KG
11366
v.353

1998phae.proj.1357.

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1898phmg.proj.1357-

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1898phae.proj.1357.

Nov. 14, 1898

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1898phae.proj.1357.

Nov. 14. 1898. (Monday)

Parkhurst near Var: Phot
W: obs

20	08	+ 14.8
24	45	
04	37	

At 8:38 watch was
11 sec fast

Index to left and above
155.4
236.0 < comp stands
clouds interfere

08.3
~~08~~ ~~20~~
9 10.
9

Stopped by clouds.

A. + D gr. E.

B ~~236.~~ 394

18h	18m	25.7s	18h	18m	00.0s
	+9	~~26.0~~		+9	00.0
	20	25.5		20	

At about 11h A.+D. was 26.0 secs. fast.

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1898phae.proj.1357.

Nov. 15 1898. (Tuesday)

Parkhurst new variable Wolf

20 0 14,8

2 3 5

2h 46m

Left & above

337.0

8 21 40 47,0 16 89.5

336.4 6 89.9

46.3 1384 0.81

338.5

23 00 45.2 16 86.7 0.80

336.0 7 83.0

49.0 1 39.7 0.78

Right & below.

60.6

20 00 138.1 72.5

68.9 67.2

136.1 139.7 0.78

67.7

26 00 135.8 68.1 0.80

17 25 67.5 69.3

8 24 21 136.8 137.4 0.83

13 24 21

4609.5586

Mean 0.80

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1898phae.proj.1357.

Nov 15. 1898.

Right & below

II

	66.9			
8 28 9	138.2	72.3		
	68.0	68.3		
	136.3	139.6	078	
	68.4			
29 6	135.9	67.5		0.80
	67.1	69.7		
	136.8	137.2	0.83	

Left & above

	153.5			
31 16	227.0	73.5		
	157.1	69.5		
	226.6	143.0	0.71	
	158.0			
82 49	227.1	69.1		0.76
11 0	156.7	69.3		
8 32 45	226.0	138.4	0.81	
13 82 45				
4609 5645				

Mean 0.78.

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1898phae.proj.1357.

Nov. 15, 1895.

Left & above

			157.5			
8	34	11	226.9	69.4		
			156.5	70.4		
			226.9	139.8	0.78	
			158.80			
86	20		228.7	70.7		0.74
			156.3	72.3		
			228.6	143.0	0.71	

Right & below.

			244.9			
38	37		314.4	73.5		
			246.1	69.5		
			315.6	143.0	0.71	
			247.3			
	40	00	316.81	68.8		0.76
	149	8	248.8	69.3		
8	37	17	317.1	138.1	0.81	
13	37	17				

4609 5676

Mean 0.75

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1898phae.proj.1357.

nov 10 1898

Right & below. IV

247.5

8 41 30 319.8

246.1

317.5

246.9

44 00 310.6

blends.

244.0

Abandoned.

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1898phae.proj.1357.

Nov. 10, 1898.

U Vulpec . Phot ☆ W obs

19 28 19.5

20 36

6 8

Cloudy

Sawyer's Variable W obs.

18 16 12.0

25 38

7 22

Too cloudy

X Cata W obs.

3 11 -2.5

1 40

1 31

Too cloudy

a Cata 2 W obs.

2 12 -3.6.

1 46

26

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1898phae.proj.1357.

Nov. 10, 1895.

I

	Right.			
	219.1			
10 ~~10~~ 2 900	225.5	6.4		
	218 ~~.4~~	7.6		
	226.0	14.0	607	
	218.1			
3 49	226.2	8.1		6.00
	219.1	6.8		
	225.9	14.9	593	
	Left.			
	307.7			
6 16	315.1	7.4		
	307.1	8.2		
	315.3	15.6	583	
	306.8			
7 50	315.2	8.4		5.81
19 55	307.8	7.5		
10 4 59	315.3	15.9	579	
15 4 59				
4609.6280				

Mean 5.90

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1898phae.proj.1357.

8

Nov 10, 1898

II

Left

		308.3		
10	9 4A	315.1	6.8	
		307.[illegible]	7.6	
		315.0	14.4	6.01
		307.1		
11	37	315.0	7.9	0.96
		308.1	7.2	
		315.3	15.1	0.90

Right

		38.8		
14	00	45.7	6.9	
		37.5	8.6	
		46.1	15.5	0.85
		378.2		
15	35	46.0	7.8	0.92
11	0	38.8	67.8	
10	12 45	45.6	14.6	0.98
15	12 45			

~~604~~ 6339

4609.6839

Mean 0.94

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1898phae.proj.1357.

Nov. 16. 1898. (Wednesday)

Planet: D. 2. 20 obs.

21 18 −4.1
22 42
1 24

Star b comp. with star a

6.5
6.7
7 0 6.9 6.6
6.5
6.5

Star c comp. with star a

4.5
3.9
7 6.5 4.0 4.1
4.0
4.0

Star d comp. with star a

14.0
14.0
7 8 14.0 14.0
14.0
14.0

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1898phae.proj.1357.

Nov. 16. 1898.

Star e comp. with star a

5.0
5.5
7 1.0 5.4 5.3
5.3
5.2

Star f comps with star a

1.2
1.0
7 21 1.2 1.2
1.1
1.4

Star g comps. with star a

2.0
2.0
7 35 2.0 2.0
2.0
2.0

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1898phae.proj.1357.

Nov. 16, 1898.

Interpolated.

h	m	s		
10	10	(2) 3.4 + 0.2	Asteroid	Shutter half
	10	58.8	"	
	12	34.9	Star	
	12	57.8	Star	
	13	18.8	Asteroid	
	13	53.6 + 0.3	"	
	15	30.3	Star	
	15	53.5	"	
	16	34.4	Asteroid	
	17	9.9	"	
	18	45.4	Star	
	19	9.5 − 0.2	"	
	19	48.3	Asteroid	
	20	23.9	"	
	21	59.7 − 0.2	Star	
	22	22.9	Star	
	22	43.4	Asteroid	
	23	18.9	"	
	24	54.5	Star	
	25	18.0	Star	
	25	44.3 + 0.1	Asteroid	
	26	20.8		Shutter half
	27	55.3	Star	
	28	19.4 − 0.3		

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1898phae.proj.1357.

Nov. 16. 1898.

0	28	55.5	Astwood	
0	30	0.4	Astwood	
0	30	37.0	"	bad observation
0	31	2.1	Astwood	
	31	39.3	"	
0	32	11.6	"	South
	32	48.7	"	half.
	34	21.9 − 0.3	star	
	34	45.8	star	
	34	46.2		late mean of readings
0	36	16.3	Astwood	North
	36	45.5	"	half.
	South		star	
0	38	46.6 − 0.2	Astwood	
	39	14.8 + 0.2	"	
	40~~35~~	43.2	star	
	41	25.5	star	
		~~47.5~~		
	41	59.0 + 0.2	Astwood	
	42	28.8 − 0.2	"	
	43~~3~~ 44	56.6 − 0.2	star	
	4~~5~~ 44	38.2 − 0.1	star	
	45	15.5	Astwood	
	45	44.4	"	
	47	12.5	star	
	47	54.3	star	

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1898phae.proj.1357.

Nov. 16. 1898.

h	m	s		
0	49	34.9 + 0.2	Asteroid	Marth Haff.
	50	3.4	"	
	51	31.8 − 0.1	Star	
	52	13.0	"	
	52	35.0	Asteroid	
	53	3.1	"	
	54	31.4 − 0.3	Star	
	55	12.8	"	

B. Z 36.

1 7 12,6
2 12,2

B. 394.

9 10 0,0
11 0,0

∴ B 236 is 2m v. 46 slow.

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1898phae.proj.1357.

Nov. 16. 1898.

Parkhurst's variable. W obs

20. 8 + 14.8

25 17

5 9

Left & above

3848

Abandoned too cloudy

oCeti. Phot. R. W obs

2 12 − 3.6

2 00

12

Right.

~~127.3~~ I

217.1

10 14 45 226.42 8.4

219.80 7.6

226.46 16.0 5.78

218.9

18 09 226.1 7.2 5.82

218.3 8.1

226.4 10.3 5.87

Left.

4610.6400

308.0

24 31 316.6 8.0

308.4 7.5

315.9 10.5 5.85

308.6 7.6 5.84

28 40 316.2 8.1

10 21.6 31.5

15 21 31.6 308.0 10.7 5.82 Mean 5.83

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1898phae.proj.1357.

Nov. 16, 1898.

II

Lfv.
308.0
10 37 44 316.1
308.1
316.1

308.6
44 40 316.0

Abandoned on this

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1898phae.proj.1357.

Nov. 21, 1898. (Monday)

Minor Planet DQ — W obs

21	33	-3.1
23	9	
1	36	
21	28	-47
23	15	
1	47	

Abandoned

ι Vulpec. Phot. W obs.

19	28	19.5
24	30	
5	7	

Left & above — I

	268.0		
	296.7	28.7	
8 28 15	267.3	31.4	
	298.7	60.1	2.86
	266.5		
30 00	297.5	31.0	2.87
	268.0	28.5	
	296.25	59.5	2.88

Watch correction + 3 sec. (Watch slow)

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1898phae.proj.1357.

Nov. 21, 1898.

Right & below

	357.0		
8 32 14	26.9	29.9	
	356.4	31.7	
	28.1	61.6	2.80

	355.1		
33 30	28.0	32.9	270.
3x 59	356.5	31.4	
8 31 0	27.9	64.3	2.70 Mean 2.81
+3			
13 31 3			

4615. ~~0215~~ .
5632
4608.4701
+7.0932

Right & below II

	356.5		
35 00	26.5	30.0	
	356.1	31.8	
	27.9	61.8	2.79

	355.6		
36 40	27.0	32.4	270
	355.0	31.6	
	26.6	64.0	2.71

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1898phae.proj.1357.

Nov. 21, 1898.

Left of above

87.90

8 38 46	116.9	29.9			
	85.2	32.1			
	117.3	62.0	2.79		

II

86.0

40 52	117.6	31.6		2.82	
151 18	87.0	29.0			
8 37 49	116.0	60.6	2.84	Mean 278	
+3					
18 87 52					

4615.5680
4608.4700
+7.0980

Left of above.

III

~~87.1~~

86.7

43 4	115.6	28.9			
	86.1	30.1			
	116.~~4~~2	59.0	2.90		

86.0

44 29	117.65	30.5		2.88	
	86.7	29.1			
	115.8	59.6	2.87		

Region rather low, observations somewhat difficult: troubled by fog and moonlight

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1898phae.proj.1357.

Nov. 21, 1898.

Right & below III

176.1

8 47 30 208.1 32.0

175.0 33.0

208.0 65.0 268

175.4

49 50 208.0 32.6 267

24 03 176.0 33.0

8 46 1 43 +3 209.0 65.6 266

13 46 16.

4610.0738

4608.4700

7.1038

mean 278

Right & below IV

176.5

57 32 208.7 32.2

176.1 31.9

208.0 64.1 271

176.1

52 30 208.1 32.0 272

1762 31.9

208.1 63.9 272

Left & above

268.6

54 52 290.70 284

268.79 29.1

297.0 57.5 296

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1898phae.proj.1357.

Nov. 21, 1898.

Left of above

26 8.1

8 56 38	297.0	28.9		290
8 53 58 (15 52)	267.6	28.9		
+3	296.5	57.8	294	
13 54 1.			mean	284

4615 .5792
4608 .4700
7.1092

IV

Left of above

V

8 5A 53	26 8.0 7.5		
	29 8 7.4	29.9	
	26 8.0 0	28.9	
	296.9	58.8	291

	267.1			
9 0 10	297.0	29.9		287
	267.1	30.9		
	295.0	60.8	288	

Right of below

	356.0		
9 2 20	27.9	31.9	
	356.1	31.9	
	28.0	63.8	272

	355.7			
4 14	27.1	31.4		273
5 37	355.5	31.9		
9 41 24	27.4	63.3	274	
+3				
14 1 30 27	+7.1143		mean	280

4615 .5843
4608 .4700

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1898phae.proj.1357.

Nov. 21, 1895.

Parkhurst's variable. Phot T. Wolfs.

20 8 +14.8

Right & below 25 30 I

5 22

68.1 ∠ comp star dia.

9 19 49 136.1 68.0

67.5 70.2

137.7 138.2 0.81

68.2

21 5h 134.8 66.6 0.84

67.0 69.0

136.0 135.6 0.86

Left & above

~~226.2~~ 156.2

~~24 24 335.5~~ *

26 21 226.9 70.7

156.1 71.9

228.0 142.6 0.72

155.0

21 10 226.9 71.9 0.70

16 20 155.6 73.3

9 24 06 +3 228.9 146.2 0.67

14 24 9

Mean 0.77

4610. 6001

4613. 4600

+2. 1401

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1898phae.proj.1357.

Nov. 21, 1898.

II

Left & above

		155.0		
9	80 00	228.0	73.0	
		155.4	71.6	
		227.0	144.6	0.68
		155.5		
32	16	229.0	73.5	0.66
		154.9	73.1	
		228.0	146.6	0.64

Right & below

		247.3		
35	00	316.1	68.8	
		248.1	69.4	
		317.5	138.2	0.81
		246.5		
	36 26	316.6	70.1	0.82
	13 42	247.9	67.7	
9	83 26			
	+3	315.6	137.8	0.82
14	33 29			

4610. 6066
4618 4600
+2. 1466

Mean 0.74

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1898pmae.proj.1357.

Nov 21. 1898.

Right & below

	248.1			
38 45	319.5	704		
	248.0	688		
	3168	1392	0.79	
	2481			
40 52	316.1	680		0.82
	248.2	694		
	247.6	1378	0.82	
	317.0			

Left and above

	334.8			
43 22	481	733		
	336.0	721		
	48.1	1454	0.67	
	335.0			
45 24	49.0	740		0.70
8 23	337.6	681		
9 42 06 +3	45.27	1421	0.73	
14 42 9				
46 15.6043 126				
46 13.4600				0.75
2.1526				

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1898phae.proj.1357.

Nov. 21, 1898.

Left & above

IV

	338.1			
9 47 00	46.5	68.4		
	338.5	71.6		
	49.1	140.0	0.77	
	335.5			
4 8 46	48.1	72.6		0.7 +
	336.8	71.1		
	47.9	143.7	0.70	

Right & below

	68.5			
5 1 30	134.1	65.6		
	67.1	66.8		
	133.9	132.4	0.93	
	66.1			
5 3 20	137.1	71.0		0.86
0 0 36	67.1	68.4		
9 + 3	135.5	139.4	0.79	

Mean 0.80

14 00 12

4615.6098
4613.4600
+2.1582

1898phae.proj.1357.

Nov. 21, 1898.

Right & below

66.1

9 54 24	134.3	68.2		
	64.0	72.2		
	136.2	140.4	0.77	
	66.1			
10 00 00	137.5	71.4		0.77
	65.70	68.9		
	134.4	140.3	0.77	

Left & above

157.1

03 00	231.1	74.0		
	155.1	74.4		
	229.5	148.4	0.61	
	155.0			
5 30	229.0	74.0		0.61
6 54	154.0	74.1		
10 61 48	228.1	148.1	0.61	
+3				
15 1 47				

4615.6263
4613.4600
+2.1663

0.689

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1898phae.proj.1357.

Nov. 21, 1898.

W. obs.

o Ceti Phot R I

12 12 -8.6

2 37

Right. 20 W

37.2

10 37 45 45.3 8.1

37.9 7.3

45.2 15.4 5.86

37.8

39 44 45.2 7.4 5.84

37.2 8.3

45.5 15.7 5.82

Left.

127.1

42 40 130.1 8.0

127.2 7.8

130.0 15.8 5.80

127.2

45 2 135.2 8.0 5.78

5 11 127.0 8.2

10 41 18 135.2 16.2 5.75

10 41 18

4615.6537

Mean 5.81

Watch correction 0

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1898phae.proj.1357.

Nov 21 1894.

	Left.			H
	126.7			
45 55	135.1	8.4		
	127.1	8.0		
	135.1	16.4	5.72	
	127.0			
47 25	135.2	8.2		5.71
	126.8	8.4		
	135.2	16.6	5.70	
	Right			
	217.0			
49 40	225.0	8.0		
	217.1	~~7.9~~		
	225.0	15.9	5.79	
	217.2			
50 54	225.2	8.0		5.78
193 54	217.0	8.1		
~~48 28~~				
~~70 00 88~~	225.1	16.1	5.76	
16 48 28				
4615.6586				

Mean 5.774

0 Ceti.

10 VV K 3 Var Yr. obs.

" " K 2 " Spencer " "

11 20 K 3 " Colem "

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1898phae.proj,1357.

Nov. 23. 1898. (Wead.)

	M.P. 441	Phot.		Wobs.
		27	31	62.8
		23	40	
	Above	3.	51	I
	180.6			
7 29 9	254.0 < vardus	73.4		
	181.1	71.9		
	253.0	145.3		- 0.67
	181.0			
31 26	251.2	70.2		- 0.64
	177.6	78.0		
	253.6	148.2		- 0.61
	below.			
	267.0			
9528	344.5	77.5		
	271.1	67.0		
	338.1	144.5		- 0.68
	271.1			
3745	339.0	67.9		- 0.70
13 48	267.0	74.1		
7 33 27	341.1	142.0		- 0.73
+ 3				
12 33 30				
4617.5283				

Mean - 0.67

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1898phae.proj.1357.

- Nov. 23. 1898.

	below			II
	266.8			
7 40 19	343.6	76.8		
	274.0	62.2		
	336.2	139.0	-.079	
	274.1			
43 20	337.2	63.1		-0.82
	269.5	72.8		
	342.3	135.9	-0.86	
	Above			
	359.4			
46 00	73.9	74.5		
	3.8	65.1		
	68.9	139.6	-0.78	
	3.70			
49 8	69.5	66.5		-0.73
18 47	358.0	78.0		
7 44 43	76.0	144.5	-0.68	
12 44 45				
4617.3312				

Mean -0.78

Previous observation made with Prof. Bailey's Peruvian quartz-prism phot.

