

No. 7

U. S. ENGINEER OFFICE,

Roche
Explorations & Surveys

West of the 100th Meridian.

Roche
ASTRONOMICAL DEPARTMENT.

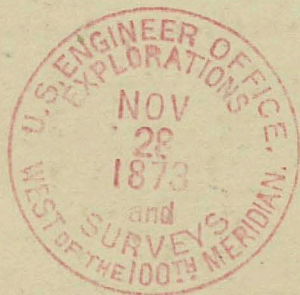
Roche 1872

OBSERVATIONS

FOR

LATITUDE

(9)



Station

Proche Ar. Oct 4th 1872.
 Instrument Wurdemann No 16 Bessel Telescope

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
6750	S.	8	77.5	30.8	24.0	
6782	N.	10	48.0	24.2	30.8	
7262	N.	2	36.0	32.8	23.5	
7275	S.	1	41.8	24.0	32.0	
7693	S.	17	66.3	23.5	34.0	
7727	N.	9	40.5	33.7	23.5	
7765	N.	24	23.0	31.6	25.7	
7777	S.	8	45.1	24.0	32.8	
7852	S.	22	6.3	29.0	27.7	
7871	N.	8	54.7	26.0	30.5	
8059	N.	21	94.0	22.0	35.2	
8091	S.	15	93.0	33.0	24.1	
8114	N.	9	39.4	22.7	34.6	
8136	S.	12	39.2	33.0	24.0	
8195	N.	20	43.4	23.3	23.8	

W. W. Mayall, Observer

Records

and Transit Combined, Chronometer No. 1491. Slow $2^{\text{h}} 30^{\text{m}} 18^{\text{s}}$, losing 0.5 daily

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
22 7 9 22 ^h 11 ^m 6 ^s			Observed off line of collimation
23 20 32			Observed off line col.
0 30 10			
0 34 0			
0 38 44			
0 40 54			Observed off line of collimation
0 56 46 ⁵²			Observed a little off line collimation
0 59 4			
1 32 19			
1 39 4			
1 42 10			
1 45 56			Obs. off line of collimation
1 55 22			

Station Pioche Nevada Oct 4th 1872

	B. A. C.	N.	Micrometer.		Level.		Level.
	Star.	S.	Turns.	Div's.	N.	S.	Cor'n.
8227		S.	14	33.8	30.1	26.3	
8247		S.	2	47.8	30.2	26.1	
8268		N.	5	08.6	26.3	30.5	
8282		N.	19	07.9	26.3	30.0	
826-							
60		N.	16	74.6	29.5	27.8	
120		S.	11	57.9	26.7	30.8	
164		S.	18	45.4	29.0	28.5	
197		N.	15	75.7	27.4	30.0	
223		S.	10	18.4	25.0	31.8	
255		N.	13	66.3	31.0	26.0	
349		S.	13	91.8	30.0	26.9	
441		N.	10	11.5	26.6	32.2	
469		S.	16	41.9	27.8	31.0	
508		N.	18	98.3	28.0	31.2	
560		N.	6	8.5	31.5	27.8	
630		S.	22	25.7	27.9	31.9	
657		S.	21	50.9	28.9	31.0	
673		N.	19	84.4	29.8	30.1	

W. W. Mayate Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
2 1 51			
2 6 28			Very faint
2 11 11			
2 13 17			
2 42 18			
2 54 59			
3 2 9			
3 7 39			
3 12 35			
3 19 29			
3 34 59			
3 52 47			
3 58 14			
4 4 12			
4 14 23			
4 26 51			Observed off line of culmination
4 32 29			
4 35 28			

Station

Pioche N.M. Oct 4th 1872

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
707	S.	18	60.0	31.1	28.7	
857	N.	16	92.7	28.1	31.3	
962	N.	13	60.6	32.0	29.0	
980	S.	22	62.1	29.1	30.6	
1023	S.	13	71.1	28.9	30.6	
1043	N.	21	08.9	28.9	30.8	

Wm. W. Mayall, Observer,

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
4 41 21			
5 10 12			
5 30 12			
5 33 13			
5 42 35			
5 45 33			

Station

Pioche, Nev. Oct 5th 1872

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
6602	S.	13	38.0	27.0	24.6	
6623	N.	17	48.2	28.0	24.1	
6674	S.	17	02.0	26.1	25.8	
6697	N.	18	14.1	23.0	28.9	
6750	S.	16	94.2	26.6	25.0	
6782	N.	18	64.3	26.5	25.3	
6819	S.	8	93.3	26.8	24.2	
6839	S.	15	98.3			
6852	N.	13	47.2	37.0	14.9	
6912	S.	8	10.3	23.8	28.0	
6928	N.	16	84.4	23.5	27.9	
6968	S.	13	71.1	29.9	22.0	
6997	S.	19	30.5	25.1	26.0	
7008	N.	8	74.8	25.0	26.9	
7084	S.	23	45.7	30.2	22.0	
7161	N.	6	23.0	25.6	26.7	
7194	S.	22	58.6	28.1	24.0	

