ch.	lks.	
		Having transferred Transit line to the Tangent to the curve at 61st mile post I proceed at right angles with the meridian as determined by observation. Surface nearly flat.
80	00	Offset 1 lk. to north to the position on 41st Parallel of 62nd mile post west of 25th Meridian, and mark the point by planting 3ft. deep in the ground a post of Norway pine, 8ft. long 6in. sq. duly inscribed, a piece of lime stone marked T placed at its foot, a mound of earth raised around it 3ft. high, and pits dug each side on the line as per contract.
		No other objects for witnesses.
		Magnetic declination 14° 59' 15" E.

41st Parallel continued Westward.

Ch.		
		Transit line prolonged.
80	00	Offset 3½ lks. to north to position on 41st Parallel of 63rd mile post west of 25th Meridian, and mark the same by planting 3ft. deep in the ground a Norway pine post 8ft. long 6in. sq. duly inscribed, a small piece of limestone marked T at its base, a mound of earth 3ft. high raised around it, and pits dug each side on the line as per contract & instructions.
		No other Witnesses.
		Soil 3rd rate.
		Magnetic declination = 14° 58' 30" E.

41st Parallel continued Westward

Ch.		
		Transit line prolonged.
80	00	Offset 8 lks. to North to the position on 41st Parallel of 64th mile post west of 25th Meridian, & mark the point by planting 3ft. deep in the ground a norway pine post 8ft. long 6in. sq. duly inscribed, a small piece of stone placed at its base marked T, a mound of earth raised around it 2ft. high and pits dug each side on the line as per contract & instructions.
		No objects for witnesses.
		Magnetic declination = 14° 57′ 48″ E.

41st Parallel continued Westward:

Ch.		
		Transit line prolonged.
80	00	Offset 14 lks. to North to the position on 41st Parallel of 65th mile post west of 25th Meridian, and mark the point by planting 3ft. deep a post of norway pine 8ft. long 6in. sq. duly inscribed, a small piece of lime stone marked T at its foot, a mound of earth raised around it 3ft high, and pits dug each side on the line, as per instructions and contract.
		No other witnesses.
		Soil 2nd rate.
		Magnetic Declination 14° 57′ 00″ E.

41st Parallel continued Westward.

ch.		
		Transit line prolonged –
28	00	Top of hill 50 ft. higher than Post 65.
57	00	Northern extremity of bluff –
77	00	Bottom of Valley.
80	00	Offset 22 lks. towards north to the position on 41st Parallel of 66th mile Post west of 25th Meridian, & mark the same by planting a post of norway pine 3 ft. deep in the ground, 8 ft long 6 in. sq. duly inscribed, a piece of limestone marked T at its base, a mound of earth & gravel raised three ft. high around it, and pits dug each side on the line, as per contract & instructions.

49.30. Intersection closing cut to 73.12 N. R 52 & 53 W. 39.6.

No objects for witnesses.

Surface much broken opposite the last mile towards the south; bluffs 50 to 100 ft high rise in every direction.

Magnetic declination = 14° 56′ 15″ E.

41st Parallel continued Westward.

ch.	lks.	
		Transit line prolonged.
80	00	Offset 31 lks. to north to position on 41st Parallel of 67th Mile Post west of 25th Meridian, and mark the same by planting three feet deep in the ground a norway pine post 8 ft. long 6 in. sq. duly inscribed with a piece of limestone marked T at its base, a mound of Earth raised 2 ft. high around it, and pits dug each side on the line as per contract and instructions.

No objects for witnesses.

Surface towards south much broken

Soil 2d rate.

Magnetic Declination = 14° 37′ 30″ E.

41st Parallel continued Westward

ch. Transit line prolonged.
Surface slightly rolling.

80 00 Offset 43 lks. towards north to the position on 41st parallel of 68th mile post west of 25th Meridian, & mark the same by planting 3 ft. deep in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a piece of limestone marked + being placed at its foot, & a mound of earth 3 ft. high raised around it, & pits dug each side on the line, as per contract instructions.

No permanent objects for witnesses.
Magnetic declination 14° 34' 43" E.

41st Parallel continued Westward.

ch. lks. Transit line prolonged.

80 00 Offset 55 lks. towards north, to the position on 41st Parallel of 69th mile post west of 25th Meridian, & mark the same by planting 3 ft. deep in the ground a Norway Pine Post 8 ft. long 6 in. sq. duly inscribed, a small piece of limestone marked + placed at its foot, a mound of earth 3 ft. high raised around it, & pits dug each side on the line, as per contract instructions.

No objects for witnesses -
Magnetic declination = 14° ~~42' 33"~~ 36' 58" E.

41st Parallel Continued Westward

ch.		
		Transit line prolonged. Surface nearly flat.
65	00	Top of hill, descending abruptly to the west.
68	84	Vertical wall of sand-stone 8ft. high.
70		Bottom of Canyon.
74	00	Top of ridge between canyons.
76		Bottom of Canyon.
80	00	Offset 71 links North to the position on 41st Parallel of 70th Mile Post, West of 25th Meridian & mark the same by planting 3ft deep in the ground a norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sand stone marked T at its base, & pits dug each side on the line, as per instructions.

No objects for witnesses.

Magnetic declination = 14° ~~37'~~ 43' 33" E.

August 18th 1869

41st Parallel continued Westward.

ch.		
		Transit line prolonged.
82	00	Bottom of Hollow.
80	00	Offset 87 lks. towards north to position on 41st parallel of 71st mile post west of 25th Meridian, and mark the point by planting 3ft. deep in the ground a norway pine post 8ft. long 6in. sq. duly inscribed, a piece of limestone marked T being placed at its foot, a mound of earth raised around it 3ft. high, & pits dug each side on the line, as per contract & instructions.

A valley about 100 ft deep extending along parallel to the line on the north side, about ½ mile distant; probably ½ mile wide with very irregular hills & bluffs on the N. side.

No objects near for witnesses.

Magnetic declination 14° 43' 00" E.

Polaris star & Ursa Minoris at 19h 21m 7.4sec by Sid. Chronometer 386 - Correction - 27m 42.0sec & compute its Azimuth to be 1° 50' 9" E.

August 18th 1869. O. M. Chaffee.

41st Parallel continued Westward.

Ch.		
		Beginning at point of observation for true Meridian, I compared transit line as run yesterday with the line given by observation & find it to be in Error ——— 5' 58" S. of W. Having laid off a true tangent to the curve at 72nd mile post I proceed west – on that line
80	00	Offset 1 lk. to north to the position on 41st parallel of 72nd mile post west of 25th Meridian, and mark the same by planting in the ground 3 ft deep, a mile post of norway pine, 8 ft. long 6 in. sq. duly inscribed, a piece of sand stone marked T. placed at its base, a mound of earth 3 ft. high raised around it, & pits dug each side on the line as per contract and instructions.
		A ledge of rock bears S 81° 5' E distant 2.47 ch.
		Ground descending towards north to a deep hollow 1 mile distant –
		Magnetic Declination = 14° 39' 58" E.

41st Parallel continued Westward.

Ch.		
		Transit line prolonged.
80	00	Offset 3½ lks. to north to the position on 41st parallel of 73rd mile post west of 25th Meridian & mark the point by planting 3 feet deep in the ground, a norway pine post 8 ft. long 6 in. sq. duly inscribed, with a small piece of sand stone at its base, surrounded by a mound of earth 3 ft. high, and pits dug each side on the line, as per instructions.
		Post stands in a ravine probably 50 feet below the general surface around. Direction of ravine N. & S. & connecting with large valley at North, distant 1 to 2 miles. No objects for witnesses –
		Magnetic declination = 14° 28' 36" E.
		Ground dry & sandy – grass scanty except in ravines.

41st Parallel continued Westward.

Ch	Lks.	
		Transit line prolonged. Surface considerably rolling – the ridges & hollows running nearly N. & S. to a large valley on north which is a water course in wet seasons.
34	00	Ravine. descends North
46	50	N. 14° 30' E. about 1/8 of a mile to a sand creek in ravine where we find good water by digging 1 ft. deep.
75	16	Cross sand run in which we find water
80	00	Offset 8 lks. towards north to the position
+ 63.	80	on 41st Parallel of 74th mile Post N. of 25th Meridian, & mark the place by planting a post of norway pine 3 feet deep in the earth, 8 ft. long 6 in. sq. duly inscribed, a small piece of sand stone marked + at its foot, a mound of Earth raised 3 ft. high around it, & pits dug Each side on the line, as per contract & instructions.

No other Witnesses.

Magnetic declination 14° 28' 54" E.

+ As found by John W. Daugherty in the subdivision of T. 12 N. R. 54 W. – 1871.

41st Parallel continued Westward.

Ch.		
		Transit line prolonged.
3	50	Cross a small sand creek running Westward, distant from line on North about 4 ch. to
29	50	where it crosses & the S. descends Eastwardly
80		Offset 14 lks. toward North to the position on 41st Parallel of 75th mile post west of 25th meridian & mark the point by planting 3 ft. deep in the ground, a post of Norway pine 8 ft. long 6 in. sq. duly inscribed, a small bit of sandstone marked + at its foot, a mound of Earth raised 3 ft. high around it & pits dug Each side on the line as per contract & instructions.

No other Witnesses.

Magnetic declination = 14° 17' 12" E.

41st Parallel continued Westward.

ch.	lks.	
		Transit line prolonged.
14	69	A large hill south of line bears S. 62° 50' W.
60	00	Crosses dry water way N. 30° W.
65	47	Hill above, bears S 27° 20' W.
80	00	Offset 22 lks. north to the position on 41st Parallel of 76th mile post west of 25th Meridian, & mark the point by planting a post of norway pine 8 ft. long 6 in. sq. duly inscribed, three feet deep in the ground, a small piece of sand stone marked + at its base, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract & instructions.

No other witnesses.

Magnetic declination = 14° 21' 30" E.

41st Parallel continued Westward.

ch.	lks.	
		Transit line prolonged.
80	00	Offset 31 lks. north to the position on 41st Parallel of 77th mile Post west of 25th Meridian, and mark the point by planting a post of norway pine 8 ft. long 6 in. sq. duly inscribed, 3 ft. deep in the ground, a small piece of sand stone at its foot marked T, a mound raised 3 feet high ~~raised~~ around it, and pits dug each side on the line, as per contract and instructions.

Valley ½ mile distant to northward still extending E. & W.

No other Witnesses –

Magnetic declination = 14° 24' 30" E.

August 11th 1869.

O. N. Chaffee.

41st Parallel continued Westward.

Ch.		
		Transit line prolonged.
27	00	Dry creek.
30	20	Hill noted before S 72° 18' E.
80	00	Bottom of dry creek. Offset 43 lks. north to the position on 41st Parallel of 78th mile post west of 25th Meridian, and mark the point by planting a post of norway pine 8 ft. long 6 in. sq., duly inscribed, three feet deep in the ground, a small piece of sandstone marked T at its foot, a mound of earth raised around it 3 ft. high, and pits dug each side on the line, as per contract & instructions.

No other witnesses.

Magnetic declination 14° 22' 45" E.

Directly South, & distant about 1/4 mile a bold rock bluff facing E.

41st Parallel continued Westward.

ch	lks.	
		Transit line prolonged.
40	50	Dry creek bed N.W. & S.E.
73	5	Sand creek. Find water by digging 2 ft.
80	00	Offset 55 lks. north to position on 41st Parallel of 79th mile post west of 25th Meridian, & mark the point by planting a post of norway pine 8 ft. long 6 in. sq. duly inscribed, three feet deep in the ground, a small piece of sandstone marked T at its base, a mound 3 ft. high raised around it, & pits dug each side on the line, as per instructions.

No other witnesses.

Declination of Magnetic Meridian = 14° 42' 25" E.

41st Parallel continued Westward.

Transit line prolonged.

A dry sand creek nearly E. & W. on S. side of line.

22 00 Brow of hill.

30 00 bottom of hollow.

34 00 Brow of hill.

45 00 Surface nearly level, but at ¼ mile distance either N. or S. descends to low hollows.

57 92 A rocky peak bears S 29° 54' E.

80 00 Offset 71 lks. north to position on 41st Parallel of 80th mile post west of 25th Meridian & mark the point by planting a post of Norway pine 8ft. long 6 in. sq. duly inscribed, three feet deep in the ground, a small piece of lime stone marked + at its base, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract & instructions

No objects for Witnesses

Magnetic declination 14° 41' 05" E.

41st Parallel continued Westward.

Ch. lks. Transit line prolonged.

80 00 Offset 87 lks. North to position on 41st Parallel of 81st mile post west of 25th Meridian, and mark the point by planting a post of Norway pine 8ft. long 6 in. sq. duly inscribed, three feet deep in the ground, a small piece of lime stone at its base marked +, a mound of earth raised around it three feet high, and pits dug each side on the line, as per contract and instructions.

~~A dry sand creek one chain East of Post. Standing water about ¼ mile N.E. of Post.~~

No objects for Witnesses.

Magnetic declination 14° 39' 58" E.

41st Parallel continued Westward.

ch.	lks.	
		Transit line prolonged.
55	74	A hill N 2° 52' E dist 4 ch.
		A rock bluff N. 39° 58' W.
80	00	Offset 106 lks. north to the Position on 41st parallel of 82d mile post west of 25th Meridian, & mark the point by planting a post of Norway pine 8ft. long 6in. sq. duly inscribed, 3 ft. deep in the ground, a small piece of lime stone marked + at its base, a mound of earth raised 3ft. high around it, and pits dug each side on the line according to contract. No other witnessed.
		A dry sand creek crosses line 1 ch. East of post - about 1/4 of a mile N.E. Standing water. descent N. E.
		Magnetic declination = 14° 47' 15" E

41st Parallel continued Westward.

ch	lks.	
		Transit line Prolonged.
3	10	Bed of dry creek. descends N. E.
21	50	do do " " "
51	47	Rocky bluff noted on last mile N. 66° 51' E.
80	00	Offset 126 lks. north to position on 41st Parallel of 83d mile post west of 25th Meridian, & mark the point by planting a post of Norway Pine 8ft. long 6in. sq. duly inscribed, three feet deep in ~~a mound of~~ the earth, a small piece of lime stone at its base marked +, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract. No objects for witnesses.
		Magnetic Declination = 14° 41' 33" E

41st Parallel continued Westward.

ch.		
		Transit line prolonged.
48	00	Dry sand creek bed. Hollow & bottom about 1 mile wide.
80	00	Offset 148 lks north to position on 41st Parallel of 84th Mile Post west of 25th Meridian & mark the point by planting, 3 ft. deep in the ground, a post of Norway pine 8 ft. long 6 in. sq. duly inscribed, a small piece of sand stone marked T at its base, a mound of earth raised around it three ft high, & pits dug each side on the line as per contract and instructions. No other witnesses —

Magnetic declination = 14° 38′ 51″ E.

I observe star α Ursae Minoris at 23h 5m 00.0s by Sid. Chronometer, 386. and compute its azimuth to be 1° 10′ 31″ E.
From this ascertain the error of transit line in running from 71st Mile Post = 3.8″ N.
August 12th 1869.

O. N. Chaffee.

41st Parallel continued Westward.

ch.	lks.	
		Having transferred the transit line to the tangent to the curve at 84th Post. I proceed west.
36	40	A point of bluff covered with fine stone.
67	50	Another point of bluff running in towards the valley which extends along just north of the line.
80	00	Offset 0.9 lks to north to the position on 41st parallel of 85th Mile Post west of 25th Meridian, & mark the point by planting three feet deep in the ground a post of Norway Pine 8 ft. long 6 in. sq. duly inscribed, a small bit of lime stone marked T at its base, a mound of earth raised around it three feet high, and pits dug each side on the line, as per contract & instructions.

No other witnesses.

Magnetic declination = 14° 14′ 15″ E.

Soil gravelly — 2nd or 3rd rate.

72.

41st Parallel continued Westward.

ch	lks.	
		Transit line prolonged.
53	10	Dry creek 20 lks. wide N. + S. descends N.
80	00	Offset 3½ lks. north to the position on 41st Parallel of 86th mile post west of 25th Meridian, and mark the point by planting three feet deep in the ground a norway pine post 8ft. long 6in. sq. duly inscribed, a small piece of limestone marked T being placed at its foot, a mound of earth raised raised 3ft. high around it, and pits dug each side on the line as per contract and instructions.

No objects for Witnesses.

Magnetic declination 14° 13' 30" E

Soil pretty good.

41st Parallel continued Westward.

ch.	lks.	
		Transit line prolonged.
80	00	Offset 8 lks. north to the position on 41st Parallel of 87th mile post west of 25th Meridian, and mark the same by planting 3ft. deep in the ground, a norway pine post 8ft. long 6in. sq. duly inscribed, a small piece of limestone marked T at its foot, a mound of earth raised three feet high around it, and pits dug each side on the line as per contract.

Point of Rocks S. 45° W. 24 Ch.

No other Witnesses.

Magnetic declination 14° 36' 45" E.

Soil very good.

41st Parallel continued Westward.

ch		
		Transit line prolonged.
71	00	Dry crek flowing down the valley at the north of line. N.E.
80	00	Offset 14 lks. north to the position on 41st Parallel of 88th mile post west of 25th Meridian, and mark the same by planting a post of Norway pine, 3ft. deep in the ground, 8ft. long 6in. sq. duly inscribed, a small piece of limestone marked T being placed at its foot, a mound of earth raised 2ft. high around it, and pits dug each side on the line, as per contract instructions.
		Conspicuous rounded knoll on N. slope of valley N. 75°E.
		Magnetic declination = 14° 38' 00" E.

41st Parallel continued eastward.

ch	lks.	
		Transit line prolonged.
20	01	Rounded knoll noted at last post N. 60° E.
47	57	do do bears N. 62° 34' E.
		Surface much broken towards South.
80	00	Offset 22 lks. north to the position on 41st Parallel of 89th mile post east of 25th Meridian, and mark the point by planting 3ft. deep in the ground, a post of Norway pine, 8ft. long 6in. sq. duly inscribed, a small piece of limestone marked T at its base, a mound of earth raised 2ft. high around it, and pits dug each side on the line, as per contract.
		No objects for witnesses.
		Magnetic declination = 14° 26' 15" E.
		Soil good, but very dry.

41st Parallel continued Westward.

ch.		
		Transit line prolonged.
62	00	Descend into a basin like hollow ½ mile wide.
80	00	Offset 31 lks. north to position on 41st Parallel of 90th mile post west of 25th Meridian, and mark the point by planting a Norway pine post 8ft. long 6in. sq. 3ft. deep in the ground, duly inscribed, having a small piece of lime stone marked T at its base, a mound of earth raised 3ft. high around it, and pits dug each side on the line, as per contract.

No other objects for witnesses.
Magnetic declination 14° 19' 30" E.
Soil 2nd rate.

41st Parallel continued Westward.

ch.	lks.	
		Transit line Prolonged.
81	00	Offset 43 lks. north to the position on 41st Parallel of 91st mile post west of 25th Meridian, and mark the same by planting a post of Norway pine 8ft. long 6in. sq. duly inscribed, 3ft deep in the ground, a small piece of lime stone marked T being placed at its foot, a mound of earth raised 3ft. high around it, and pits dug each side on the line, as per contract.

No objects for witnesses.
Magnetic declination = 14° 22' 40" E.
Soil 3rd rate

41st Parallel continued Westward.

ch.		
		Transit line prolonged.
80	00	Offset 55 lks. north to the position on 41st Parallel of 92d mile post west of the 25th Meridian, and mark the same by planting a post of Norway pine 8ft. long 6in. sq. duly inscribed, three feet deep in the ground, a piece of limestone marked T at its base, a mound of Earth raised around it 3ft. high, & pits dug each side on the line, as per contract.
		No objects for witnesses.
		Magnetic declination 14° 11' 22" E.
		Surface rolling & soil 2d rate.

41st Parallel continued Westward.

ch.		
		Transit line prolonged.
80	00	Offset 71 lks. north to position on 41st Parallel of 93d mile post west of 25th Meridian, & mark the same by planting 3ft. deep in the ground, a post of Norway pine 8ft. long 6in. sq. duly inscribed, a small piece of lime stone marked + at its base, a mound ~~of~~ of Earth raised 3ft. high around it, & pits dug each side on the line, as per contract.
		No objects for witnesses.
		Magnetic declination 14° 18' 00" E.
		Surface nearly level.

41st Parallel Continued Westward.

ch.		Transit line prolonged.
82	00	Edge of Plateau.
80	00	Offset 87 lks. north to position on 41st Parallel of 94th mile post west of 25th Meridian, and mark the point by planting 3ft. deep in the ground, a norway pine post 8ft. long, 6 in. sq. duly inscribed, a piece of limestone marked + at its base, a mound of earth raised 3ft. high around it, and pits dug each side on the line, as per Contract. No other objects for witnesses. Magnetic declination 14° 24' 58" E. Surface nearly level.