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1898phae.proj.1357.

Nov. 23, 1898.

		Phot ☿		Wobs
		19 28.5 19.0		
		24 03		
	left above	56 20		
	84.8	36.0		
8 44 50	120.8			
	84.4	36.6		
	119.0	70.6	2.49	
	84.5	34.7		(2.42)
47 00	119.0			
	84.1	36.9		
	121.0	71.4	2.46	
	Right ♃ below			
	172.4	36.2		
49 00	209.9			
	173.1	37.9		
	211.0	74.7	2.36	
	172.0	34.7		(2.32)
50 35	210.5			
191 25	171.6	38.9		
8 47 51	210.5	77.8	2.27	
13 47 54				−2.40
4617.5749				

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1898phae..proj.1357.

Nov. 23. 1898.

Right & below

	173.0		
8 54 20	210.5	37.5	
	172.4		
	~~209.9~~	37.8	
	210.2	75.3	2.3K
	172.4		(2.16)
56 30	210.2	37.8	
	173.0		
	209.1	36.1	2.3K
		73.9	

Left & above

	263.0	39.9	
5 44	302.9		
	263.8		
	303.8	41.0	2.17
		80.9	
	262.9	39.0	(2.20)
9 1 50	300.9		
231 24	262.3	39.6	
8 57 51	301.9	78.6	2.2K
+3			
13 57 54			2.2K

4617. 5818

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Nov 23 1894

Left of above

9 3 48	262.2	39.2	
	301.4		
	262.7	39	
	301.6	71.1	2.2 v
6 51	262.8	39.6	(2.2 v)
	301.4		
	262.8	39.v	
	302.3	71.1	2.2 v

Right of below

9 47	354.0		
	~~29~~	36.2	
	30.2		
	353.0	36.v	
	29.5	72.7	2.02
	~~354.~~ 3.7	36.2	(2.02)
	29.9		
	354.1	3v.3	
	29.4	71.v	2.46

2.30

12 00
32 26
9 8 6 +3
14 8 9
4617.5890

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1898phae..proj.1357.

Nov. 23, 1898.

Right & below — IV

	3 5-3.5			
9 13 58	29.4	3 V.9		
	3 5-3.6			
	28.7	3 V.1 / 71.0		2.K7
	3 5-3.2			
16 00	29.4	3 6.2		(2.K6)
	3 5-3.7			
	29.K1	3 V.K / 71.6		2.KV

Left & Above

	~~86.0~~			
	84.0			
20 30	119.5	3 V.A		
	84.2			
	119.3	3 V.1 / 70.9		2.KA
	84.8	3K.9		2.K9
23 43	119.7			
74 11	84.5			
9 18 33 +3	119.8	3 V.3 / 70.2		2.V0
14 18 36				2.KA
4617.0964				

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1898phae.proj.1357.

Nov. 23, 1898.

V

Slit S above

	84.1			
9 26 56	119.8	3 v.7		
	84.2			
	119.6	3 v.4 / 71.1	2.47	
	84.3	3 v.2		(2.42)
29 00	119.5			
	84.8	3 4.9		
	119.7	70.1	2 v.0	

Right S below

	174.1	3 v.7		
34 00	209.78			
	173.0	37.1		
	210.1	72.4	2.42	
	172.1	37.7		(2.40)
36 40	209.8			
6 41	173.3	36.4		
9 31 40	209.7	71.1	2.37	
+3				
74 31 43				— 2.44
4617.6054				

Observation rather difficult throughout. Difficulty increasing, last grow extremely difficult. At low. Wind case used, but not End of photometer loose probably affecting obs. Water correction + 3 sec.

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1898phae.proj.1357.

Nov. 28, 1898.

Parkhurst's Variable Phot[illegible] 20 obs.

20 . Ä 14.8

26 5

Right & below 5 57 I

248.5

9 47 39 316.0 < comp stars dis.

250.1 67.5 ✓

314.8 64.7 ✓

132.2 ✓ 0.93 ✓

248.5 67.6 ✓ 0.92 ✓

49 4 316.1

244.4 66.2 ✓

315.6 132.6 ✓ 0.90 ✓

Left & above

336.9

57 40 49.1 72.2 ✓

337.0

49.8 72.1 ✓

144.3 ✓ 0.69 ✓

336.9

5337 47.2 70.3 ✓ 0.70 ✓

2 00

9 50 30 337.1 73.0 ✓

+3 450.1 143.3 ✓ 0.71 ✓

14 50 33

4617.6185 0.41

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1898phae.proj.1357.

Nov. 23, 1898.

Left & above

II

337.0

10 00 15 46.1

385.0

46.1

336.0

2 45 45.9

334.0

50.1

Right & below

65.1.

5 15 134.4

67.2

139.5

67.0

7 27 134.5

Abandoned too low.

Observations very difficult: stopped by low altitude & clouds.

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1898phae.proj.1357.

Nov. 23, 1898.

Dr. Chase ≏. Gr. Sto.

10	24	+2V,2
V	0	
V	24	
6	36	
6	41	

Comet searched for throughout night as opportunity presented itself, but comet not found. ~~Greatly~~ troubled by moonlight and clouds. ~~Cloudy~~ Thickly cloudy all the latter part of night.

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1898phae.proj.1357.

Nov. 24. 1898. (Thursday)

Cloudy throughout night so that comet could not be observed.

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1898phae.proj.1357.

Friday, Nov. 25, 1898.

Parkhurst's variable Phot. T. Wobs.

20 8 +14.8

24 41

~~left~~ ~~Right~~ above 4 33 I

337.9

8 40 4 52.1 74.2

340.0 69.4

49.4 143.6 0.70

337.1

42 20 49.1 72.0 0.68

336.3 75.6

51.9 147.6 0.62

Right & below

67.1

44 11 138.9 71.8

69.2 72.0

141.2 143.8 0.70

69.9

45 15 138.8 68.9 0.70

11 50 66.3 74.9

8 42 58 141.2 143.8 0.70

+27

13 43 25

4619.5718

4613.4600

+6.1118

mean 0.68

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1898phae.proj.1357.

Nov. 25. 1898

Right & below II

67.8

8 47 9 142.4 73.6

69.1 71.1

140.2 1447 0.68

769.8

49 8 139.0 69.2 0.71

67.7 72.4

140.1 141.6 0.74

Left & above

157.1

51 15 233.1 76.0

157.7 73.8

231.5 149.8 0.58

158.0

52 28 232.1 74.1 0.60

00 0 157.4 73.3

8 50 0

+27 230.7 147.4 0.63

13 50 27 0.66

4619.0767

4613.4600

+6.1167

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1898phae.proj.1357.

Nov. 25, 1898.

	Left & above			III
	157.1			
8 54 14	232.3	75.2		
	157.5	74.5		
	232.0	149.7	0.58	
	157.8			
56 18	231.4	73.6		0.60
	156.1	74.0		
	230.1	147.6	0.62	
	Right & below			
	248.1			
58 19	321.4	73.3		
	248.9	67.4		
	316.3	140.7	0.76	
	244.9			
59 49	318.1	73.2		0.74
28 40	247.1	72.4		
8 57 10	319.5	142.6	0.72	
+27				
13 57 37				
4619.5816				
4613.4600				
+6.1216				

Mean 0.67

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1898phae.proj.1357.

Nov. 25, 1898

Right & below IV

	249.9			
9 1 8	322.70	72.1		
	250.0	70.1		
	320.1	142.2	0.73	
	250.1			
3 15	320.9	70.8		0.73
	249.4	71.6		
	321.0	142.4	0.73	

Left & above

	338.9			
5 16	49.8	70.9		
	338.1	73.1		
	51.2	144.0	0.69	
	339.0			
6 30	47.5	68.5		0.72
16 9	387.6	72.4		
9 4 2	50.0	140.9	0.76	
+27				
14 4 29				

4619.5865
4613.4600
+6.1265

0.72

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1898phae.proj.1357.

Nov 25, 1898.

Left V above

V

336.2

9 8 14	492	730		
	387.9	717		
	496	1447	0.68	
	338.0			
9 40	51.6	73.6		0.686
	339.0	729		
	51.9	146.5	0.64	

Right 2 below.

700

11 44	139.6	696		
	68.1	709		
	139.0	1405	0.76	
	68.0			
13 00	140.1	72.1		0.71
2 38	68.3	70.7		
9 10 40	139.8	142.8	0.72	
+27				
14 11 7				

4619.5911
4613.4600
+6.1311

Mean 0.70

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1898phae.proj.1357.

Nov. 25 1898.

Star some 3' north of Parkhurst's Var. & 12m preceding.
Comp. Star = Stu. + 15° 4084 (6.5)

Phot. I.

Right & below

634 / comp star dis.

9 15 30	144.4	51.0		
	62.07	50.7		
	142.4	186.7	0.25	
	62.1			
16 49	146.4	54.3		0.24
	62.3	53.5		
	146.1	168.1	0.22	
	Left & above			
	152.0			
19 00	2369	54.9		
	152.3	53.7		
	236.0	168.6	0.22	
	*			
	152.1			
20 40	234.2	52.1		0.27
71 59	153.9	51.0		
9 17 60	234.9	163.1	0.32	
+27				
14 18 27				
4619.5961				

Mean 0.26

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1898phae..proj.1357.

Nov. 25, 1898.

II

Left & above

		1525			
9	22 a	234.0	81.5		
		153.9	80.4		
		234.3	161.9	0.34	
		153.6			
	23 30	236.5	82.9		0.32
		152.9	81.6		
		234.5	164.5	0.29	

Right & below

		243.9			
	25 10	325.9	82.0		
		243.0	82.0		
		325.0	164.0	0.30	
		244.4			
	26 30	324.1	79.7		0.36
	17 10	245.0	79.0		
9	24 18 +27	324.0	158.7	0.41	
14	24 45				

46 19.6006

Omean 0.84

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1898phae.proj.1357.

Nov. 25.7 Eq A.

Right of below III

		243.9			
9	27 54	323.3	79.4		
		244.1	80.0		
		324.1	159.4	0.39	
		243.8			
	29 15	323.4	79.6		0.38
		244.3	80.5		
		324.8	160.1	0.38	
		Left of above			
~~32~~	~~49~~	334.0			
32	49	54.1	80.1		
		334.5	80.3		
		54.8	160.4	0.37	
		333.0			
	35 15	55.1	82.1		0.33
	5 13	332.5	82.4		
9	31 18				
	+27	54.9	164.5	0.29	
14	31.8 40				Mean 0.36
46	19.6035				

Watch correction + 2 7 sec

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1898phae.proj.1357.

Nov. 20. 1898.

Comparison of stars about 2 Urs. min. for standards of magn.

λ with 9.5 Phot. ☉ W. obs.

20 10 + 11.8

26 34

6 24

Right Dalova

182.6

10 16 22 206.0 Δ dis 23.4 ×

183.0 22.8 ×

205.8 46.2 × +3.45 ×

183.8

17 55 205.9 22.1 + +3.46 ×

182.0 23.9 +

~~206.X~~ 46.0 + +3.46 +

205.9

Left & below

272.1

20 28 295.7 28.6 +

273.5 22.6 +

296.1 46.2 + +3.45 +

273.4

2238 295.0 21.6 + +3.47 +

77 23 272.1 23.7 +

10 19 21 295.8 45.3 + +3.49 +

+27

15 99 48

4619.6388

Mean +3.46 +

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1898phae.proj.1357.

Nov 25 1898

II

Left & below

		273.2		
10	25	00	296.2	23.0 +
			273.5	22.0 +
			295.5	45.0 + +3.51 *
			273.4	
26	30		295.4	22.0 + +3.48 *
			272.0	24.1 +
			296.1	46.1 + +3.45 *

Right & above

		2.6		
29	24		26.1	23.5 +
			3.1	22.6 +
			25.7	46.1 + +3.45 *
			~~2.6~~	
			3.0	+3.44 *
234	31	00	25.7	22.7 +
	111	54	2.0	24.0 +
16	27	58	26.0	46.7 + +3.42 *
		+27		
10	28	25		

4619.6 4457

Mean +3.46 *

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1898phae.proj.1357.

Nov 2, 1898.

Comparison of stars about 4 hrs. min. for standards of mags.

Reg Left below (Q.V compared with 20) I

Phot. F. Harv.

	261.1	8.0 div		
16 41 14	308.1		47.0	
	261.1		46.7	
	307.8		93.7	±1.52
	261.5			
43 15	308.1		49.6	±1.53
	262.2		44.8	
	307.8		91.4	±1.55
	Right below			
	349.9			
46 30	39.0		49.8	
	349.9		49.1	
	39.0		98.9	±1.65
	349.5			
47 9	39.4		49.9	±1.66
19 8	349.2		50.6	
10 44 47	39.8		100.5	±1.64
+27				
15 45 14				
4619.6064				

Mean ±1.76

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1898phae.proj.1357.

Nov. 25, 1898

Right & below

II

	349.4			
10 50 12	40.5	51.1		
	350.0	48.8		
	38.8	99.9	+1.66	
	349.6			
5-2 00	~~39.2~~	49.6		+1.66
	349.9	~~50.6~~		
	39.5	100.2	+1.65	

Left & above

	81.0			
54 20	126.5	45.5		
	81.4	44.5		
	126.2	90.3	+1.91	
	81.7			
56 5	127.0	45.3		+1.87
12 37	80.6	47.9		
10 53 9	128.5	93.2	+1.823	
+27				
15 53 36				

4619.6622

Mean +1.76

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1898phae.proj.1357.

Nov. 28, 1898. (Monday).

Comparison of stars about 7 Hrs. Min. for standards of magn.:

λ with 9.5

20 10 +88.8

24 15

4 05

Index left.

	273.5		
7 36 33	295.6	22.1 ✓	
	273.4		
	296.0	22.6 ✓	
		44.7 ✓	+3.52 ✓
	273.0		
7 38 11	296.3	23.3 ✓	+(3.52)
	274.3		
	295.7	21.4 ✓	
		44.7 ✓	+3.52 ✓

Index right.

	2.9		
7 40 15	24.5	21.6 ✓	
	2.2	24.4 ✓	
	26.6	46.0 ✓	+3.46 ✓
			+(3.46) ✓
	1.3		
7 43 48	25.5	24.2 ✓	
158 47	2.3		
7 39 42	24.0	21.7 ✓	
19 39 42		45.9 ✓	+3.46 ✓

Mean = 3.46 ✓

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1898phae.proj.1357.

Nov. 28, 1898.

Same again.

Indep right.

~~7 46 22~~

2.4
24.3
2.3
1.7
25.6
~~27.0~~

7 ~~51~~ ~~55~~

1.3
25.9
~~26.4~~ 24.6 ✓

2.1
25.8 23.7 ✓
48.3 ✓ +3.35 ✓

7 53 11

1.9
25.2 23.3 ✓ +(3.37) ✓

1.4
~~25.1~~ 25.6 24.2 ✓
47.5 ✓ +3.39 ✓

Indep left.

7 57 16

92.3
116.3 24.0 ✓

93.~~4~~1
114.4 21.3 ✓
45.3 ✓ +3.49 ✓

7 59 30

93.1
114.7 21.6 ✓ (+3.49) ✓

21 2

7 55 16

92.2
115.9 23.7 ✓
45.3 ✓ +3.49 ✓

12 55 16

Mean = 3.45 ✓

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1898phae.proj.1357.

Nov. 28, 1898.

Comparcsion of stars about δ Ursæ Min. for standards of magn.

8.0 mille 9.5 Index below.

	170.2	51.1 ✓	
8 11 27	221.3		+1.67 ✓
	171.8	48.5 ✓	
	220.3	99.6 ✓	+1.64 ✓
	169.9	50.1 ✓	
8 14 28	220.0		+1.62 ✓
	169.4	51.3 ✓	
	220.7	101.4 ✓	

Index above,

	260.8	47.5 ✓	
8 17 24	308.3		+1.78 ✓
	261.3	47.7 ✓	
	309.0	95.2 ✓	
	✗		
	261.2	46.7 ✓	+1.80 ✓
8 19 48	307.9		+1.81 ✓
23 7	261.4	47.4 ✓	~~94.1~~
8 15 48	308.8	94.1 ✓	
13 15 48			

Mean +1.72 ✓

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1898phae.proj.1357.

Nov. 28, 1898.

Same again.

Lady above.

8 21 43	260.8	48.2 v	
	309.0		
	261.3	47.0 v	+1.78 v
	308.3	95.2 v	
			+1.80 v
8 24 52	261.5	46.7 v	
	308.2		+1.82 v
	261.0	47.0 v	
	308.0	93.7 v	

Lady below

~~8 27 47~~	~~346.2~~	54.5 v	
	~~40.7~~		1.49 v
	347.2	52.6 v	
	39.8	107.1 v	
			1.v-8 v
			~~1.44~~
	349.7	~~48.6~~ v	1.67 v
8 31 25	38.3		~~1.6 v~~
~~106 47~~	~~347.6~~	v 07 v	~~+38~~
~~8 26 42~~		~~53.0~~	
~~18 26 42~~	~~40.6~~	~~101.6~~	
	38.3	99.3 v	
			1.69

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1898phae..proj.1357.

Nov. 28, 1898.

Index below.

	349.8	49.1 ✓		
8 47 43	38.9		+1.71 ✓	
	350.4	48.6 ✓		
	39.0	97.7 ✓		+1.73 ✓
	350.7	47.3 ✓		
8 50 17	38.0		+1.75 ✓	
	349.9	49.0 ✓		
144 35	~~39.8~~	96.3 ✓		
8 36 9				
13 36 9	38.9			Mean +1.76

Comparison of stars about 7 Hrs. Min. for standards of magn.
λ with S.D
Index below.

	81.6	45.1 ✓		
8 57 00	126.7		1.78 ✓	
	78.8	50.1 ✓		
	128.9	95.2 ✓		1.76 ✓
	79.8	49.5 ✓		
8 58 57	129.3		1.74 ✓	
	80.6	47.3 ✓		
	127.9	96.8 ✓		

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1898phae.proj.1357.

Nov. 28, 1898.

Telephone story.