W. W. Mayate

Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
21 42 37			
21 44 25			
21 53 41			
21 36 46			
22 6 55			
22 11 04			
22 16 55			
22 20 33			
22 21 44			Obs. off line of collimation
22 31 42			
22 33 9			
22 40 18			
22 44 59			Observed off line of collimation
22 47 2			
22 56 28			
23 5 23			Very faint.
23 10 42			

Station

Pioche Nev. Oct. 5th 1872

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
7262	N.	11	47.6	24.0	28.4	
7275	S.	10	45.3	33.8	18.7	
7336	N.	11	90.0	26.9	26.0	
7385	S.	21	45.0	28.0	25.0	
7410	S.	12	70.4	27.0	26.0	
7483	N.	7	19.0	26.0	28.0	
7520	S.	14	34.9	22.7	32.0	
7545	E N	±6.	16.7	31.8	23.0	
7545	/					
7560	N.	5	65.3	30.9	23.7	
7584	S.	17	15.0	24.0	30.8	
7693	S.	18	0.1	31.2	24.0	
7727	N.	9	72.0	24.2	31.3	
7856	S.	21	11.3	31.1	24.4	
7871	N.	7	61.9	21.4	31.2	
8059	N.	21	1.0	28.9	27.7	
8091	S.	7	6.3	30.9	25.5	
8114	N.	8	38.8	26.0	30.6	

W. W. Mangum

Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
23 19 56			<i>Very faint</i>
23 22 52			
23 31 30			<i>61 longi (hr)</i>
23 40 1			
23 45 36			
23 56 23			
0 2 5			
5 19			
0 8 8			<i>Observed off line of collimation</i>
10 53			<i>wrong Star: 7584 passed about 30 seconds in advance of this</i>
0 30 7			
0 33 58			
0 56 46			
59 03			
1 32 16			
1 39 3			
1 42.9			

Station

Pioche Nev. Oct. 5th 1872

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
8136	S.	12	4.6	19.5	36.8	
8195	N.	21	1.1	33.8	23.0	
8227	S.	15	92.6	29.0	27.0	
8268	N.	6	68.5	28.0	29.0	
8282	N.	20	66.1	28.0	29.0	
60	N.	16	11.1	29.9	27.9	
120	S.					
164	S.	19	55.2	30.0	28.5	
197	N.	16	86.6	29.0	29.6	
223	S.	13	17.1	26.9	31.0	
255	N.	16	68.4	31.5	26.6	
349	S.	15	75.2	27.5	30.6	
358	S.	16	85.5	27.5	30.6	
441	N.	11	99.3	30.7	38.0	
469	S.	15	1.3	26.0	32.0	
508	N.	12	56.9	31.2	26.9	

W. R. Mayate

Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
1 ^h . 45 ^m . 45 ^s			Observed off line of collimation
1 55 20			
2 1 48			
2 11 10 13 16			
2 ^h 42 19			Too faint to observe; very hazy near the zenith.
3 ^h . 2 ^m 8 ^s .			
3 7 42			
3 ^h 12 33			
3 19 28			
3 34 56			
36 17			
52 46			
3 58 55			Obs. off line of collimation
4 4 11			

Station

Pioche Nevada Oct 5th 1892

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
560	N.	7	9.7	31.0	26.9	
630	S.	23	26.7	27.1	30.6	
657	S.	22	58.9	27.9	30.0	
673	N.	20	91.6	31.1	26.8	
707	S.					
707	S.	19	54.6	35.5	22.3	
769	S.	20	32.9	35.5	22.8	
825	S.	12	57.4	35.0	23.6	23.6
857	N.	17	90.3	24.0	35.0	
1062 ^(S)	N.	13	71.9	28.0	30.0	
1096	S.	13	69.8	32.1	25.7	
1262	S.					
1262	S.	6	67.1	31.3	27.0	
1282	N.	14	25.9	27.0	31.0	
1326	S.	16	4.2	33.0	24.9	
{	1367	S.	11	14.5	37.3	31.0
	1382	N.	24	68.9	31.3	26.9
	1424 ^(S)	N.	15	66.7	32.2	26.0
	1449	S.	12	7.2	26.0	32.1

W. W. Mangate Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
4 14 23			
4 26 44			
4 32 27			
4 35 27			
4 41 19			
4 53 47			
5 5 28			
5 10 12			
5 50 05			
5 57 10			
6 29. 5			
6 34 36			
6 42 48			
6 48 58			
52 15			
7 0 12			

Station

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
1477	N.	19	6.4	32.2	26.0	
1497	S.	3	36.0	29.7	28.9	
1526	S.	17	72.0	27.7	30.6	
1546	N.	12	98.6	30.5	27.8	

Observer

Records

407118

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
7 11 54			
7 15 07			
7 20 18			
7 25 22			

Station

Pioche, Nev, Oct 6th 1872.