41st Parallel Continued Westward.

ch.		Transit line prolonged ~~from 94th chain~~. Surface rolling.
80	00	Offset 106 lks. north to the position on 41st Parallel of 95th mile post west of the 25th Meridian, & mark the point by planting 3ft. deep in the ground, a norway pine post 8ft. long. 6in. sq. duly inscribed, a sound piece of limestone marked + placed at its foot, a mound raised 3ft. high around it, & pits dug each side on the line, as per Contract. No objects for witnesses. Magnetic declination 14° 24' 15" E. August 13th 1869

M. Chaffee.

Beginning at Bushnell Astronomical Station I determine the true Meridian by Observation of Star α Ursae Minoris at $21^h 53^m 20^{se}$ by Chronometer No 586. Correction $- 29^m 3^{se}.7$ Computed Azimuth of star = 1° 34′ 06″ E.

Thence I run south on a true Meridian 16 miles and mark the point.

I again observe α Ursae Minoris for true Meridian at the following times by Chronometer – $18^h 59^m 30^{se}$ + $19^h 7^m 00^{se}$ & compute Azimuth to be 1° 48′ 25″ + 1° 49′ 5″ E for the respective observations. Chronometer Correction = $- 29^m 2^{se}.0$ Thence I deduce Error of line from Bushnell to be 3′ 10″ W.

August 16th 1869.

O. McChaffee.

date?

41st Parallel continued Westward.

ch.	
	Transit line near 95th Mile Post prolonged.
80 00	Offset 126 lks. north to the position on 41st Parallel of 96th Mile Post west of 95th Meridian & mark the same by planting 3ft. deep in the ground, a wooden post 8ft. long 6 in. sq. duly inscribed, a small piece of lime stone at its base, a mound raised 3ft. high around it & pits dug each side on the line as per contract.
	No other witnesses. Soil 2d rate.
	Magnetic declination = 14° 25′ 00″ E.

Transit line 41st Parallel continued Westward.

ch	lks.	
		Transit line Prolonged.
22	62	Intersect meridian of Bushnell at 15m 69ch.94 South from the Astronomical station there.

Latitude Bushnell station = 41° 13' 54".4
Chained South 15m 69ch.94 = 13 48.2
Latitude of 41st Parallel from Bushnell Observations = 41° 00' 6".2

Transfer transit line to a tangent to the curve at Bushnell Meridian.

80	00	Offset 1 ch. north (and thence west) to the position on 41st Parallel of 97th mile post east of 25th Meridian, and mark the point by planting 3 ft. deep in the ground, a memory pine post 8 ft long 6 in sq. duly inscribed, a piece of limestone 10 in sq. marked T placed at its foot, a mound of earth raised 3 ft. high around it, and pits dug each side on the line, as per contract.

No objects for witnesses.
Magnetic declination = 14° 26' E.

41st Parallel continued Westward.

ch.	
	Transit line Prolonged.
80	00 Offset 3½ chs. north to the position on 41 Parallel of 98th mile Post east of 25th Meridian, & mark the same by planting 3 ft. deep in the ground a post of memory Pine 8 ft. long 6 in. sq. duly inscribed, a mound of earth raised 3 ft. high around it, a small piece of lime stone marked T at its base, & pits dug each side on the line, as per contract. No other witnesses.

Conspicuous Knoll S. 80° E.
Magnetic declination = 14° 25' 15" E.

41st Parallel continued Westward.

Ch.	Lks.	
		Transit line prolonged.
25	85	Conspicuous Knoll before noted S 82° 30' E. Surface nearly flat along line.
80	00	Offset 8. lks. north to the position on 41st Parallel of 99th mile Post west of 25th Meridian, & mark the point by planting 3ft. deep in the ground a post of norway pine, 8ft. long 6in. sq. duly inscribed, a piece of lime stone marked T at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract.

No other witnesses.

Magnetic declination = 14° 28' 15" E

41st Parallel continued Westward.

Ch.		
		Transit line prolonged.
		Surface slightly rolling.
80	00	Offset 14 lks. north to the position on 41st Parallel of 100th mile post west of 25th Meridian, and mark the same by planting 3ft. deep in the ground a norway pine post 8ft. long 6in. sq. duly inscribed, a piece of lime stone marked T placed at the foot, a mound of Earth raised 3ft. high around it, & pits dug each side on the line, as per instructions & contract.

No other witnesses.

Magnetic declination = 14° 23' 11" E.

Poor grass – Soil 2d or 3d rate.

41st Parallel continued Westward.

Ch.		
		Transit line prolonged.
80	00	Offset 22 links north to the position on 41st Parallel of 101st mile Post west of 25th Meridian, and mark the same by planting, 3ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a small piece of limestone marked T placed at its base, a mound of earth raised 3ft. high around it, and pits dug each side on the line, as per contract. Surface nearly level.
		No other witnesses.
		Magnetic declination = 14° 23' 29" E

41st Parallel continued Westward.

Ch.		
		Transit line prolonged.
60	00	Bottom of a hollow running N & S. Water in wet seasons.
80	00	Offset 31 lks. north to the position on 41st parallel of 102d mile post west of 25th Meridian, & mark the same by planting 3ft. deep in the ground, a norway pine post, 8ft. long 6in. sq. duly inscribed, a small piece of lime stone marked T at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract. No other witnesses.
		Magnetic declination 14° 25' 47" E

41st Parallel continued Westward.

ch.		
		Transit line prolonged.
		Surface slightly rolling.
80	00	Offset 43 lks. north to the position on 41st Parallel of 103d mile post west of 25th Meridian, and mark the same by planting three feet deep in the ground a Norway pine post 8ft. long 6in. sq. duly inscribed, a small piece of lime stone marked T placed at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract & instructions.
		No other witnesses.
		Magnetic declination 14° 35′ 4″ E.

41st Parallel continued Westward.

ch.		
		Transit line prolonged.
~~00~~	~~00~~	~~Bottom of Hollow N.E. & S.W.~~
80	00	Offset 55 lks. north to the position on 41st Parallel of 104th mile post west of 25th Meridian, & mark the same by planting 3ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a small piece of limestone marked T being placed at its foot, a mound of earth raised 3ft. high around it, and pits dug Each side on the line as per contract & instructions. Surface rolling.
		A point of rock N 40° 31′ E. 8 chains.
		No other witnesses.
		Magnetic declination. 14° 34′ 22″ E.

41st Parallel continued Westward.

Ch.		
		Transit line prolonged.
58	00	Bottom of Hollow N.E. & S.W.
72	07	27th Meridian west of Washington.

Longitude of Burhnell west of Washington as determined by telegraphic connection with Omaha Coast Survey Station = 26° 50′ 6″.15

Burhnell E. of 27th Meridian 9′ 53″.85

The same reduced to miles = 8m 49ch.45

Burhnell Merid. West of 25th Meridian, by chain = 96m 22ch.62

Position of 27th Meridian = 104m 72ch.07

Offset 64 lks. north and mark the intersection of 27th meridian west of Washington with the 41st Parallel N. Latitude by erecting a lime stone monument 6 ft. long and 1 ft. square facing to the cardinal points of the compass, and inscribed as follows. On the side facing north "27° N.L."; on that facing East "104 miles 72 ch. 07 lks." On that facing S. "Colorado", on that facing West "41° N.L."

The same is planted two feet deep in

the ground, and surrounded by a mound of stone 7 ft. in diameter at the base, 5 ft. in diameter at the top, and 3 ft. high. It stands in a slight depression in the surface, with a small hollow extending E. & West along the south side, distant 2 chains, and is not visible at any great distance in any direction. No objects for witnesses.

Soil 2d rate: grass scanty.

Magnetic declination = 15° 00′ 00″ E.

August 17th 1869.

O. N. Chaffee.

For determination of true Meridian S observe α Ursae Minoris, at 22h 18m 15ss by Chronometer Bond & Son 386. Correction − 29m 30ss & compute Azimuth of star = 1°26′.52″ E.

On Line of 27th Meridian.

ch	ch.	Transit line running North.
		Beginning at stone monument at the intersection of 27th Meridian & 41st Parallel I proceed on a true Meridian north
27	44	A high & conspicuous rocky bluff bears:
		N.W. Extremity S.52° 51' W.
		S.E. do S.50° 20' W.
80	00	Position of 1st Mile Post north of 41st Parallel, marked by a Norway pine post 8ft. long 6in. sq. duly inscribed, on the N. side "27° W.L." on the E. side "Nebraska", on the S. side "1 mile", on the W. side "Wyoming"; at the foot is placed a piece of lime stone marked T, a mound of earth raised 3ft. high around it, and pits dug each side on the line, as per contract.
		No objects for witnesses.
		Magnetic declination 15° 2' E.

27th Meridian continued North.

ch.		
38	22	Make the following observations.
		Pine Tree No 1. 262° 15' Rocky Bluff
		do 2. 267 29 noted before appears
		do 3. 272 ~~27~~ 22 between 1st & 2nd tree.
		do 4. 283 47
		do 5. 288 18
54	22	Observe as follows, A tree 254° 4'
		Another 255° 27' Tree No 1 above 254° 53'
		Bluff 259° 42' Tree No 2. above 262° 48'
		Tree, No 3. above. 267° 33' No 4. 278° 5'
80	00	Position of 2nd mile Post north of 41st Parallel; mark the same by erecting a post of Norway pine, duly inscribed, 8ft long 6in. sq. with a piece of limestone marked T at its base, a mound of earth raised 3ft. high around it, & pits dug each side on the line as per contract.
		No objects for witnesses.
		Magnetic declination = 15° 3' 40" E.

27th Meridian continued North.

Ch	Lks	
17	10	Bluff noted at 1m 38.22 ch reads 248° 50' Surface rolling.
80	00	Place 3rd mile post north of 45th parallel of Norway Pine 8ft. long 6in. sq. duly inscribed, 3ft. deep in the ground, a small piece of lime stone marked T at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract.

No objects for Witnesses.
Magnetic declination = 15° 01' E.
Soil 3rd rate.

27th Meridian continued North.

Ch	Lks	
24	00	Ravine at bottom of hollow N. 25° E.
80	00	Mark the position of 4th Mile Post north of 41st Parallel, by planting a cedar post 8ft. long 6in. sq. duly inscribed, 3ft. deep in the ground, a piece of limestone marked T at its base, a mound of earth raised 3ft high around it, & pits dug each side on the line, as per contract & instructions.

No objects for witnesses.
Magnetic declination = 15° 10' E.
Soil 3rd rate.

27th Meridian continued North.

Ch.		
		Surface rolling. Nothing of interest to note.
80	00	Mark the position of 5th Mile Post north of 41st Parallel by planting 3 feet deep in the ground a norway pine post 8ft. long 6in. sq. duly inscribed, a piece of lime stone marked T placed at its foot, a mound of earth raised three feet high around it, & pits dug each side on the line as per contract.
		No objects for Witnesses.
		Magnetic declination = 15° 9' 20" E.
		Soil 3rd quality. Surface nearly flat.

27th Meridian Continued North.

Ch		
49	76	A grove of trees S. 18° 25' W.
80	00	Mark the position of 6th mile post north of 41st Parallel by planting three feet deep in the ground a norway pine post 8ft. long 6in. sq. duly inscribed, a piece of limestone marked T at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per instructions & contract. No other witnesses.
		Magnetic declination = 15° 15' 00" E.

27th Meridian continued North.

80	00	Mark the position of 7th mile post north of 41st Parallel by planting, three feet deep in the ground, a norway pine post 8ft. long 6in. sq. duly inscribed, a small piece of lime stone placed at its base & marked T, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract instructions
		No objects for witnesses.
		Magnetic declination 15° 16' E.

27th Meridian continued North.

I observed star α Ursae Minoris with improved Würdemann Transit Theodolite No 126. and Bond & Son Sidereal Chronometer No. 386. Correction −29m 26.0s at 19h 40m 00s for true Meridian, and compute azimuth of star to be 1° 49' 6" E whence I deduce error of line to be 3' 00" W. of N.

August 18th 1869.

O. N. Chaffee.

27th Meridian continued north, from the observation of last night.

80 00 Mark the position of 8th mile post north of 41st Parallel by planting in the ground 3ft. deep, a norway pine post 8ft. long 6in. sq. duly inscribed, a piece of limestone marked T at its base, a mound of Earth raised 3ft. high around it, & pits dug each side on the line, as per contract.

No objects for Witnesses.

Magnetic declination 15° 18' E.

27th Meridian continued north.

69 00 Point of rocky bluff. sandstone capped with limestone.

74 00 Dry creek. descends East

80 00 Position of 9th mile post north of 41st Parallel marked by planting 3ft. deep in the ground a norway pine post 8ft. long 6in. sq. duly inscribed, a small piece of limestone marked T placed at its base. a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract & instructions.

Surface much broken. Soil poor. No witness objects.

Magnetic declination 15° 14' E.

27th Meridian Continued North.

ch.		Surface not so much broken.
80	00	Portion of 10th mile post north of 41st parallel marked by planting 3 ft deep in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a piece of limestone marked T placed at its base, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract.
		Post stands on a considerable ridge trending N. 45° E.
		No witness objects.
		Magnetic declination 15° 4' E.

27th Meridian Continued North.

ch.		Surface much broken.
~~80~~ # 63.18	00	Portion of 11th mile post north of 41st parallel marked by planting a Norway pine post 8 ft long 6 in. sq. 3 ft deep in the ground, duly inscribed, a piece of limestone marked T planted at its base, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract & instructions.
		Post stands in a valley running N 35° E.
		No witness objects
		Magnetic Variation = 15° 00' 00" E.

63.18 Chains as found by remeasurement of Geo. W. Daugherty, Dep Sur. in the Subdivision of T. 14 N. R. 59 W. in 1871.

27th Meridian continued North.

Ch.	
	Surface irregularly broken.
80 00	Position of 12th Mile Post north of 41st Parallel Marked by planting 3 ft. deep in the ground, a norway pine post 7 ft. long 6 in. sq. duly inscribed, a piece of lime stone marked T placed at its foot, a mound raised 3 ft. high around it, & pits dug each side on the line, as per contract.
	Soil worthless. No witness objects.
	Magnetic declination 15° 00' 00" E.

27th Meridian continued North.

Ch.	
	Broken Bluffs.
32 00	Lodge Pole Creek Bottom. Bears East
78 84	Centre of U.P.R.R. track N. 82° 00' E.
80 00	Position of 13th Mile post north of 41st Parallel marked by planting 3 ft. deep in the ground a norway pine post 8 7 ft. long 6 in. sq. duly inscribed a piece of limestone marked T at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract & instructions. Soil sandy & but little vegetation at & near post. No objects for witnesses.
	Magnetic declination 15° 7' E.
	Aug. 19th 1869.
	O. M. Shoffel.

27th Meridian Continued North.

Compare field chains with standard, Correction to Gunters chain & correction to Engineers chain

ch.	lks	
52	70	Intersect Lodge pole creek. runs S.E
57	00	Lodge Pole Creek runs S.W.
62	00	Recross Pole creek. runs S.E.
80	00	Position of 14th mile post north of 41st Parallel marked by planting 3ft. deep in the ground, a norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sand stone marked T at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line as per contract.

No objects for witnesses.

Magnetic Declination - 15° 7' E.

27th Meridian Continued North.

80 00 Position of 15th mile post north of 41st Parallel marked by planting 3ft. deep in the ground, a norway pine post 8ft. long 6in. sq. duly inscribed, a small piece of lime stone marked T placed at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract. Bold point of Bluffs S.W. of Pine Bluffs Station S 24° 15' W. U.P.R.R. Depot S 18° 50' W. No witnesses.

Magnetic declination 15° 04' E.

27th Meridian continued North.

ch		
48	00	Enter top of abrupt Bluffs, (Above Lodge Pole Cr. bottom) bearing E & W. Depot U.P.R.R. S 15° 01' W. Point of Bluffs S.W. of station S 20° 39' W. Bluffs much broken, in some cases over-hanging.
80	00	Position of 16th mile post north of 41st Parallel marked by planting 3ft deep in the ground, a norway pine post 8ft. long 6in. sq. duly inscribed, a small piece of limestone marked T placed at its foot. a mound of earth & stone raised three feet high around it, & pits dug each side on the line, as per contract.

Soil worthless - barren knolls.

No witness objects.

Magnetic declination 15° 8' E.

27th Meridian continued North.

80 00 Position of 17th mile post north of 44th Parallel marked by planting, 3 feet deep in the ground, a hemlock post 8ft. long 6in. sq. duly inscribed, a piece of lime stone marked T at its foot, a mound of earth & stone raised 3ft. high around it, & pits dug each side on the line, as per contract.

Soil gravelly & stony - worthless.

No objects for witnesses.

Magnetic declination 15° 5' E.

27th Meridian continued north.

2 00 Bottom of a valley.

19 00 Do Do

52 60 S. side of a high Bluff bearing N. 70° W.

56 00 N. Do of sand.

At 52.60 noted as follows. Point of Bluffs before noted S. W. of Pine Bluffs Station, bears S 13° 22' W.

Second point of Bluffs S 17° 11' W

80 00 Bluff noted above W. End S. 23° W.

Do Do E. " S 16° 53' E.

27th Meridian continued north.

A valley running from port S. 61° E.

Position of 18th mile post north of the 44th Parallel, marked by planting 3 ft. deep in the ground, a hemlock post 8ft. long 6in. sq. duly inscribed, a piece of lime stone marked T placed at its base, a mound of earth & stone raised 3ft. high around it, & pits dug each side on the line, as per contract. Stone very soft & friable, useless. Soil worthless.

No other witness objects.

Magnetic declination 15° 7' E.

27th Meridian Continued Northward.

ch.	
	Surface rolling.
80 00	Position of 19th Mile Post north of 41st Parallel marked by planting 3 ft deep in the ground, a norway pine post 8ft. long 6in. sq. duly inscribed, a piece of limestone marked T at its base, a mound of earth raised 3ft. high around it, & pits dug each side on the line as per contract. Post on high & nearly flat ground. 2nd Point of Bluffs noted at 15m 48.ch bears S. 15° 27' W.
	Edge of hollow north 7.25 ch.
	No other witnesses.
	Magnetic declination 15° 01' E.

27th Meridian Continued North.

ch	lks.	
7	25	Enter descent into a valley 2 miles wide.
80	00	Position of 20th Mile post north of 41st Parallel marked by planting 2ft. deep in the ground, a post of norway pine 8ft. long 6in. sq. duly inscribed, a piece of limestone marked T placed at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract.
		No witness objects.
		Magnetic declination 15° 7' E.

27th Meridian continued North.

ch		
3	00	Gulley - Water about 5 ch. East.
32	00	5 ch. west a pool of water.
80	00	Position of 21st Mile post north of 41st Parallel marked by planting 3 ft. deep in the ground, a Norway pine post, 8 ft. long 6 in. sq. duly inscribed, a piece of limestone marked T placed at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract.

Soil about 2d quality.
No witness object.
Magnetic declination 15° 6' E.
August 21st 1869.

O. M. Chaffee.

27th Meridian continued north.

ch		
2	50	A dry stony creek bed 15 lks. wide - Surface rolling.
80	00	Position of 22d Mile post north of 41st Parallel marked by planting, 3 ft. deep in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a small piece of lime stone placed at its base & marked T, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract and instructions. No other witnesses.

Magnetic declination 15° 5' E.

27th Meridian continued North.

Surface slightly rolling. no objects of interest along the line.

80 00 Position of 28th Mile Post North of 41st Parallel marked by planting, 3ft deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a small piece of limestone marked T placed at its foot, a mound of earth raised 3ft. around it, & pits dug each side on the line, as per contract.

No other witnesses.

Magnetic declination 15° 5' E.

27th Meridian continued North.

80 00 Position of 24th mile post north of 41st Parallel marked by planting 3ft deep in the ground, a Norway pine post 8ft. long. 6in. sq. duly inscribed, a piece of limestone marked T placed at its foot, a mound of earth raised 3ft high around it, & pits dug each side on the line, as per contract.

No objects for witnesses.

Soil at post very good.

Magnetic declination 15° 17' E.

27th Meridian continued north.

ch. Surface considerably rolling.

38 00 Cross dry creek. descends East

80 00 Position of 25th Milepost north of 41st Parallel marked by planting 3ft. deep in the ground, a Norway pine post 8ft long 6in sq. duly inscribed, a piece of limestone marked T placed at its base, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract. Surface nearly level.

No witness objects.

Soil good. Mag. dec. = 15° 27' E.

27th Meridian continued North.

80 00 Position of 26th mile Post North of 41st Parallel marked by planting 3ft. deep in the ground, a spruce post 8ft. long 6in sq. duly inscribed, a piece of lime stone marked T at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract. Soil good.

No witness objects.

Magnetic declination 15° 27' 00" E.

27th Meridian Continued North.

Ch.	lks.	
		Surface considerably rolling.
80	00	Position of 27th Milepost north of 41st parallel marked by planting, 3ft. deep in the ground, a Norway pine post, 8ft. long 6in. sq. duly inscribed, a piece of limestone marked T at its foot, a mound of earth raised 3ft. high around it, & pits dug each side, on the line, as per contract. No other witnesses.
		Soil good & grass abundant.
		Magnetic declination 15° 37' E.