		172.2		
9	3 48	219.0	46.8 ✓	1.71 ✓
		169.1	51.0 ✓	~~1.69~~
		220.1	97.8 ✓	
		~~46~~		1.66
		168.3	52.4 ✓	
9	5 49	220.7		
	25 34	~~170.7~~		1.60 ✓
9	~~6~~ 24	169.8	50.0 ✓	
14	6 24	219.8	102.4 ✓	~~1.70~~ ~~1.69~~
				mean 1.71 ✓
		169.9	48.5 ✓	
9	7 35	218.4		1.64 ✓
		168.8	52.2 ✓	
		221.0	100.7 ✓	1.65 ✓
		169.8	51.1 ✓	
9	9 8	220.9		1.66 ✓
		170.5	48.7 ✓	
		219.2	99.8 ✓	

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1898phae.proj.1357.

Nov. 28, 1898.

Index below.

	261.9	47.0 ✓	
9 13 22	308.9		
	259.7	50.5 ✓	1.72 ✓
	310.2	97.5 ✓	
			1.70 ✓
	260.0	49.9 ✓	
9 15 30	309.9		
45 35	260.3	49.5 ✓	1.67 ✓
9 11 24	309.8	99.4 ✓	
14 11 24			

Comparison of slop about 2 rev-min. for standards of maps.
9.5 with 11.0 Mean 1.68 ✓

Index ~~left~~ ↑ below.

	257.7	< 9.5 div.	
9 38 32	310.6		
	258.2	✓ 2.9 ✓	
	309.3	✓ 1.1 ✓	1.✓6 ✓
		104.0 ✓	
	258.2	✓ 1.4 ✓	(1.✓4) ✓
9 42 20	309.6		
	260.6	✓ 0.3 ✓	
	310.9	101.7 ✓	1.61 ✓

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1898phae.proj.1357.

Nov. 28, 1898.

Index left and above.

		349.8		
9	46 31	38.1	K2.3 ✓	
		348.0	✓1.6 ✓	
		39.6	99.9 ✓	1.66 ✓
		348.2	✓1.0	(1.66) ✓
9	48 20	39.2		
	15 43	349.6	K9.9	
9	48 56	39.5	100.9 ✓	1.63 ✓
14	43 56			
				Mean 1.61 ✓
		349.6		
9	55 54	39.1	K9.5 ✓	
		349.1	✓1.2 ✓	
		40.3	100.7 ✓	1.64 ✓
		349.0	✓1.3 ✓	(1.63) ✓
9	59 00	40.3		
		348.6	✓0.3 ✓	
		38.9	101.6 ✓	1.62 ✓

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1898phae.proj.1357.

Nov. 28, 1898.

Index rt. and below.

	~~77.2~~			
	~~128.3~~	r 1.1		
10 5 39	128.3			
	77.6	r 0.9		
	128.5	1020	1.61	(1.6 K)
	78.8	r 0.1	1.66	
10 13 36	128.9			
254 29	78.2	K 9.8		
10 63 37	128.0	99.9		
10 3 37				

Observations on two preceding groups made with extreme difficulty owing to moon only one day past the full and position of limbs

Means 1.64

General mean 1.62

0 Cete.

Index lifts + below.

	121.8			
10 39 00	130.5	8.7		
	121.3			
	131.1	9.8		
		18.5	5.46	
	121.7	9.8		(5.46)
10 40 25	131.5			
	121.6	9.8		
	130.4	18.6	5.47	

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1898phae.proj.1357.

Nov. 28, 1898.

Index rt. + above.

	211.8			
	220.2	A.4 ✓		
10 43 15	211.7			
	211.7	A.1 ✓		
	219.8	16.5 ✓	5.71 ✓	
	+			
	211.8	A.1 ✓		(5.73 ✓)
10 44 30	219.9			
7 10	211.8	A.1 ✓		
10 41 48	219.9	16.2 ✓	5.7 ✓	Mean = 5.60 ✓
10 41 48				

Same again.

	211.0			
	220.9	A.9 ✓		
10 45 42	219.9			
	211.8			
	220.1	A.3 ✓		
		16.2 ✓	5.62 ✓	
	+			
	211.9	A.4 ✓		(5.64 ✓)
10 47 16	220.3			
	211.9			
	219.7	A.2 ✓		
		16.2 ✓	5.7 ✓	

Index left and below.

	301.2		
	310.6	9.4 ✓	
10 49 01	301.5		
	311.1	9.6 ✓	
		19.0 ✓	5.40 ✓

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1898phae.proj.1357.

Nov. 28, 1898,

	301.2	9.7 v	(5.39) v
10 50 25	310.9		
192 24	301.3	9.5 v	
10 48 6	310.8	19.2 v	5.34 v
10 48 6			

mean = v.v 4 v

Gen mean = v.v 9 v

Observations on ο Cet. taken though increasing clouds.

Waite's Watch used in all times to-night. Cor. = -1 sec.

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1898phae.proj.1357.

Posted to here.

Nov. 29 1898 (Tuesday)

	Parkhurst's variable	Phot.	W. obs.
	20 8	+14.5	
	24 33		
	4 25		

Left & above

	159.5		
7 47 39	232.1	72.6	
	155.4	76.6	
	232.0	149.2	0.59
	159.0		
49 8	233.0	74.0	0.64
	160.1	70.9	
	231.0	144.9	0.68

Right & below

	250.8		
51 00	320.9	70.1	
	248.9	71.6	
	3205	141.7	0.74
	249.8		
52 35	320.9	71.1	0.76
0 22	250.8	68.2	
7 50.6	319.0	139.3	0.79
12 50 6			

4623.8348
4621.6900
1.8448

Mean 270

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1898phae.proj.1357.

nov. 29. 1895.

Right & below II

	250.9		
7 54 39	319.0	68.1	
	247.9	73.6	
	321.5	141.7	0.74
	248.5		
56 29	319.5	71.0	0.76
	249.9	68.3	
	318.82	139.3	0.79

Left & above

	341.90		
58 56	50.6	69.6	
	338.2	71.0	
	49.2	139.6	0.78
	338.1		
8 2 15	50.0	71.9	0.74
232 19	338.0	72.0	
7 58 5	49.5	143.9	0.70
12 58 54	50.80		

4623.5404
4621.6900
1.8504

Mean 0.75

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1898phae.proj.1357.

R4

Nov. 29. 1898.

Left above

III

~~50.8~~
339.1
8 4 55 ~~49.9~~
50.2 71.1
338.9 72.1
51.0 143.2 0.71

336.1
6 ~~29~~ 50.0 73.9 0.65
339.1 72.2
~~07~~ 146.1 0.65

Right below

68.5
8 18 139.1 70.6
68.7 70.3
139.0 140.9 0.76

68.9
10 12 138.5 69.6 076
29 54 69.41 70.5
8 7 28 139.6 140.1 0.77
13 7 25

Mean 0.72

4623.5469
4621.6900
+1.8569

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1898phae.proj.1357.

Nov. 29, 1898.

I

Right & below

	65.6			
8 11 [illegible]	143.9	comp. stand is.		
	65.4	78.3		
	143.1	77.7		
		156.0	0.46	
	65.3			
13 36	144.0	78.7		
	64.5	79.4		044
	143.9	158.1	042	

Left & above

	152.5			
15 44	233.9	81.4		
	151.8	82.4		
	234.2	163.8	0.31	
	151.1			
17 9	232.2	81.1		0.32
17 59	150.9	81.5		
8 14 30	232.4	162.6	0.33	
13 14 30				
4623.5578				

Mean 038

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1898phae.proj.1357.

Nov. 29, 1898

	Lef[illegible] above			II
	149.27			
8 19 00	235.8 4/4	84.7		
	151.6	81.5		
	233.1	166.2	0.26	
	15[illegible]2.2			
20 47	236.9	84.7		0.20
	153.1	82.9		
	236.[illegible]0	167.6	0.24	
	Lef Right above			
	246.7			
22 50	326.5	798		
	247.[illegible]0	798		
	326.[illegible]8	159.6	0.39	
	246.9			
25.00	824.5	776		0.42
7 37	246.2	78.8		
8 21 54	325.0	156.4	0.45	
13 21 54				
4623.5569				

Mean 0.34

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1898phae.proj.1357.

Nov. 29, 1898.

o Cetu	Phot R.			W obs
	2 12	-3.6		
Alcva	1 42			
210.2	30			
Clouds thick				
	Too Cloudy			
	M.P. 441			W obs
	Alcva & left	3 31	+628	
	174.1	2 00		
9 40 24	254.2 Alcva die	1 31		
	179.2	76.7		
	250.0	70.5		
		1475 v	~~-0.48~~ -0.62	
	176.9			
				-.062
42 80	252.0	75.1		
	181.0	72.0		~~-0.44~~
	253.0	147.1	~~-0.44~~ -0.63	
	Right & below			
	~~277.9~~ 274.5			
47 50	276.1			
~~46 30~~	330.0	60.5 v		
	276.1	58.9 v		
	335.0	119.4 v	- 1.21 v	
	279.0			-1.19
50 00	330	59.0 v		~~-1.19~~
180 44	276.5	62.0 v		
9 45 11				
14 45 11	338.0	121.0 v	- 1.17 v	-0.92
4623.6147				~~-0.92~~

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1898phae.proj.1357.

Nov. 29, 1898.

II

Right & below

		278.0			
9	52	00	336.0	58.0	
			275.9	63.0	
			338.9	121.0	-1.17
			276.1		
53	6		337.8	61.7	-1.18
			277.9	59.0	
			336.9	120.7	-1.18

Left & above

		4.0			
55	40	66.9		62.9	
		0.5			
		~~35.9~~		66.4	
		66.9		129.3	-0.99
		~~358.1~~			
		0.1			
58	10	~~74.2~~		75.0	-0.78
18	56	0.5		75.5	
9	54	44	76.0	150.5	-0.57
14	54	44			

4623.6213

Mean -0.95

Prof. Bailey's Peruvian Phot used in settings on M.P. 441.

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1898phae.proj.1357.

Nov. 30. 1898. (Wednesday)

7 45 Some breaks, but cloudy.
8 0 Cloudy.
8 30 "
9 0 "
9 45 Still all cloudy with no prospect of clearing.

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1898phae.proj.1357.

Dec. 1, 1898 (Thursday)

U Vulpec.		Phot. T.		W. obs.	
		19 28		19.5	
		24 23			
		4 55			

Watch correction +10 sec. (watch slow)

		Left above			
		268.6	33.5		
7	30 40	300.1			
		267.0	33.5	−2.61	
		300.5	67.0		
		267.9	32.6	(2.64)	
32	00	300.5			
		268.2	32.3		
		300.5	64.9	2.64	
		Right below			
		357.8	34.0		
34	30	31.8			
		355.6	36.2	2.50	
		31.8	70.2		
		356.9	34.1	(2.50)	
	36 14	31.0			
	13 24	355.9	36.2	2.50	
7	33 + 21.6	31.1	70.3	−2.57	
12	33 31				

4625.5233
4624.4700
+1.0533

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1898phae.proj.1357.

Dec. 1. 1898.

Right & below II

35-6.2 3K.3
7 38 29 30.X5-
355.1 36.2
31.3 70.5 2.K9

355.5 36.0 (2.K9)
40 00 31.5-
35-6.2* 3K.6
30.8 70.6 2.K9

Left & above
~~880~~
87.5 33.7
42 49 121.2
87.1 3K1
121.2 67.A 2.5A

87.9 3K.1 (2.5A)
44 14 122.0

5 32
7 41 +23/8
12 41 33

87.5 33K
120.9 67.5 2.59 2.5K

4625.5289
4624700
+1.0589

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1898phae.proj.1357.

Dec. 1, 1898.

Left & above

	87.3	33.7	
7 46 10	121.0		
	86.9	3K.1	
	121.0	67.8	2.V4
	87.0	3K.8	(2.V6)
48 2	121.8		
	87.5	3K.1	
	121.6	6A.9	2.V4

Right & below

	175.0	3K.2	
51 00	212.2		
	176.6	3V.6	
	212.0	69.6	2.V2
	177.0	3V.1	(2.V1)
52 54	212.1		
198 11	176.8	3V.2	
7 49 33	212.0	703	2.V0
+10			
12 49 43			2.V4

4625.5345
4624.4700
+1.0645

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1898phae.proj.1357

Dec 1, 1898.

Right & below IV

	177.0	3V.6		
7 55 34	212.6			
	177.1	3K.9		
	212.0	7O.V	2K9	
	176.3	3V.6		(2K2)
5 7 04	211.9			
	176.5	3V.3		
	211.8	709	2K2	

Left & above

	267.7	3K3		
8 1 00	302.0			
	267.8	333		
	301.1	67.6	2V9	
	267.8	33K		(2V9)
8 15	301.2			
237 43	267.4	3K.0		
7 59 26 +1 a	301.4	67.K	2V9	2VK
12 59 36				

4625.5414
4624.4700
+1.0714

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1898phae.proj.1337.

Dec. 1, 1898

Left & above

		267.50			
8	6	20	301.0	34.0	
			267.4		
			301.1	33.7	
				67.7	2.59
			267.5		
		25	301.8	34.3	(2.58)
			267.2		
			301.3	34.1	
				68.4	2.58

Right & below

			356.8	35.7	
	10	49	320		
			356.4		
			31.5	35.1	
				70.8	2.48
			356.6		
			31.4	34.8	2.50
	13	10			
			356.1		
	38	44	31.3	35.2	
8	9	41		70.0	2.51
13	9	+51			−2.54

4625.5480
4624.4700
+1.0780

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1898phac.proj.1357.

Dec. 1. 1898

Parkhurst's variable Phot T Wobs.

20K 8+14.8

Right & below 25 19

67.5 5 11

8 23 54 138.4 70.9

70.0 69.1

139.1 140.0 0.77

70.1

25 37 137.9 67.8 0.80

70.4 68.9

139.3 136.7 0.84

Left & above

~~159.1~~ 159.1

29 44 ~~231.7~~ 231.3 72.2

21 10 158.8 73.2

232.0 145.4 0.67

158.7

30 00 231.3 72.6 0.68

109 15 160.1 71.0

8 27 19 231.1 143.6 0.70

+10

13 27 29 Mean 0.74

4625.5608

4621.6900

+3.8708

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1898phae.proj.1357.

Dec. 1, 1898.

Left & above

		157.2		II
8	32	4	230.9	73.7
			157.0	73.8
			230.8	147.5	0.62
			158.0	
33	36		232.5	73.5	0.65
			159.8	71.1
			230.9	144.6	0.68

Right & below

		247.5		
36	10	321.5	74.0	
		249.9	71.0	
		320.9	145.0	0.67
		249.1		
	38	00	319.1	70.0	0.71
	19	50	248.6	71.0
8	34	58	319.6	141.0	0.705
	2	52		
13	37	50		

Mean 0.68

4625.6680
+621.6900
+ 3.8780

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1898phae.proj.1357.

Dec. 1, 1897.

Right & below

2486

840 6 319.47 71.1
279.0 71.0
320.0 142.1 0.73

247.5

4139 320.0 72.5 0.74
250.1 68.9
319.0 141.4 0.75

Left & above

337.8

4419 50.6 72.8
338.8 70.7
49.5 143.5 0.70

339.1

45 44 48.6 69.5 0.72
11 48 337.9 72.2
8 42 57 49.9 71.7 0.74
+2 52
13 45 49 50.1 141.7 Mean 0.73

4620.5735
4621.6900
+3.8835

1898phae.proj.1357.

Dec. Light

Left & above

338.9

8 48 26 49.7 70.8'

338.9 6 8 6'

47.5 139.4' 0.79

337.5

50 45 50.1 72.6' 0.76

388.9 70.0'

48.9 14 26' 0.72

Right & below

68.5

52 32 140.0 71.5'

69.0 72.0'

141.0 143.5' 0.70

68.5

54 4 139.1 70.6' 0.70

66.5 73.6'

140.1 144.2' 0.69

Mean 0.73

54 4

5 6 4 7

8 5 1 4 2

+ 2 5 2

13 54 34

4625.5796

5 47

51 27

8 + 2 52

13 54 19

4625.5794

4621.6900

+3.8894

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1898phae.proj.1357.

Dec 4 1898.

Right & below

	68.0			
8 57 52	~~138.5~~			
	139.0	71.0		
	69.1	69.3		
	138.4	140.3	0.77	
	68.1			
59 50	138.3	70.2		0.75
	67.5	71.8		
	139.3	142.0	0.73	

Left & above

	158.0			
9 2 6	230.9	72.9		
	158.0	71.1		
	229.1	144.0	0.69	
	158.1			
3 50	228.5	70.4		0.70
3 38	156.9	72.4		
8 60 54	229.3	142.8	0.72	
+ 2 52				

14 3 46

46 25.5860

46 21.6900

+3.8960

Mean 0.72

Watch correction + 2' 52" watch stopped on last set of 1st group

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1898phae.proj.1357.

Dec. 11 1898.

Copied

o Ceti Phot. Wolbs.

2 12 −3.6

2 48

36

left + below

301.2

9 54 48 310.1 8.9

301.4 9.5

~~301.1~~ 18.4 5.47

310.9

301.5 5.54

58 11 310.4 8.9

301.7 8.3

310.40 17.2 5.62

Right + above

31.1

10 1 56 40.9 9.8

30.8 10.3

41.1 20.1 5.25

30.8

3 26 41.73 10.5 5.26

238 21 30.9 10.0

9 59 35 40.9 20.5 5.24

14 59 27 mean 5.40

4625.6247

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1898phae.proj.1357.

Dec. 1 1898.

Right & above

II

	30.7			
10 6 3	40.9	10.2'		
	30.87	10.4'		
	41.1	20.6'	5.23	
	30.8			
8 30	41.1	10.3'		5.23
	30.4	10.3'		
	40.87	20.6	5.23	

Left & below

	121.2			
12 00	130.41	8.9'		
	120.9	9.9'		
	130.8	18.8	5.43	
	121.0			
13 45	130.8	9.8'		5.44
0 18	121.0	8.9'		
10 10 - 8	~~33.0~~	18.7	5.44	
15 9 52	129.9		Mean 5.34	

4625.6318

Prof. Bailey's Peruvian Phot. used in last 2 groups

Watch correction - 4 sec (watch fast)

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1898phae.proj.1357.