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
6602	S.	10	98.6	19.1	26.6	
6623	N.	15	06.9	29.7	16.8	
6674	S.	15	15.6	21.1	24.3	
6697	N.	16	9.7	23.9	22.0	
6712	S.	16	17.9	25.0	21.0	
6739	N.	6	76.5	25.9	19.9	
6750	S.					
6782	N.	20	55.4	25.2	20.7	
6819	S.	10	82.0	20.9	24.5	
6912	S.	7	18.6	23.1	23.0	
6928	N.	15	98.3	23.2	22.9	
6968	S.	12	75.1	25.8	21.0	
7161	N.	5	12.0	21.0	26.8	
7194	S.	21	40.4	28.5	19.9	
7336	N.	10	25.7	24.9	23.9	
7385	S.	19	79.8	25.1	23.5	

Jr. W. Mayate Observer,

Records Boston

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
21 42 36			
21 44 25			
21 53 40			
21 56 46			
21 59 17			
22 4 41			
22 10 52			Too faint to observe
68 15 56			
22 15 56			
22 31 41			
22 33 10			
40 16			
23 5 23			
23 10 41			
23 31 28			
40 0			

Station

Pioche, Oct. 6 1872

B. A. C.	N.	Micrometer.		Level.		Level. Cor'n.
		Star.	S.	Turns.	Div's.	
7410	S.	9	21.7	24.7	24.0	
7468	N.	1	46.0	26.0	22.9	
7474	S.	7	87.6	23.3	25.5	
7483	N.	3	81.3	25.8	23.0	
7560	N.	6	72.4	25.0	23.9	
7571	S.	14	39.4	25.2	24.0	
7584	S.	17	20.0	25.2	24.0	
7693	S.	15	56.7	22.3	21.8	
7727	N.	7	31.5	25.7	24.0	
7765	N.	24	15.5	29.0	20.4	
7777	S.	8	13.5	22.0	27.0	
7856	S.	21	16.2	27.5	22.6	
7871	N.	7	20.7	23.9	26.0	
8059	N.	20	54.4	24.1	27.4	
8091	S.	14	51.2	28.6	23.0	
8097	S.	6	61.7	28.6	23.0	
8114	N.	7	94.9	24.0	27.2	

W. W. Mayate Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.	
23 45 36				
52 50				
55 4			Observed off line of collimation.	
57 39				
0 7 1				
9 12				
10 28				
0 30 6				
33 57				
38 42				
40 43				
0 56 44				
59 3				
1 32 16				
1 39 2				
1 39 51				
1 42 8.				

Station

Pioche Nevada Oct. 6 1871

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
8136	S.	11	71.7	26.2	24.8	
8195	N.	19	73.3	25.4	26.2	
8227	S.	14	14.3	23.2	27.0	
8247	S.					
8268	N.	4	87.1	27.2	24.1	
8282	N.	18	84.0	27.2	24.1	
8301 (S)	S.	12	49.2	23.0	28.4	
8322	N.	17	62.7	29.0	22.8	
8330	N.	19	78.3	29.0	22.8	
7	N.	5	7.2	30.0	12.4	
8	S.	0	58.9	20.9	31.7	
60	N.	16	4.0	26.0	26.9	
120	S.	10	84.1	26.9	26.0	
164	S.	13	98.2	26.8	26.4	
197	N.	11	30.8	26.0	27.7	
223	S.	10	11.6	25.9	27.0	
255	N.	13	67.5	31.9	22.1	

W. W. Mangate Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
1 45 03			
1 55 19.			
2 1 47			
2 11 09			Too faint to observe
2 13 15			
2 16 14			
2 21 02			
2 22 52			
2 32 18			Obs. East line of collimation
2 33 41			--- wait ---
2 42 21			
54 57			
3 2 07			
7 40			
3 12 35			
19 26			

Station

Pioche, Nev. Oct 6 1872

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
469	S.	12	70.0	25.9	30.2	
508	N.	10	22.4	29.0	26.9	
560	N.	5	25.8	29.2	26.7	
630	S.	21	39.3	26.9	27.4	
657	S.	20	69.2	27.2	27.1	
673	N.	19	3.3	28.9	26.6	
#690 (?)	N.	13	12.3	28.0	26.2	
707	S.	16	45.2	25.0	29.0	
719 (?)	N.	21	85.0	27.3	26.8	
769	S.	17	44.1	25.2	29.0	
825	S.	9	45.7	25.0	30.0	
857	N.	14	81.4	29.1	26.0	
872	S.	5	36.6	23.0	30.5	
962	N.	5	85.9	32.3	23.4	
980	S.	19	89.9	23.9	32.0	
1023	S.	10	94.8	25.0	31.2	
1043	N.	18	39.4	31.0	25.1	