27th Meridian Continued North.

38	50	Dry Creek bears N.N.W.
60	76	Hill No. 1. bears N 34° 10' E.
		Do 2 " N. 60 42 E.
80	00	Position of 28th Milepost North of 41st Parallel marked by planting 3ft. deep in the ground a post of Norway pine 8ft. long 6in. sq. duly inscribed, a piece of limestone marked T at its foot, a mound of earth raised 3ft. high around it. and pits dug each side, on the line as per Contract. No objects for witnessed
		Magnetic declination 15° 49' 40" E
		Aug. 20th 1869. C. N. Chaffee.

27th Meridian Continued North.

Ch.		
19	78	Hill No. 1, before noted, bears S 81° 5' E.
		Do 2 " " S 71 21 E.
71	00	Creek bed – Water in Pools East of line.
80	00	Position of 29th milepost north of the 41st Parallel marked by planting 3ft. deep in the ground, a Spruce post 8ft. long 6in sq. duly inscribed, a piece of limestone 10in. sq. 1½ thick marked T placed at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract. No witness objects.
		Magnetic declination 15° 49' 40" E.

27th Meridian Continued North.

80	00	Position of 30th Milepost North of 41st Parallel marked by planting 3ft. deep in the ground a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of limestone marked T placed at its base, a mound of earth ~~placed at its base~~ raised around three ft. high, and pits dug each side on the line as per contract.
		Post on the south side of a knoll rising 50' above the general surface bearing N. 71° 21' W. & ¼ of a mile long. No witnesses
		Magnetic declination 15° 45' 20" E.

27th Meridian continued North.

Ch.		
2	27	Top of small knoll bearing N 71° 20' W
42	50	A small Hill bears East.
		2d do do S. 52° 30' E.
		3d do do N. 52 44 W.
69	39	Small hill above S 70° 15' E.
		2d do do S 37 28 E
		3d do do N 66 57 W.
80	00	Position of 31st Mile post north of 41st Parallel marked by planting 3ft. deep in the ground, a hemlock post, 8ft. long 6in. sq. duly inscribed, a piece of lime stone marked T at its base, a mound of earth raised 3ft. high around it, & pits dug each side on the line as per contract. Surface near post nearly flat, but broken into hills & ridges from 1 to 2 miles in all directions. Soil good.

No objects for Witnesses.

Magnetic declination 15° 44' 20" E

27th Meridian continues north.

Ch.		Surface level.
12	19	Hill No 1. bears S 55° 52' E elevation 4'
		do 2 " S 29 37 E " 5
		do 3 " N 80 00 W. " 45
80	00	Position of 32d mile post north of the 41st Parallel marked by planting 3ft deep in the ground, a norway pine post 8ft. long 6in. sq. duly inscribed, a piece of limestone marked T placed at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract.

Soil appears to be good.

No objects for witnesses.

Magnetic declination 15° 54' 50" E

27th Meridian Continued Westward.

Ch	Lks	
8	33	Hill no 4. bears N 51° 48' W. Elevation 4° 15'
35	06	A tree bears N. 59° 16' W.
80	00	Position of 33rd Mile Post north of 41st Parallel marked by planting 3 ft deep in the ground, a hemlock post 8 ft. long 6 in. sq. duly inscribed, a small piece of limestone marked T at its base, a mound of earth raised 3 ft. high around it, & pits dug each each side on the line as per contract.

No objects for Witness.

Magnetic declination 15° 56' E.

Soil pretty good

27th Meridian Continued North.

Ch.		
46	94	Top of ridge running N. 50° W.
		S.W. Extremity of Bluff N 33° 20' W.
		Second tree N 41 40 W.
80	00	Position of 34th Mile Post North of 41st Parallel marked by planting 3 ft. deep in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed; a piece of limestone marked T at its base, a mound of earth raised 3 ft. high around it, & pits dug each side on the line as per contract & instructions.

No objects for Witness.

Magnetic declination 16° 00' 10" E.

27th Meridian Continued North.

Ch.	
	Surface nearly level.
80 00	Position of 35th Milepost north of the 41st Parallel marked by planting 3 ft. deep in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a piece of limestone marked J placed at its base, a mound raised 3 ft high around it, & pits dug each side on line, as per contract.
	Ground high at post, sloping in all directions but the West, Scattering trees towards the west, distant 1 & 2 miles. No objects for witnesses.
	Magnetic meridian 15° 51' 40" E.

27th Meridian Continued North.

Ch.	Lks.	
0	74	Bluff noted at 33m 46.96ch bears N. 50° 36' W. A rocky bluff with scattering trees, bears S.E. end, N. 68° 31' E. N.W. end, N 58° 36' E. This bluff distant probably 2½ miles. A commanding Bluff, distant 8 or 10 miles bears S 81° 25' W.
72	00	A deep ravine – rocky & precipitous sides.
80	00	Position of 36th Milepost north of 41st Parallel marked by planting 3 ft. deep in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed. a mound of earth placed around it 3 ft high, and pits dug each side on the line, as per contract.
		Witness. A Norway Pine N. 15 W. dist. 90 ft.
		A Pitch pine N. 50 W. " 96 "
		Magnetic declination 16° 00' 00" E.
		A rocky & precipitous Canyon 50 ft. deep begins about 100 feet West of line and extends in a westerly direction.

27th Meridian Continued Northward.

Ch	Lk	
1	25	A deep ravine.
21	50	A deep ravine
33	00	End of a ravine about 1½ ch. distant on west side of line which extends to 21.50 & all unite near 36th Post.
66	05	Hill bears S. 82° 38' W.
		do " S 70 00 E.
		S.E. end of bluff noted at 35m 00ch.74 S 87° 30' E.
		W.N.W. do do do
80	00	Position of 37th mile post north of 41st parallel marked by planting 3 ft deep in the ground, a wooden pine post 8 ft. long 6 in. sq. duly inscribed, a piece of limestone marked T placed at its base, a mound raised 3 ft. high around it, and pits dug each side, as the line, as per contract. No other witness.
		Magnetic declination = 16° 4' E.

27th Meridian Continued North.

Ch	Lk	
4	45	Hill No. 1. Noted at 37m 66ch.05 bears S 52° E
		do 2 " S. 87° 50' W.
39	75	A Group of trees bears N. 79° 45' E.
		A knoll S. 28 00 E.
		do 2d N. 22 30 W.
60	50	Same group noted above S 88° 20' E.
		Another group S 72° E.
80	00	Position of 38th mile post north of 41st Parallel marked by planting 3 ft. deep in the ground, a wooden pine post 8 ft. long 6 in. sq. duly inscribed, a piece of limestone marked T placed at its base, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract. No other witnesses.
		Magnetic declination 16° 16' 40" E.
		Soil sandy loam - appears good

27th Meridian Continued North.

ch	lks.	
5	38	Group of trees S. 61° 52' E.
		Bluff. N 25 26 W.
16	46	Rocky bluff, quite near N. 22° 48' W.
		Do distant N 25 42 W.
37	25	Near bluff, above N. 32° 23' W.
		do other side canyon N. 44 35 W.
		Distant do, not above N 51 50 W.
73	00	Edge of Bluffs, consisting of very soft sandstone, rapidly disintegrating by action of elements.
80	00	Position of 39th mile post north of 41 Parallel marked by planting on the solid rock, a norway pine post 8ft. long 6in. sq. duly inscribed, and a mound of rock raised around it. No pits dug. Surface solid rock. Post stands in a short canyon 100 ft deep & facing North. Witnessed by A norway pine 15" diam. S 73° 3' E 92 lks.
		Do Do 15" Do N 44° 13' E 63 "
		A few stunted norway pine & red cedar trees among the bluffs.
		Magnetic declination 16° 02' E.
		August 24th 1869. O. N. Chaffee.

27th Meridian Continued North.

I observed Star α Ursa Minoris, with transit theodolite for true meridian at 19h 04m 24.5 sec and 19h 15m 40 sec. ~~& compute~~ by sidereal Chronometer No. 386. (Correction) − 29m 32.95 & compute azimuth of star to be from 1st observation 1° 49' 42" E. & from second 1° 50' 36" E whence I deduce error of line to be 4' 00" W.

Aug. 24th 1869.

On the new meridian from Observation I proceed north.

ch		
10	00	Pass out of canyon to irregular plain.
80	00	Position of 40th mile post north of 41st Parallel, marked by planting in the ground, a norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sand stone marked T being placed at its foot, a mound of sand raised 3½ ft. high around it, & pits dug each side on the line, as per contract.
		No objects for witnesses.
		Magnetic declination 15° 53' 40" E.

27th Meridian continued North.

Ch.		
5	00	Bold Bluff No 1. N. 31° 55' W.
		Do N 28 15 E.
		Peak No 1. N 69 40 E.
29	20	N.E. End of bluff, near, N. 58° 48' W.
		Laramie Peak N. 56° 00' W
60	00	Bottom ground.
74	00	Rock No 1. S 63° 35' W.
		Do No 2. S 60 16 W.
80	00	Position of 41st Mile Post North of 41st Parallel marked by planting 3 feet deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T at its base & mound of earth & sand raised 3ft. high around it, & pits dug each side on the line, as per contract. No objects for witnesses.
		Mag. declination 16° 00' 00" E.
		Soil worthless.

27th Meridian continued North.

Ch.		
30	15	Rock No 1. noted at 40.m 74.ch S 39° 34' W.
		Do 2 Do S 44 36 W.
48	25	Peak No 1. N 74° 25' E
		Do 2. S 54 10 W.
		Bold Bluff No 1. noted at 40.m 05.ch N. 36° 10' W.
		Do 2 Do N 27 10 E.
		Conspicuous Bluffs,
		South End N. 72° 28' W.
		North " N 63 29 W.
80	00	Position of 42nd mile Post north of 41st Parallel marked by planting 3 feet in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T at its base, a mound of sandy earth raised around it, & pits dug each side on the line as per contract & instructions. No other witness
		Magnetic declination 15° 46' E.

27th Meridian Continued North.

Ch.

Surface slightly rolling.

80 00 Position of 43d mile post north of 41st Parallel marked by planting 3 feet deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sand stone marked T at its base, a mound of earth raised 3ft. high around it, & pits dug each side on the line as per contract. Soil sandy.

No objects for witnesses.

Mag. Decn 15° 48′ 20″ E.

27th Meridian Continued North.

Ch.

28 45 Observed Elevation of Bluffs where 27th Meridian intersects on S. side of valley.

1st Vernier 1° 37′ 30″ 2d Vernier 1° 11′ 00″

Mean Elevation 1° 24′ 15″ dist. 4.43 miles

Computed Elevation = 535 ft.

80 00 Position of 44th Mile post north of 41st Parallel marked by planting 3ft deep in the ground, a hemlock post 8ft. long 6in. sq. duly inscribed, a piece of sand stone marked T placed at its foot, a mound of sandy earth raised around it, and pits dug each side on the line, as per contract.

Soil of poor quality.

Magnetic declination 15° 38′ E.

27th Meridian continued North

ch	lks		
14	20	Bluff	No. 33° 45' E.
		Peak No. 1.	N. 82 55 E.
		do 2.	S 46 41 W.
		Bold bluff noted at 41m 48.25 ch	
		E. end	N. 84° 58' W.
		W do	N 74 45 W.
		Bluff No 1.	N 50 14 W.
80	00	Position of 45th ~~Meridian~~ Mile Post N. of 41st Parallel marked by planting 3ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T at its base, a mound of Earth raised 3ft. high around it, & pits dug Each side on the line, as per contract.	

No objects for Witnesses.

Mag. Decn 15° 49' 20" E.

Surface near post flat, soil 2d quality

27th Meridian continued North.

ch		
76	50	A ravine. dry creek, bears N. 45. W. descends S. E.
80		Position of 46th Milepost north of 41st Parallel marked by planting 3ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, an mound of earth raised 3ft. high around it, & pits dug Each side on the line as per contract. Soil apparently good.

No objects for witnesses.

Magnetic declination 15° 46' E.

27th Meridian continued North.

32	00	Tall rock resembling a chimney N 72° 52' E.
		Another Rock S 87 00 E.
70	16	A point of Rock 640 ft. dist Vertical L = 3° 50'
80	00	Position of 47th mile post marked by placing the post of Norway Pine 8ft long 6in. sq. duly inscribed in a mound of stone 3ft. high, without any pits being dug: the surface being solid rock. A Sandstone ridge 12ft. thick & 10 ft. high crosses the line E & W. at 54 lks. south of post. No other witnesses.

Magnetic Declination 15° 44' E.

27th Meridian Continued North.

I observe star & Ursae Minoris for True meridian as follows.

By sid. chronometer Bond & Son 384. Chronom Correction = − 29m 30.ve at 18h 19m 50.ve + 18h 23m 35.ve and Compute Azimuths to be for these observations respectively 1° 43' 58" E and 1° 44' 34" E. Whence I determine error of line to be 4' 00" W. of N.
August 25th 1869.
Continue 27th Meridian from observations.
Surface much broken by hills & ravines.

80 00 Position of 48th mile post North of 41st Parallel marked by planting 3 feet deep in the ground, a hemlock post 8ft. long 6in. sq. duly inscribed, a piece of sand stone marked T at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract.

No objects for witnesses.

Magnetic Declination 15° 46' E.

27th Meridian Continued North.

Ch. Surface very uneven.

20 00 Ridge bearing S. 75° E.

22 84 Closing Cor to Secs 18 & 19 – T. 30 N. R. 58 W. S.W. Cor of Scott Bluff Co.

56 00 Do Do

A conspicuous Rock N. 52° 40' E.

80 00 Position of 49th Milepost north of 41st parallel marked by planting 3ft deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sand stone marked T at its base, a mound of sand & sandstone raised 3ft. high around it, and pits dug each side on the line as per contract. No witness objects.

Magnetic declination 15° 29' E.

27th Meridian Continued North.

Ch.		
15	40	A conspicuous rock standing on line.
33	40	A conspicuous rock, noted before, S. 72° 40' E.
54	00	"Towering" Rock N. 82° 30' W.
		Rock bluff N. 26° 25' E.
62	00	A high conical hill covered with pieces of sandstone. Make a mound of stone where line crosses.
80	00	Position of 50th Mile Post north of 41st Parallel, marked by planting a post of Norway pine 8 ft long 6 in. sq. duly inscribed, a mound of earth raised 3 ft. high around it, & pits dug each side on the line as per contract.

No objects for witness.

Magnetic declination 15° 30' E.

27th Meridian Continued North.

Ch	Lk.	
0	42	A high bold ledge of rock N. 20° 23' W.
38	77	The same rocks N. 83 10 W.
		Surface rapidly descending from 50th Mile Post.
80	00	Position of 51st Mile Post North of 41st Parallel marked by planting 3 ft. deep in the ground a Norway pine Post, 8 ft. long 6 in. sq. duly inscribed, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract.

A bold rock named "Pinnacle Rock" from a sharp stone pinnacle on N. side bears S. 78° 45' W.

A bold Bluff bears N. 37° 50' E.

Magnetic declination 15° 40' E.

27th Meridian Continued North.

Surface slightly undulating.

78 40 Bold Bluff bears N. 54° 52' E.
Pinnacle Rock S. 59° 33' W.

80 00 Position of 52nd mile post north of 41st Parallel marked by planting 3ft. deep in the ground, a norway pine post 8ft. long 6in sq. duly inscribed, a piece of sandstone marked T placed at its base, a mound of Earth raised 3ft. high around it, & pits dug Each side on the line, as per contract. No witness objects.

Mag. Dec.n 15° 41' E.

27th Meridian continued North.

ch. Surface slightly undulating.

34 00 Ravine - S. Edge - 35 ft. deep.

36 92 N. Edge Ravine.

80 00 Position of 53rd Mile Post N. of 41st Parallel marked by planting 3ft. deep in the ground a post of Norway pine 8ft. long 6in. sq. duly inscribed, a mound of Earth raised 3. ft. high around it, a piece of sand stone marked T at its base, & pits dug Each side on the line, as per contract.

No witness objects near.

Magnetic declination 15° 47' E.

27th Meridian continued North.

3 17 Bold bluff noted before S. 89° 17' E.
Vertical Rock and S. 89 08 W.
Laramie Peak (?) N. 63 46 W.

80 00 Position of 54th mile post north of 41st Parallel marked by planting 3ft. deep in the ground, a pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T at its foot, a mound of Earth raised three feet high around it, & pits dug Each side on the line, as per contract.

No other witnesses.

Magnetic Declination 15° 54' 00" E.

27th Meridian Continued North.

Ch.		
		Surface nearly level.
80	00	Bluff – named Hat Bluff – S. 39° 6' E.
		Vertical wall S 46 15 W.
		Position of 55th Mile Post north of 41st Parallel marked by planting 3 ft dup in the ground, a Norway Pine Post 8 ft. long 6 in. sq. duly inscribed, a piece of Sandstone marked T at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract.
		No other witnesses.
		Magnetic declination 15° 56' 30" E.

27th Meridian Continued North.

Ch.		
		Surface rolling.
80	00	Position of 56th Mile Post north of 41st Parallel marked by planting 3 ft. dup in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a piece of sand stone marked T placed at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract.
		No objects for witnesses.
		A pool of water about 3/4 of a mile East of line.
		Magnetic declination 16° 4' 20" E.
		August 25th 1869. O. N. Chaffee.
80	00	27th Meridian Continued. Position of 57. mile post north of 41st Parallel marked by planting 3 ft. dup in the ground, a Norway pine post, 8 ft. long 6 in. sq. duly inscribed, a piece of sand stone marked T placed at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract. No other witnesses.
		Magnetic declination 16° 11' 40" E.

27th Meridian Continued North.

Ch.			
4	96	"Hat" Bluff.	S. 21° 50' E.
		Vertical Wall	S 36 50 W.
		Mound-like Bluff	N 58° 00 W.
41	30	Laramie Peak (?)	N 66 44 W.
		Mound-like bluff (as above)	N 65 23 W.
		Bluff no 1.	N 13 58 W.
		Surface considerably rolling.	
80	00	Position of 58th mile port north of 41st Parallel marked by planting 3 ft. deep in the ground, a hemlock post 8 ft. long bin. sq. duly inscribed, a piece of lime or sandstone marked T at its base, mound of Earth raised 3 ft. high around it, & pits dug each side on the line, as per contract & instructions. No witness objects.	

Magnetic decn = 15° 58' 20" E.

Soil poor – grass very scanty –

27th Meridian Continued North.

Ch.			
		Surface nearly flat.	
80	00	Position of 59th Mile Rat north of 41st Parallel marked by planting 3 ft. deep in the ground, a Norway pine post 8 ft. long bin. sq. duly inscribed, a piece of sandstone marked T placed at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line as per contract. No other witnesses.	

Magnetic declination 16° 2' E.

27th Meridian Continued North.

Surface nearly flat.

42	59	Bluff near line	N. 55° 48' W.
		Lof elevation	2° 12'
80	00	Position of 60th mile port north of 41st Parallel marked by planting 3 ft. deep in the ground, a Norway pine post 8 ft. long bin. sq. duly inscribed, a piece of sand stone, marked T at its foot, a mound of Earth raised 3 ft. high around it, & pits dug each side on the line, as per contract. No other witnesses.	

Magnetic declination = 15° 58' E.

27th Meridian Continued North.

		Surface gently rolling.
5	00	Bluff (notes on last mile) S 89° 45' W.
5	75	A prominent Bluff S. 78 40 E.
80	00	Position of 61st Milepost north of the 41st Parallel marked by planting 3 ft. deep in the ground, a Hemlock post 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked I placed at its foot, a mound of clay raised 3 ft. high around it & pits dug each side on the line, as per contract. No witness objects.
		Magnetic Decn 16° 2' E.
		Soil poor – mostly clay – water in many spots,

27th Meridian Continued North.

		Surface nearly flat.
80	00	Position of 62nd Milepost north of 41st Parallel marked by planting 3 ft. deep in the ground a Norway Pine post, 8 ft. long 6 in. sq. duly inscribed, a piece of ~~sandstone marked I~~ moss agate at its base, a mound of Earth raised 3 ft. high around it, and pits dug each side on the line, as per contract. No witness objects.
		Magnetic Decn 16° 2' 30" E.

27th Meridian Continued North.

Surface somewhat higher.

80 00 Position of 63rd Milepost north of the 41st Parallel marked by planting 3 ft. deep in the ground, a Hemlock post 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked I at its foot, a mound of Earth raised 3 ft. high around it & pits dug each side on the line, as per contract. No witness objects.

Magnetic Decn 16° 4' 00" E.

27th Meridian Continued North.

ch.	lks.	
00	42	A tree on Horse Cr. N 87° 55' E.
		N.W. Corner of prominent Bluff S. 68° 00 E.
		S.E. do do S 60 20 E.
40	00	Middle of Horse Creek 40 lks wide.
		Alkali water; general direction E & W.
		Narrow Bottom land on N. side 8 ch wide.
49	87	Tree (above) Horse Creek S. 73° 52' E.
80	00	Position of 64th Mile Post north of 41st Parallel marked by planting 3ft. deep in the ground a Hemlock post 8ft. long 6in sq. duly inscribed, a piece of sandstone marked T placed at its foot. Cannot raised a mound of prescribed dimensions – the post stands in an alkali mud hole, and the materials fall down as fast as they are piled up.
		No witnesses
		Magnetic Decn 16° 2' E.