Dec. 1, 1898

	M.P. 441	Phot R	Wolb.
		3 31 62.8	
		3 21	
		10	
	below		
	74.3		
10 37 07	137.9	63.6	
	72.8	65.7	
	141.5	132.3	-0.93
	72.1		
40	139.4	67.3	-0.92
	75.0	66.1	
	141.1	133.4	-0.91
	above		
	161.0		
42 42	234.1	73.1	
	159.6	74.5	
	234.1	147.6	-0.62
	157.6		
44 31	233.8	76.2	-0.60
5 3	159.4	74.1	
10 41 16	233.5	150.3	-0.57
-8			
15 41 8			
4625.6536			

Mean -0.76

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1898phae.proj.1357.

Dec 2, 1898 (Friday)

(H. M.) Parkhurst's Var. Phot. T. Sr. bo.

20 A +1K2

24 26

4 18

Rights below I

252.80

7 30 20 317.6 65.6

250.0 70.0

320.0 135.6 0.86

250-0.1

32 00 320.63 70.2 0.52

250-0.1 69.9

320.0 140.1 0.77

Left & above

336.1

34 44 49.6 73.5

336.1 74.0

50.41 147.5 0.62

337.0

36 32 51.81 74.1 0.62

13 36 336.0 73.6

7 33 24 49.6 147.7 0.62

12 33 24

4626.6232

4621.6900

+4.8332

Mean 0.72

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1898phae.proj.1357.

Dec. 2, 1895

Left & above

340.1

7 38 50 49.4 69.3

337.1 74.3

51.4 143.6 0.70

336.3

41 00 51.4 75.1 0.68

338.5 71.0

49.5 146.1 0.60

Right & below

69.5

43 30 139.9 70.4

67.9 70.7

138.6 141.1 0.75

66.1

67.2 0.76

138.0 70.8

46 26 69.5 69.6

9 46 138.81 140.4 0.77

7 42 26

12 42 26

4626.5295

4621.6900

+4.8395

Mean 0.72

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1898phae.proj.1357.

Dec. 2 1898.

Right & below

~~70.0~~
68.4

7 49 40	137.9	69.5	
	67.6	70.2	
	137.8	139.7	0.78
	67.7		
0 1 21	138.5	70.8	0.75
	69.0	69.6	
	138.6	140.4	0.77

Left & above

	158.1		
0 4 40	230.9	72.8	
	157.0	73.9	
	231.4	146.7	0.64
	157.0		
0 6 39	231.3	74.3	0.66
12 25	158.8	71.4	
7 53 6	230.2	145.7	066
12 53 6			

4626.5369
4621.6900
~~+ 8.2469~~
+ 4.8469

Mean 0.72

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Dec. 2, 1898.

Left & above IV

159.2

8 00 00 230.1 70.9

157.9 -74.0

232.0 144.9 0.65

157.0

2 30 231.85 74.5 0.66

157.7 -72.8

230.5 147.3 0.63

Right & below

Clouds stars gone

249.9

8 32 318.5 68.6

200.1 -70.0

249.6 138.6 0.80

319.6

250.1

16 30 321.1 69.4 0.82

27 32 Clouds thick

8 6 53 251.1 67.9

13 6 53. 319.8 137.3 0.83

4626.5464

4621.6900

4.8564

Mean 0.74

Stopped by clouds in this region

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Dec. 2, 1898

~~Right & below~~

2 W Delphini Phot T W obs.

20 81 +17.8

Left & above 20 21

257.3 4 57

8 30 52 319.0 (corr for dis 67.7

Stonefort 66.0

257.2 133.7 0.90

317.2

257.0

32 45 318.1 67.1 0.89

257.0 67.7

~~318.7~~ 134.8 0.88

Right & below

~~338.5~~

36 40 49.27 75.2

334.1 77.7

48.8 149.9 0.55

335.0

39 48 51.5 76.5 0.5 3

20 5 384.4 78.4

8 35 1 52.8 154.9 0.48

13 35 1.

4626.5660

mean 0.71

Topped by clouds

Observations extremely difficult and uncertain especially at last

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Dec. 2, 1895

Comp star = DM +26° 40 (7.0) magn 8.05

	Andromedae	Phot	Wolb
	0 14	+26.1	Copied
	2 57		
Right = above	2 43		I

352.2 / comp star

10 1 20	35.2	+3.0	
	352.1	+3.8	
	35.9	86.8	+2.00

3530

3 10	35.8	+2.8	+2.01
	352.5	+3.2	
	36.2	86.0	+2.02

Left & below

83.0

5 44	123.5	+0.5	
	82.8	+3.5	
	126.3	84.0	+2.05

82.4

7 34	123.5	+1.1	+2.12
17 53	83.4	+3.5	
10 4 28	122.9	80.6	+2.16
10 4 28			

+626.6282

Mean +2.06

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Dec. 21 1898.

Left & below

II

Copied.

	831			
10 9 28	1220	38.9		
	824	44.5		
	126.9	83.5	2.09	
	81.5			
11 8	126.7	45.2		2.08
	84.8	39.2		
	124.0	84.4	2.07	

Right & above

	175.0			
13 52	2148	39.8		
	178.1	43.3		
	216.4	83.1	2.10	
	172.0			
16 32	216.5	44.5		2.04
11 0	17216	43.4		
10 12 45	216.0	87.9	1.97	
10 12 45				

mean 206.

4626.6339

Measured through some telouds

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1898phae.proj.1357.

Dec. 2, 1898

Copied.

o Ceti Phot R Wolb

2 12 −3.6

3 28

1 16

Right & below

1923

~~10 33~~	201,89	9.6	
10 33 00	191.7	10.2	
	201.9	19.8	5.31

19184

35 40	201.9	10.5	5.28
	192.0	10.0	
	202.0	20.5	5.24

left & above

2829

39 00	291.4	9.5	
	282.88	10.2	
	292.0	19.7	5.32

2814

41 15	292.0	10.6	5.32
149 0	282.3	9.2	
10 37 15	291.45	19.8	5.31
15 37 15			

4626.60-08

Mean 5.30

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1898phae.proj.1357.

~~Left~~ Dec. 2, 1895

Copied.

II

Left above

	2818		
43 14	2919	10.1	
	2818	10.1	
	2919	20.2	5.27
	2813		
44 49	2919	10.6	5.26
	2820	9.9	
	2919	20.5	5.27

Right & below

	12.13		
47 15	21,5	9.2	
	1219	10.3	
	22.1	19.5	5.35
	12		
	12.0		5.31
49 6	22.1	10.1	
24 24	12.0	10.1	
10 46 6	22.1	20.2	5.27
15 46 6			
4626.6570			

Mean 5.28

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1898phae.proj.1357.

Dec. 5, 1898. (Monday)

Comp. stars for R Ceti 4 obs

7 30 Clouds 2 20 -1.5
8 2 " thick 1 00
8 2 1 20

Watch correction +7 sec (Watch slow)

Above Star n' with star on. I

170.0 (comp star on)
9 2 46 216.5 46.5
167.0 51.8
218.8 98.3 1.70

169.2
5 00 220.8 51.6 1.70
170.40 47.2
217.2 98.8 1.69

Below

260.9
8 18 306.1 45.2
259.40 50.8
309.8 96.0 1.76

259.2
10 35 308.0 48.8 1.80
26 39 261.9 44.3
9 6 40 306.2 93.1 1.83
+7
Clouds. Mean 1.75
9 6 47
4629.3798

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1898phae.proj.1357.

Dec. 5. 1898.

Left & below
84.4
9 21 20 123.5
84.1
121.9

84.6
3 0 20 124.0
85.1
122.4
Clouds thick
Right & above
174.0
34 19 216.2
173.2
215.5

173.9
Clouds

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1898phae.proj.1357.

Dec 5, 1898

Above

~~666~~

163.1

10 29 10 225.5

Clouds thick

164.0

225.1

Star gone

Stopped by Clouds

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1898phae.proj.1357.

Dec. 6. 1898. (Tuesday)

7	0	Cloudy.
7	30	"
8	0	"
8	30	"

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1898phae.proj.1357.

Dec. 7. 1898. (Wednesday)

Sawyer's Var. Phot. I. W. ob.

		1A 2C	+12.4		
		23 1V			
		+C V-1			
		Rights above below			
		170.4			
6	17 40	214.9	39.5		
		173.9	39.4		
		213.3	78.9	2.23	
		170.0			
19	24	21.05	40.5		2.18
		1728.6	41.3		
		214.9	81.8	2.14	
		lefts above below			
		267.9			
21	15	302.2	33.6		
		266	37.2		
		2659	71.8	2.45	
		304.1			
		266.1			
		266.1			2.37
		304.1	38.0		
23	6	266.1	37.9		
1	25	305.0	76.9	2.29	
6 20	21 +20	4631.4727			2.25
11 20	41	4630.5921			
		+.5806			

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Dec 7 1895.

Left & ~~above~~ below

~~304.4~~

~~23 6~~ 266.1

~~305.0~~

266.8

Same again

	302.1	35.3		
24 50	266.8	35.7		
	302.6	71.1	2.47	
	~~267.0~~			
	267.0			
27 00	301.1	34.1		2.46
	265.9	38.0		
	303.9	72.1	2.44	

Right & above

	353.8			
30 23	346	40.8		
	~~35~~ 39	39.3		
	38.2	80.1	2.19	

	354.5			
32 80	32.5	38.0		2.26
114 43	354.5	37.6		
9 28 +41	32.1	75.6	2.33	
14 29 - 1				mean 2.36

4631.4785
4630.0921
+.8864

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1898phae.proj.1357.

Dec. 7, 1895.

III

Same again

		354.8		
6	34 39	32.8	37.5	
		353.9	39.0	
		32.9	76.6	2.30
		354.2		
	36 00	88.86	39.4	2.28
		354.4	38.0	
		32.4	77.4	2.27

Left & below

		80.86		
	38 28	122.5	36.9	
		86.2	37.2	
		128.4	74.1	2.37
		86.1		
	40 00	128.41	37.0	2.38
		85.0	36.9	
		~~129.4~~	73.9	2.38
6	37 17	121.9		
	+20			
11	37 37			

Mean 2.323

4681.4844
4631.4817
+.0027

1898phae.proj.1357.

Dec. 7. 1895.

IV

Left & below

		86.2		
6	44 10	123.1	36.9	
		86.0	36.2	
		122.2	73.1	241
		86.9		
46	20	121.8	34.9	246
		86.8	35.2	
		121.85	70.1	250

Right & above

		175.0		
30	20	213.3	39.3	
		177.0	36.5	
		213.5	75.8	232
		177.1		
53	13	214.1	37.0	234
194	3	175.9	37.6	
6 48	31	213.5	74.6	236
11	48 51			

4631.4923
4631.4517
0.0106

Mean 240

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Dec. 7, 1895.

V

Right & above

	170.4			
6 56 15	213.5	38.1		
	178.5	36.9		
	212.87	75.0	2.35	
	177.5			
7 1 41	212.4	34.9		241
	177.1	36.1		
	213.52	71.0	2.47	

Left & below

	267.0			
4 24	301.2	34.2		
	266.9	33.7		
	300.86	67.9	2.05	
	267.2			
7 4	301.2	34.0		2.57
49 24	266.9	34.3		
7 82 21 +20	301.2	68.3	2.06	
12 2 41				

4631.6019
4631.4817
+0.0202

Mean 2.49

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Dec. 7, 1898.

VI

Left & below

	267.2			
7 10 10	301.7	34.5		
	267.7	33.9		
	301.6	68.4	2.06	
	265.0			
11 05	301.4	33.4		2.05
	267.2	33.8		
	301.0	67.2	2.60	

Right & above.

	306.5			
15 00	32.0	35.5		
	306.1	34.2		
	30.3	69.7	2.02	
	~~30.67~~ 7.8			
11 45	30.8	38.5		2.52
15 47	305.6	35.4		
7 13 57	31.0	69.2	2.03	Mean 2.05
+20				
12 14 17				

Last settings, especially those in last group made with great difficulty.

4631.5099
4631.4817
+0.0282

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1898phae.proj.1357.

Dec. 7, 1895.

S Cygni Phot S Wobs

19 39 +28 9

Right & above 25 6

175.80 27

7 54 40 215.1 +0.1

172.8 +4.3

217.1 8+.4 2.07

172.2

56 20 217.1 +4.9 2.04

174.8 +1.1

215.9 86.0 2.02

Left & below

263.8

59 14 307.1. +3.3

265.6 36.7

302.3 80.0 219

266.2

8 1 50 303.7 37.5 220

232 4 263.1 +1.9

7 58 +20 305.0 79.4 2.21

12 58 21 Mean 2.12

4631.3406

4629.3440

+2.1966

Watch correction +20 sec. Watch slow—

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1898phae.proj.1357.

Dec. 7, 1898.

II

Left & below

263.95

8 5 00 305.4 +1.9'
266.5 36.7'
303.2 78.6 2.24

264.9

6 50 303.1 38.2' 2.20
262.5 +2.8'
305.3 81.0' 2.17

Right & above

305-2.4

9 21 34.9 +2.5'
304.5 39.5'
34.8 82.3" 2.13

304.1

11 00 34.2 40.1 2.14
32 11 303.5 41.3
8 8 3 345 81.4 2.10
+20
13 8 23

4631.3470
4629.3440
+2.2035

Mean 2.17

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Dec 7. 1898.

Right & above III

352.0

8 14 24 36.0 44.0

352.50 42.0

34.0 86.0 202

353,4

16 53 35.0 41.6 2.78

353.5 40.9

~~36.0~~ 34.4 82.5 2.12

Left & below

~~825~~

83.0

27 9 1248 41.8

84.80 39.0

123.0 80.8 2.17

84.5

29 10 123.1 38.6 2.18

7 36 83.4 41.5

8 21 54 1249 80.1 2.19 mean 2.12

+20

13 22 14

4631. 5570

4629. 3440

+2. 2130

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Dec. 7, 1898.

Left & below

	83.68			
8 31 11	124.5	~~77~~		
	835	40.7		
	124.8	40.3		
		81.0	2.17	
	84.8			
4056	123.6	38.8		2.19
	44.0	40.8		
	124.8	79.6	2.21	

Right & above

	173.2			
4 5 10	216.1	+2.9		
	175.1	+0.1		
	215.2	83.0	2.11	
	174.6			
4642	214.7	+0.1		2.10
3 59	173.0	43.7		
5 40 66	217.0	83.8	2.05	
+20				
13 41 20	216.7			

Mean 2.14

4631.5703
4629.3440
+2.2263

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1898phae.proj.1357.

Dec 7 1898.

Right & above

	172.45			
8 49 14	216.2	+3.7'		
	174.5	+0.7'		
	215.2	84.4'	2.07	
	175.5			
51 9	215.1	+0.3'		2.07
	173.6	+4.1'		
	217.7	84.4'	2.07	

Left & below

	263.6			
53 50	304.8	+1.2'		
	263.8	+1.5'		
	305.3	82.7'	2.12	
	263.5			
56 00	304.2	+0.4'		2.13
10 13	263.3	+1.4'		
8 52 33	304.7	81.5	2.14	
+20				
13 52 53				

4631.5784
4629.8440
+2.2344

Mean 2.10

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1898phae..proj.1357.

Dec 7, 1898.

λ with 8.0 Standards near Pole. Phot. I.

20 10 88.8 Gr. 66.

26 52

6 42

Above

173.4

9 39 24 216.4 43.0+

167.2 53.0+

220.2 96.0 +1.76+

1

166.9

42 16 221.1 54.2+ +1.72+

173.2 44.6+

217.5 98.8+ +1.69+

below

261.4

46 10 307.7 46.3+

258.5 52.0+

315 98.3+ +1.70+

260.8

4 24 310.5 49.7+ +1.76+

16 19 263.1 43.9+

9 44 5 307.0 93.6+ +1.82+

+20

14 44 25

4681.6142

Mean +1.74+

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1898phae.proj.1357.

Dec. 7. 1898.

	below			II
	264.7			
9 50 48	305.7	41.0	+	
	260.1	48.1	+	
	308.2	89.1	+	1.94 +
	260.4			
52 38	308.8	48.4	+	1.93
	263.0	41.5	+	
	304.5	89.9	+	1.92 +
	Above			
	350.4			
56 44	37.9	47.5	+	
	349.1	51.9	+	
	41.0	99.4	+	1.67 +
	248.5			
58 39	40.1	51.6	+	1.66
18 49	350.2	48.8	+	
9 54 42	39.0	100.4	+	1.65 +
+20				
14 55 2				Mean 1.80
4631.62.0				

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Dec. 7, 1898.

~~10 9.5~~ 11.0 with 9.5

Lift ♀ above

I

3474

10 6 30	39.0	51.6		
	349.0	50.2		
	39.2	101.8	1.61+	

3500

8 00	40.1	50.1		1.60+
	349.9	48.7		
	38.86	98.8	1.69+	

Right ♀ below

78.0

11 22	129.8	51.5		
	79.1	50.5		
	129.9	102.6	1.59+	

77.8

18 22	129.0	51.2		1.60+
39 14	78.2	50.6	+	
10 9 45	~~128.8~~	101.8	1.61+	
+20				
15 10 8				

4681.6320

Mean 1.62+

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Dec. 7. 1898.

~~below~~ Right ~~above~~ II

		79.0		
18	16 00	129.7	50.7	
		879.9	49.2	
		129.1	99.9	+1.66
		80.0		
	18 30	128.8	48.8	+1.66
		78.2	50.8	
		129.0	99.6	+1.67
		~~Left~~ Above		
		167.0		
	22 22	220.3	53.3	
		170.8	49.3	
		220.1	102.6	+1.69
		171.6		
		~~219.8~~		+1.62
	24 30	220.9	49.3	
	1 22	170.0	50.9	
10	20 20	220.9	100.2	+1.60
	+20			
15	20 40			
4631.6394				Mean +1.64

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Dec. 7. 1898.