W. W. Mayall Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
3 58 12			
4 4 11			Very faint
14 23			
27 3			Observed off limit of collimation
32 27			
35 25			
4 38 17			
41 20			
44 14			
53 47			
5 5 28			
5 10 9			
5 12 46			
30 11			
33 11			
5 42 34			
45 31			

Station

Pioche, Nev. Oct. 6 1892

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
1062	N.	13	8.9	30.0	26.2	
1096	S.	13	6.1	26.0	30.1	
1262	S.	6	24.7	26.7	31.0	
1282	N.	13	84.3	30.0	27.9	
1326	S.	15	66.5	27.0	30.9	
1367	S.	7	65.4	27.8	30.1	
1382	N.	21	27.1	27.0	31.0	
1424	N.	10	51.9	26.0	31.9	
1449	S.	6	93.3	31.0	26.0	
1477	N.	17	95.0	30.1	26.9	
1497	S.	2	26.3	26.0	30.6	
1526	S.	14	28.0	25.0	31.8	
1546	N.	9	56.2	33.4	23.1	
1547	N.	11	84.2	33.4	23.1	

End, Oct 6.

W. W. Mayall Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
5 50 3			
5 57 10			
6 29 4			
34 34			
42 49			
6 48 58			
52 14			
7 0 10			
4 53			
7 11 52			
15 6			
7 20 16			
7 25 22			
7 25 54			Obs. off line of Collimation

Station

Pioche Nev. Oct 7, 1872.

B. A. C.	N.	Micrometer.		Level.		Level. Cor'n.
		Star.	S.	Turns.	Div's.	
6602	S.	8	76.8	20.2	23.2	
6623	N.	12	83.8	23.8	20.1	
6674	S.	15	2.0	16.8	26.9	
6697	N.	16	15.7	26.4	77.6	
6712	N.	16	74.7	24.0	19.4	
6739	S.	6	47.1	15.2	28.7	
6782	N.	17	68.8	14.1	29.3	
6819	S.	7	97.1	28.0	16.0	
6839	S.					
6839	S.	18	7.5	21.4	22.0	
6882	N.	10	45.0	20.7	23.1	
6912	S.	7	5.8	21.8	22.1	
6928	N.	15	87.4	22.0	22.0	
6968	S.	12	79.0	20.4	24.4	
7161	N.	5	14.9	29.8	15.2	
7194	S.	21	75.4	14.2	30.9	

W. W. Mayall, Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
21 42 36			
21 44 24			
21 53 40			
21 56 45			
21 59 15			
22 4 40			
22 10 59			
22 16 56			
22 20 20			
21 3			Obs. off line of collimation
22 31 41			
33 12			
22 40 16			
23 5 21			
23 10 40			

Station

Piachu, Nevada, Oct 7 1872

B. A. C.	N.	Micrometer:		Level.		Level. Cor'n.
		Star.	S.	Turns.	Div's.	
7262	N.	12	76.3	22.1	23.9	
7275	S.	11	75.8	23.0	22.7	
7336	N.	7	93.7	24.8	21.2	
7385	S.	17	51.6	20.0	26.4	
7410	S.	8	89.6	20.0	26.9	
7468	N.	0	90.2	19.0	28.4	
7474	S.	19	47.6	27.0	21.0	
7520	S.	14	90.7	24.6	23.0	
7545	N.	6	66.2	20.0	27.9	
7560	N.	4	69.8	27.9	20.0	
7571	S.	12	57.1	16.6	31.2	
7584	S.	15	36.3	16.6	31.2	
7693	S.	16	95.7	19.1	29.9	
7727	N.	8	66.7	31.8	17.6	
7765	N.	19	10.6	27.4	21.4	
7777	S.	3	32.9	20.0	28.8	

W. W. Mayate Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
23 19 54 22 51			
31 30 39 59			let Bergini (hr)
45 35 52 49 54 00			
0 02 04 5 16			
0 7 51 0 9 09 10 22			
20 05 33 55			
38 41			
0 40 42			

Station

Pioche, Nevada, Oct. 7th 1872

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
7856	S.	19	63.3	28.9	19.6	
7871	N.	6	7.7	26.0	22.6	
8059	N.	20	97.7	25.8	23.0	
8091	S.	15	3.4	18.1	30.9	
8097	S.	7	16.2	18.1	30.9	
8099	S.					
8227	S.	16	87.5	23.3	26.2	
8247	S.	5	3.0	23.0	27.0	
8268	N.	7	61.7	24.3	25.8	
8282	N.	21	51.6	24.0	26.0	
8301(?)	S.	10	25.3	26.1	24.0	
8322	N.	15	47.9	21.0	29.7	
8330	N.	17	63.3	20.5	30.0	
60	N.	14	71.4	24.0	27.8	
120	S.	9	54.9	24.0	27.7	
164	S.	11	40.3	27.0	24.8	
197	N.	8	64.8	20.8	31.2	

W.W. Mangate Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
0 ^h 56 ^m 44 ^s 59 02			
1 32 15 39 02 39 50			 Too faint to observe
2 1 49 6 22 11 08 13 14 16 13 21 02 22 51			
2 ^h 42 17 54 57			
3 02 07 7 39			

Station

Pioche Nev. Oct. 7, 1872.