27th Meridian continued North.

ch.		
		Surface flat & gradually rising to the north. Land of poor quality.
9	73	Bluff west of line N. 86° 00' W.
80	00	Position of 65th Mile post north of 41st parallel marked by planting 3ft. deep in the ground a Norway pine post, 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T at its foot, a mound of Earth raised 3ft. high around it, & pits dug each side on the line as per contract. No witness objects. Mag. Decn 16° 00' 00" E.
		27th Meridian continued North.
47	30	Top of divide between Horse Cr. & N. Platte R.
		Tree on Platte R. N. 86° 40' E.
		Bluff & trees N 25 53 W.
72	00	Descend to Platte Bottoms.
80	00	Position of 66th Mile post north of 41st Parallel marked by planting 3ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of red sandstone marked T at its base, a mound of Earth raised 3 ft. high around it, & pits dug each side on the line as per contract. No witness objects.
		Magnetic declination 16° 2' 00" E.

27th Meridian Continued North.

Ch.		
8	00	Enter Platte Bottoms.
17	44	Tree on Platte R. noted above N. 96° 50' E.
		Bluff do do N 34 14 W.
		Tree do do N 29 00 W.
		Line through Prairie-dog-town.
80	00	Position of 67th mile port North of 41st Parallel marked by planting 3ft. deep in the ground a Post of Norway pine 8ft. long 6in. sq. duly inscribed, a piece of Sandstone marked T placed at its foot, a mound of Earth raised 3ft. high around it, & pits dug each side on the line, as per contract.

No objects for Witnesses.

Magnetic declination 16° 00' 00" E.

Soil poor - covered with pinckly pear cacti & sunflowers.

27th Meridian continued North.

Ch.		
		Surface flat; descending gradually N.
53	00	Cross Wagon Road to Laramie.
80	00	Position of 68th mile port North of 41st Parallel marked by planting, 3 feet deep in the ground, a Norway pine port 8ft. long 6in. sq. duly inscribed, a piece of Sandstone marked T placed at its foot, a mound of Earth raised 3ft. high around it, & pits dug each side on the line as per contract.

No witness objects.

Magnetic Decn 16° 00' 00" E.

27th Meridian continued North.

30	72	Stake near N. Platte R.
31	50	S. Bank of N. Platte R. runs S.E. {Establish Meander Corner by planting stake with charcoal at its foot & digging pits.
42.	00	S. side of island bears East
51.	00	N " " do " "

I observe α Ursae Minoris for Azimuth.

Sid. Chronometer No 386. Correction - 29m 26.6

* Polaris 17h 49m 55.sec 1° 34' 25" East of N.

* do 17 51 23.5 1 35 00 do do

Compute Azimuth of star to be for

1st Observation 1° 38' 03" E. of N.

2d do 1 38 30 do

Deduce Error of line from 40th Port = 3' 35" E. of N.

August 27th 1869. O.N. Chaffee.

27th Meridian Continued North.

ch		
58	52	North bank of N. Platte R. (runs S.E.) distance determined by reading stadia.* August 28th. C.A. Schaffer.
70	00	Crek of cobl clear water 20 lks. wide; runs E.
80	00	Position of 69th Milepost North of 41st parallel marked by planting 3ft. deep in the ground, a Norway pine post 8ft long 6in. sq. duly inscribed, a piece of sandstone marked T placed at its base, a mound of sandy earth raised 3ft. high around it, & pits dug each side on the line as per contract. — No witness objects. Magnetic Decn. 16° 25' E.

* Establish meander corner by planting stake with charcoal at its foot, and digging pits.

27th Meridian Continued North.

48	00	Leave bottom land of Platte R. & rise 40 feet on a slightly rolling plateau.
80	00	Position of 70th Milepost North of 41st parallel marked by planting 3ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sand stone placed at its foot, marked T, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract. No objects for Witnesses. Magnetic declination 16° 21' 20" E. Surface nearly flat around the post. Soil sandy, of 2nd quality. good grass.

27th Meridian continued North.

ch.			
68	00	Top of Sand Bluff 25 ft. high.	
		Scotts Bluff N.E. extremity	S. 55° 16' E.
		Another at the right	
		N.E. extremity	S. 43° 20' E.
		S.W. do	S. 37 23 E
		Sand Hill nearby	N 86 20 W.
80	00	Position of 71st Mile post North of 41st Parallel marked by planting 3 ft. deep in the ground, a hemlock post 8 ft. long 6 in. sq. duly inscribed, a cobble stone 2x4 in. marked T placed at its foot, a mound of sand raised 3 ft. high around it, & pits dug each side on the line, as per contract.	
		Surface much broken into Sand hills towards the West & North.	
		No witness objects	
		Magnetic Decn 16° 22' E.	

27th Meridian continued North.

ch.	lks.		
9	64	Sand Hill, before noted.	S. 33° 30 W.
78	28	Scotts Bluff	S 52 58 E.
		Vertical wall, west of 5th post	S 18 51 W.
		Laramie Road	N 77 9 W.
81	00	Position of 72nd Mile post north of 41st parallel, marked by planting 3 ft. deep in the sand, a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked T at its base, a mound of sand raised 3 ft. high around it, & pits dug each side on the line, as per contract. No witness objects.	
		Magnetic Decn 16° 22' 20" E.	
		Soil pure sand – worthless. Surface much broken into wind-drifted sand hills, not likely to retain their present shape for any great length of time.	

27th Meridian Continued North.

Ch.		
		Irregular Sand hills.
18	96	At Sand Bluff.
33	17	Anoche hill.
49	42	Sand Hill.
80	00	Position of 73d. Milepost north of 41st. parallel marked by planting 3ft. dap in the sand, a Norway pine post, 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, a mound of earth & sand raised 3ft. high around it, & pits dug each side on the line as per contract. No witnesses.

Magnetic Dec.n 16° 7' E.

Surface broken into irregular sand hills; Soil worthless.

27th Meridian Continued North.

Ch.		
12	11	Abrupt sand bluffs.
29	91	do do do
49	22	Low sand bluff. Flat surface.
77	26	do do.
80	00	Position of 74th. milepost North of 41st. parallel marked by planting 3ft. dap in the sand, a hemlock post 8ft long 6in. sq. duly inscribed, a piece of fawn stone & cobblestone marked T placed at its base, a mound of sand raised 3ft. high around it, & pits dug each side on the line, as per contract.

No witness objects.

Magnetic declination 16° 14' E.

Post stands on flat surface – Sand hills extending from S. around to W.

27th Meridian continued North.

ch.	
	Surface gradually rising N.
80 00	Position of 75th mile post north of the 41st Parallel marked by planting 3 ft. deep in the ground, a Post of Norway pine 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked T at its foot, a mound of earth raised three ft. high around it, and pits dug each side on the line, as per contract.
	No witness objects.
	Magnetic Decn. 16° 04' 00" E.
	Surface in the vicinity of post flat, soil sandy & of poor quality.
	Sandhills distant about a mile to the west.

27th Meridian continued north.

ch.	
	Surface nearly level.
80 00	Position of 76th Mile Post north of the 41st parallel marked by planting 3 ft. deep in the ground, a post of Norway Pine, 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked T at its foot, a mound of sandy earth raised 3 ft. high around it, & pits dug each side on the line, as per contract.
	No witness objects.
	Mag. Decn. 16° 3' 30" E.
	Soil light & sandy – 3d quality.

27th Meridian Continued North.

Ch.		
		Surface nearly level.
5	07	Scotts Bluff S 45° 27' E.
80	00	Position of 77th Milepost north of 41st parallel marked by planting 2 ft. deep in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked & placed at its base, a mound of earth raised 3 ft. high around it, & pits dug each side on the line as per contract.
		Post stands on the west side of a small valley which has a dry creek basin in it, & drains off towards the S.E. from vicinity of post, but extends nearly north in opposite direction.
		No witness objects.
		Magnetic Decn 16° 00' 00" E.
		Soil 2nd or 3rd quality.

27th Meridian Continued North.

Ch.		
		Surface broken on west side of line.
2	50	Bare Bluff bears N. 67° 40' E.
80	00	Position of 78th milepost north of 41st parallel marked by planting 3 ft. deep in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked & placed at its base, a mound of earth raised three feet high around it, & pits dug each side on the line, as per contract.
		No witness objects.
		Mag. declination 16° 00' 30" E.
		27th Meridian Cont. North.
		Line through bottom - low sand hills each side.
43	00	Cross narrow creek - dry. drains N.W. (Spoonhill Cr.)
80	00	Position of 79th milepost north of 41st parallel marked by planting a Hemlock post 8 ft. long 6 in. sq. duly inscribed, a sand cobble stone marked & placed at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract. Offset 3.74 ch. west to creek - water in it.
		No witness objects.
		Magnetic Decn 16° 00' 30" E.

27th Meridian Continued North.

Surface nearly flat.

"Spoon Hill" Creek, with water, 6 to 10 ~~chains~~ links wide runs along 1 to 3 chains west of line.

32 00 Quitting peg for the night.

I observe star α Ursae Minoris by Sid. Chronometer No. 386. Correction – 29m 18s

17h 40m 46.5sec 1° 35' 35" E. of transit

17h 44m 47.sec 1° 36' 10" E. of 27th Meridian.

Compute azimuths of star to be

1st observation 1° 35' 13" E. of N.

2d Do 1 36 30 Do

Error of line Deduced 0° 00' 01" W. of N.

August 30th 1869.

O. N. Chaffee.

43 10 Cross creek, whose direction is generally along the line. good clear water, drains N. E.

80 00 Position of 80th Milepost north of 41st Parallel marked by planting Norway pine post 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone 2x7 in marked T placed at its foot, a mound of earth raised around it, & pits dug each side on the line as per contract. No witness objects.

Magnetic Decn 16° 2' 40" E.

27th Meridian Continued North.

ch.

39 00 Recross "Spoon Hill" creek. runs N. W.

60. 00 Do Do Do runs N. E.

73 00 Do Do Do. This creek often camped on by Indians. runs N. W.

80 00 Position of 81st Milepost north of 41st Parallel marked by planting a Hemlock post 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract.

No witness objects.

Magnetic Declination 16° 3' 20" E.

Soil very good, & grass abundant.

Stephens

27th Meridian Continued North.

ch.			
55	82	Boulder on bluff	N. 88° 25' W.
		Centre of Bluff "Palisade"	N. 19 30 W.
57	00	Cross Creek. runs N. E.	
75	81	Boulder on Bluff	S. 87 39 W.
		E. End "Palisade"	N. 18 58 W.
		W. do do	N. 23 56 W.
		Bluff	N. 10 51 E.

80 00 Position of 82d. mile port north of 41st. Parallel marked by erecting a Norway pine port 8 ft. long, 6 in. sq. duly inscribed, a piece of sand stone marked T at its base, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract.

Soil poor – very sandy.

No witness objects.

Magnetic Declination 16° 2' 30" E.

27th Meridian Continued North.

80 00 Position of 83d. mile port north of 41st. Parallel marked by planting a Norway pine port 8 ft. long 6 in. sq. duly inscribed, three feet deep in the ground, 12 cobble stone placed at its foot, a mound of earth raised three feet high around it, & pits dug each side on the line, as per contract & instructions.

No other witnesses.

Magnetic Declination 16° 6' 00" E.

The port stands on the west bank of Spoon Hill Creek, dist. 23 lks.

(accidentally omitted in copying)
O.N.C.

27th Meridian Continued North.

ch.			
19	9	Bluff No. 1	N. 79° 28' W.
80	00	Position of 54th Milepost north of 41st Parallel marked by planting a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, a mound of sandy earth raised 3ft. high around it, & pits dug each side on the line, as per contract.	
		No witness objects.	
		Magnetic Decn 16° 00' 00" E.	

27th Meridian continued North.

0	80	E. end of Palisade Bluff	N. 39° 20' W.
		W do do	N. 49 20 W.
		Bluff No. 1.	N 83 35 W.
		Laramie Peak (?)	N. 86 44 W.
80	00	Position of 55th Milepost north of 41st Parallel marked by erecting a Hemlock post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T at its base, a mound of earth raised 3ft. high around it & pits dug each side on the line as per contract instructions. No witness objects. Spoon Hill Creek about ½ mile East.	
		Magnetic Decn 15° 58' 00' E.	

27th Meridian Continued North.

Ch	Lks.	
75	02	On top of a high rocky ridge about 10 ft. wide on top with steep inclined sides. Direction N. 20° E. S. 20° W. height 148 ft.
80	00	Position of 86th Milepost north of 41st Parallel marked by planting in the ground a hemlock post 8 ft. long. 6 in. sq. duly inscribed, a piece of sandstone marked T at its base, a mound of stone raised 3 ft. high around it, & pits dug each side on the line as per contract. Post stands on side of ridge — No witness objects. Magnetic Decn. 16° 15' 00" E.

27th Meridian Continued North.

Ch	Lks.	
		Descending rapidly & plain between hills, which rise abruptly on every side. Valley known by the name of "Spoon Hill Pass".
21	25	Cross wagon road from Laramie to Ft. Price.
80	00	Position of 87th Milepost north of 41st parallel marked by planting 8 ft. deep in the ground a Norway pine post. 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked T at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract. No witness objects. Magnetic Declination 16° 00' 00" E. Spoon Hill Creek East of this post 2 ch. 12 ft. wide 2 ft deep; runs about ½ mile S. 15 E. & then turns more to the Eastward.

27th Meridian Continued North.

Ch.		
8	00	Cross Spoonhill Creek, coming from W. S.E.
17	00	Recross Spoonhill Creek. runs N.E.
20	62	Creek distant East 25 ft.
		Direction of Spoonhill Pass N. 23° E
		High Hill S. 61° 35' E. Elevation 12° 00'
		Direction of Pass thro. wh. Cr. flows S. 13° 50' E.
		High rock near line N 74° 30 W.
		Do Elevation 14° 20'
50	59	Top of Bluff on line. Surface smooth bare rock, nearly level.
71	79	Edge of Bluff towards N. nearly vertical sandstone rocks descending from 10 to 100 ft.
80	00	Position of 88th mile post north of 41st Parallel marked by planting a Hemlock post 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked T placed at its base, a mound of sandy Earth raised three ft. high around it, & pits dug Each side on the line as per contract.
		No witness objects
		Magnetic Declination 15° 56' 30" E.

27th Meridian Continued North.

Ch.	Lk.	
5	06	E. End of Bluff ahead N. 14° 00' E.
		W. End of same N 17 20 W.
		Block of white Stone S 71 8 W.
		Rocks at Edge of Spoonhill Pass S 33 8 E.
		Bluff 2. N 43.8 E
		Elevation of Bluff back where line crosses 157 ft.
23	40	Edge of Cross Creek runs N. W. & N.E. 30 lks wide. Excellent water
28	50	Cross Creek. runs N.W.
31	00	Recross Creek at line, runs N.E & N.W.
40	00	Creek 15 ft. west of line runs N.W.
41	50	Block of White stone S. 21° 50' W.
		Rocks at Edge (W. side) of Pass S 13 24 E.
80	00	Position of 89th mile post North of 41st Parallel marked by planting a hemlock post 9 ft. long 6 in. sq. duly inscribed. 3 ft. deep in the ground, a piece of sand stone marked T placed at its base, a mound of sandy Earth raised 3 ft. high around it & pits dug each side on the line as per contract. No witness objects.
		Magnetic Declination 15° 56' E.
		Soil poor & sandy

27th Meridian Continued.

I observe star α Ursae Minoris with Transit & Sid. chronometer No. 386. for Azimuth as follows – Correction – 29m 16.3

17h 53' 45.rec 1° 38' 55" E. of Line.

17 58 5. 1 44 40 Do

Also observe δ Ursae Minoris

18h 7m 30rec 0° 50' 40" E. of line.

I compute Azimuth of Polaris from 2d observation = 1° 40' 35" E. of N.

& Az. of δ Ursae Minoris 0° 45' 58" E. of N.

Whence I deduce Error of line 4' 23" W. of N.

August 30th 1869.

O. N. Chaffee.

27th Meridian Continued North.

ch	lks.	
		Line corrected by Observations.
77	77	E. End of Bluff on line N. 53° 9' E.
		"Cap" Rock S 81° 47' E.
80	00	Position of 90th mile post North of 41st parallel marked by planting 3ft. deep in the ground, a Norway pine post 8ft. long 6in sq. duly inscribed, a piece of Sandstone marked & placed at its base, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract.

No witness objects.

Magnetic Declination = 16° 2' 30" E.

Surface rolling, soil very poor.

27th Meridian Continued North.

Ch.	Lk.		
36	04	Top of Bluff 230 ft. above	90th Port.
		Laramie Peak	S 88° 14' W.
		Vertical rock	S 58 54 W.
		High rock overhanging Pass just ~~West~~ West of line	N. 67° 45 W.
		Sugar Loaf	N. 9 53 E.
		Cobblestone peak No. 1.	S 53 37 W.
		Do Do 2.	S 72 34 W.
57	13.	A narrow flat between bluffs. 130 ft below last pt.	
80	00	Position of 91st Mile Post north of 41st Parallel marked by planting 8 ft. deep in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed, as piece of sandstone marked T placed at its foot, a mound of earth raised 3 ft. high around it & pits dug each side on the line as per contract.	

Post stands about 1/3 the way up Eastern slope of the Bluff, which has been visible at times for the last 20 miles.

No witness objects.

Magnetic Decn 15° 58' E.

27th Meridian Continued North.

Ch	Lk.	
13	59	Top of Bluff. Highest point above the N. Platte Riv. about 478 ft. above 90th Port. Surface nearly level; bare rock. Approach quite precipitous.
67	96	N. Edge of Bluff – Wall nearly vertical.
80	00	Position of 92nd Mile Post north of 41st parallel marked by planting a Hemlock post 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, a mound of earth & rock raised 3 ft. high around it, & pits dug each side on the line, as per contract.

A large white rock 4 ft. high 6 ft. sq. bears N. 85° 21' E. 289 ft.

Magnetic Declination 16° 01' E.

27th Meridian Continued North.

Ch.	Lks.	
19	34	On a rocky ridge - a hollow intervening between it & 92nd pt.
33	50	On a ridge - a deep hollow between it & 19ch 34
52	25	Leave broken land.
80	00	Position of 93rd milepost north of 41st parallel marked by erecting a Hemlock post, two pieces of sandstone marked T placed at its foot, a mound of Earth raised 3ft. high around it, & pits dug each side on the line, as per contract. No witness objects. Soil poor. Magnetic decn 15° 16° 56' E

27th Meridian Continued North.

Ch.	
	Surface slightly rolling.
80	00 Position of 94th milepost north of 41st parallel marked by planting a hemlock post 8ft. long, 6 in. sq. duly inscribed, 3ft. deep in the ground, a piece of sand stone marked T at its base a mound of sandy Earth raised 3ft. high around it, & pits dug Each side on the line, as per contract. No witness objects. Magnetic declination 15° 50' E Soil sandy & poor; grass scanty; many weeds & sunflowers.

27th Meridian continued North.

Ch.

Surface nearly level.

80 00 Position of 95th mile post north of 41st parallel marked by erecting a hemlock post 8ft. long 6in. sq. duly inscribed, a ~~piece of sandstone~~ 2 small cobble stones, 3 inches in diameter, all we can find, placed at the base of post, a mound of sandy earth raised 3ft. high around it, & pits dug each side on the line, as per contract.

No other witnesses.

Magnetic declination 15° 43' E.

Post stands in a slight hollow, surface immediately around nearly level.

Soil poor & sandy; scarcely any vegetation.

Magnetic declination 15° 53' E.

27th Meridian continued North.

Ch.

Surface rolling. Broken sand hills east of the line, distant ½ & ¾ of a mile & extending in a parallel direction to it.

80 00 Position of 96th mile post north of 41st parallel marked by erecting a Norway pine post 8ft. long 6in. sq. duly inscribed, a mound of earth raised 3ft. high, around it, & pits dug each side on the line, as per contract. A piece of sand stone marked T placed at its foot.

No other witness objects.

Magnetic Decn 15° 55' 00" E.

Soil sandy & of poor quality.

27th Meridian continued North.

Ch. Surface more uneven.

80 00 Position of 97th milepost north of 41st parallel marked by planting a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sand stone marked T at its base, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract.

No witness objects.

Magnetic decn 15° 53' 00" E.

Surface of last half mile much broken. Many sand hills - Poor soil.

27th Meridian Continued North.

Ch. Surface rolling.

80 00 Position of 98th milepost north of the 41st Parallel marked by Erecting a post of Hemlock 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, a mound of Earth raised 3ft. high around it, and pits dug each side on the line, as per contract. No witness objects.