Chase ⊂ Gr. obs.

10	40	+2v.v
v	40	
v	0	
7	0	

~~7 09 16.6 * ⊂~~
~~10 23.7 ⊂ *~~
~~11 v7.5 * ⊂~~
~~17 17v. * ⊂~~

7	12	30.2	*
	13	11.7	⊂
	13	24.1	*
	13	41.9	⊂
	14	24.1	*
	1v	0v.6	⊂
	1v	18.0	*
	1v	3v.3	⊂
	16	1v.2	*
	16	v7.4	⊂
	17	09.9	*
~~+0.8~~	17	26.4	+0.7s ⊂

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Dec. 7. 1898.

7	18	16.8	*
	18	58.9	⊏
	19	10.2	*
	19	27.6	⊏
	20	17.0	*
	20	59.3	⊏ +.3
	21	10.0	*
	21	28.9	⊏
	22	34.0	*
	22	46.0	*
	22	52.0	⊏
	23	29.0	⊏
~~24~~	~~02.7~~		
24	36.8		
24	46.0		
24	53.9		
25	32.0		
26	59.0		
26	11.0		
26	19.0		
26	53.0		
27	20.0		
27	32.8		
27	39.0		
28	14.8		

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1898phae.proj.1357.

Dec. 7. 1898.

~~27 43.9~~
~~46.7~~

~~23.4~~
~~35.8~~
~~30 12.0~~
~~24.N~~
~~31.5~~

~~32 04.9~~
~~17.1~~
~~24.9~~

~~34 10.5~~
~~23.0~~
~~30.0~~

~~49 59.0~~ *
~~50 19.0~~

50 38.8 * *
52.9 * *
59.0 + =
51 36.0 +1.0 =

Comp. star = Dm. +2r° 229r (A.A)

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1898phae.proj.1357.

Dec. 7. 1898.

A	16	3~~7~~.3	14	√2	0,0
	17	3A.√		√3	0,0
	18	3A.√		54	0,0

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1898phae.proj.1357.

Dec. 4. 1898. (Thursday)

Sawyer's Var. Plot. S. Fr. No.

1A 24 +12.5

22 54

+4 30 I

Right & above

358.3

5 34 20 29.3 31.2

357.1

29.1 320

632 2.72

357.2 32.1 (2.70)

35 32 29.8

357.2 336

38.8 67.7 2.67

Left & below

87.0 33.1

37 21 120.1

87.2 31.9

119.1 67.0 2.62

87.1 31.0 (2.70)

38 58 175.1

26 11

87.1 327

5 36 32 119.5 637 2.73

Ka.

1 37 20. Mean 2.70

4632.4426 4632.4426

4631.4017 4632.3712

0.9609 +0.0714

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1898phae.proj.1357.

Dec 5, 1898

Left & below

II

	86.2	3K.2 ✓		
5 40 34	120.4			
	87.3	307 ✓		
	118.0	6K.9 ✓	2.6+ ✓	
	89.83			
43 21	117.1	27.A ✓	(2.70) ✓	
	86.6	3✓.6 ✓		
	122.2	63.K ✓	2.7B	

Right & above

	176.5			
47 00	210.9	34.K ✓		
	180.0	303 ✓		
	210.3	6K.7 ✓	2.69 ✓	
	150.0.			
48 00	210.2	30.2 ✓	(2.71) ✓	
10 ✓✓	178.3			
✓ KK KK.		33.2 ✓		
4A.	211.5	63.K ✓	2.73 ✓	
10 4✓ 32.				

Mean 2.70 ✓

4682.4483
4632.3712
+0.0771

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1898phae.proj.1357.

Dec. 5, 1897.

Right of above.

	177.2	3 v. 0 v	III
5 51 00	212.2		
	178.0	31 A v	
	209.8	66.2 v	2.61 v
	178.0	30.A v	(2.6 v) v
52 50	208.8		
	176.4	34.v v	
	210.9	61.3 v	2.67 v

Left of below

	264.8	32.A v	
55 20	301.6		
	270.0	29.A v	
	299.8	62.6 v	2.76 v
	270.2	30.1 v	(2.7 v) v
5 64	300.3		
1 v v	268.4		
v v A. v	300.0	31.v v	
KA.		61.v v	2.80 v
10 v v KA. v	299.8		

4632.4545
4632.3712
+0.0836

Mean 2.71 v ~~2.68~~

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1898phae.proj.1357.

Dec. 8, 1895.

Left of below

	267.5	32.6		
5 58 50	300.1			
	270.1	29.0		
	299.1	61.6	2.40	
	270.1	29.9		(2.42)
6 00 26	299.0			
	268.5	31K		
	299.9	60.3	2.65	

Right of above

	358.1	31.9		
2 20	30.0			
	358.8	31		
	~~295~~	63.K	2.73	
	30.3			
	358.0	31.6		(2.74)
4 4	29.46			
24 40	358.9	31.3		
6 1 24	29.6	62.9	2.75	
K.A.				
16 2 13.				

Mean 2.74

4632.4598
4632.3712
+0.0886

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1898phae.proj.1357.

Dec. 8, 1898.

V

Right & above

	358.4	31.4 ✓		
6 7 50	29.8			
	358.1	32.9 ✓		
	31.0	64.3 ✓	2.70 ✓	
	358.0	31.8 ✓		(2.72) ✓
9 50	29.5			
	357.9	31.9 ✓		
	29.8	63.7 ✓	2.73 ✓	

Left & below

	87.3	30.7 ✓		
12 20	118.0			
	87.9	30.3 ✓		
	118.2	61.0 ✓	2.82 ✓	
	88.1	31.1 ✓		
14 22	119.2		2.43 ✓	
44 22	89.8	29.6 ✓		
6 11 6. ✓	119.4	60.7 ✓	2.44 ✓	
48				
11 11 54			mean 2.78 ✓	

4632.4666
4632.3712
+0.0954

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1898phae.proj.1357.

Dec. 8, 1898.

VI

Left & below

88.9
120.1 30.9 ✓

6 20 00 119.8

88.9 30K ✓
119.3 61.3 ✓ 2.41 ✓

88.1 31.0 ✓ (2.41) ✓
21 39 119.1

88.9 303 ✓
119.2 61.3 ✓ 2.41 ✓

Right & above

172.7
26 00 210.0 31.3 ✓

178.5 322 ✓
210.87 63.5 ✓ 2.73 ✓

177.9 31.0 ✓ (2.74) ✓
27 37 209.27

9 ✓ 16. 178.5 313 ✓
6 23 49. ✓ 209.88 63.1 ✓ 2.7K ✓
48 Mean 2.72 ✓

11 24 37

4632.4734
4632.3712
+0.1042

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1898phae.proj.1357.

Dec. 5. 1898.

VII

Right above

176.9 336 ✓
6 31 40 210.5
1780 326 ✓
210.6 66.2 ✓ 2.64 ✓

37 4 210.4 178.1 324 ✓ (2.64) ✓
~~3 30~~ 179 210.5
210.5 178.7 314 ✓
210.1 63.8 ✓ 2.72 ✓

Left below

~~269.5~~ 269.5 30.4 ✓
~~4338~~ 30.1 300.0 30 0 ✓
269.4 270.0 60.5 ✓ 2.44 ✓
300.0 ~~29~~

269.4 29.9 ✓ (2.44) ✓
4648 299.3
159 2 268.8
6 39 46. ~~300.4~~ 310 ✓
+8 60.9 ✓ 2.43 ✓
11 40 34 298
4632.4865
4632.3712
+0.1153

Mean 2.76 ✓

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1898phae.proj.1357.

Dec 8 1898

Left & below VIII

269.1 31.1 ✓

32 40 300.6

270.0 29.0 ✓

299.0 60.1 ✓ 2.84 ✓

270.0

55 15 299.1 29.1 ✓ 2.84 ✓

268.3 31.7 ✓

300.0 60.8 ✓ 2.83 ✓

Right & above

357.5 32.7 ✓

58 38 30.2

357.1 34.0 ✓

31.1 66.7 ✓ 2.62 ✓

2.68 ✓

357.5 32.1 ✓

7 2 40 29.6

229 13. 357.9 31.1 ✓ 2.74 ✓

6 57 18 ✓ 29.0 Mean 2.76 ✓

48

11 58 6

4632.4987

4632.3712

+0.1275

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1898phae.proj.1357.

Dec 8 1898

Right ascension

35 7.9
26.5
35 7.45
29.5

7 14 15

35 6.0

Abandoned too low.

Watch correction +48 sec watch slow

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1898phae.proj.1357.

Dec. 5. 1897.

X 13.0 compared with 9.5

20 10 18.8

	Left above	2 5m	2 f	
	359.2	5	1.8	
D 15 15	27.1	27.9		Standards near pole.
	0.8	26.2		
	27.0	54.1	3.10 x	
17 44	1.5			
	26.3	24.8	3.16 x	
	0.0	26.2		
	26.2	51.0	3.23 x	
	Right 2" below			
	90.3			
21 00	117.1	26.8		
	90.5	27.2		
	117.7	54.0	3.10 x	
	90.7			
23 44	117.6	26.9	3.07 x	
77 43	89.9.	28.4		
8 19 27	118.3	55.3	3.04 x	
15 19	x.			
4632.5551	16			

Mean 3.12 x

Watch correction - 10 sec (Watch fast.)

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1898phae.proj.1357.

Dec. 8. 1898.

II

Right & below

90.0

2 7 14 117.3 27.3

90.0 25.0

118.0 55.3 +3.04+

90.1

30 00 117.1 27.0 +3.07+

90.5 27.1

117.6 54.1 +3.10+

Left & above

~~178.4~~

179.0

34 13 209.2 30.2

179.3 28.9

208.2 59.1 +2.89+

180.3

3A 11 209.1 25.8 +2.92+

9 38 179.9 25.8

8 32 24 -10 208.7 57.6 +2.95+

13 32 14

4632.5640

Mean ~~2.97~~

+3.00

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1898phae.proj,1357.

Dec 8. 1895.

1.2 0 with q. 5

I

	Left of above			
	176.9			
8 41 24	211.3	34.4		
	177.2	36.0		
	213.2	70.4	+2.49	x
	177.0			
44 11	213.4	36.4	+2.46	x
	177.1	35.9		
	213.0	72.3	+2.43	x
	Right of below			
	268.2			
49 40	301.0	32.8		
	268.3	33.7		
	302.0	66.5	+2.62	x
	267.3			
53 00	301.0	33.7	+2.63	x
1 8 8 15	268.6	32.4		
8 47 4 -18	3010	66.1	+2.64	x
13 46 54				
+632.5742				

Mean +2.54 x

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1898phae.proj.1357.

Dec. 8, 1898.

Right & below. II

	268.1		
5570	299.1	31.0	
	268.1	32.9	
	301.0	63.9	+2.72*
	267.6		
584	301.2	33.6	+2.66*
	268.0	33.5	
	301.5	67.1	+2.61*

Left & ~~below~~ above

	357.8		
9 1 20	325.0	32.2	
	356.9	31.9	
	28.8	64.1	+2.71*
	357.0		
350	29.4	32.4	+2.68*
238 24	357.1	330	
8 59 36	30.01	654	+2.66*
70			
13 59 26			Mean +2.67*

4632.5829

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1898phae.proj.1357.

Dec. 7, 1898.

R Boti Wolz

2 16 — 1.2
3 00
44

star with stowing
Right above

~~3~~
344.8

18 24 30	~~44~~ 3	59.5	
	344.0	61.0	
	45.0	120.5	1.18
	343.9		
25 45	45.1	61.2	1.18
	344.0	59.4	
	43.4	120.6	1.18

Left & bdar
73.5

27 58	132.0	58.5	
	73.5	61.6	
	133.1	120.1	1.19
	55		
	78		
29 45	133.1	57.6	1.25
287 58	77.1	54.0	
10 26 44 60	131.1	111.6	1.38
-50			
15 26 ~~34~~ 50			

Mean +1.23

4682.64357

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1898phae.proj.1357.

Dec 8, 1897.

2nd with an

left & below

8 4.8 comparison

38 38	123.0	dis	.352	
	86.0		36.2	
	122.2		71.4	2.36
	86.9			
38 56	121.2		34.3	2.46
	86.1		34.4	
	120.5		68.7	2.55

Right & above

	176.1			
40 45	213.9		37.8	
	171.8		43.9	
	215.7		81.7	2.141 R
	173.1			
42 15	215.7		42.6	2.08
~~160 34~~	~~172.95~~		43.5	
~~40 8~~				
158 34	217.9		86.1	2.02
10 39 38	266.0			
15 39 28				Mean 2.27

4632.6525

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1898phae.proj.1357.

Dec. 9. 1898. Friday.

		U Vulpec.	Phot F.	Wobs.
		Right & below	19h 28m	19.5
		355.0	24 42	
7	20 45	30.0	35.0	5 14
		355.0	36.9	
		31.9	71.9	2.44
		354.7		
22	12	31.8	37.1	243
		355.8	35.5	
		31.3	72.6	242
		Left & above		
		29.5.0		
25	24	120.9	32.9	
		86.0	35.0	
		121.0	67.9	2.58
		87.1		
26	45	122.0	34.9	2.56
15	6	86.8	34.3	
7 23	46	121.1	69.2	2.59
12 23	46			

4633.5166
4682.4700
+1.0466

Mean. 2.50

Watch

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1898phae.proj.1357.

Dec. 9, 1898.

Left & above

II

8 6.9

7 28 36 120.2 33.3

85.6 35.4

121.0 68.7 2.55

87.1

30 9 122.0 34.9 2.58

87.0 32.3

119.8 67.2 2.60

Right & below

177.6

32 50 212.5 34.9

176.25 35.6

212.1 70.5 2.49

~~177.8~~ 176.4

~~38 00~~ ~~35 00~~ 211.8 212.2 35.5 2.48

9 35 177.2 177.0 35.0

7 32 24 212.0 70.8 2.48

12 32 24

4633.5220

4632.4700

+1.0523

Mean 2.53

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1898phae.proj.1357.

Dec. 9. 1898.

Right & below

III

177.5

7 40 19 211.0 33.5

175.8 36.1

211.9 69.6 2.52

175.3

42 48 211.7 35.4 2.50

176.6 35.2

211.8 70.6 2.49

Left & above

267.1

45 42 301.0 33.9

266.0 35.4

301.4 69.3 2.53

266.7

47 11 301.8 35.1 2.53

16 0 267.5 34.2

7 44 0 301.7 69.3 2.53

7 44 0

7

4633.5306

4632.4700

+1.0606

Mean 2.52

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1898phae..proj.1357.

Dec. 9 1898

Left & above

IV

267.0

7 49 24 301.3 343

267.70 341

301.1 68.4 2.56

266.8

57 00 301.9 344 2.56

267.1 340

301.1 68.4 2.56

Right & below

356.0

53 47 327.0 36.0

356.5 34.9

31.94 70.9 2.48

356.7

55 36 30.8 34.1 2.51

9 51 356.3 35.0

7 52 25 31.9 69.1 2.54

12 52 25

4633.5360

4632.4700

+1.0660

Mean 2.54

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1898phae.proj.1357.

Dec 9 1895

Right & below

V

	356.2			
7 57 50	30.6	34.4		
	356.5	34.7		
	31.2	69.1	2.04	
	356.1			
59 46	31.5	30.4		2.00
	355.9	36.1		
	32.0	71.5	2.46	
	Left & above			
	86.9			
8 2 58	122.2	35.1		
	87.0	33.5		
	120.5	68.6	2.55	
	87.81			
4 42	120.7	33.6		2.00
3 16	86.1	35.2		
8 4 19	121.3	68.8	2.03	
13 1 19			Mean	2.02

4683.5426
4632.4700
+1.0726

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1898phae.proj.1357.

Dec. 9. 1898.

13 with 9.5 Standards near pole.

Polar stars Phot ⊙ W obs.

20 10 8 8.8

20 55

5 45

left & above

182.80 9.5 dia

32 26	208.1	26.1		
	181.1	27.9		
	209.8	54.0	+3.10	x
	180.3			
35 5	208.85	28.5	+3.02	x
	180.0	29.3		
	209.8	57.8	+2.94	x
	Right & below			
	270.0			
8 50 6	298.1	28.1		
	269.9	29.5		
	299.4	57.6	+2.95	x
	269.9			
41 00	299.0	29.1	+2.95	x
147 27	270.0	28.5		
8 36 52	298.5	57.6	+2.95	x
13 36 52				

4689.5 673

Means = +2.98 x

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1898phae.proj.1357.

Dec 9, 1898

Right & below II

270.1

8 44 8 298.1 28.0

269.9 29.3

~~295.5~~ 57.3 +2.96

299.2

270.0 +2.96

46 45 299.0 29.0

270.5 28.3

298.8 57.3 +2.96

Left & above

0.

51 40 29.5 29.0

0.5 28.3

28.8 57.3 +2.96

359.4

55 24 28.7 28.7 +2.97

197 57 0.0 28.1

5 49 29 28.1 56.8 +2.98

13 49 29

4633.5761

Mean +296

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1898phae.proj.1357.

Dec 9/1895

~~13.0~~ ~~13.0~~ with 9.5.

Left + above

I

~~3555.2~~

8 ~~5 9 36~~ ~~29.89~~

359.1

9 8 8 31.10 31.9°

359.4 31.9°

31.78 63.8° +2.72'

358.4

10 6 29.2 30.8° +2.72'

357.8 33.0°

30.8 63.8 +2.72'

Right + below

~~8~~ 87.5

14 45 121.0 33.5°

87.5 33.5°

121.0 67.0° +2.61'

28.0

17 38 121.2 33.2° +2.64'

10 37 87.8 32.2°

9 12 39 120.0 65.4 +2.66'

14 12 39 Mean +2.65'

4688.5921

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1898phae.proj.1357.

Dec 9 1895.

Right & below. II

86.0

9 20 21 120.4 32.4

84.0 32.4

120.4 64.8 +2.68

87.7

22 20 120.0 32.3 +2.68

87.7 32.3

120.0 64.6 +2.69

Left & above

177.1

26 40 209.8 32.7

178.1 32.0

210.1 64.7 +2.69

177.3

30 40 211.1 33.7 +2.66

100 1 177.7 32.8

9 25 0

210.5 66.6 +2.62

14 25 0

4689.6007

Mean +2.67

1898phae..proj.1357.