B. A. C.	N.	Micrometer.		Level.		Level. Cor'n.
		Star.	S.	Turns.	Div's.	
No 223	S.	8	39.0	27.6	24.3	
255	N.	11	80.0	18.0	35.0	
<div style="font-size: 3em; vertical-align: middle; margin-right: 10px;">}</div> 560 630 657 673	N.	3	58.2	27.1	27.0	
	S.	19	77.1	29.5	25.2	
	S.	19	9.0	29.4	25.3	
	N.	17	41.7	27.8	27.0	
690 (?)	N.	13	58.0	31.0	23.9	
709	S.	17	58.8	29.8	25.0	
769	S.	18	94.2	31.2	26.6	
825	S.	11	0.5	30.7	24.3	
858	N.	18	64.4	26.0	29.0	
872	S.	3	24.1	27.0	27.9	
980	S.	17	83.7	28.5	26.3	
1023	S.	8	85.3	27.0	28.0	
1043	N.	16	32.9	29.0	26.0	
1062	N.	11	79.6	28.0	27.0	
1096	S.	11	78.4	29.0	25.5	

W. W. Mangum Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
3 12 34 19 24			
4 14 21 27 00			
4 32 28 35 26			
38 14 41 20			Two stars of about equal mag. and nearly A.R. May have str. The wrong one.
53 47 5 29			
310 28(?)			
5 13 56 33 11 42 36 45 31			Obs. off line of Collimation
50 2 57 10			

Station *Pioche, Nev. Oct. 7, 1872.*

B. A. C.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
1132	S.	12	89.4	26.0	28.0	
1139	N.	7	64.0	32.0	22.0	
1262	S.	7	3.0	25.0	30.0	
1282	N.	14	74.1	34.0	21.0	
1424	N.	12	64.5	27.0	28.5	
1449	S.	8	99.1	30.7	25.0	
1477	N.	18	31.2	26.0	29.0	
1497	S.	2	60.0	33.2	21.9	
1526	S.	12	58.2	30.7	25.0	
1546	N.	7	87.8	27.4	28.0	
1547	N.	10	15.5	27.4	28.0	
1567	N.	6	19.5	27.2	27.9	
1620	S.	13	70.7	32.6	23.8	

Here end obs for Oct. 7,

W. W. Mangate Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
6 04 35			
6 50			
29 5			
34 33			
7 0 9			
4 53			
11 52			
15 07			
20 18			
25 21			
26 05			Obs. off line of collimation
30 08			
38 05			

Station

Pioche, Nev. Oct 10th 1872

	B. A. C.	N.	Micrometer.		Level.		Level.
	Star.	S.	Turns.	Div's.	N.	S.	Cor'n.
6674	S.	14	35.0	27.0	27.0		
6697	N.	15	53.1	25.0	29.1		
6712	N.	15	44.6	28.9	25.0		
6739	S.	5	95.9	31.7	22.0		
6750	S.	14	89.6	22.5	31.0		
6782	N.	16	65.0	32.5	21.0		
6819	S.	6	90.1	23.0	30.8		
6912	S.	6	60.7	23.8	30.0		
6928	N.	15	48.3	31.6	22.0		
6968	S.	12	36.1	23.5	30.5		
6997	S.	13	36.1	27.0	26.5		
7008	N.	2	76.3	24.0	29.5		
7084	S.	17	31.8	31.0	23.0		
7084	S.	17	31.8				
7103	S.	0	77.2	21.0	33.0		
7119	N.	19	80.1	37.6	16.5		
7161	N.	3	98.2	28.0	26.0		
7194	S.	20	37.5	27.0	27.0		

W. W. Mayall, Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
21 ^{h.} 53 ^{m.} 37 ^{s.}			Wind moderately fresh from S. E. Very hazy.
21 56 45			
21 59 17			
22 04 37			
22 6 53			
11 02			
16 55			
22 31 38			
33 8			
40 14			
43 56			
45 55			
56 23			
,			
59 11			
23 1 02			
23 5 22			
10 38			