Mag. Declination 15° 59' E.

Soil sandy & poor, grass very scanty, weeds & thistles prevail - Broken sand hills distant about one mile all along the line to the Eastward.

27th Meridian continued North.

ch.
2 68 Cone-shaped sandhill N 28° 40' W.
80 00 Position of 99th mile post north of 41st Parallel marked by erecting a post of Norway Pine 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T at its base, a mound of Earth raised 3ft. high around it, and pits dug each side on the line, as per contract. No other witness objects.

Magnetic Decn 15° 53' E.

Surface nearly level, soil worthless.

27th Meridian continued North.

ch.
4 30 Conical Sand Hill N. 46° 47' W.
80 00 Position of 100th mile post north of 41st parallel marked by planting 3ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sand stone marked T at its foot, a mound of Earth & sand raised 3ft. high around it, and pits dug each side on the line as per contract. No witness objects.

During the last mile, the surface has been nearly level. Sand hills rise on either hand at a distance of 1 to 2 miles. Soil very sandy & of poor quality. Scarcely any grass; many weeds & thistles.

Mag. Decn 16° 5' 00" E.

By Sid Chronometer No. 386. Correction – 29m 14.6sec I observe for true Meridian as follows;

α Ursae Minoris 17h 55m 50m 1° 40' 20" E. of N.
δ Do 18 1 20. 0° 53 20 Do

Computed azimuths as follows:–

α Ursae Minoris 1° 40' 21" E. of N.
δ Do 0 53 10 Do.

Transit line of 27th Meridian Correct.

September 1st 1869. O. N. Chaffee.

27th Meridian Continued North.

ch.

Surface rolling – Soil sandy – nothing to note.

80 00 Position of 101st mile post north of 41st parallel marked by Erecting a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T at its base, a mound of earth & sand raised 3ft. high around it, & pits dug each side on the line, as per Contract. No witness objects.

Magnetic Decn 16° 5' 00" E.

27th Meridian Continued North.

60 74 A considerable Hill, Rawhide Butte with timber. N 71° 22' W.

80 00 Position of 102nd mile post north of 41st parallel marked by Erecting a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T at its base, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per Contract.

No witness objects.

Magnetic Decn 15° 58' 30" E.

Soil sandy & poor. & sparse grass, but many weeds & flowers.

27th Meridian Continued North.

ch.

Surface rolling. Nothing to note.

80 00 Position of 103rd Mile post north of 41st parallel marked by Erecting a Norway pine post, 8ft. long 6in. sq. duly inscribed, a piece of sand stone marked T placed at the foot, a mound raised 3ft high around it & pits dug each side on the line, as per Contract. No witness objects.

Magnetic decn 16° 00' 10" E.

Sand Hills on either hand at a distance of 2 & 3 miles.

27th Meridian Continued North.

80 00 Position of 104th mile post north of 41st parallel marked by planting a post of Hemlock 8ft. long 6in. sq. duly inscribed, a piece of sandstone at its base marked T, a mound of sandy Earth raised 3ft. high around it, & pits dug each side on the line, as per contract. No witness objects.

Magnetic Decn 15° 55' 00" E.

Soil of poor quality – vegetation poor mostly weeds –

27th Meridian Continued North.

Ch. Surface rolling; nothing to note.

80 00 Position of 105th mile post north of 41st parallel marked by erecting a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sand stone marked T at its foot, a mound of earth raised 3ft. high, around it, & pits dug each side on the line, as per contract.

No witness objects.

Magnetic Decn 15° 33' 30" E.

27th Meridian Continued North.

Surface rolling.

80 00 Position of 106th mile post north of 41st parallel marked by planting a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, a mound of earth & sand raised 3ft. high around it, & pits dug each side on the line, as per contract.

No witness objects.

Magnetic decn - 15° 31' 30" E.

Soil poor - sparse grass - small weeds

27th Meridian continued North.

Ch. lks.

22 09 Hill covered with timber, Rawhide Butte (Noted before) N 81° 16 W.

80 00 Position of 107th mile post north of 41st parallel marked by erecting a post of Norway pine 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, a mound of earth raised 8 ft. high around it, and pits dug each side on the line, as per contract - No witness objects.

Magnetic Decn 15° 30' 00" E.

27th Meridian Continued North.

Surface rolling - Nothing to note -

80 00 Position of 108th mile post north of 41st parallel marked by erecting a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sand stone marked T placed at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract.

No witness objects.

Magnetic Declination. 15° 29' 00" E.

27th Meridian Continued North.

ch. Surface descending considerably towards N.
80 00 Position of 109th mile post north of 41st parallel marked by planting a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked + at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract – No witness objects.
Magnetic Decn 15° 35' E.
Surface slopes towards the post from every direction except S.E.; it stands in a small dry water course.
Soil very poor, & grass scanty.

27th Meridian Continued Northward.

80 00 Position of 110th mile post north of 41st parallel marked by erecting a Norway pine post 8ft. long 6in. sq. duly inscribed a piece of sand stone marked + at its foot, a mound of earth & gravel raised 3ft. high around it, & pits dug each side on the line, as per contract.
No witness objects.
Magnetic Decn 15° 45' E.
Soil poor – worthless.

27th Meridian Continued North.
80 00 Position of 111th mile post north of 41st parallel marked by erecting a Hemlock post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked + at its foot, a mound of earth & gravel raised 3ft. high around it, & pits dug each side on the line, as per contract.
No witness objects.
Magnetic Decn 15° 43' 00" E.
Surface rolling – Soil almost worthless; grass scanty.

27th Meridian Continued North.

ch.	lks.	
80	00	Position of 112th milepost north of 41st parallel marked by erecting a Pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, a mound of earth and gravel raised 3ft. high around it, & pits dug each side on the line, as per contract. No witness objects.
		Surface rolling – Soil poor & thin –
		Magnetic Decn. 15° 30' 30" E.

27th Meridian Continued North.

65	00	Begin descent to Leau qui Court R.
76	40	A large rock 80 links long, N. & S. & 10ft. high touches the line on W. side.
80	00	Position of 113th mill post north of 41st parallel marked by erecting a post of Norway pine 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, a mound of gravelly earth raised 3ft. high around it, & pits dug each side on the line as per contract. No witness objects.
		Magnetic Decn. 15° 17' 00" E

27th Meridian Continued North.

ch.	lks.		
47	98	Rawhide Butte	S 80° 7' W.
		Peak across ~~White R.~~ Leau qui Court R.	N 12 14 E.
		Bluff at Eastward	S 66 37 E.
		Peak with 2 points	N 60 10 E.
80	00	Position of 114th Milepost north of 41st parallel marked by planting a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of Sandstone, marked T placed at its base, a mound of sand & gravel raised 3ft. high, & pits dug each side on the line, as per contract. No witness objects	
		Mag. Decn. 15° 22' E.	

27th Meridian continued North.

ch.	lks.	
14	14	Brow of Hill at River.
29	43	N. side of Lean qui Court Riv.
		Sept. 2d 1869.
		O. N. Chaffee.
		Meridian continued
45	95	North bank of Lean qui Court R. runs S.E. 20 lks wide
80	00	Position of 115th mile port north of 41st parallel marked by planting a Norway pine port 8ft. long 6in. sq. duly inscribed, a piece of sand stone 3x10x15 in. marked & placed at its base, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract.
		No witness objects.
		Magnetic decn 15° 46' 50" E.

27th Meridian continued North.

ch.			
5	85	Lean qui Court Valley	S. 50° E.
		Tower rock	N 19° 30' E
		Square rock	N 15 12 E.
		Rock No. 1.	N 8 10 E.
		No. 2.	N 4 26 E.
		3 pointed rock	S 59 14 E.
		Rock No 4.	S 56 50 E
77	61	Tower Rock	N. 30 10 E.
		Square "	N. 25 9 E.
		3 Pointed rock	S 44° 44' E.
		Bluff.	N 21° 47' E
80	00	Position of 116th mile port north of 41st parallel marked by planting a Norway pine port 8ft. long 6in. sq. duly inscribed, a piece of sandstone 3x10x13 in. marked & placed at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract.	
		No witness objects.	
		Magnetic Decn 15° 49' 50" E	
		Soil 3d or 4th quality.	

27th Meridian continued North.

Ch.	Lks.		
67	86	Rock A.	S. 83° 30' E.
		" B.	N. 81 22 E.
		Bluff.	N. 48 17 E.
		Monument rock	N 31 29 E
		Rock C.	N 22 40 E.
80	00	Position of 117th mile post north of 41st parallel marked by erecting a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T placed at its base, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract.	
		No witness objects.	
		Magnetic Decn.	15° 43' 40" E.

27th Meridian Continued North.

Ch.	Lks.		
25	13	Rock A.	S 26 50' E.
		Do B.	S 63 47 E
		Monument Rock	S 86 51 E.
		Bluff	S 89 41 E.
		Rock C.	N. 28 56 E
		Do D.	N. 11 31 E
45	63	Bluff.	S. 66° 43' E.
		Tower Rock	S 76 47 E
		Peak.	N 79 06 E.
		Rock A.	S. 18 30 E
		Do B.	S 49 43 E.
		Do D.	N 14 00 E
		Do C.	N 34 1 E.
80	00	Surface considerably rolling. Position of 118th mile post north of 41st parallel marked by erecting a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract.	
		No witness objects.	
		Magnetic Declination	15° 49' 00" E.

27th Meridian continued North.

Ch.			
37	01	Rock D.	N. 49° 4' E.
		do C.	N 71 7 E.
		Peak.	S 60 32 E.
		White Rock	N 85 45 W.
75	62	Rock C.	S. 74 37 E.
		do D.	S. 50 11 E.
		Peak	S. 45 46 E.
		White Rock	S. 85 5 W.
		Rawhide Butte	
80	00	Position of 119th mile post north of 41st parallel marked by erecting a post of Pine, 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked + placed at its foot, a mound of earth raised 3 ft. high around it & pits dug each side on the line, as per contract.	
		No witness objects.	
		Magnetic declination 15° 32' 50" E.	

27th Meridian continued North.

Ch	Lks.		
		Surface much broken.	
11	02	Rock 1.	S. 69° 30' W
		do 2.	N. 48 47 W.
54	01	Rock 1.	S. 32 45 W.
		White Rock	S. 71 46 W.
		Rock 2.	N 72 33 W.
80	00	Position of 120th mile post north of 41st parallel marked by erecting a Hornung pine post 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked + placed at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract.	
		No witness objects.	
		Magnetic Decl.n 15° 38' 30" E.	

27th Meridian Continued N.

ch	lks.	
14	14	Edge of a large ravine descending towards the west & a branch of Lean gai Cont R, one mile distant; its course nearly South.
18	10	Other side of ravine.
80	00	Position of 121st mile post north of 41st parallel marked by erecting a post of pine 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T placed at its base, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract.

No witness object.

Magnetic Declination 15° 45′ E.

27th Meridian Continued N.

ch	lks.		
27	54	Rock E.	N. 44° 22′ E.
		Point of Bluff	N 44 5 W.
80	00	Position of 122nd mile post north of 41st parallel marked by erecting a Pine Post 8ft. long 6in. sq. duly inscribed, a piece of Sandstone marked T at its base, a mound of sand & earth raised around it three ft. high, & pits dug each side on the line, as per contract.	

No witness objects.

Magnetic Declination 15° 55′ 00″ E.

27th Meridian Continued North.

80 00 Position of 123rd mile post North of 41st parallel marked by planting ~~8ft long~~ a post of pine 6ft. long 6in sq. duly inscribed in a mound of earth & stone, on the solid rock: a piece of sandstone marked T at its base, but no pits dug – all the surface smooth rock. No witness marks.

Magnetic Decl.n 15° 57′ E.

Surface much rolling – soil of poor quality.

27th. Meridian Continued North.

Ch.	lks.		
1	45	Rock.	S. 39° 15' E.
		Do E.	S. 34 9 E.
30	84	Rock I.	N. 73 10 W.
47	75	Rock I.	N 54 50 E.
		Do I.	N 88 51 W.
80	00	Position of 124th. Milepost North of 41st. parallel marked by erecting a post of Pine, 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, a mound of earth raised around it 3ft. high, & pits dug each side on the line, as per contract.	

No other witnesses —

Magnetic Declination 15° 58' 30" E.

September 3rd. 1869

O. M. Shaffer.

27th Meridian Continued North.

Ch. Surface very uneven.

80 00 Position of 125th mile post north of 41st parallel marked by Erecting a post of Norway pine, 8ft. long 6in. sq. duly inscribed, a piece of sandstone a little foot marked T. a mound of earth raised 3ft. high around it & pits dug Each side on the line as per contract. Dry Cut in a ravine nearby.

No objects for witnesses.

Magnetic declination 15° 50' 30" E.

27th Meridian Continued North.

19 65 Rock near the line N. 17° 10' E

Do Do N. 12 33 W.

80 00 Position of 126th mile post north of 41st Parallel marked by Erecting a Hemlock post 8ft. long 6x6in. duly inscribed a piece of sandstone marked T placed at its foot, a mound of earth raised 3ft high around it, & pits dug Each side on the line as per contract. No witness object.

Magnetic Decn 15° 47' 20" E.

27th Meridian Continued North.

Ch. Lks.

00 62 Rock near the line (as before) S. 14° W.

Do Do S 7° 35' E.

Vertical rock N. 27° 23' W.

80 00 Surface rolling.

Position of 127th Mile post north of 41st parallel marked by Erecting a post of Norway pine, 8ft. long 6in. sq. duly inscribed, a piece of sand stone marked T placed at its foot, a mound of earth raised 3ft. high around it & pits dug each side on the line, as per contract. No witness objects

Magnetic declination 15° 50' 50" E.

27th Meridian Continued North.

38 23 Edge of perpendicular & overhanging rock, from 10 to 200 ft high. timber along bluff.

64 66 A point 278. ft. below edge of rocks.

80 00 Position of 128th mile post north of 41st Parallel, marked by Erecting a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, a mound of Earth & stone raised 3ft. high around it & pits dug each side on line as per contract.

No witness objects.

Magnetic Declination 15° 52' 00" E.

27th Meridian continued North.

I observe for true Meridian with a Würdemann transit theodolite & Bond & Son Sid. Chronometer No. 386. as follows;

& Ursae Minoris,	17h 48m 45.0 ave	1° 37' 10" E. of 27th mer.	
S Do	18 00 53.0	0° 51' 35" E. of 27th merid.	

Computed azimuth of 1st 1° 39' 20" E. of N.
Do 2d 0 54 52 Do

Whence I deduce error of line in running 28 miles = 2' 28" E. of N.
Sept. 24th 1869.

O. N. Chaffee.

27th Meridian continued North.

ch	lks		
14	54	Edge of a ravine 50 ft. deep, discends N. 45 E. full of timber.	
30	45	Livingstons Peak bears	N. 13° 54' E.
		Cattle Rock	S 47 26 E.
		Coliseum Rock.	S 34 58 E.
80	00	Position of 129th milepost north of 41st parallel marked by erecting a post of cottonwood, a piece of sandstone marked & placed at its base, a mound of earth 3ft. high raised around it, & pits dug each side on the line, as per contract.	
90	75	Cattle rock	S 35° 45' E.
		Coliseum rock	S 22 00 E.
		Chapel Do	S 54 51 E.
		Magnetic declination	16° 01' 00" E.

Post No. 129. stands in a ravine, which runs N. 22° E. and is filled with small bushes.

27th Meridian Continued North.

Ch.		
	Surface Rolling. No objects to note.	
80	00	Position of 130th mile post north of 41st parallel marked by erecting a post of cottonwood, duly inscribed, a piece of sandstone marked T at its base, a mound of earth raised 3 ft. high around it, & pits dug each side on the line as per contract. No witness objects.
		Magnetic declination 15° 58' 00" E.

27th Meridian Continued North.

Surface rolling. Nothing particular to note.

75	69	Castle rock	S. 21° 51' E.
		Coliseum rock	S. 18 36 E.
		Tower rock	S. 77 13 W.
		Bluff	N. 24 19 W.
80	00	Position of 131st mile post north of 41st parallel marked by planting a pitch pine post of prescribed dimensions, a piece of sandstone marked T at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per contract. No witness.	
		Magnetic declination 15° 50' E.	

27th Meridian Continued North.

Ch.	Lks.		
7	47	Bluff –	S. 53° 40' W.
		Do No 2.	N 23 20 W.
		Tower rock	S 75 44½ W.
25	24	North side of a ravine – E & W.	
		Livingston's Peak.	S 68° 7' E.
		Bluff No 2.	S 87 30 W.
		This ~~last~~ point is on a high ridge about 2 chains wide & running S. 45 E. N. 45 W.	
80	00	Position of 132nd mile post north of 41st parallel marked by erecting a pitch pine post of prescribed dimensions, duly inscribed, a mound of earth raised 3 ft. high around it & pits dug each side on the line, as per contract.	

Sharp ravines extending in every direction so much broken we can not give with the means at hand any idea of them –

Surface totally impassable for wagons.

Soil worthless –

Magnetic declination 15° 33' 00" E

27th Meridian continued North.

Ch.	Lks		
1	29	Livingston's peak	S. 50° 31' E.
		Bluff	N. 82 19 W.
		Peak A.	N 49 ½ W.
		Peak B.	N 87 10 W.
41	44	Cross deep ravine – E. & W.	
57	39	Surface broken up by little ravines into every imaginable shape – Surface of clay – white, yellow, & blue.	
69	90	Bluff	S. 64° 40 W.
		Peak A.	S 82 02 W.
		Clay Bank	S. 68 40 W.
80	00	Position of 133rd mile post north of 41st parallel marked by a cottonwood post of prescribed dimensions, duly inscribed, erected in the ground, a piece of sandstone marked T placed at its foot, a mound of earth raised 2ft. high around it, & pits dug each side on the line, as per contract.	

No other witnesses.

Magnetic Decn 15° 58' E.

Soil totally worthless – "Bad lands".

27th Meridian continued North.

Surface much broken – by ravines intersecting in every direction. Totally impassable for wagons, for the first half mile – after that nearly level & unbroken.

80 00 Position of 134th Mile Post North of 41st parallel marked by planting a pitch pine post of prescribed dimensions, duly inscribed, a piece of stone marked T at its foot marked T, a mound of earth raised 3ft. high around it, & pits dug each side on the line as per contract.

No other witnesses.

Magnetic Decn 16° 01' 00" E.

Soil clay & worthless. "Badlands"

27th Meridian Continued North.

ch.	lks.		
5	45	Peak A.	S 35° 17' W.
		Bluff	S 25 45 W.
		Do No. 2.	N 57 00 W.
28	65	A dry creek - runs E. & W.	
80	00	Position of 135th Milepost North of 41st parallel marked by Erecting a post of cottonwood of prescribed dimensions, duly inscribed, a piece of sandstone marked + at its foot, a mound of earth raised 3ft. high around it, & pits dug Each side on the line, as per contract.	
		No witness objects.	
		Magnetic declination 15° 58' 00" E.	
		Surface of yellow clay - no vegetation.	

27th Meridian Continued North.

		Surface nearly level; nothing to note.
80	00	Position of 136th Milepost north of 41st parallel marked by planting a cottonwood post, duly inscribed, a piece of sandstone marked + at its foot, a mound of earth raised 3ft. high around it, & pits dug Each side on the line, as per contract.
		No witness objects.
		Magnetic Declination 15° 57' 00" E.
		"Bad lands" in soil worthless.
		29th Meridian continued North.
75	44	Bluff No. 2. N. 67° 16' E.
80	00	Position of 137th Milepost north of 41st parallel marked by planting a cottonwood post of prescribed dimensions, duly inscribed, a piece of charred wood at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract.
		No other Witnesses.
		Magnetic Declination 15° 55' 00" E.

27th Meridian Continued North.

ch	lks.	
41	16	A stream, Indian Cr. nearly dry, runs East — supposed to be White river; but authorities differ. Water bed, now nearly dry, 40 links wide. Bank on north side a vertical clay wall 40 or 50 ft. high. The stream makes a bend, like a horseshoe, to the north, & the line crosses near the middle of the bight. or neck
80	00	Position of 138th mile post north of 41st parallel marked by Erecting a post of cottonwood, of prescribed dimensions, duly inscribed, a piece of charred wood at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per Contract. No other witnesses.

Magnetic Declination 15° 58' 20" E.
"Bad lands." Soil worthless.

27th Meridian Continued North.

ch	lks.	
22	67	Position of 43d Parallel North latitude as deduced from astronomical observations ten miles south of this post on Sept. 4.

The point is commemorated by a white limestone monument 5½ ft. long 1 ft square for one ft. from the top down, & below of an octagonal shape. It is inscribed on the North side "27° W.L." on the East face "43° N.L."; on the South face "138 M. 22 ch. 67 lks." on the west face "Wyoming". It is surrounded by a mound of earth & stone 7 ft. in diameter at its base, 6 ft. in diameter at the top & 3½ ft. high. It stands in a small broken hollow, without any natural objects available for witnesses, & nothing striking to the attention. The surface rises towards the N. E & W. & furnishes nothing which would attract attention, or furnish materials for a sketch.