Dec 9. 1898.

U. Cephei Phot ⊙ 2 Obs

		0	57.	+81.1
Right above		3	14	
	239.3	2	24	
9 52 38	328.1	85.8		
	243.2	86.9		
	329.1	174.7	0.10	
	242.0			
53 38	327.1	85.1		0.14
	242.0	85.3		
	326 7.3	170.4	0.18	
	Left & below			
	329.1			
55 29	55.2	56.1		
	332.5	82.4		
	54.9	168.5	0.22	
	334.9			
56 30	53.2	78.3		0.21
18 13	328.1	91.3		
9 54 23	69.4	169.6	0.20	
14 53 33			Mean	0.18
4633.6 212				

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1898phae.proj.1357.

10 aug. Night

II

Left of below

328.9

~~19~~ 57 56 55.8 86.9

334.0 81.0

55.0 167.9 0.23

336.1

59 00 55.8 78.9 0.20

327.5 92.5

60.3 171.7 0.16

Right of above

59.9

10 0 34 148.9 89.0

64.9 81.2

146.1 170.2 0.19

643

1 36 148.8 80.5 0.221

239 6 62.5 87.4

9 59 46 149.9 167.9 0.23

14 59 46 Mean 0.20

4633.6249

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1898phae..proj.1357.

Oct 7 1898

Right ascension

63.2

10 2 45 149.2 86.0

62.9 80.1

148.0 166.1 0.26

65.1

3 50 141.8 76.7 0.31

61.7 84.3

146.0 161.0 0.36

Left of below

148.3 57.7

6 18 236.0 ~~57.3~~

155.7 78.2

234.1 165.9 0.27

15 & 5.1

7 50 233.8 78.7 0.28

~~20 43~~ ~~149.1~~ 75.5

10 5 17 150.0 164.5 0.29

15 5 11 ~~256.1~~

4683.6286 235.5 Mean 0.30

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1898phae.proj.1357.

Dec 9 1897

Left & below

151.4

10 10 30	295.8	54.4	
	155.1	79.7	
	234.8	164.1	030

153.8

11 45	232.7	78.9	031
	154.8	84.1	
	234.9	163.0	032

Right & above

243.5

14 20	323.0	79.5	
	245.0	76.5	
	322.5	156.0	046

246.0

16 29	320.5	74.5	051
13 4	246.3	76.2	
10 13 16	322.8	150.7	056
10 13 16			Mean 041
4633.6342			

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1898phae.proj.1357.

Dec. 9, 1898

Right & above V

	245.0			
8 19 10	328.0	78.0		
	248.0	74.1		
	322.1	152.1	0.53	
	245.9			
20 40	322.2	76.3		0.53
	246.1	75.8		
	321.9	152.1	0.53	
	Left & below			
	331.4			
23 00	52.0	80.6		
	333.9	78.6		
	52.5	159.2	0.40	
	334.3			
24 24	52.4	78.1		0.40
7 18	333.5	80.4		
10 21 50	53.9	158.5	0.41	Mean 0.46
15 21 50				
4683.6402				

Last group taken with some difficulty through clouds

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1898phae.proj.1357.

Dec. 9, 1898.

o Ceti

212 -3,6

412

Abanoned 2

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1898phae.proj.1357

Posted to here.

Dec. 10, 1898. (Saturday.)

Comp. Stars for R Cet.

2 h 12 −3.6

R Ceti Star o compared with stars n.

East Rim 23 213.1 30.5 @ C W. sts.

9 32 15 243.6 E. of R. rim

211.6 33.7

245.3 64.2 27.8

210.4

34 15 245.2 34.8 +2.65

240.3 32.8

243.1 67.6 25.9

Reversed

303.6 28.2

38 5 331.8

302.0 30.2

332.2 58.4 29.2

3

5

302.5 31.5 +2.92

41 15 334.0

146 43 304.9 27.2

9 36 41 332.1 58.7 2.91

14 36 41

4634 6088

Mean 27.8 +2.70

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1898phae.proj.1357.

Dec 10. 1898

δ Cebi Lt. R.

Copied.

9 52 55

132 9.1
2 ~~2~~2.3
10.6 12.3
23.1
214 5.14

54 55

11.3 12.6
23.9
12.1
22.3 10.2
225 5.00

57 25

~~9~~ 101.8 10.1
111.9
101.9 10.6
112.5
20.7 5.22

58 45
24 10
9 56 2
14 56 2
4634.6222

102.0
111.2 9.2
102.2
[113.1] 11.1
113.3
20.3 5.26

5.24

Mean 5.16

10 0 30

10.15 11.3
~~11.8~~
~~10.6~~
(11.7) ~~11.9~~ 10.3
~~21.6~~

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1898phae.proj.1357.

Dec 10, 1898

~~102.0~~

11.0

~~2 25~~ ~~113.0~~

Sky veiled by clouds

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1898phae.proj.1357.

Dec. 13, 1898. (Tuesday)

m with f

3 4 0 +28'

Pleiades. (Standards). Phot. T. Obs.

	above			
	134.0			
.6	26 54	142.1	8.1 x	
		133.8	9.2 x	
		143.0	17.3 x	+5.61 x
		132.3		
	28 30	143.0	10.7 x	+5.48 x
		132.95	9.8 x	
		142.3	20.5 x	+5.24 x
		below		
		222.4		
	30 39	232.8	10.4 x	
		223.0	10.0 x	
		233.0	20.4 x	+5.25 x
		223.8		+5.14 x
	31 52	234.0	10.7 x	
	117 55	222.4	11.6 x	
6	29 29	234.0	22.3 x	+5.05 x
11	29 29			
4687				

Mean +5.28 x

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1898phae.proj.1357.

Dec. 13. 1898.

Same again.

	below			II
	222.9			
33 14	233.8	11.1	x	
	225.0	8.5	x	
	233.5	19.6	x	+5.33 x
	224.8			
34 24	234.0	9.2	x	+5.25 x
	223.0	11.5	x	
	234.5	20.7	x	+5.22 x
	Above			
	312.1			
36 32	324.0	11.9	x	
	312.1	11.7	x	
	324.1	23.6	x	+4.93 x
	312.8			
38 20	322.5	8.7	x	+5.08 x
22 30	312.0	12.0	x	
6 35 32	324.0	20.7	x	+5.22 x
11 35 32				
4687.				+5.23 x

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1898phae.proj.1357.

Dec. 13, 1898.

2 with f =

	Above			
	309.5			
6 40 00	327.1	17.6	x	
	311.8	15.3	x	
	326.1	31.9	x	+4.27 x
	311.4			~~+4.05~~ +(4.30 x)
4 1 14	325.5	14.1	x	
	310.0	17.0	x	
	327.0	31.1	x	+4.33 x
	below			
	~~40~~ 0.3			
4 3 3	58.0	17.7	x	
	40.0	16.2	x	
	56.2	33.9	x	+4.13 x
	40.4			~~3.40~~ +(4.12)
44 5	56.0	15.6	x	
8 20	39.3	18.6	x	
6 42 6	57.9	34.2	x	+4.11 x
11 42 6				Mean ~~3.85~~ +4.21 x
4687				

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1898phae.proj.1357.

Dec. 13 1898.

Same again.

below

II

39.1

43 14 56.0 16.9 ×

39.6 16.9 ×

56.5 33.8 × +4.14 ××

39.0

46 20 56.4 16.4 × +4.18 ××

40.3 16.2 ×

56.5 32.6 × +4.22 ×

above

130.1

48 14 146.2 16.1 ×

130.0 16.1 ×

146.1 32.2 × +4.25 ×

130.2

49 15 146.1 16.9 × +4.28 ×

130.6 16.2 ×

140.8 33.1 × +4.32 ×

Mean +4.23 ×

4637.

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1898phae.proj.1357.

Dec. 13, 1898.

k with f

	Above			F
	120.4			
52 00	154.2	f dis	33.8	+
	120.4		35.6	+
	156.0		69.4	+ +2.53
	120.2			
53 00	154.0		34.8	+ +2.50
	119.4		36.1	+
	155.5		70.9	+ +2.48
	balow			
	208.0			
54 49	248.8		40.5	+
	211.0		36.4	+
	247.4		77.2	+ +2.28
	218			
55 46	248.1		36.3	+ +2.32
15 35	209.0		38.6	+
6 59 54	247.6		74.9	+ +2.35
11 53 54				
4637.				

Mean +2.41

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1898phae..proj.1357.

Dec 13. 1898.

Same again.

	below			II
	209.1			
57 40	246.8	37.7		
	209.90	37.3		
	246.3	75.0	+2.35	
	211.5			
57 39	246.5	34.0		+2.40
	210.1	37.6		
	247.7	71.6	+2.45	
	above			
	299.3			
7 0 46	337.8	38.5		
	301.2	33.8		
	335.0	72.3	+2.43	
	301.2			
2 16	336.0	34.8		+2.44
239 20	300.6	37.2		
6 59 50	337.8	72.0	+2.44	
11 59 50				
4637.				

Mean +2.42

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1898phae.proj.1357.

Dec 13, 1898.

j with f

above

I

293.9 < 4 dis

5 40 341.1 +47.2 +

294.5 +47.1 +

341.6 94.3 + +1.50 +

2958

6 57 341.5 +45.7 + +1.79 +

294.5 +49.3 +

3438 95.0 + +1.78 +

below

20.47

8 30 74.1 53.4 +

23.4 +49.4 +

72.8 102.8 + +1.59 +

22.6

10 15 71.4 48.8 + +1.60 +

31 22 22.1 52.7 +

8 7 50 74.9 101.6 + +1.62 +

12 7 50

4637.

mean +1.70 +

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1898phae.proj.1357.

Dec 13. 1898.

Same again.

	below			II
	23.8			
11 18	74.4	50.6 +		
	20.8	45.7 +		
	71.5	96.3 +	+1.70 +	
	25.1			
12 27	78.3	45.2 +		+1.72 +
	21.4	53.2 +		
	74.6	98.4 +	+1.70 +	
	Above			
	112.8			
14 08	160.9	47.6 +		
	115.2	45.5 +		
	160.7	93.1 +	+1.83 +	
	110.3			
15 15	168.1	46.8 +		+1.76 +
13 0	112.8	52.0 +		
13 15	164.8	98.8 +	+1.69 +	
12 13 15				
4637.				

mean + 1.74 +

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1898phae.proj.1357.

Dec. 13, 1898.

g with f

I

	above			
	93.6			
16 39	1745 f dis	90.9	+	
	97.6	53.3	+	
	189.9	174.2	+	+0.11
	96.9			
17 51	181.0	53.1	+	+0.12
	9844	90.4	+	
	184.8	173.5	+	+0.12
	below			
	178.8			
20 10	273.2	94.4	+	
	185.4	86.5	+	
	271.9	180.9	+	~~+0.02~~
		179.1		−0.02
	186.1			
21 15	271.0	84.9	+	+0.05
75 55	184.5	89.3	+	~~+0.06~~
7 18 59	273.8	174.2	+	+0.11
12 18 59				
4687				

Mean ~~0.059~~ +0.09

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1898phae..proj.1357.

Dec 13 1894

Same again.

II

	below 1826		
2241	2748	92.3 : x	
	1858	53.5 :	
	271.3	177.8 : x	+0.04 : x
	186.0		
	~~269~~		
~~24~~ 00	2705	845 : x	+0.04 :
	1809	93.1 : x	
	~~27~~ 2690	177.6 : x	+0.00 : x
	Above 2769		
26 00	357.1	80.2 : x	
	276.9	81.2 : x	
	358.1	161.4 : x	+0.30 : x
	276.3		
28 00	358.3	820 : x	+0.30 :
21 31	277.0	55.2 : x	
7 25 23	2.2	167.2 : x	+0.24 : x
12 25 23			
4687.			Mean +0.17 :

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1898phae.proj.1357.

Dec. 13, 1898.

n with f

I

		Above		
		315.8		
8	2	26	323.1	7.3 ″
			317.5	5.5 ″
			323.0	12.8 ″ +6.26 ″
			317.1	
3	3	7	321.6	4.5 ″ +6.58 ″
			316.0	5.1 ″
			321.1	9.6 ″ +6.89 ″
			below	
			44.8	
6	2	20	51.9	7.1 ″
			46.0	5.8 ″
			50.5	12.9 ″ +6.25 ″
			46.9	
	7	14	51.8	4.9 ″ +6.34 ″
	19	57	45.0	6.9 ″
8	4	59	51.9	11.8 ″ +6.44 ″
13	4	09		
4637.				

Mean +6.46 ″

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1898phae.proj.1357.

Dec 13 11 Hyd.

Same again.

II

	below		
	45.0		
8 39	~~51.2~~	6.2 ×	
	~~46.2~~	7.0 ×	
	45.0	13.2 ×	+6.20 ×
	52.0		
	45.2		
10 15	51.2	6.0 ×	+6.20 ×
	44.2	7.1 ×	
	51.3	13.1 ×	+6.21 ×
	Above		
	135.2		
12 15	142.5	7.3 ×	
	135.9	6.1 ×	
	142.0	13.4 ×	+6.16 ×
	135.90		
13 38	143.2	8.2 ×	+602 ×
4 47	135.0	7.0 ×	
9 10 12	142.0	15.2 ×	+5.89 ×
13 10 12			
#637.			mean +6.11 ×

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1898phae.proj.1357.

Dec. 13, 1898.

above h with f

96.9 ff dir.

δ 20 40 176.3 79.4 ×
106.0 65.0 ×
171.0 144.4 × +0.69 ×

105.1

21 19 171.0 65.9 × +0.70 ×
276.1 77.9 ×
178.0 143.8 × +0.70 ×

below

186.5

25 15 267.8 81.3 ×
190.1 73.4 ×
263.5 154.7 × +0.48 ×

191.9

26 41 263.1 71.2 × +0.46 ×
13 55 189.9 85.5 ×
δ 23 39 270.4 156.7 × +0.434 ×
13 23 39

4697.

mean +0.58 ×

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1898phae.proj.1357.

Dec 13 1898

Same again.

II

	below			
	185.1			
28 15	269.5	84.5		
	194.0	69.1		
	263.1	153.6	+0.50	
	193.5			
29 00	262.9	69.4	+0.54	
	190.1	79.7		
	269.8	149.1	+0.59	
	above			
	283.9			
~~5 00~~	352.2	~~84.3~~ 74.3		
	281.3	69.9		
	351.2	144.2	+0.69	
	260			
37 11	3040	68.0	+0.64	
9 15	2797	80.7		
8 32 19	360.4	1487	+0.60	
13 32 19				
4687.				

Mean +0.59

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1898phae.proj.1357.

Dec 13 1897

X with f

Above

I

218.2

41 00 237.2 4 dia. 19.0″ ×

218.8 20.6″ ×

238.4 39.6″ × − 3.79″ ×

217.1

43 00 238.8 21.7″ × − 3.96″ ×

218.1 19.1″ ×

237.2 40.8″ × − 3.72″ ×

below

310.2

46 01 333.2 23.0″ ×

308.0 21.5″ ×

329.15 44.5″ × − 3.53″ ×

307.0

47 01 329.9 22.9″ × − 3.65″ ×

17 00 316.1 17.1″ ×

8 44 15 327.2 40.0″ × − 3.77″ ×

13 44 15

4637.

Mean − 3.70″ ×

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1898phae.proj.1357.

Dec. 13, 1898.

Same again.

	below			
	310.5			
49 00	326.8	16.3	×	
	307.2	20.5	×	
	328.0	37.1	×	− 3.93 ×
	307.2			
51 00	324.2	21.0	×	− 3.92 ×
	310.0	16.6	×	
	326.6	37.6	×	− 3.91 ×
	Above			
	307.2			
54 00	58.0	22.8	×	
	38.0	21.0	×	
	59.0	43.8	×	− 3.97 ×
	307.2			
55 00	58.2	21.0	×	− 3.60 ×
9 00	37.1	21.9	×	
£ 52 10⁻	58.4	42.3	×	− 3.64 ×
13 52 10⁻				
4637				Mean − 3.76 ×

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1898phae.proj.1357.

Dec 13, 1898

ν with ϕ.

Cdrove

	31.0			
9 10 00	66.9	35.9		
	29.1	×2.9		
	72.0	78.5	−2.23	
	26.7			
12 30	68.9	41.6		−2.22
	30.0	37.6		
	67.6	79.2	−2.22	
	below			
	120.7			
14 00	154.1	34.1		
	192.2	35.5		
	157.7	69.6	−2.02	
	121.0			
16 00	157.2	36.2		−2.07
12 30	122.0	34.1		
9 13 8	156.1	70.3	−2.00	
14 13 8				
4637				

Mean −2.056

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1898phae.proj.1357.

Dec. 12, 1894.

Same again.

	below			II
	121,0			
17 00	154.5	33.5		
	121,5	34.8		
	156.3	68.3	−23-6	
	120.6			
19 00	156,8	36.2		−2.54
	121,0	33.7		
	155,2	.699	−2.01	
	above			
	211.2			
21 46	246.0	34.8		
	207.4	40.7		
	248.1	75.5	−2.33	
	208,0			
22 30	247,8	39.8		−2.32
0 10	210,2	36.8		
9 20 2	247.0	76.6	−2.30	
14 20 2				

4637.

mean −2.43+

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1898phae.proj.1357.

Dec 13. 1895.

Copied.

	a Cati		Phot R	W obs	
	Left & above	2	12 – 3.6		
	1030	4	00		
10 22 00	1143	11.31	48		
	102.6	11.9			
	114.5	23.2	– 4.97		
	102.2				B
23 20	114.5	12.3	– 5.00		
	103.8	10.2			
	114.0	22.5	– 5.03		
	Right & below				
	192.8				
25 00	204.8	12.5			
	1920	11.5			
	203.5	24.0	– 4.89		
	1920				
	205.0	13.0	– 4.82		A
27 01	1925	12.6			
17 20	205.1	25.6	– 4.75		
10 24 20					
15 24 20			Mean – 4.92		
4637.					