Station *Pioche, Nev. Oct. 10 1872*

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
7262	N.	11	92.4	26.7	27.6	
7275	S.	11	00.7	26.6	27.5	
7336	N.	6	25.1	29.0	25.0	
7385	S.	15	78.8	24.4	31.0	
7410	S.	8	44.9	27.0	29.0	
	N.	0	66.2	30.5	27.0	
	S.	19	7.3	27.0	29.0	
7520	# S.	15	05.6	24.7	32.5	
7545	N.	6	93.0	34.0	23.0	
7560	N.	7	85.8	30.5	26.9	
7571	S.	# 15	54.2	30.0	27.1	
7584	S.	18	36.3	30.0	27.3	
7693	S.	15	03.1	27.0	31.7	
7727	N.	6	77.3	30.9	20.0	
7765	N.	17	97.8	29.7	28.3	
7777	S.	2	13.2	28.5	29.6	

W. W. Mayate Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
23 ^h 19 ^m 56 ^s 22 48			
31 27 39 58			61 days (hr.)
45 33			
23 52 51			
55 4			Obs. off line of collimation
0 2 03 5 18			
7 52			
9 7			
10 25			
20 04			
33 56			Very hazy
0 38 41 40 40			

Station

Pioche, N.M., Oct. 10, 1872.

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
7856	S.	18	78.1	27.5	31.0	
7871	N.	5	37.1	32.0	26.3	
8059	N.	19	70.2	29.9	29.9	
8091	S.	13	69.1	28.6	31.0	
8097	S.	5	76.7	28.6	31.0	
8114	N.	7	12.1	30.9	29.0	
8136	S.	8	25.3	29.4	29.9	
8195	N.					
8227	S.	13	54.2	32.5	27.0	
8247	S.	1	70.7	32.9	26.9	
8268	N.	4	31.1	24.0	35.4	
8282	N.	18	26.9	24.0	25.3	
8301(?)	S.	13	40.3	28.4	30.5	
8322	N.	16	80.4	31.0	28.0	
8330	N.	18	59.0	31.0	28.0	

W. W. Mayate Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
0 56 42 59 02			
1 32 16 39 00 39 49			
42 08			
45 00			Too faint to observe.
2 1 46 6 20 11 08 13 15			Very faint.
16 25 21 02			
22 52			

Station

Pischa, N.w. Oct 10, 1872.

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
7	N.	14	49.5	26.2	32.1	
8	S.	9	74.0	31.4	27.3	
60	N.	13	65.3	29.9	28.8	
120	S.	8	38.0	26.9	31.5	
164	S.	12	99.9	29.0	29.9	
197	N.	10	32.5	29.1	30.0	
223	S.	8	74.2	28.4	31.0	
255	N.	12	31.1	32.5	27.5	
469	S.	12	42.4	24.8	35.5	
508	N.	9	99.6	36.3	24.0	
560	N.	3	79.6	29.9	30.8	
630	S.	19	98.8	31.6	29.8	
657	S.	19	30.7	31.8	29.7	
673	N.	17	62.1	28.0	33.8	

W. W. Murray Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
2 32 43 33 42			Obs. off line of collimation
42 40 55 40			Obs. off line of collimation " " " " " "
3 02 05 7 40			
12 33 19 21			
58 n			
57 04 10			
57 14 20			
26 41			
32 26			
35 26			

Station

Pioche, N.M. Oct. 10 1872

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
690 (?)	N.	14	15.0	31.8	30.0	
707	S.	17	50.4	30.8	31.2	
719	N.					
769	S.	18	48.4	29.5	33.2	
825	S.	10	51.4	29.9	34.2	
857	N.	15	83.2	33.3	30.6	
858	N.	18	11.0	33.3	30.6	
872	S.	3	84.7	33.8	30.0	
962	N.	4	38.1	29.3	35.0	
980	S.	18	45.1	34.9	29.8	
1023	S.	9	43.2	33.9	30.5	
1043	N.	16	92.3	29.5	35.0	
1062	N.	12	05.9	34.3	30.0	
1096	S.	12	01.0	29.7	34.7	
1132	S.	13	19.2	34.5	29.5	
1139	N.	7	86.2	30.5	33.5	
1262	S.	5	96.0	30.4	33.3	
1282	N.	13	53.2	29.5	34.5	
1326	S.	15	37.0	32.0	31.5	

W. W. Mayall, Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
4 38 16 41 16			Too many stars near this to distinguish right one.
53 46			
5 5 26			
9 25			Obs. East line of collimation
10 26			
13 21			Obs. off line of collimation
30 10			
33 9			
42 35			
45 32			
5 50 04			
57 08			
6 04 33			
7 41			Obs. off line of collimation
6 29 02			
34 37			
42 46			

Station *Pièche, Nev. Oct. 10 1872*

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
1262	S.	5	96.0	30.4	33.3	
1282	N.	13	53.2	29.5	34.5	
1326	S.	15	37.0	32.0	31.5	
1367	S.	5	67.2	32.8	30.7	
	N.	19	23.3	25.9	37.8	
1424	N.	12	72.3	33.1	30.3	
	S.	9	12.6	25.8	37.6	
1477	N.	18	39.1	33.7	29.2	
1497	S.	2	74.0	26.0	37.0	
1526	S.	15	00.6	35.0	28.0	
1546	N.	10	35.1	26.4	37.0	
1547	N.	12	54.0	26.4	37.0	
1567	N.	5	93.5	32.5	30.9	
1620	S.	13	49.9	31.8	31.8	

W. W. Mayall.

Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
6 29 02			
34 34			
42 46			
48 56			
52 14			
7 0 10			
4 51			
7 11 52			
15 05			
20 11			
25 22			
25 53			Obj. off line of collimation
30 08			Very faint
38 03			

Station

Pioche, Nev. Oct. 11 1872.