The soil is clay & of the poorest quality.

Magnetic declination 15° 53' 00" E.

September 6th 1869. O. N. Chaffee.

Survey of 41st Parallel resumed.

At the 9th mile post west of 25th Meridian I observe α Ursæ Minoris with Transit Theodolite & Bond & Sons Sid. Chronometer at 4h 12m 00s. Chronometer Correction - 20m 38.2s and compute azimuth of star 1° 11' 47" W. of N. A.M. Sept. 25th 1869.

From the meridian so determined above I lay off the direction of the tangent to the curve at 9th mile post west of 25th meridian west of Washington, and prolong it ~~through~~ East the river bottoms of South Platte

Ch	Lks.	
32	71	Old adobe ranch on S. side of Platte 169° 47'
52.	83	
82	83	Intersect left bank of S. Platte River.

Thence I measure towards the N.E. along the Bank of the river a base line 2000 ft. in length & measure to a stake on the prolongation of the transit line to the right bank of the river the following angles -

∠ at S.W. End of Base = 89° 47' 25"
∠ at N.E. Do = 114 54 40
∠ on opposite side = 25 17 55

& make the following computation

log. sin 25° 17′ 55″ = 9.63074
acc. log. sin. = 0.36926
log. 2000 ft. = 3.30103
log. sin 39° 47′ 25″ = 9.80616
2995.4 log. = 3.47645

Same = 3.67029
log. Cos. 24° 54′ 40″ = 9.95759
4245.0 log. = 3.62788
66.0 log. = 1.81954
64.32 log. = 1.80834

The position of the 8th mile post west of the 25th Meridian being near the middle of the S. Platte River it cannot be marked. I therefore raise a mound of Earth 3 ft. high, on the line on each side of the river and plant a stake 2 inches in diameter in them for witnesses. The stake on the right bank is further witnessed by a cedar post 5 inches in diameter, 2½ ft. high which bears N. 63° 52′ E. distant 7 lks.

41st Parallel continued East.

The distance across S. Platte River 64.32 being added to the quantity measured from 9th mile post to the left bank 52.83 gives 117.15 from which subtract 80. Ch – we have

Ch. lks.
37 15 as position of stake on right bank.
Old rack before noted – 236° 12′
A small sandy hollow enters the Platte from the South just west of this point.
80 00 Offset 3½ lks. towards the north to the position on 41st Parallel of 9th mile post west of 25th Meridian, & mark the same by planting 3 ft. deep in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked T at its base, a mound of earth raised 3 ft. high around it, & pits dug each side on the line. as per instructions.
No objects for witnesses.
Surface rolling. Soil 2nd quality.
Magnetic declination 14° 15′ E.

41st Parallel continued East.

Ch.	lks.	
80	00	Transit line continued Eastward. Offset 8 lks. towards N. to the position on 41st Parallel of 6th mile post west of 25th Meridian, & mark the point by planting, 3 ft. deep in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, a mound of Earth raised 3 ft. high around it, and pits dug Each side on the line, as per contract and instructions. No witness objects.

Magnetic declination 14° 15' E.

Surface nearly Even, but sloping gently from South towards the Platte bottoms on N. Land of 2nd or 3rd quality.

41st Parallel continued East.

Transit line prolonged.

Ch.	lks.	
80	00	Offset towards North 14 lks. to the position on 41st parallel of 5th mile post west of 25th meridian, and mark the point by planting 3 ft. deep in the ground, a post of Norway pine 8 ft. long 6 in. sq. duly inscribed, a piece of sandstone marked T at its base, a mound of earth raised 3 ft. high around it, and pits dug Each side on the line, as per instructions.

No other Witnesses.

Magnetic declination 14° 15' E.

Surface sloping down towards the North; soil 2nd or 3rd rate.

41st Parallel continued East.

Ch.	lks.	
		Transit line prolonged.
80	00	Offset towards North 22 lks. to the position on 41st Parallel of 4th mile post west of 25th Meridian, and mark the point by planting, 3ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, and mound of Earth raised three feet high around it, and pits dug Each side on the line, as per Contract.
		No other Witnesses.
		Magnetic declination 14° 16' E.
		Soil 2nd to 3rd rate - somewhat rolling.

41st Parallel continued East.

Ch.	lks.	
		Transit line prolonged.
2-73	75	Dry bed of creek 1 chain wide - N. & South - water flows N. towards Platte R.
80	00	Offset 31 links towards North to the position on 41st parallel of 3d mile post west of 25th Meridian, and marke the point by planting 3ft. deep in the ground a post of Norway pine 8ft. long, 6in. sq. duly inscribed, a piece of sandstone marked T placed at its foot, a mound of earth raised 3ft. high around it, and pits dug Each side on the line as per contract.
		No other witnesses.
		Magnetic declination 14° 17' E.
		Soil just at the post, which stands in a considerable hollow, is very good - stout grass growing near - but the land on adjoining higher ground is the same as before - gravelly & production of little Except prickly pear Cactus
		Sept. 23d 1869.
		E. M. Chaffee.

41st Parallel Continued East.

ch.	lks.	
		Transit line prolonged.
80	00	offset 43 lks. towards north to the position on 41st Parallel of 2d mile post west of 25th Meridian, & marked the point by planting 3ft. deep in the ground, a Norway pine post 8ft. long, 6in. sq. duly inscribed, a piece of sandstone marked & placed at its foot, a mound of Earth raised 3ft. high around it, & pits dug each side on the line, as per contract & instructions.
		No other witnesses.
		Magnetic declination 14° 17' E.
		Surface rolling – Soil 2d or 3d rate, and very hard.

41st Parallel continued East.

ch.	lks.	
		Transit line prolonged.
16	00	West Edge of dry Creek bottom 1.23 chs. wide.
80	00	Offset towards North 85 lks. to the position on 41st Parallel of 1st mile post west of 25th Meridian, and mark the point by planting 3ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a piece of sandstone marked & placed at its foot, a mound of earth raised 3ft. high around it & pits dug Each side on the line, as per contract & instructions – No other witnesses.
		Magnetic declination 14° 17' E.

41st Parallel continued East.

Ch.	lks.	
		Transit line prolonged.
7	50	Dry sand bed of creek.
42	07	Windmill Big Springs N. 10° 58' W.
67	00	Cross dry sandy creek bottom 10 chs. wide. Find water just north of the line.
80	00	Windmill Big Springs N. 17° 13' W. Offset 71 lks. towards North, ~~and~~ to the point of intersection of 41st Parallel N. Latitude with the 25th Meridian West of Washington. I commemorate its position by a limestone monument 6 ft. long 8 ft. square for one foot from the top & of octagonal shape below, planted 2 ft. deep in the ground, a mound raised around it 3 ft high, 7 ft. in diameter at its base & sloping in towards the top; 4 pits dug towards the cardinal points Each two ft. sq. and one foot deep. The monument is inscribed on the N. side "25° W. L." on the East side "Nebraska"; on the West side "41° N. L." The South side is left blank for the present.

There are no objects near for witnesses. A computation of notes on the last page makes the distance to Windmill at Big Springs Station Union Pacific R.R. to be 22467 ft. or 4.255 miles.

Surface slightly rolling, and the monument stands on a slight crest between two small hollows which incline towards the North.

Sept. 24th 1869.

O. M. Chaffee.

Survey of 25th Meridian.

A.M. Sept. 25th 1869.

With Würdemann Transit theodolite and Bond & Son Sid. Chronometer I observe α Ursae Minoris, at 6h 13m 30.ve Chronometer correction being -20m 11.ve & compute Azimuth of star to be 1°44'40" W. of N.

Beginning at the monument at the intersection of 41st Parallel N. Latitude with 25th Meridian west of Washington, I run South on a true line as determined by the above observation - and chaining the distance by two sets of Chainmen as before, mark the End of each mile by a temporary stake planted firmly in the ground.

Near the approximate position of the 54th mile Post North of the 40th Parallel, as thus obtained, I observe for true Meridian with a Würdemann transit theodolite and Bond & Son Sid. Chronometer No. 386. α Ursae Minoris at 18h 56m 50.ve

25th Meridian Continued South.

and read its azimuth East of the transit line ——— 1° 53' 20"
I compute Azimuth of Star 1 48 20
& deduce error of line W. of N. 5' 00"

Sept. 25th 1869.

(Signed) O. N. Chaffee

Thence on a true Meridian as given by the above observation I run a transit line South, chaining as before, and marking each mile with a temporary stake. At the approximate position of the 37th mile post north of the 40th Parallel as thus determined, with the same instruments as above - Chronometer correction - at 19h 3m 11.ve I observe the position of α Ursae Minoris to be East of the transit line 1° 45' 10"
I compute azimuth of star E. of N. 1 48 20
& deduce error of line to be E. of N. 3' 10

Sept. 27th 1869.

O. N. Chaffee.

25th Meridian Continued South.

Thence on a true Meridian as given by the last observation I run a transit line South, chaining & marking each mile as before: at at point approximately 24 miles 32.ch 37 north of 40th Parallel I observe with the same instruments, at 19h 01m 15.ne α Ursae Minoris East of transit line 1° 49' 40"
I compute azimuth of star 1 48 00 E. of N.
and deduce error of line 1' 40" N. of N.
Sept. 28th 1869.

(Signed) O. N. Chaffee

Thence on a true Meridian as given by the last observation, I continue the transit line south, chaining & marking each mile as before. at the approximate position thus determined of 10th mile post north of 40th Parallel, with the same instruments, I observe star α Ursae Minoris East of transit line 1° 43' 00"

25th Meridian Continued South.

I compute the azimuth of star at the time of observation 18h 50m 26.ne to be 1° 46' 46" East of North, & deduce error of transit line 3' 46" East of N.
September 29th 1869.

(Signed) O. N. Chaffee.

Thence on a true Meridian as given by the last observation, I continue the transit line south, chaining & marking each mile as before. At a point 69 miles south of 41st Parallel, being approximately on the 40th Parallel, I mark the point by a temporary stake and institute a careful search for the "Bare Line" which is on the 40th Parallel and the boundary between Kansas & Nebraska. The search was continued in the vicinity of this point & for a distance of half a mile in every direction but without finding any stones or indications of a line.

September 30th 1869.

(Signed) O. N. Chaffee

25th Meridian Continued South.

I prolong the transit line South & make careful search meanwhile on Each side of that line for marks on the 40th Parallel.

Ch.	Lks.	
80	00	Mark 1 mile South of 40th Parallel as approximately given by the Chains. Having found no indications of a line I Continue the transit line South.
8	00	Raine.
37	50	Enter bottom of Arickaree River.
39	00	Arickaree River - water standing in pools
56	50	Leave Bottoms.
80	00	Mark two miles South of approximate 40th Parallel.

From this point Extend the search for the Kansas line more than two miles south, and one mile Each side of the transit line, without discovering any marks whatever - I then return to the approximate position of the 40th Parallel as indicated by the Chains, still searching Each side of the 25th

Determination of 40th Parallel.

meridian for ¾ of a mile for the Kansas line, without success.

Being satisfied that there is no true line marked within any reasonable distance of this point, I Establish the intersection of the 25th Meridian with the 40th Parallel by astronomical observations of N. & S. stars. The point of observation was on the 25th Meridian and 7 ft. South of the point indicated by the chains as being on the 40th Parallel. The mean result of 45 observations of α Aquilae South, & of 56 observations of α Ursae Minoris, North of the Zenith, gives the latitude of the point of observation 39° 59′ 59″.66 The distance thence to the 40th Parallel is therefore 34.4 ft. North, and the distance from the Peg which marks the position of 40th parallel as indicated by the Chaining, is 27.4 feet, which distance I measured north from the temporary stake, on the 25th Meridian, and commemorate the position by erecting a limestone shaft 6 ft.

Commemoration of 40th Parallel & 25th Meridian.

long and 1 ft. square for one foot from the top, of an octagonal shape below - facing to the cardinal points of the compass, and inscribed as follows, viz: On the side facing North "1869"; on the side facing East "40° N.L."; on the side facing South "25° W.L."; on the side facing West "Colorado". Around the monument I constructed a circular mound of sand stone boulders 8 ft. in diameter tapering up to the height of 3 ft. & opposite each face I dug pits two ft. square & one foot deep, at a distance of two feet from the mound.

There are no permanent objects available for witnesses.

The monument stands in a small hollow with a ravine running towards the S.E. through which the bed of Arickaree river may be seen.

Having completed these operations I return North along the 25th Meridian. Magnetic Declination 14° 12' 40" E.

North On 25th Meridian.

From the temporary stake placed to mark the approximate position of 1st Post north of 40th Parallel, I measured North 27.4 feet = 41 lks. and mark the point by planting 3 ft. deep in the ground, a white pine post 8 ft. long 6 in. square duly inscribed, as follows; On the North side "25° W.L."; on the East face "Nebraska"; on the South face "1 mile" on the West face "Colorado". I deposit at its foot a quantity of charcoal, raise a mound of earth 3 ft. high around it, & dig pits each side on the line, as per instructions.

No objects for Witnesses.

Magnetic Declination 14° 01' 00" E.

The surface has been considerably rolling throughout the mile, and very much broken towards the East. Soil clay & of poor quality.

On the 25th Meridian.

ch	ch.	
44	22	From the 1st Port I proceed N. South side of a ravine running N.W. & S.E. more than 100 ft. deep
69	14	N. Side of same ravine.

From the temporary stake left to mark approximate position of the 2d mile port north of 40th parallel I measure North on the 25th Meridian 41 lks. and mark the point by planting 3 ft. deep in the ground a Norway pine post, 8 ft. long 6 in. sq. duly inscribed, a quantity of Charcoal at its foot, a mound of earth raised around it, and pits dug each side on the line, as per instructions. No witness objects.

Magnetic Declination 13° 46' E.

North on the 25th Meridian.

ch.	ch.	
39	50	Ravine 1 ch. wide vertical walls.

From the temporary stake left to mark the approximate position of 3d mileport North of 40th parallel I measure North on the 25th Meridian 41 lks. and mark the point by planting 3 ft. deep in the ground, a Pine post 8 ft. long 6 in. sq. duly inscribed, a quantity of Charcoal placed at its foot, a mound of Earth raised 3 ft. high around it, and pits dug each side on the meridian, as per instructions.

No objects for witnesses.

Magnetic Declination 13° 54' 40" E.

Surface rolling on the line - much broken towards the East. Soil 3d rate.

North on the 25th Meridian.

ch.	lks.	
55	53	Intersect south bank ~~Rock Creek~~ Chief creek. 155 lks. wide – Genl. direction E. water 2 ft. deep.

From temporary stake left to mark approximate position of 4th mile post north of 40th Parallel I chain North 41 lks. and mark the point by planting 3 ft. deep in the ground a Norway pine post 8 ft. long 6 in. sq. duly inscribed a quantity of charcoal deposited at its foot, a mound of Earth raised 3 ft. high around it, and pits dug Each side on the meridian – as per instructions. No witness objects.

Magnetic declination = 13° 53' 30" E

Some trees in a canyon about 3/4 of a mile west near Rock Creek.

Soil sandy on N. Side of creek with a large growth of grass.

60,00 Intersect South Bank of Chief Creek 155 lks. wide gen'l direction E. water 2 ft. deep

October 2d 1869.

C. N. Chaffee.

Note:–

Oct 15, 1910 I measured from the Monument, North, 7 miles and found Chief Creek at 4 miles & 54.57 chains & left bank at 56.20 chains and 400. chain (even) to the 5th Mile Post – so the original noted distance was within 1 chain of being correct and Mr Fairfields distance 60.00 chs wrong. (Nov 10 1910) Robert Harvey State Surveyor

North on the 25th Meridian.

Surface Even and gradually rising. From temporary stake left to mark approximate position of 5th mile post north of 40th Parallel, I measured 41 lks. north on the 25th Meridian, and mark the point by planting 3 ft. deep in the ground, a Norway Pine Post 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its base, a mound of Earth raised 3 ft. high around it, and pits dug Each side on the line, as per instructions.

No objects for witnesses.

Magnetic declination 13° 51' 00" E.

Soil sandy & nearly worthless.

Oct. 15. 1910

On random line from Monument it is

374 57 chs to Right bank of Rock Creek, Chief Creek or Republican Rivr and

400 00 (Even) to 5th Mile post, the first post found from the monument although no search was made for the other

Robert Harvey State Surveyor

North on the 25th Meridian.

Surface slightly rolling and rising towards North.

From temporary stake left to mark approximate position of 6th mile port north of 40th parallel I measure 41 links north on 25th meridian & mark the point by planting 3ft. deep in the ground a Norway pine post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal at its foot, a mound of earth raised 3ft. high around it, and pits dug each side on the line as per instructions.

No objects for witnesses.

The post stands on Edge of slope of sandhills, as we ~~leave~~ the valley of Rock creek.

Magnetic declination 13° 48' 30" E.

North on the 25th Meridian.

Enter broken Sand Hills.

From temporary stake left to mark approximate position of 7th mile port north of 40th Parallel I measure 41 links north on 25th meridian, & mark the point by planting 3ft. deep in the ground a Hemlock post 8ft. long 6in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of sand raised 3ft. high around it, and pits dug each side on the line as per instructions.

No witness objects.

Magnetic Declination 13° 47' 30" E.

North on the 25th Meridian.

Line are rolling sand hills.

From temporary stake left to mark approximate position of 8th mile post north of 40th Parallel, I measure 41 lks. north on 25th meridian & mark the point by planting 3ft. deep in the ground, a White pine post 8ft. long 6in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of Earth raised 3ft. high around it, & pits dug each side on the line as per instructions.

Some white rocks on South side of Rock Creek bear S. 37° 45' W. No other witnesses. A flat basin Extends for a mile towards S.W. & W. White sand all around.

Magnetic declination 13° 44' 30" E.

North on the 25th Meridian.

Line among sand hills.

From temporary stake left to mark approximate position of 9th mile post north of 40th Parallel, I measure 41 lks. north on 25th Meridian & mark the point by planting 3ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line as per contract & instructions.

No witness objects.

Surface near post somewhat level; but broken sand hills rise on every side at a distance of 1/4 & 1/2 mile.

Magnetic declination 13° 44' 20" E.

North on 25th Meridian.

Line through irregular sand hills.
From temporary stake left to mark
approximate position of 10th milepost
north of 40th parallel, I measured
41 lks. north ~~to the~~ on 25th meridian
and mark the point by planting
3ft. deep in the ground, a post of
Pine 8ft. long 6in. sq. duly inscribed,
a quantity of charcoal deposited at its foot,
a mound of sand raised 3ft. high
around it, and pits dug each side
on the line as per instructions.
Surface rolling. Soil of sand &
worthless. No witness objects.
Magnetic declination 13° 40' 00" E.

North on 25th Meridian.

Surface rolling - but not badly broken.
From temporary stake left to mark
approximate position of 11th milepost
North of 40th Parallel I measure 41 lks.
North on 25th Meridian, and mark the
point by erecting a Norway pine post
8ft. long 6in. sq. duly inscribed, a quan-
tity of charcoal at its foot, a mound
of sand raised 3ft. high around it,
& pits dug each side on the line as
per instructions. Surface nearly level
near the post - a narrow valley extends
N.W. & S.E. bounded by sand hills on
all sides. Soil sandy but thin - ground
6 inches beneath the surface very hard.
No witness objects.
Magnetic declination 13° 27' E.

North on 25th Meridian.

Line through a small valley — Surface nearly level.

From the temporary stake left to mark the approximate position of 12th mile post North of 40th parallel I measure 41 lks. North on 25th Meridian, and mark the point by planting 3ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of sandy Earth raised 3 ft. high around it, & pits dug each side on the line, as per instructions.

Surface nearly level just at the post, but much broken towards the East. No witness objects.

Soil worthless.

Magnetic declination 13° 33′ 00″ E

North on 25th Meridian.

Surface slightly rolling — nothing on line worthy of note.

From the temporary stake left to mark the approximate position of 13th mile post north of 40th parallel I measure 41 lks. north on 25th meridian, and mark the point by erecting a Norway pine post 8ft. long 6in. square, duly inscribed, 3ft. deep in the ground, a quantity of charcoal deposited at its foot, a mound of sand raised 3ft. high around it, & pits dug each side on the line, as per contract.

No witness objects.

Magnetic declination 13° 32′ 30″ E.

Soil nearly worthless.

North on 25th Meridian.

Surface nearly level; a valley extends N.W. & S.E. a considerable distance from the post.

From the temporary stake left to mark the approximate position of 14th milepost north of 40th Parallel I measure north on 25th Meridian, 41 lks. & mark the point by planting 3ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal at its foot, a mound of sandy earth raised 3ft. high around it, & pits dug each side on the line, as per instructions.

No other witnesses.

Soil sandy & of no value. Earth beneath surface exceedingly hard.

Magnetic declination 13° 45' 40" E.

North on 25th Meridian.

Surface now rolling.