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1898phae.proj.1357.

Dec 13 1898

Copied.
II

Right & below

	1930			
2858	2042	11.2		
	1918	13.1		
	2049	2443	-4.86	
	1922			
2957	2054	13.2	-4.82	A.
	1930	12.1		
	2051	2553	-4.78	

Left & above

	2829			
3058	2951	12.2		
	2822	12.4		
	2944	2446	-4.84	
	2814			
3240	2946	12.9	-4.81	
233	2824	12.4		B.
10 30 38	2948	2553	-4.78	
15-20 38				
4687.			Mean -4.82	

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1898phae.proj.1357.

Dec. 14, 1895. (Wednesday)

3 40

Star on with star f

6 20 19

9 5 4.1
5.0
3 5 4.0
3.1

3 5 4.4
21 07 3.0
3 5 2.95
2.9

Right & below
4.0
2 5 14 3.1

Abandoned too cloudy

Abandoned too cloudy

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1898phae..proj.1357.

Over →

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1898phae.proj.1357.

Dec. 14, 1898.

~~Right~~ & below h with f

Pliades.

48.0 ft dir.

6 29 21	124.9	50.9		
	50.8	77.0		
	127.8	157.9	+042	
	~~52.1~~			
	54.1		+042	
31 11	126.0	74.9		
	48.2	83.6		
	131.8	158.5	+041	
	~~Left~~ & above			
	~~134.8~~			
33 40	219.8	81.0		
	142.8	73.7		
	216.5	154.7	+048	
	142.4			
33 22	218.1	75.7	+046	
129.34	137.1	81.1		
6 32.23	218.2	156.8	+044	
11 32.23				

Mean +044

4638

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1898phae.proj.1357.

Dec. 14, 1898 Eyf.

		Above			II
		137.9			
6	37 00	219.0	81.1		
		144.4	74.5		
		215.9	155.6	+0.47	
		142.5			
38	41	217.1	74.6		+0.51
		140.9	76.5		
		217.4	151.1	+0.55	
		below			
		229.0			
42	20	310.0	81.0		
		231.1	72.4		
		3035	153.4	+0.51	
		232.0			
	44 00	308.0	76.0		+0.48
	162 1	230.0	81.0		
6	40 30	311.0	157.0	+0.44	
11	40 30				

Mean +0.50

4638

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1898phae.proj.1357.

Dec. 14, 1898.

y with t.

below

340.2 / y dir

6 48 00	16.2	36.0		
	342.0	36.0		
	18.0	72.0	(A)	2.44
	339.4			
50 00	17.4	37.4	(A)	2.46
	343.0	33.5		
	16.8	71.2		-2.47

Above

	70.9			
5 2 30	104.9	34.0		
	69.4	37.7		
	107.1	71.7		-2.45

	69.1			
5 3 44	106.5	37.4		-2.44
204 14	70.1	34.7		
6 51 3	105.1	72.1		-2.44
11 37 3				

Mean -2.45+

×638

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1898phae.proj.1357.

Dec 14, 18 gt.

H

above
721

6 36 14	105.9	33.8		
	70.6	41.1		
	111.1	74.9	-2.35	

70.8

7 24 1	107.9	37.1		-2.40
	72.8	34.2		
	105.5	71.3	-2.46	

below
1621

6 44	198.8	35.9		
	159.0	38.5		
	197.5	74.4	-2.36	

159.6

8 00	198.0	38.4		-2.38
21 3 39	162.1	35.2		
7 3 24	~~196.8~~	73.6	-2.39	
12 3 24	197.3			

Mean -2.39

463 P

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1898phae.proj.1357.

Dec. 14, 1894.

χ with star f

below

	350.0			
7 10 15	8.1	18.1		
	349.0	20.2		
	9.2	88.9	-3.56^{+}	
	349.0			
11 34	9.3	20.3		-3.85^{+}
	350.0	18.5		
	8.25	38.8	-3.84^{+}	

above

	78.74			
14 08	97.8	19.4		
	78.1	20.9		
	99.0	40.3	-3.70^{+}	
	78.5			
15 14	101.0	22.5		-3.71^{+}
10 59	79.6	19.3		
7 12 44	98.9	41.8	-3.67^{+}	
12 12 44				

Mean -3.78^{+}

4638

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1898phae.proj.1357.

Dec 14 1898.

	above			
	80.0			
16 40	98.83			
	99.0	18.3		
	98.4	19.4		
		37.7	-3.90	
	77.5			
17 40	99.8	22.3		-3.84
	20.0	17.5		
	97.5	39.8	-3.78	
	below			
	172.0			
19 00	189.88	19.8		
	16.4.8	20.2		
	189.0	38.0	-3.88	
	164.83			
21 00	1940			
75 10	189.2	20.9		-3.79
7 18 47	169.1	20.4		
12 18 47	189.5	41.3	-3.70	

Mean - 3.82

Measurements made though gradually increasing cloud & with more or less difficulty.

Clouds thick every where with no prospect of clearing.

4638

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1898phae.proj.1357.

Dec. 14, 1898.

8 30 Clearing somewhat.

L

Star ~~on~~ with star f. Wires

Index Mulaw

260.9

8h	37.m0	276.6	15.7	
		260.6	17.2	
		277.8	32.9	+4.20

260.6

8	39.2	278.6	18.0	+4.18
		261.9	15.7	
		277.6	33.7	+4.15

Index above

350.9

8	42.4	7.4	16.5	
		350.6	16.3	
		6.9	32.8	+4.21

350.4

8	44.0	6.8	16.4	+4.22
	162.6	352.6	15.9	
8	40.6	8.5	32.3	+4.24
13	40.6			

Mean +4.20

H638

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Dec. 14, 1898

Same again

		351.2		
8	45.7	83	17.1	
		351.6	15.5	
		7.1	32.6	+4.28
		352.0		+4.30
8	47.6	7.0	15.0	+4.32
		351.4	15.5	
		6.9	30.5	+4.37
		Index alone		
		80.7		
8	50.4	97.8	17.1	
		81.4	16.4	
		97.8	33.5	+4.16
		81.6		
8	52.1	97.9	16.3	+4.20
	195.8	82.1	15.8	
8	48.9	97.9	32.1	+4.25
8	49.0+			
13	49.0			Mean +4.26

4638

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Dec. 14, 1898

Stars in with stars of
Index below

		84.7		
8	58.6	94.6	9.9	
		84.2	10.4	
		94.6	20.3	+5.26
		84.1		
9	01.3	95.4	11.3	+5.22
	"	84.6	9.6	
		94.2	20.9	+5.19
		Index above		
		174.9		
9	03.9	184.9	10.0	
		176.0	9.6	
		185.6	19.6	+5.33
		175.3		
9	05.5	186.8	11.5	+5.24
7	249.3	174.8	9.5	
9	2.3	186.6	21.3	+5.15
14	2.3	4		

Mean +5.23

4638

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Dec. 14, 1898

Same again

		175.0		
9	07.2	185.2	10.2	
		176.0	9.3	
		185.3	19.5	+5.35
		175.4		
9	09.1	184.3	8.9	+5.46
		176.0	8.7	
		184.7	17.6	+5.57
		Index below		
		265.4		
9	11.6	274.7	9.3	
		265.6	10.1	
		275.7	19.4	+5.36
		264.0		
9	12.9	274.8	10.8	+5.30
	40.8	266.0	9.8	
9	10.2.	275.8	20.6	+5.23
17	10.2.			

Mean +5.38

4638

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Dec. 14, 1898

Star k with star f.

		254.3	< star f dis.	
9	19.3	289.0		
		254.0	37.7 x	
		287.2	33.2 x	
			70.9 x	+2.48 x
		254.7		
9	21.1	288.4	36.7 x	+2.48 31
		~~253.2~~	39.0 x	
		248.7 → 287.7		75.7 x +2.58

Index to right and above

		343.7		
9	24.3	18.7	35.0 x	
		342.2	32.7 x	
		14.9	67.7 x	+2.09 x
		342.7		
9	26.7	15.0	32.3 x	+2.06 x
	91.1	340.9	36.8 x	
~~9~~	~~25.35~~	17.7	69.1 x	+2.37 x
9	25.4+			
14	25.4			Mean +2.50 x

H.638

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1898phae.proj.1357.

Dec. 14, 1898

Same again W ob

Index to right and above

		340.7			
9	27.4	18.0	37.3		
		341.9	35.8		
		17.7	73.1	+241	
		342.3			
9	28.9	16.6	34.3	+246	
		342.3	35.5		
		17.8	69.8	+251	

Index to left and below

		72.6			
9	31.1	108.6	36.0		
		~~68.7~~ 70.3	36.0		
		106.3	72.0	+244	
		72.9			
9	32.7	106.0	33.1	+248	
	120.1	71.2	36.9		
9	30.0	108.1	70.0	+251	
14	30.				

Mean +247

H638

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Dec. 14, 1898

Star ↓ with star ↑
Index to left and below

		66.1		
9	37.7	114.5	48.4	
		64.7	49.0	
		~~110.8~~ 113.7	97.4	+1.72
9	40	Hazy and thin cloud		
		65.4		
9	40.3	113.8	48.4	+1.77
		66.7	~~45.0~~	
		111.7	93.4	+1.82
		Index to right and above		
		156.7		
9	43.0	205.0	48.3	
		155.0	50.2	
		205.2	98.5	+1.69
		155.6		
9	44.7	204.9	93	+1.70
	165.7	156.1	48.9	
9	41.4	205.0	98.2	+1.70
14	41.4			

mean +1.74

46388

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1898phae.proj.1357.

Dec. 14, 1898

Same again

~~+57.0~~ 153.7

9 46 Clouds thick

~~46.3~~

47.0

~~202.3~~

204.6 50.9 ×

152.7 52.0 ×

204.7 102.9 × +1.59 ×

154.1

9 50.4 205.2 51.1 × +1.62 ×

156.40 49.4 ×

205.4 100.5 × +1.64 ×

Index to left and below

243.9

9 54.5 293.6 49.7 ×

243.9 49.1 ×

293.0 98.8 × +1.69 ×

~~24~~ 245.8 +1.76 ×

9 56.1 291.2 46.4 ×

207.0 244.9 47.3 ×

9 51.8 292.2 93.7 × +1.82 ×

14 97.8

Mean +1.69 ×

4638.

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1898phae.proj.1357.

Dec 14, 1898.

Stars with star's
Index to left and below

		225.0		
9	59.4	318.5	59.5	
		227.8	55.2	
		313.0	174.7	+0.10
		226.2		
10	01.0	314.6	58.4	+0.08
		224.4	58.0	
		313.4	176.4	+0.07
		Index to right and above		
		137.0		
10	05.2	224.2	87.2	
		136.4	88.3	
		224.7	175.5	+0.08
		4.49		
		139.2	87.7	+0.05
10	07.5	224.6	88.5	
	23.2	135.5	176.2	+0.07
10	3.3	224.0		
65	3.3			Mean +0.05

4638

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1898phae.proj.1357.

Dec. 14, 1898

Same again

		134.9		
10	09.2	221.8	86.9	
		133.8	87.6	
		228.3	174.4	+0.11
		136.9		
10	10.8	223.0	86.1	+0.09
		133.2	90.3	
		227.5	176.4	+0.07
		Index to left and below		
		225.4		
10	13.4	313.0	88.0	
		226.9	87.1	
		314.0	175.1	+0.09
		224.1		
[8	15.6	312.9	87.8	+0.06
	49.0	225.7	91.4	
10	12.5	314.1	179.2	+0.02
15	12.5			

Mean +0.08

4688

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Dec. 14. 1898.

γ Androm: Phot. γ. W. obs.

0	14	+26.1
4	30	
4	16	

Index

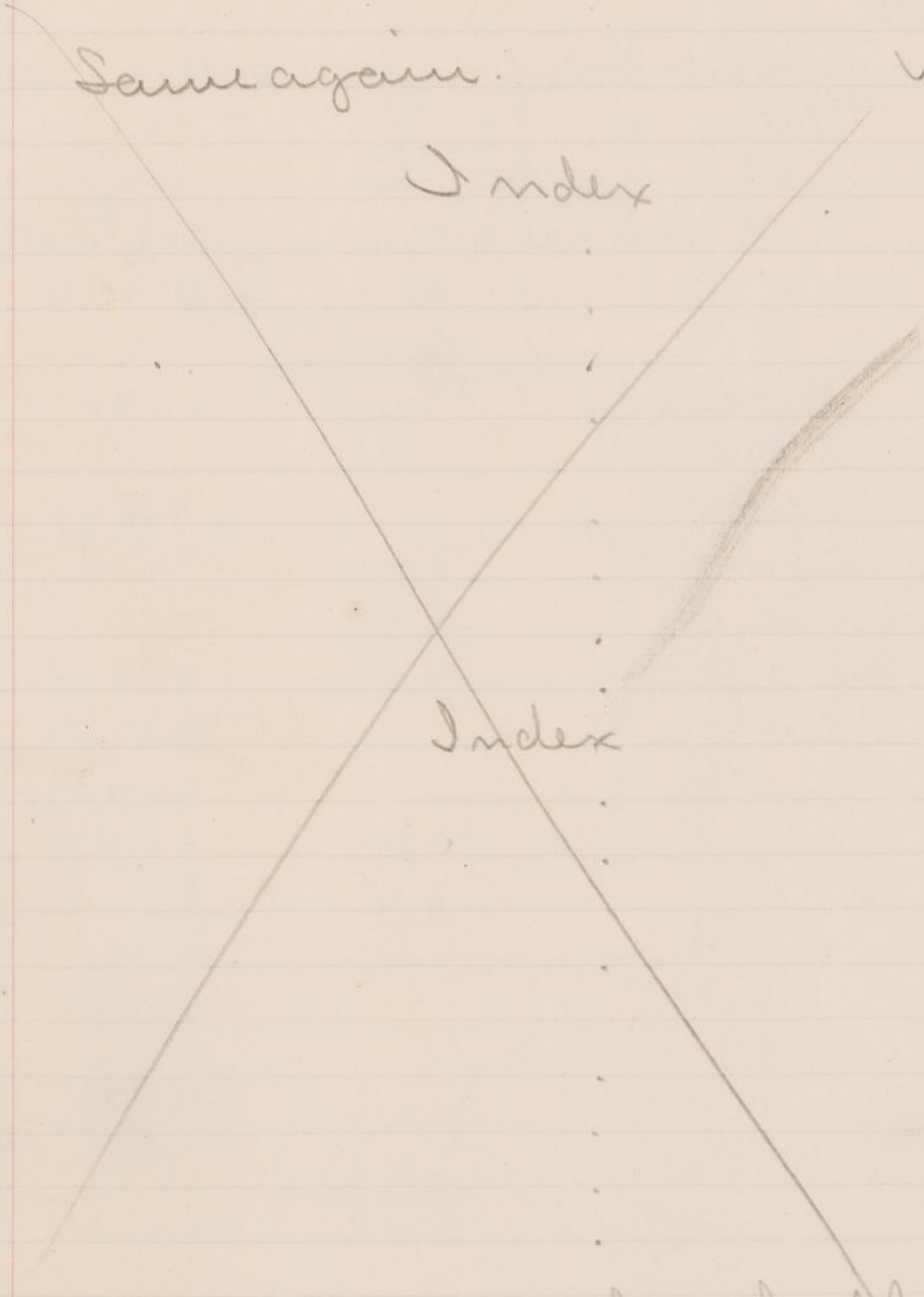
Index

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Dec. 14, 1898

Same again. W. obs.



10 55 Abandoned: Sky thickly cloudy

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 Posted to here.

Dec, 15, 1898. (Thursday)

κ Ceti selection of comp stars. W. Obs.

3 14 −1.4
1 11
1 2 4.

Watch correction + 7 sec watch slow

3 11 −1.5
1 16
1 5 5

a 3 b
b 6 c
c 4.5 d
~~b 3.5 e~~
d 4 e
e 3 f
f 4 g
g 4 h

7 30⁻
+.1
7 30.1

+639.

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Dec 15, 1898.

Copied.

			Phot. R.		Wolbach.
			2 12	−3.6	
	Right.		1 42		
	192.8		0 30		F
8 00	206.2	13.4			
	192.8	12.4			
	2045.2	25.8		4.73	
	192.0				
2 30	205.8	13.5			4.70
	192.6	12.8			
	205.4	26.6		4.67	
	be left				
	281.9				
5 4	294.4	12.5			
	287.0	13.6			
	294.6	26.1		4.71	
	~~251.9~~				
	281.91				
8 03	293.8	12.2			4.79
15 34	282.0	12.0			
8 3 54	294.0	24.2		4.87	
+7					
13 4 01					
4639.0444				mean	4.74

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Dec 10 1895.

Copied.

H

	Left.			
	281.7			
8 9 45	294.1	12.4		
	281.2	12.8		
	2940	25.2	4.79	
	281.3			
13 00	294.2	12.9		479
	282.0	12.3		
	294.3	25.2	4.79	
	Right.			
	12.3			
10 44	24.4	12.1		
	11.8	12.6		
	24.34	24.7	483	
	~~11.8~~			
	11.8			
17.49	24.7	12.9		4.80
16 18	~~12.0~~	12.0		
8 14 4	11.9	25.4	4.77	
+7	24.4			
13 14 11				
4639.00-185			Mean 4.80	

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1898phae.proj.1357.

Dec 15-1891

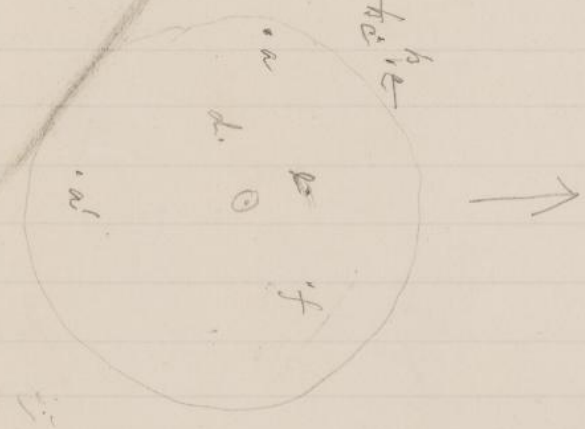
x Cet. W obs.