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
6602	S.	10	16.7	28.0	26.1	
6626	N.	14	23.3	26.7	27.8	
6674	S.	13	4.9	21.8	33.0	
6676	S.	8	62.0	21.5	33.3	
6697	N.	14	23.8	33.5	21.1	
6712	N.	14	06.2	28.6	26.0	
6739	S.	4	68.1	29.0	25.5	
6750	S.	13	21.7	29.2	25.1	
6782(S)	N.	14	28.5	24.1	20.8	
6819	S.	5	21.0	30.0	25.1	
68						
6881	N.	35	37.6	27.8	27.8	
6882	S.	3	89.2	27.5	27.8	
6912	S.	6	94.1	26.0	29.0	
6928	N.	15	77.6	29.6	26.0	
6968	S.	12	68.3	25.9	30.5	
6997	S.	14	93.7	28.0	28.7	
7008	N.	4	38.4	29.0	28.0	
7084	S.	19	11.3	28.9	29.0	

W. W. Mayall Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
21 42.33 44 23			
53 26 54 11			Obs. off line collimation
21 56 43			
59 13			
22 4 37			Very hazy
22 6 55			
22 11 11 16 54			Obs. off line of collimation
23 27			} Obs. off line of collimation Something wrong; probably in the ho of the ... of the ...
26 33			
31 38			
33 05			
40 13			
43 55			
45 52			
56 22			

Station

Pioche, Nev. Oct 11, 1872,

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
7103	S.	2	05.5	24.8	32.8	
7119	N.	20	95.2	30.0	28.0	
7161	N.	3	68.0	31.9	26.0	
7194	S.	20	14.4	25.3	33.0	
7262	N.	11	46.2	30.8	28.0	
7275	S.	10	47.6	28.0	30.7	
7410	S.	8	43.2	28.0	31.9	
7468	N.	0	62.5	30.5	30.0	
7474	S.	19	0.3	29.4	30.7	
7483	N.	2	91.2	30.9	29.7	
7520	S.	13	88.7	31.7	28.7	
7545	N.	5	71.5	29.3	31.4	
7560	N.	8	26.9	32.3	27.9	
7584	S.	19	78.0	26.6	33.5	
7693	N.	14	01.1	32.1	28.2	
7727	S.	5	75.8	30.5	30.1	

W. W. Mayate Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
22 59 10			
23 0 59			
5 19			
10 37			
19 53			
22 48			
45 33			
52 47			
55 4			Obs. off line of collimation
56 20			
0 2 1			
5 15			
0 8 19			Obs. off line of collimation
10 49			
30 03			
33 54			

Station

Pioche, Nev. Oct. 11th 1872,

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
7765	N.	18	82.7	33.7	27.0	
7777	S.	2	87.2	29.0	31.5	
7856	S.	17	21.8	29.6	31.4	
7871	N.	3	76.3	32.2	28.9	
8059	N.	20	84.1	34.8	28.0	
8091	S.	14	28.0	29.4	32.7	
8097	S.	6	91.0	20.4	32.7	
8114	N.	8	31.2	37.0	25.5	
8227	S.	14	35.4	33.5	29.1	
8247	S.	2	44.5	33.4	29.2	
8268	N.	5	12.1	26.3	37.0	
8282	N.	19	2.8	26.0	36.2	
8301 (?)	S.	6	98.0	25.8	37.2	
83 47 ²²	N.	15	42.4	37.5	25.7	
8330	N.	17	56.9	37.6	25.5	
7	N.	14	41.4	31.7	31.3	
8	S.	9	71.2	28.0	35.2	

Obs'd Times	Culmin.	Red'n to	REMARKS.
by Chro.	by Chro.	Merid.	
Oh. 38 ^m 39 ^s 40 39			
0 56 40 59 0			
32 13			
1 38 59 40 23 42 29			Obs. off line of collimation ~ ~ ~ ~ ~
2 1 45 ^m 6 20 11 06 13 12			Very faint.
16 26			
21 59			
22 49			
31 42			Obs. East line of collimation
32 44			