From the temporary stake left to mark the approximate position of 15th mile post north of 40th Parallel, I measured 41 lks. north on 25th Meridian and mark the point by planting 3ft. deep in the ground a Norway pine post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of sand raised 3ft. high around it, and pits dug each side on the line, as per instructions.

Surface much broken through last ½ mile. Post stands in a small deep basin 75 ft. wide 150 long, which lies N.W. & S.E. white sand everywhere.

Magnetic declination 13° 51' E.

No witness objects.

North on 25th Meridian.

Surface irregularly broken.
From the temporary stake left to mark the approximate position of 16th milepost north of 40th parallel, I measured 41 lks. north on 25th Meridian and mark the point by planting 3 feet deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of sand raised 3ft. high around it & pits dug each side on the line as per instructions.

No witness objects.

Magnetic Declination 13° 44' 00" E.

This post stands at the S. side of a considerable valley which extends N.W. & S.E. The last mile has been over much broken sandhills.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 17th milepost north of 40th parallel, I measured North 41 lks. on 25th meridian, & mark the point by planting 3ft. deep in the ground, a post of white pine 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth & sand raised 3ft. high around it & pits dug each side on the line as per instructions. No witness.

The whole mile has been over a nearly level surface, through the valley mentioned before. Soil sandy & grass scanty.

Magnetic Declination 13° 39' 00" E.

North on 25th Meridian.

ch.	lks.	
65	00	leave valley & enter broken sand Hills. From temporary stake left to mark the approximate position of 18th mile post north of 40th Parallel, I measure 41 lks. north on 25th Meridian, & mark the point by planting 3ft. deep in the sand, a norway pine post 8ft. long 6in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of sand raised 3ft. high around it and pits dug each side on the line, as per instructions. Post stands in a sharp hollow between the hills, & is not visible at any great distance. No witnesses. Magnetic Declination 13° 39' E.

North on 25th Meridian.

ch.		
59	00	Through broken sand hills, & then enter another small valley running N.W. & S.E. From the temporary stake left to mark the approximate position of 19th mile post north of 40th Parallel, I measure 41 lks. north on 25th Meridian & mark the point by planting 3ft. deep in the ground a norway pine post 8ft long 6in. sq. duly inscribed, a quantity of Charcoal at its foot, a mound of earth & sand raised 3ft. high around it & pits dug each side on the line as per instructions. No witnesses. Magnetic Declination 13° 29' E.

North on 25th Meridian.

ch.	lks.	
35	00	Entered Sand hills. From temporary stake left to mark the approximate position of 20th mile post North of 40th Parallel, I measured 41 lks. north on 25th Meridian, & mark the point by planting 3ft. deep in the ground, a post of Norway pine 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of sand raised 3ft. high around it, & pits dug each side on the line, as per instructions.

No other witnesses —

Magnetic declination 13° 6′ 30″ E.

Sand Hills, much broken, surround the post on every side.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 21st mile post North of 40th Parallel, I measured 41 lks. north on 25th Meridian & mark the point by planting 3ft. deep in the ground, a Norway Pine post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of sand & earth raised 3ft. high around it & pits dug each side on the line as per instructions. No other witnesses.

Magnetic declination 13° 7′ 30″ E.

Soil 3rd rate.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 22d mile post north of 40th Parallel, I measured 41 lks. north on 25th meridian and mark the point by planting 3 ft. deep in the ground a Norway pine post, 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the meridian, as per contract.

Soil 3d rate. Surface gently rolling. grass poor.

Magnetic declination 13° 11' 00" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 23d mile post north of 40th Parallel, I measured 41 lks. north on 25th meridian, and mark the point by planting 3 ft. deep in the ground a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line as per instructions. No other witnesses.

Surface gently rolling. Soil sandy & poor, grass scanty.

Magnetic declination 13° 33' 00" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 24th milepost north of 40th parallel I measured 41 lks. north on 25th meridian & marked the point by planting 3 ft. deep in the ground a Norway Pine post 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per instructions.

No other witnesses –

Stands on a considerable elevation overlooking a wide valley extending towards S.W., W. & N.W.

Magnetic declination 13° 55' 00" E.

October 4th 1869.

O.M. Chaffee.

North on 25th Meridian.

ch.	lks.	
24	00	45 lks. East of line a small pond of good water 1 chain wide 2½ chs long & 1 to 2 ft. deep –

From the temporary stake left to mark the approximate position of 25th mile post north of 40th parallel, I measured 41 lks. north on 25th Meridian, & marked the point by planting 3 ft. deep in the ground. a Norway Pine post 8 ft. long 6 in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of Earth raised 3 ft. high around it & pits dug each side on the line as per contract. No other witnesses.

Magnetic Declination. 14° 2' 00" E.

Stands on a hollow plain of considerable size, extending lengthwise E. & W.

North on 25th. Meridian.

Ch.	Lks.	
12	00	Enter broken sand Hills.
53	00	Leave hills & enter rolling surface. From the temporary stake left to mark the approximate position of 26th. milepost north of 40th. Parallel, I measure north 41 lks. on 25th. Meridian & mark the point by planting 3 ft. deep in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of sand raised 3 ft. high around it, and pits dug each side on the line, as per contract.

No witness objects.

Magnetic declination 14° 00' 20" E.

North on 25th. Meridian.

Ch.	Lks.	
9	00	Enter sand Hills. From the temporary stake left to mark the approximate position of 27th. milepost north of 40th. Parallel, I measure 41 lks. north on 25th. Meridian, & mark the point by planting 3 ft. deep in the ground, a Norway pine post 8 ft. long 6 inches square, duly inscribed, a quantity of Charcoal deposited at its foot, a mound of earth & sand raised 3 ft. high around it, and pits dug each side on the line, as per instructions.

No other witness objects.

Magnetic Declination 14° 00' 50" E.

Surface along the line considerably rolling - Soil sandy & worthless. Post stands in a valley of small Extent, reaching N.W. & S.E. probably a mile each way.

North on 28th Meridian.

From the temporary stake left to mark the approximate position of 28th milepost north of 40th Parallel I measure north 41 chs. on the 28th Meridian & mark the point by planting 3ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of Earth raised 3ft. high around it, & pits dug Each side on the line, as per instructions. No other witnesses. Line runs over rolling sand hills, but the post stands at the south side of a small valley, Extending probably 3 miles N.W. & S.E. and about 1 mile North. Soil about 3rd rate – grass better than it has been for several miles.

Magnetic declination 14° 2′ 20″ E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 29th mile post north of 40th Parallel, I measure 41 chs. north on 25th Meridian, & mark the point by planting 3ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of Earth & sand raised 3 feet high around it, & pits dug each side on the line, as per instructions.

No other witnesses.

This Post stands at the north side of valley before mentioned, on the rising ground just as we enter sand hills. Soil about 2nd rate along the mile.

Magnetic declination 14° 8′ 20″ E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 30th mile post North of 40th parallel, I measure 41 lks. north on the 25th Meridian, & mark the point by planting 3 feet deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its base, a mound of sand raised 3ft. high around it, & pits dug each side on the line, as per instructions. No other witnesses.

Post stands on N.E. side of a pretty prominent sand hill. Surface very uneven in all directions, soil worthless.

Magnetic declination 13° 46' 20" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 31st mile post North of 40th Parallel I measure 41 lks. North on 25th Meridian, & mark the point by planting 3 ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of sand raised 3ft. high around it, & pits dug each side on the line, as per instructions. No other witnesses.

Sand hills of uneven character surround the post on all sides

Magnetic declination 13° 42' 00" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 32d mile post north of 40th Parallel I measure 41 links north on 25th Meridian and mark the point by planting 3 ft. deep in the ground a Norway Pine Post 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of sand raised 3 ft. high around it, & pits dug each side on the line, as per contract & instructions. No other witnesses.

Soil sandy & worthless.

Magnetic declination 13° 38′ 0″ E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 33d mile post north of 40th Parallel I measure North 41 lks. on 25th meridian & mark the point, by planting 3 ft. deep in the ground, a Post of Norway pine, 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of sandy earth raised 3 ft. high around it, & pits dug each side on the line, as per instructions. No other witnesses. Surface rolling. Soil sandy & worthless.

Magnetic declination 13° 44′ 50″ E.

Commence work Div.

North on 25th Meridian.

ch	lks	
6	00	Enter a valley extending N.W. & S.E. From the temporary stake left to mark the approximate position of 34th mile post north of 40th Parallel, I measured North 41 lks. on 25th Meridian & mark the point by planting 3ft. deep in the ground, a Norway Pine post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of Sand raised 3ft. high around it, & pits dug each side on the line, as per instructions.

No other witnesses.

The post stands on barren sand hills at the north side of valley mentioned above.

Magnetic declination 13°46′00″ E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 35th mile post north of 40th Parallel, I measured 41 lks. north on 25th Meridian, & mark the point by planting 3ft. deep in the ground, a Norway Pine post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of sandy earth raised 3ft. high around it & pits dug each side on the line, as per instructions. No other witnesses.

Line through this mile over broken sand hills. Post stands in a small hollow.

Magnetic declination 13°56′40″ E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 36th mile post north of 40th ~~mile Post~~ parallel, I measured 41 lks. north on 25th Meridian, & mark the point by planting, 3ft. deep in the ground, a Norway Pine post 8ft. long 6in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of Earth & sand raised 3ft. high around it, & pits dug Each side on the line as per instructions. No other witnesses.

This Post stands on Northern slope of sand hills looking towards an extensive plain which extends nearly to the South Platte River.

Magnetic declination 13° 49' 50" E.

North on 25th Meridian.

Ch	Lks	
68	70	Highest Point of sand Hills S. 30° 47' E.

From the temporary stake left to mark the approximate position of 37th mile post North of 40th Parallel, I measured 41 lks. North on 25th Meridian, & mark the point by planting 3ft. deep in the ground, a Norway Pine Post, 8ft. long 6in. sq. duly inscribed, a mound of earth raised 3ft. high around it, a quantity of Charcoal deposited at its foot, and pits dug Each side on the line, as per instructions.

A white tent on dry creek bed bears N. 62° 50' E. No other witnesses.

Magnetic declination 13° 51' 20" E.

Soil during the last mile better than usual, but not good.

North on 25th Meridian.

ch.	lks.	
22	70	S. Edge of dry bed of Creek 60 lks wide - Flows East. On the North side Enter a nearly level plain Extending with out interruption for miles towards N. E. & W.

From the temporary stake left to mark the approximate position of 38th milipost north of 40th Parallel, I measure 41 lks. north on 25th Meridian, & mark the point by planting 3ft. deep in the ground, a Norway Pine post 8ft. long 6in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of earth raised 3ft. high around it & pits dug each side on the line, as per instructions. Also a small piece of limestone with a hole 1 inch in diam. deposited in mound. No other witnesses.

A nearly level plain in all directions.

Magnetic Declination 13° 58' 30" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 39th mile Post north of 40th Parallel, I measure 41 lks. north on 25th meridian, & mark the point by planting 3ft. deep in the ground, a Pine post, 8ft. long 6in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of Earth raised 3ft. high around it, & pits dug each side on the line, as per instructions. - A Buffalo skull & jaw deposited in the mound.

No witness objects.

Magnetic declination 13° 54' 20" E.

A level plain Extending in all directions. Soil very good, though dry & hard.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 40th mile post north of 40th Parallel, I measured 41 lks. north on 25th Meridian, & mark the point by planting 3ft. deep in the ground, a Norway Pine Post. 8ft. long 6in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of Earth raised 2ft. high around it, & pits dug each side on the line, as per instructions.

No witness objects.

Magnetic Declination 13° 44' 10" E.

A level plain in every direction –

October 5th 1869.

O. M. Chaffee.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 41st mile post north of 40th Parallel, I measured 41 lks. north on 25th Meridian, & mark the point by planting 3ft. deep in the ground a Norway Pine Post 8ft. long 6in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of Earth raised 2ft. high around it, & pits dug each side on the line, as per instructions.

No other witnesses – a level plain extends in every direction. Soil good, but dry & hard. Buffalo grass plenty.

Magnetic Declination 13° 51' 30" E

North on 25th Meridian.

Ch.	lks.	
24	50.	Dry bed of creek – flows East. From the temporary stake left to mark the approximate position of 42nd mile post north of 40th Parallel, I measured 41 lks. north on 25th meridian, & mark the point by planting 3 ft. deep in the ground, a norway Pine post, 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of Earth raised 3 ft. high around it & pits dug each side on the line, as per instructions. A considerable hill, quite distant, bears N. 59° 50' E. No other witnesses. Magnetic declination 13° 45' 40" E.

North on 25th Meridian

Ch.	lks.	
17	09	Dry creek bed – flows East. From the temporary stake left to mark the approximate position of 43rd mile post north of 40th Parallel, I measured 41 lks. north on 25th Meridian, & mark the point by planting, 3 ft. deep in the ground, a pine post 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of Earth raised 3 ft. high around it, & pits dug each side on the line, as per instructions. No other witnesses. Soil very good, but dry & hard. Magnetic declination 13° 57' 30" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 44th mile post north of 40th Parallel, I measure 41 lks. north on 25th Meridian, & mark the point by planting, 3 ft. deep in the ground, a pine post 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its base, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per instructions.

No witness objects.

Magnetic declination 13° 59' 30" E.

North on 25th Meridian

From the temporary stake left to mark the approximate position of 45th mile post north of 40th Parallel, I measure 41 lks. north on 25th Meridian, & mark the point by planting 3 ft. deep in the ground, a Pine Post, 8 ft. long, 6 in. sq. duly inscribed, a quantity of charcoal deposited at its base, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per instructions. No other witnesses.

Level plain in all directions — short buffalo grass, & pretty good soil — though very dry & hard.

Magnetic declination 14° 3' 00" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 46th mile port north of 40th Parallel, I measured 41 lks. north on 25th meridian & mark the point by planting 3 feet deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of Earth raised 3ft. high around it, & pits dug each side on the line, as per contract & instructions.

Hill noted at 42d. Port bears N.76° E.

No other witnesses.

Magnetic Declination 14° 9' 10" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 47th mile port north of 40th Parallel, I measured 41 lks. north on 25th meridian & mark the point by planting 3ft. deep in the ground, a Norway Pine post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3ft. high around it, & pits dug each side, on the line, as per instructions. No other witnesses.

Magnetic declination 14° 6' 00" E.

Short buffalo grass: good soil tho' dry.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 48th milepost North of 40th Parallel, I measure 41 lks. north on 25th Meridian, & mark the point by planting 3 ft. deep in the ground, a Hemlock post 8 ft. long, 6 in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per instructions.

No other witnesses.

Surface a nearly level plain. Soil very good.

Magnetic Declination 14° 10' 00" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 49th milepost North of 40th Parallel, & measure 41 lks. north on 25th Meridian, & mark the point by planting 3 ft. deep in the ground, a Norway Pine post 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per instructions.

All noted at 47th post bears N. 84° 10' E.

No other witnesses. Surface a nearly level plain.

Magnetic Declination 14° 6' 40" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 50th mile post north of 40th Parallel I measured 41 lks. North on 25th Meridian, & mark the point by planting 3 ft. deep in the ground, a Norway Pine Post, 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per instructions.

No other witnesses.

Magnetic declination 14° 5' 50" E

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 51st mile post north of 40th Parallel, I measured 41 lks. north on 25th meridian, & mark the point by planting, 3 ft. deep in the ground, a Norway Pine Post, 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3 ft. high around it & pits dug each side on the line, as per instructions. No other witnesses.

Surface a nearly level plain – Soil dry & hard – 1½ ft. below surface almost stone.

Magnetic Declination 14° 15' 50" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 52d mile post north of 40th Parallel, I measured 41 lks. north on 25th meridian & mark the point by planting 3ft. deep in the ground a Norway pine post, 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of Earth raised 3ft. high around it, & pits dug each side on the line, as per instructions.

No other witnesses.

Surface a level plain.

Magnetic Declination 14° 6' 10" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 53d milepost north of 40th ~~milepost~~ Parallel, I measured 41 lks. north on 25th Meridian & mark the point by planting 3ft. deep in the ground, a Norway pine post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of Earth raised 3ft. high around it & pits dug each side on the line, as per instructions.

No other witnesses.

Surface slightly rising between this post & the last. An Excellent crop of buffalo grass.

Magnetic Declination 14° 8' 00" E.

North on 25th Meridian.

Ch.	Lks.	
56	70	Bed of dry Creek 22 lks. wide, flowing E.S.E. Find water half a mile west by digging 5 ft. deep in gravel.

From the temporary stake left to mark the approximate position of 54th mile post North of 40th Parallel, I measured 41 lks. north on 25th meridian, & mark the point by planting, 3ft. deep in the ground, a Norway Pine post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per instructions.

No other witnesses.

Magnetic declination 14° 15' 20" E.

October 6th 1869.

O. M. Chaffee.

North on 25th Meridian.

From the temporary stake placed to mark the approximate position of 55th milepost north of 40th Parallel, I measured 41 lks. north on 25th Meridian & mark the point by planting 3ft. deep in the ground, a post Norway Pine, 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per instructions.

No other witnesses. Soil good — surface a nearly level plain.

Magnetic declination 14° 11' 20" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 56th mile post north of 40th Parallel, I measured north 41 lks. on 25th meridian, & mark the point by planting 3ft. deep in the ground, a Norway Pine post, 8ft long 6in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of Earth raised 3ft. high around it, & pits dug each side on the line, as per instructions.

No other Witnesses - Surface a nearly level plain.

Magnetic Declination 13° 57' 55" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 57th mile post north of 40th Parallel, I measured 41 lks. north on 25th Meridian & mark the point by planting, 3ft. deep in the ground a Norway Pine Post 8ft. long 6in. sq. ~~3ft.~~ duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract & instructions.

No other witnesses.

Post stands in a small hollow basin where water settles in wet seasons.

Magnetic Declination 14° 2' 30" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 58th mile post north of 40th Parallel, I measured 41 chs. north on 25th meridian, & mark the point by planting 3 ft. deep in the ground a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line as per instructions.

No other witnesses. Surface a nearly level plain.

Magnetic Declination 14° 7' 40" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 59th mile post north of 40th Parallel, I measured 41 chs. north on 25th Meridian, & mark the point by planting 3 ft. deep in the ground, a Norway pine post 8 ft. long, 6 in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per instructions.

No other witnesses.

Magnetic Declination 14° 12' 00" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 60th mile post north of 40th Parallel, I measured 41 lks. north on 25th meridian & mark the point by planting 3 ft. deep in the ground a Hemlock post 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3 ft. high around it & pits dug each side on the line, as per instructions.

No other witnesses.

Surface nearly level & soil good.

Magnetic declination 14° 11' 30" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 61st mile post North of 40th Parallel, I measured 41 lks. north on 25th meridian, & mark the point by planting 3 ft. deep in the ground, a norway pine post 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per instructions. No other witnesses.

Surface nearly level - soil good.

Magnetic declination 14° 7' 20" E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 62d mile post north of 40th Parallel, I measured 41 lks. north on 25th meridian & marked the point by planting 3ft. deep in the ground, a Pine Post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3ft. high around it, & pits dug each side on the line, as per contract & instructions. No other witnesses.

Surface a nearly level plain—
Soil apparently very good, but very hard 1 ft. beneath the surface.

Magnetic Declination 14° 4′ 00″ E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 63d mile post north of 40th Parallel, I measured 41 lks. north on 25th Meridian & marked the point by planting 3ft. deep in the ground a Norway pine post 8ft. long 6in. sq. duly inscribed, a quantity of Charcoal deposited at its foot, a mound of Earth raised 3ft. high around it, & pits dug each side on the line, as per instructions. No other witnesses.

Surface & soil as before.

Magnetic declination 14° 8′ 50″ E.

North on 26th Meridian.

From the temporary stake left to mark the approximate position of 64th milepost north of 40th parallel I measured 41 lks. north on 26th meridian & mark the point by planting, 3ft deep in the ground, a pine post, 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 2ft. high around it, & pits dug each side on the line, as per instructions.

No other witnesses.

Magnetic Declination 14° 7' 30" E.

Surface a nearly level plain.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 65th milepost north of 40th Parallel, I measured 41 lks. north on the 25th Meridian, & mark the point by planting 3ft. deep in the ground a Norway Pine post 8ft. long 6in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 2ft. high around it, and pits dug each side on the line, as per instructions.

No other witnesses.

Surface & soil as before.

Magnetic Declination 14° 15' 30" E.

North on 25th Meridian

From the temporary stake left to mark the approximate position of 66th mile post north of 40th Parallel, I measure 41 lks. north on 25th Meridian & mark the point by planting 3 ft. deep in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per instructions.

No other witnesses.

Surface & soil the same as before.

Magnetic declination 14° 15′ 30″ E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 67th mile post north of 40th Parallel, I measure 41 lks. north on 25th meridian, & mark the point by planting 3 ft. deep in the ground, a post of Norway Pine 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its foot, a mound of earth raised 3 ft. high around it, & pits dug each side on the line, as per instructions.

No other witnesses.

Surface a nearly level plain, & soil of good quality though dry & hard.

Magnetic declination 14° 20′ 00″ E.

North on 25th Meridian.