3 11 −1.5
2 29
42

Sky too thick to do anything farther on x Cet stars

Selections of comp. stars for T Camelop.

4 40 +66.1
2 3 1
1 49



a' 4a
a 6b
b 4.5 c
c 4 d
d 3 e
e f

9 20
+.1
9 20.1

4639.

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1898phae.proj.1357.

Dec. 10. 1898.

Posted on Bulletin.

R Lyncis W obs

6 49 0 0.1

3 44

3 5

p 3.5 var ; var 2.5 q

Est. 12.5

10 00.
+.1

10 .1

Posted on Bulletin

R Cassiop W obs

4639.

23 51 +49.7

28 00

4 9

10 15.
+.1

u 1.5 var : var 3.5 W

Est. 13.1

10 15.1

4639.

R Cordium. Phot. W obs

0 14 +26.1

4 19

4 5

Comp. star = 7.5 magn.

10

15

46

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Dec 15 1898

I

Copied

Left & below

344.2 Comp. stars

18 38 30 15.1 dh 31.6

344.8 29.4

14.2 61.0 2.82

344.3

40 00 15 2 30.9 2.78

344.2 32.2

16.4 63.1 2.74

Right & above

71.9

42 14 107.0 35.1

71.6 35.4

107.0 70.5 2.49

73.3

43 52 105.6 32.3 2.54

4 36 72.0 35.1

10 41 9 107.1 67.4 2.59

+7

15 41 16

4639.6537

Mean 2.66

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1898phae.proj,1357.

Dec 13 1898

Copied

Right & above

709

713

10 45 20	107.4	96.5		
	72.40	34.5		
	106.5	71.0	247	

724

46 38	105.8	33.4		2.53
	73.0	34.0		
	107.0	67.4	259	

Left & below

1649

49 50	195.0	30.1		
	164.3	31.5		
	195.8	61.6	280	

1649

51 12	195.8	30.9		278
193 0	164.4	31.6		
10 48 15	196.0	62.5	277	
+7				
10 48 22				

4639.6586

Comet star = 7.5 magn.

Mean 2.66

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Dec. 16. 1895 (Friday)

S Ceti 0 19 −9.9 Wobs.
1 14

Comp stars 55

0 11 −2.9
1 34

1 23

7 50 variable thought to be seen

x 5.0 y
y 6 z est 14.4
8 5 est. y 4 vary: var 2.5 z

X Ceti 2 Wobs

3 11 −1.5
2 6

b 5 a 1 5 copied in
c 3.5 b
8 55 d 3,5 c
e 4 d
f 5.0 e
g 4 f
h 2.5 g g 4 5 ~~Mean~~ : var. = 0
k b h
9 20 l 4.5 k
m 4 l
n 7 m
o 3 n
p 3 o

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Dec 16 1898

start with on

Right & above

Meast. of Comp. Stars for X Cati.

343.5 Index

9 58 30	14.2	30.5		Copied.	
	343.4	31.9			
	15.3	62.4	2.77		
	343.2				
10 00 40	14.2	31.0		2.74	
	342.1	32.9			
	15.0	63.9	2.72		
	Left below				
	72.1				
4 30	106.4	34.3			
	70.7	36.5			
	107.5	71.1	2.47		
	70.1				
6 15	107.6	37.5		2.46	
9 55	~~72.0~~	34.5			
10 02 29	71.5	72.3	2.43		
10 2 29	106.3				
4640			Mean 2.60		

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Dec 16, 1898.

f within
Left & below
73.6 Ln dis

15 15 00	1820	28.2		Copied.
	72.2	29.9		
	104.1	58.1	2.93	
	72.6			
17 00	105.1	32.5		2.88
	75.1	28.4		
	1085	60.9	2.53	

Right & above

	165.2			
22	194.4	29.2		
	166.9	26.3		
	193.2	55.5	3.04	
	166.8			
25 30	1948	28.0		298
79 30	165.2	30.1		
10 19 02	195.3	58.1	2.93	
15 19 52				
4640			Mean	2.93

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Dec. 16. 1898

g with a

Right above

Copied.

	162.6			
10 30 00	195.3	33.7		
	163.1	33.2		
	196.8	68.9	2.07	
	162.1			
32.1	198.3	36.2		2.45
	162.7	36.5		
	199.2	72.7	2.42	
	Left & below			
	248.2			
36.0	244.0	39.8		
	251.0	36.6		
	247.6	76.4	2.30	
	252.2			
38 52	257.2	36.0		2.32
16 53	245.5	39.6		
20 34 13	285.1	75.6	2.33	
15-34.19				
4640			Mean	2.40

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Dec 16 1897

known

Left & below

Copied

	390			
46 26	99.9	59.9		
	35.0	63.1		
	98.1	123.0	1.13	
	37.45			
4600	99.2	61.7		1.12
	37.5	61.8		
	99.6	123.5	1.12	
	Right & above			
	1.31.0			
5-0 20	184.2	53.2		
	129.0	55.0		
	184.0	108.2	1.46	
	130.1			
5200	46.7	56.6		1.48
196 46	132.4	50.2		
1049 11	182.6	106.8	1.49	
15 49 11				
4640			Mean	1.30

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1898phae.proj.1357.

Dec. 17. 1898. (Saturday)

Comp. Stars for S Cet. Gr. Sta.

0	19	-9.9
2	10	
+1	V 1	

f 1V
5
13 15 G.M.T.

X 5 4
4 3.5 Z

Cloudy again.

Copied.

0 Cet. Rat. R. Gr. Sta.

2	1K	-3.K
2	21	
+0	7	

Index to left.

101.4	13.6 V
115.0	
100.5	1K.V V
115.0	2K.1

2K.1 V - K.VV- V

f m
9.6.2
~~5~~
~~14 6.2 G.M.T.~~

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1898phae.proj.1357.

Dec. 17. 1898.

Same again.

h m	101.7	13.3	-(K.61)
9.11.0	115.0		
	101.9		
	115.2	13.3 / 26.6	-K.6)

Index to right.

	~~190.5~~	191.8	
h m	205.5	15.0	
9.15.	190.5		
	205.5	15.0 / 29.0	-K.KA

	191.1	13.9	-(K.V-6)
h m	205.0		
9.19.	191.9	13.2	
9h 12.A	205.1	27.(	-K.6K
V			mean K.V-A
1K 12.A 9.m.A.	Same again.		Copied.
K641			

	192.0	13.1	
h m	205.1		
9.22.-5	192.0	13.0	
	205.0	26.1	-K.)(

	191.2	15.0	-(K.6A)
h m	205.2		
9.25	190.2	12.A	
	205.0	26.A	-K.6V

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1898phae.proj.1357.

Dec. 17, 1898.

Index to left.

h m			
9.27-1	281.5	13.3 v	
	294.8		
	281.0	13.2 v	
	294.8	27.1 v	−4.64 v

h			
9.30-5	~~281.1~~		
9h 26.3	280.9	14.3 v	−(4.63 v)
v	295.2		
14 26.3 G.m.T.	282.0	12.9 v	
	294.9	27.2 v	−4.62 v
7641	~~294.9~~		

Mean − 4.66 v.

Gen. Mean − 4.62 v

Comp. Stars for χ Cet. Tr. do.

3	11	−1.5	Copied
3	3 v		
−0	24		

h	3.5	O
O	3	n
n	6.5	m
m	5	l
l	4	K
K	6	H
H	2	g
g	4.5	f
f	5	e
e	3.5	d

9/5	4 v		
	.4		
14	~~44.6~~	G.m.T.	
	4 v		

Object glass atmosphere becoming fogged.

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1898phae.proj.1357.

Dec. 17, 1898.

Object glass now heavily covered with dew. Impossible to do anything further.

Fog outside now very thick: Only one or two stars in zenith visible.

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1898phae.proj.1357.

Posted to here.

Dec. 23. 1892. (Friday)

Comp. Stars for S Ceti. Wr. obs.

0 19 -9.9
2 6
+1 K7

7 45.0 x 5 y
7 44.6 y 6 z Wr obs
12 44.6 G.M.T.

Comp. Stars for χ Ceti Wr. obs

3 11 -1.5
2 17
0 54

p 3 o
o 3.5 n
n 7 m
m 4.5 l
l 4 k
k 5.5 h
h 2 g
g 4 f
f 5 e
e 4.5 d

8 20
13 19.6 G.M.T.

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1898phae.proj.1357.

Dec 23. 1898.

Photometer I. Copied.

Star q compared with star n.
Index to right and above

		217.1		
			40.5 ✓ ~~n to~~ dis.	
8	47.8	257.6		
			36.8 ✓	
		222.1		
			77.3 ✓	2.28.
		258.9		

2.40

		224.2		
			33.0 ✓	
8	56.2	257.2		
			37.0 ✓	
		222.2		
			70.0 ✓	2.51
		259.~~42~~		

Index to left and below.

		306.~~6~~		
			42.3 ✓	
9	01.0	348.9		
			41.5 ✓	
		308.4		
			83.8 ✓	2.08
		349.9		

2.18

		310.0		
		~~311.6~~		
			37.4 ✓	
9	04.0	347.4		
			39.8 ✓	2.28
		307.6		
			77.2 ✓	
		347.4		

copied.

~~8.0~~
229.0
8 57.2
~~.34~~
8 56.88
5
3 56.88 Y.M.T.
#647.

Mean 2.29

Star k compared with star n.
Index to left and below.

		296.7	< n dis.	
			61.2 ✓	
9	08.2	357.9		
			57.0 ✓	
		298.~~8~~0		1.23
			118.2	
		355.9		

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9	10.9	298.9		
		358.2	59.3 ✓	
		296.8	60.8 ✓	
		358.8	120.1 ✓	1.19
		4.6		

Index to right and above.

		30.7		1.21
9	17.2	82.4	51.7 ✓	
		29.9	55.3 ✓	
		85.2	107.0 ✓	1.49

		28.8		
		86.1	57.3 ✓	1.44
9	19.1	30.0	54.3 ✓	
	55.[illegible]	84.3	111.6	1.38
9	13.8			
	13.[illegible]			
9 5				
17	13.[illegible] G.M.T.			

Mean 1.43.

4647. O Ceti Phot. R. W. als Copied.

4	12	48	−3.6
3	2	36	

Index to left and above

		284.9	< var dis.	
10	35 50	3012	16.3 ✓	
		2844	15.5 ✓	
		2999	31.8 ✓	−4.27

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284.2
300.0
284.6
300.3

15.8 ✓
15.7 ✓
31.5 ✓ = 4.30

10 38 03

Index to right and below

15.3
30.7
14.8
30.4

15.4 ✓
15.6 ✓
31.0 ✓ = 4.33

10 40 10

14.4
30.8
15.2
30.8

16.4 ✓
15.6 ✓
32.0 ✓ = 4.26

4.30

10 42 25

~~98~~
136 28
10 39 7
5 -23
15 38 44 G.M.T.

4647.

Same again.

Mean 4.29
W. obs.
Copied.

14.8
30.6
14.9
30.0 ~~29.4~~

15.8 ✓
15.1 ✓
30.9 ✓ = 4.34

10 ~~46 15~~
~~45 44~~

14.4 ~~15.0~~
31.2
14.7
30.~~4~~ 1

16.8 ✓
15.4 ✓
32.2 ✓ = 4.25

4.30

10 48 30

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Index to left and above.

10 51 33	105.1		
	120.4	15.3 ✓	
	104.4	16.0 ✓	
	120.4 ~~+19.9~~	31.3 ✓	-4.31
	104.0		-4.31
10 53 47	120.5	16.5 ✓	
	105.5	14.8 ✓	
	120.8	31.3 ✓	-4.31
200 25	3		
10 50 6			
+5 -23			
15 49 43 G.M.T.			

Mean H. 30

H647.

Wately used above 24 Dec. last

Went over to Last Dome and revised I Cancl. with Bor. K,

I Androm. Phot. I. W. obs

Copied.

0	14	+26.1
5	28	
5	14	

Index to right and above.

	313.6	< comp. star dec.	
11 10 25	341.7		
	317.6	28.1 ✓	
	343.0	30.4 ✓	
		58.5 ✓	2,92 ✓
	313.3		(300) ✓
11 12 32	341.2	27.9 ✓	
	314.0	26.8 ✓	
	340.8	54.7 ✓	307 ✓

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Index to left and below

~~11~~

11 15 47

45 .2
68 .8
45 .4
71 .3

23.6 ✓
25.9 ✓
49.5 ✓

3.29 ✓

(3.29)

46.4
71.4
45.5
70.1

25.0 ✓
24.6 ✓
49.6

3.29 ✓

11 17 42
16 26
11 14 6
-23
16 13 43 G.M.T.

Mean ~~3.18~~ ✓ 3.14 ✓

4647. Same again.

Mr. obs.

32.4
58.7
31.8
59.4

26.3 ✓
27.6 ✓
53.9

3.11 ✓

11 22 55

(3.10)

32 4
58 6
33 8
54 9

26.2 ✓
24.1 ✓
50.3

3.26 ✓

11 24 55

Index to right and above

120.8
150.5
121.7
151.3

29.7 ✓
29.6 ✓
59.3

2.49 ✓

11 24 28

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Dec. 23, 1898.

11	29	27	
	24	45	
11	26	11	
0		-23	
16	25	48	M.T.

4647.

121.0
149.7 28.9 ✓
122.6 28.6
151.2 ✓7. ✓

(2.9 ✓)
2.96 ✓
mean 3.0 ✓
Gaussian 3.10 ✓

Last of above groups taken with Foucault prism
Second " " " " " Nicol prism

Watch used in above 2 groups was 23 sec fast.

Comp. star = 7.5 magn as usual

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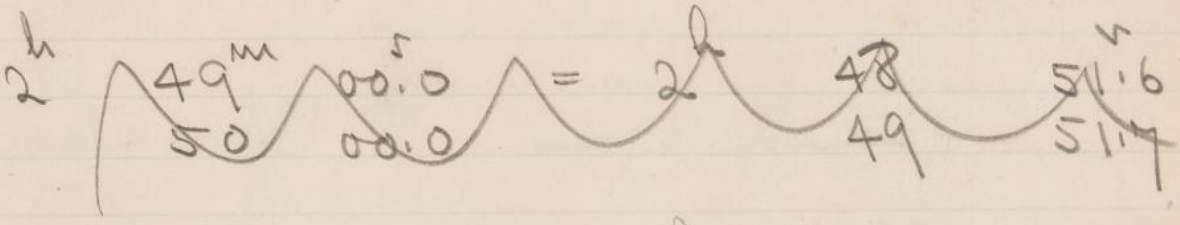
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7

Dec. 28. 1894. (Tuesday)

Total Eclipse of Moon.
Comparison of Chronometers.

Band 394. Frodsham 3451.



2h	52	00.0s	=	2h	51	52.1s
	53	00.0	=		52	52.2

Band 394			=	Bliss + Creighton 1182		
2	59	00.0s		2	59	14.4s
3	00	00.0		3	00	14.5

Band 394			=	Arnold + Dent 958		
3	04	00.0s		3	04	02.3s
	05	00.0			05	02.4

Found all three chronometers at 3:10

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Dec. 27. 1898.

Bond 394

4h	20m	00.0	
	21	00.0	

Trodsham 3451

= 4h	20m	06.5	
	21	06.6	

Bond 394

4h	26	00.0	
	27	00.0	

Bliss + Brigham

4	26	14.7	
	27	14.6	

Bond 394

4h	36	00.0	
	37	00.0	

Arnold + Dent 958

4h	36	02.5	
	37	02.4	

Bond 394

5	23	00.0	
	24	00.0	

Arnold + Dent

5h	23	02.7	
	24	02.6	

Bond 394

5	27	00.0	
	28	00.0	

Trodsham 3451

5h	27	17.6	
	28	17.7	

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1898phae..proj.1357.

Dec. 27. 1898.

No.	Magn.	E.T.		P.A.	
45				no	cloudy
69				no	"
70				no	"
71				no	"
50				no	"
46				no	"
51	bad one				
42				no	"
78	(9m4)	6h	21om	15v8	PA = 83° estimated high power difficult at min- imum
75	(7m4)	6	22	26v4	good; PA = 50° estimated
64				no	cloudy
80				no	"
79	9m4	6	39	38v7	P.a = 145. good estimated 9m4
69	9.2	6	47	4v4	— 5sec — 278°
70	9.4	6	51	12v4	— 10sec — 263°
71	9.9	6	57	0v0	— 2sec — 276°
84	7.7	6	59	5v8	good
72	9.4	7	4	0v8	— 5sec P.a 277
92		7	06	45v7	early good but rather diffuse

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1898phae.proj.1357.

Dec. 27, 1892.

After one

estimated magn 9.5

Remarks

P. A. = 120°

at 6h 33m 53.0v

fairly good

2nd extra

mm 9.5 estimated

Remarks

P. A. = 155°

6h 51m 25.6v

fairly good

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1898phae..proj.1357.

Dec. 27. 1898.

No					
88	9.14	7	09	23.2	Pa = 163. 9.14 early good
75	9.14	7	11	21.2 — Dec	good
79	9.4	7	17	24.8	rather poor
78	9.4	no	clouds		
94	9.1	no 9.1 for immersion			
96	9.2	same			
80	9.4	no	clouds		
88	9.4	no	clouds		
84	7.7	7	36	11.4	2 sec late pretty good boxed back

first set of this

Bond 394

7	40	00.0	
	41	00.0	

Arnold + Dent 958

7	40	02.6	
	41	02.7	

Low power was ring micrometer eye piece No. 1. power 103.
High power was ~~gear~~ rack Grubb eye piece, power 270.

Mark

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Dec. 27. 1898.

Bond			Arnold + Dent #958		
8	57	00.0	8	57	02.7
	58	00.0		58	02.8

In observations of above occultations Arnold + Dent #958 was used in 15 cm equatorial work: other chronometers by other observers.

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