Station

Pine, N. Oct. 11, 1872

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
60	N.	13	63.3	29.6	33.8	
120	S.	8	38.7	33.6	30.6	
164	S.	11	39.7	37.0	27.5	
197	N.	8	73.4	26.4	38.2	
223	S.	8	18.7	31.1	33.0	
255	N.	11	69.0	30.1	34.6	
469	S.	11	58.4	30.7	33.5	
508	N.	9	10.0	30.9	33.9	
560	N.	3	4.6	37.0	27.0	
630	S.	19	27.4	22.8	41.5	
657	S.	18	58.1	23.0	41.7	
673	N.	16	89.5	40.3	24.6	
690 (S)	N.	13	27.0	32.0	32.3	
707	S.	16	56.4	32.9	32.0	
769	S.	17	59.5	31.0	34.0	
825	S.	9	58.2	30.9	34.7	
857	N.	14	79.2.0	31.9	33.8	
858	N.	17	20.2	32.0	33.6	

W. W. Mayatt Observer

Records

Obs'd Times	Culmin.	Red'n to	REMARKS.
by Chro.	by Chro.	Merid.	
2 ^h 42 ^m 13 ^s			
54 54			
3 02 04			
07 26			
12 32			
19 22			
58 11			
4 4 06			
14 19			
26 40			
32 24			
35 23			
38 12			
4 41 16			
53 43			
5 05 25			
9 32			
10 22			

Obs. East line of collimation.

Station

Piche, Nev. Oct. 11th, 1872,

	B. A. C.	N.	Micrometer.		Level.		Level.
	Star.	S.	Turns.	Div's.	N.	S.	Cor'n.
872	S.	3	57.3	32.0	33.1		
962	N.	4	14.1	33.5	32.5		
980	S.	18	80.2	30.7	34.6		
1023	S.	9	20.0	31.0	34.0		
1062	N.	11	56.2	31.6	34.2		
1096	S.	11	53.0	33.8	32.1		
1132	S.	11	83.8	32.5	33.0		
1139	N.	6	05.3	33.0	32.6		
1262	E S.	6	40.0	31.2	35.0		
1282	N.	14	6.6	36.3	30.0		
1326	S.	15	86.3	27.5	39.0		
1367	E S.	88.5	48.5	33.6	32.0		
1382	N.	22	2.7	28.8	37.5		
1424	N.	13	18.1	32.0	34.1		
1449	S.	9	58.1	34.0	32.2		
1477	N.	18	25.3	36.7	29.5		
1497	S.	2	58.6	28.0	38.5		

W. W. Mangum Observer

Records

Obs'd Times	Culmin.	Red'n to	REMARKS.
by Chro.	by Chro.	Merid.	
5 12 43			
30 7			
33 7			
42 33			
5 50 00			
5 57 7			
6 04 33			
06 47			
6 29 07			
6 34 29			
6 42 46			
48 55			
52 11			
7 0 8			
7 4 50			
7 11 48			
15 04			

Station

Pivche, Nev. Oct. 11, 1872

B. A. C. Star.	N. S.	Micrometer.		Level.		Level. Cor'n.
		Turns.	Div's.	N.	S.	
1526	S.	11	53.4	37.1	29.0	
1546	N.	6	77.1	28.7	38.0	
1547	N.	8	99.1	28.7	38.0	



Observations for Time

γ Aquilae	θ Aquilae	κ Cephei	ε Delphinii
Leamp East.	Leamp East	L. East	Leamp East.
$\left. \begin{matrix} E. 39 & W. 34 \\ E. 42 & W. 31 \end{matrix} \right\}$	$\left. \begin{matrix} E. 34 & W. 40 \\ E. 37 & W. 37 \end{matrix} \right\}$	$\left. \begin{matrix} E. 39.5 & W. 33.5 \\ E. 38. & W. 36. \end{matrix} \right\}$	$\left. \begin{matrix} E. 26 & W. 39 \\ E. 37 & W. 38 \end{matrix} \right\}$

Threads 1	25.3	14.7	22	40	55.5	22	56	37.5
2	47.2	26.3		41	40.0			59.8
3	22 ^h 28 ^m 9.3	22 34	58.4		43	20.0	57	22.1
4	30.5		19.6		44	57.0		43.4
5	53.1		41.8		46	38.5	58	6.2

W. W. Mangate Observer

Records

Obs'd Times by Chro.	Culmin. by Chro.	Red'n to Merid.	REMARKS.
7 20 15			
25 17			
25 46			
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Oct. 12 th 1872.			
1 Leguni damp East	6 Leguni (p) damp West	3 Leguni damp West E. 39 W. 37 E. 38 W. 38	11 Cephei damp West.
23 6 17.4 48.6	23 20 29.6 57.9	23 36 54.5 20.3	8 3.0
7 19.3 49.1	31 25.1 53.0	37 44.4 38 9.9	10 15.1 11 20.9
8 20.2	32 20.4	38 35.0	12 27.0