From the temporary stake left to mark the approximate position of 68th mile post north of 41st Parallel I measured 41 lks. north on 25th meridian & mark the point by planting 3 ft. ang. in the ground, a Norway pine post 8 ft. long 6 in. sq. duly inscribed, a quantity of charcoal deposited at its base, a mound of earth raised 3 ft. high around it, & pits dug each side on the line as per instructions.

No other witnesses.

Surface nearly level – soil good.

Magnetic Declination 14° 20' E.

North on 25th Meridian.

Ch.	Lks.	
22	50	Dry bed of Creek 8 lks. wide flows N.W.
56	20	Dry bed of Creek 6 lks. wide flows N.W.
79	59	Limestone monument heretofore placed to mark the intersection of 25th Meridian with the 41st Parallel N. Latitude.

I complete its inscriptions by inscribing on its South side "68 M. 79 Ch. 59 Lks."

October 7th 1869.

O. M. Chaffee.

Surv. Genl's Office, Washington, Apl. 15 1870

The foregoing field of the survey of the boundary line between Nebraska, Colorado and Wyoming, executed by Olivin M. Chaffee, under his contract of the 29th day of May 1869, in the months of July, Aug. Sept. Oct. & Nov. 1869, having been critically examined, and the necessary corrections and explanations made; the said field notes, and the surveys they describe, are hereby approved.

E. L. D. Livingston

Surveyor General

Affidavit

I, Olivin N. Chaffee, Astronomer and Surveyor, do solemnly swear that, in pursuance of a contract with Robert R. Livingston Surveyor of the Public lands of the United States in the State of Nebraska, bearing date the 29th day of May, 1869, and in strict conformity to the laws of the United States and the instructions furnished by the said Surveyor General, I have faithfully surveyed the boundary line between Nebraska, Colorado and Wyoming, and do further solemnly swear that the foregoing are the true and original field notes of such survey

O.N. Chaffee.

Astronomer & Surveyor

Subscribed by said Olivin N. Chaffee, Astronomer and Surveyor and sworn to before me, a Judge of Probate in and for Cass County, in the State of Nebraska, this 14th day of April, 1870

A. S. Reed

Judge of Probate

296.

312

+ all right

313

Report

Boundary Survey of Nebraska.

O. M. Chaffee.

Eng.

Genl. Robt. R. Livingston
Surveyor Genl. Iowa & Nebraska.

Sir.

I have the honor to present the following Report of the survey of the Western Boundary of Nebraska, and of so much of the southern boundary as lies between the 25th & 27th Meridians west from Washington, together with the accompanying Tables of Astronomical Observations & Calculations, Field-notes maps & Sketches.

During the winter of 1868-69 the U. S. Coast survey had made telegraphic connection across the continent for the determination of the difference of Longitude between Cambridge, Mass. & various points west of it. Omaha was one of these points, and the observatory there, in charge of Edward Goodfellow Esqr., was still in operation at the time the survey of the Boundary was begun. Application having been made thus for an interchange of telegraphic signals for determining

of the difference of time between Omaha and two points near the 25th & 27th meridians, he readily agreed to furnish the necessary assistance, & superintend the work at Omaha.

The method of sending signals in use by the Coast Survey having been adopted for our operations, & the details being well understood, I proceeded to Bushnell Station U.P.R.R. and began the necessary observations for determination local time.

The instruments used were a Throughton Sextant, two Chronometers, made by Wm. Bond & Son, Boston, one regulated to mean Solar time, & the other to Sidereal time — and an artificial horizon of mercury.

Numerous observations of East and West stars were made for time at Bushnell, the record of which may be found on the 1st, 2d, 3d, 4th, 6th, 7th & 8th pages of the astronomical tables appended to this report. They have all been computed, & the Chronometer correction deduced, by the formula —

$$\sin \tfrac{1}{2} t = \sqrt{\frac{\sin \tfrac{1}{2}[z + (\varphi - \delta)] \sin \tfrac{1}{2}[z - (\varphi - \delta)]}{\cos \varphi . \cos \delta}}$$

in which t = the hour angle of the object observed

z = its zenith distance

δ = its declination

φ = Latitude of the place of observation.

An example of detailed computation by this formula may be found on p.p. 34. & 35. of the astronomical tables.

The mode of sending time-signals was as follows. Notice having been given that the preparatory arrangements were complete, and the observers ready, the observer at Bushnell touched the telegraphic operating key at the beginning of a minute as indicated by the chronometer, and at intervals of 10 seconds throughout that minute, giving the last signal at the beginning of the next minute, thus sending 7 signals which are comprised in one set, and the mean, or average time thereof placed in the record. They were recorded at the Omaha station by means of the Coast Survey clock & chronograph working in the ~~telegraphic~~ electrical circuit. At intervals of one minute between them, two other sets of signals were transmitted in like manner. The same

operation was then repeated by the Observer at Omaha, but the times of the receipt of the signals at Bushnell were taken by ear from the chronometer by both myself & assistant. Forty-two independent measurements of the difference of time were therefore made in one evening.

On July 9th these operations were repeated, and the summary of the whole may be found on page 9 of the Tables. The number of the set is placed in the 1st column. The average time of sending & receiving these sets of signals as recorded by the clock & chronograph at Omaha Coast Survey station will be found in the second column. In the 3d column the clock correction, which being applied to the quantities in the second column will give the sidereal times of the signals for the meridian of Omaha, which are recorded in the 6th column. In the 4th column the times of the same signals as indicated by the chronometer at Bushnell. In the 5th column the chronometer correction, which being applied to the last quantities

will produce the sidereal time of the signals for the meridian of Bushnell, which is recorded in the 7th column. The difference of the quantities in the 6th & 7th columns, are recorded in the last column, and furnish the difference of Longitude in time between the stations occupied.

The same method was pursued at Jubilee Station U.P.R.R. but exchanges were made on one night only, as Mr. Goodfellow's official duties called him away from Omaha after that time. The observations for chronometer correction, and the record of the signals for Jubilee station may be found on the 10th, 11th & 12th pages of the Astronomical Tables.

The difference of Longitude between Omaha and Bushnell, as deduced from these operations is 31m 45.75s

Omaha is west of Washington	1h 15 34.68
Bushnell west of Washington	1h 47m 20.43s
Converted into arc	26° 50' 6.45"

The difference of Longitude between Omaha & Jubilee Station U.P.R.R. was ascertained to be 0h 25m 39.38s

Omaha west of Washington	1 15 34.68

Julesburg west of Washington $1^h\ 41^m\ 14^{ss}.06$

converted into arc ——— $= 25°\ 18'\ 30''.9$

It may be proper to add that the difference of longitude between Washington & Omaha is obtained as follows—

Omaha west of Greenwich, as given by Mr. Goodfellow ——— $6^h\ 23^m\ 45^{ss}.88$

Washington west of Greenwich, taken from the American Ephemeris, 1869. $5^h\ 8^m\ 11^{ss}.2$

Omaha west of Washington $1^h\ 15^m\ 34^{ss}.68$

The latitudes of these stations were determined by circumpolar observations of α Ursae minoris, & circum-meridian observations of various stars south of the Zenith. Observations of Polaris were reduced by the formula

$$\text{Latitude} = \varphi = H - (d.\cos P) + \tfrac{1}{2}\sin 1''(d.\sin P)^2 \tan H. - \tfrac{1}{3}\sin^2 1''(d.\cos P)(d.\sin P)^2$$

in which H = correct altitude of the star.

d = its Polar distance in seconds.

P = its hour angle.

Examples of the computation may be found on pp. 30. & 33. of the tables.

Circum-meridian observations of stars south of the Zenith have been reduced by the formula taken from Chauvenet's Astronomy Vol 1. P. 239.

$$z_1 = z - \frac{\cos\varphi.\cos\delta}{\sin z_1}.\frac{2\sin^2\frac{1}{2}t}{\sin 1''} + \left(\frac{\cos\varphi.\cos\delta}{\sin z_1}\right)^2.\frac{2\cot z.\sin^4\frac{1}{2}t}{\sin 1''}.$$

in which φ = approximate latitude,

δ = Star's declination

z = Star's observed zenith distance,

z_1 = " True do

t = " hour angle.

An example of this computation may be found on page 32. of the accompanying tables.

As I had determined to use the position of Julesburg as the starting point for the Geodetic operations, its latitude was carefully determined by a large number of observations — They are confidently referred to as comparing favorably with any which have hitherto been made with the sextant, and as furnishing its position very exactly. The record may be found on pp. 13. 14. 15. & 16. of the tables.

32nd Latitude deduced from 46 observations N. of Zenith 40° 58′ 32″.15
Do do 69 do S. do 40 59 29.97
Mean result, adopted latitude — 40° 59′ 1.56

The latitude of Bucknell Station was found to be
from 17 observations of Polaris 41° 13′ 41″.2
from 14 do α Aquilæ 41 14 7.6
Mean adopted latitude 41° 13′ 54.4

These positions having been ascertained, the next duty was the geodetic operation of tracing & marking the meridians, & the curve of the parallel of 41° North latitude, on the earth's surface. Beginning at Jubilburg, in latitude 40° 59′ 1.56 the distance to the 41st parallel is 58.44 = 1 mile 9.65 chains north. The direction of the true meridian was generally determined by observation of the stars α. & δ. Ursæ minoris with a superior theodolite constructed by Wm. Würdemann of Washington D.C. the observations were made at any convenient period, instead of at the elongation as is customary, and the time by Chronometer

noted. The computation of the stars azimuth was then made by the following formulas.

$$\tan. y = \cos P. \cot \delta.$$

$$\text{Col. } A. = \frac{\cot P. \cos(y+q)}{\sin y}$$

where A = azimuth of star counted from the N.
P = Hour angle of star.
δ = its declination.
q = Latitude of place of observation.

These observations were repeated nearly every night for correction of the transit line throughout the whole survey, and the errors of tracing it are given in the proper places in the field-notes. (pages 90.)

Having ascertained the direction of the true meridian at Jubilburg by these observations of Polaris I prolonged it north, by means of a transit instrument, a distance of 89.65 chains, and determined a point on the 41st parallel. The longitude of the meridian of Jubilburg being 25° 18′ 30″.9, the distance thence to the 25th Meridian is 16 miles 10.47 chains east. From the point of intersection of the meridian of Jubilburg with the 41st Parallel, I therefore measure due East 10.47 chains & the position of the 16th mile post west of

25th Meridian.

All the measurements of distance were made with two chains; one a full Gunter's, and the other a 50 ft. Engineer's chain, which were used to prevent any collusion between the two sets of chainmen. These chains were compared daily with a standard chain, which had been corrected by the standard in your office, and the proper corrections applied to each mile measured.

From the 16th mileport the curve of the parallel was traced both East & West, the tangent line being carefully prolonged with the transit, and the proper offsets made at each mileport to the curve. These offsets were computed by the formula

Offset = $R . \sin 2\varphi \sin^2 \frac{1}{2} x$. in which

φ = latitude,

R = radius of the Earth,

x = difference of longitude between the tangent point & the point of offset.

In the vicinity of the 52d mileport west of 25th meridian observations for time & latitude, which may be found on p.p. 18. 19. & 20. of the tables were made, and the following results obtained.

Latitude by 30 observations of α Aquilae	=	40° 00′ 20″.8
Do 28 do Polaris	=	40 59 50.0
Mean result	=	41 00 5.4
The point of observation 112 ft north of the 52d mile port — in arc	=	1″.1
Correct latitude by observations	=	41° 00′ 4″.3

In the vicinity of the 70th mileport west of the 25th meridian, observations for the verification of the parallel were again made, with the following result.

Mean latitude from 22 observations of Polaris		40° 59′ 26″.7
Do Do 22 do & ophiuchi		40 00 23.5
Mean adopted latitude		40° 59′ 55″.1

It may be noticed that the mean between this result & that obtained at the 52d port is 40° 59′ 59″.7 and the difference in either case is considerably within the limit of error usually allowed to observations made with such instruments. The record will be found on p.p. 21. 22. of the

astronomical tables.

The latitude of Burhnell was ascertained to be 41° 13' 54".4 – for the record see page 5 of the tables. Thence I measured south on the true meridian 15 miles 69.94 chains to the 41st Parallel; this quantity reduced to arc is 13' 48".2, which being subtracted from the latitude of Burhnell gives 41° 00' 6".2 for the latitude of 41st Parallel as obtained from the observations at Burhnell. This difference is due to the small number of observations made at that point. Mr. Goodfellow's time at Omaha being limited, I was compelled to use as much dispatch as possible.

The meridian traced from Burhnell intersected the 41st Parallel at 96 miles 22.62 chains west of the 25th meridian. The longitude of that meridian is 26° 50' 6".45 west of Washington & 9' 53".55 East of the 27th meridian.

This converted into miles ~ = 8m 49ch.50

Burhnell merid. west of 25th by chain = 96 22.62

Position of 27th Meridian = 104m 72ch.12

The intersection of 41st Parallel & 27th meridian having been properly commemorated in accordance with the terms of the contract, I entered on the work of tracing the latter line to its intersection with the 43d parallel. Its direction was determined by frequent observations of stars near the pole, and the results of those observations are to be found under their respective dates in the field-notes. Having arrived within eleven miles of the 43d Parallel the surface of the country was found to be so much broken as to be impassable for wagons. I was compelled to leave my outfit behind, & was limited to those necessary articles which could be transported with the smallest means of conveyance. Observations for Latitude were therefore made at that point, near the vertical rocks which bound the south side of the valley of the White river, with the following results, & the record may be found at pp. 23. 24. 25 & 26. of the tables.

Latitude deduced from 46 observations Polaris = 42° 49' 58".37

do do 30 do & Pegasi = 42 51 00.5

Mean result adopted ~ = 42° 50' 29".43

From the point of observation the distance is 9° 30'.57 in arc, or 10 miles 75.12 chains — which being added to the distance measured on 25th meridian from the 41st Parallel will give 138 miles 22.67 chains as the distance chained between the 41st & 43d Parallels. The point of intersection, which is the N.W. corner of Nebraska, having been commemorated by a stone monument of the prescribed dimensions, placed according to the terms of the contract, I resumed the survey of the 41st Parallel, east of Salisbury to the 25th meridian. The methods employed have already been described. The intersection of those lines was marked by a limestone monument of the prescribed form & dimensions, placed according to the terms of the contract.

I then began the survey of the 25th Meridian. Its direction was obtained by the same method as heretofore employed. As it was necessary to mark the intersection of the State line between Kansas & Nebraska, which is intended to be the 40th Parallel of Latitude

with the 25th meridian, the Southeast point, I was required to trace the latter line south from its position as already determined. This was accordingly done, and the distances marked off mile by mile from the 40th Parallel, by temporary stakes. For the record of this operation, & the various corrections as deduced by the different observations for true meridian you are referred to ~~the field notes~~ the field notes ~~from~~ from pages 107 & 108. ~~of the field notes~~. Having measured 69 miles, approximately the value of a degree between the 40th & 41st Parallels, search was instituted for the old line. The surface for a distance of ½ mile in all directions was carefully examined without discovering any trace of it. I then continued the line of 25th meridian South two miles searching carefully on both sides of it for a distance of ½ a mile, & for two miles further south without running the line, without finding any stones whatever at all corresponding in size or shape or character with those mentioned in the notes of the survey of the State line. I therefore returned to the vicinity of the point 69 miles south of 41st Parallel, & made observations

for its latitude. The record may be found on pp. 27. 28. & 29. of the astronomical tables & the results deduced are as follows.

55 observations of Polaris give — 39° 59′ 37″.78
42 do α Aquilæ — 40 00 21.54

Mean latitude adopted = 39° 59′ 59″.66

The distance from the point of observation to 40th Parallel is therefore 34.4 ft. north. The point of observation was 7 ft. south of the temporary stake which marked 69 miles south of 41st parallel. Consequently the 40th Parallel lies 27.4 ft. north of that stake. That distance having been measured, I commemorated the point by erecting a limestone monument of the prescribed form & size in accordance with the terms of the contract. Thence I proceeded north along the line of the 25th meridian, & planted the different milposts 27.4 ft. north of the respective Pegs left to mark their approximate positions. At a point 24.41 miles north of 40th parallel I made observations for latitude for verification of the chaining, the record of which

may be found on pp. 30. 31. 32 & 33. of the tables.

The latitude by observation is 40° 21′ 12″.38
Do by measurement 40 21 13.30

The difference — 0″.92
is equal to 93.1 ft.

Returning to the intersection of 25th Meridian and 41st Parallel, the inscriptions on the monument were completed by inscribing thereon the distance chained from the 40th Parallel — 68 miles 79.59 chains.

As soon as possible after my return from the field, I notified you of the failure to discover the state line between Kansas & Nebraska. Having been directed by you to return & make another effort, I did so at once, and made a more thorough search than before. Being accompanied by a company of cavalry as escort, I proceeded to the corner. Having been furnished with the notes of the connection of 3rd Standard parallel with the 41st parallel, which indicated that the old state line where connected with the standard at some point east of the 25th meridian, was very nearly on the 40th parallel, it was necessary for me to make examination only of a narrow

~~of a narrow~~ strip of land in a north & south direction; & I confined my examination to a distance of ½ a mile wide, but extending more than four miles east & west. The search was made by myself in person, accompanied by several mounted men, who separated from 100 to 200 ft. apart, and rode over the ground for a whole day making strict search. We found but one stone in this part of the country, & that, not corresponding in size with those described in the notes as marking the boundary, but being considerably larger, and the distances from it to the nearest raines being different from those indicated on the plat of the old line which accompanied the notes, I concluded there was no line discernable within any reasonable distance of the 25th meridian. I intended searching farther, but owing to the want of forage the officer in command of the escort was compelled to return, & the examination was reluctantly abandoned. It is however improbable that there is any state line there

out and marked in the vicinity of the 25th meridian. As I undertook to connect my work with that line on the distinct understanding and information from the office that it was surveyed & clearly marked at intervals of ½ a mile, it is respectfully submitted that I have examined as far as I ought reasonably to be expected to do; and though I have not made the connection with the old line, that it is more than counterbalanced by the number of astronomical observations, nearly twice as many as are required by the contract, made for the determination of the positions (aside from the very frequent observations for true meridian) and the great accuracy attained in the positions of the meridians, though the use of the telegraph which was not contemplated as it was not mentioned in the contract.

It gives me pleasure to mention the valuable aid rendered by my assistant S. H. Robinson A.M. Professor of mechanical Philosophy & Engineering in the Industrial

University of Illinois, to whom excellent mathematical knowledge, & experience acquired in similar duty on the U. S. Lake Survey, much of the success of the astronomical observations of the 41st Parallel and 27th meridian is due. It was matter of regret that his professional duties did not permit him to accompany me while running the 25th meridian & determining the 40th Parallel.

I am, very respectfully,
Your obt. servant
O. M. Chaffee.
Astronomer & Surveyor.

Detroit Feby. 6th 1870.

Examined and approved
Robt R. Livingston
Survyr General
Iowa and Nebraska

Surveyor General's Office
Plattsmouth, Neb. April 15. 1870

Tables
of
Astronomic Calculations

Chaffee

1869

Operations for the Latitude & Longitude of Bucknell Nebraska.

Observations for Time.

Name & Position of Star.	Chronometer Times of Observation.	Observed Double Altitudes.
α Bootis - West.	18^h 34^m $25.^{se}$	72° 50′
	35 22.5	30
	36 13.1	10
	37 7.2	71 50
	37 58.4	30
	38 51.4	10
	39 48.2	70 50
	40 38.4	30
	41 30.2	10
	42 24.4	69 50
	43 18.2	30
	44 12.0	10
	45 5.5	68 50
	46 0.5	30
Means.	18^h 40^m $12.^{se}48$	70° 40′ 00″

Deduced Chronometer Correction = -30^m $40.^{se}1$

Observations for Time.

Name & Place of Star.	Chronometer Times of Observation	Observed Double Altitudes.
α Coronae Borealis. West.	19^h 1^m $32.^{se}5$	100° 50′ 00″
	3 14.2	10 00
	4 8.5	99 50
	4 58.6	30
	5 56.5	10
	6 48.0	98 50
	7 40.5	30
	8 36.2	10
	9 27.3	97 50
	11 14.7	10
	12 7.5	96 50
	13 3.0	30
	13 57.2	10
	14 50.2	95 50
	15 43.7	30
Means	19^h 8^m $53.^{se}74$	98° 3′ 20″

Resulting Chronometer Correction = -30^m $38.^{se}8$

Tables of Astronomic Calculations

Thirty-five (35) additional pages of calculation tables, similar to the previous page, were not included in this file.

Please contact the Nebraska State Surveyors Office for assistance in obtaining these pages.

Steven C. Cobb
Nebraska State Surveyor

May 5, 2006

General Land Office • Original Field Notes

Book Number

2

The images in this file are photographs of the notes of the original surveys of the State of Nebraska on file in the Office of the Nebraska State Surveyor located in Lincoln, Nebraska.

The original surveys in Nebraska began in the mid 1850's and were completed in the mid 1880's. The Nebraska office of the Surveyor General was closed June 30, 1886.