1899phae.proj.1360.

KG
11366
v.356

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1892phar.proj..1970.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1889phrate..proj..13691.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phot..proj..1300.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 29 1899 (Monday)

S Canum. Cor.

~ These obs. Ledgered and Copied IV.

	92.0			
9 56 30	162.8	70.8		
	95.7	63.8		-0.88
	159.5	134.6		
Below				
	95.0			-0.92
9 58 10	158.0	63.0		
	93.8	672		-0.97
	161.0	130.2		
	184.0			
0 01 30	248.4	64.4		
	186.5	61.7		-1.06
Above.	248.2	126.1		
				-1.10
	186.2			
0 03 30	246.6	246.6	60.4	1.14
	185.4		620	
	247.4		122.4	
239 40				
9 59 55				
5 -15				
14 59 40 Gr. M. Time.			Mean =	1.01
4734.6248				
4734.3082				
+0.3166				

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 20, 1899.

V.

		186.0		
10	09	40	246.6	60.6
		Above + Right	185.5	61.1
			247.5	121.7

-1.16

		186.0		
10	11	10	247.3	61.3
			185.0	59.8
			247.8	121.1

-1.17

		274.0		
10	13	45	336.1	64.1
			276.1	59.2
			337.3	123.3

-1.12

Below + Left

		277.7		
10	15	30	337.7	60.0
			276.5	61.3
			338.8	121.3

-1.14

	50	05
10	12	31
5		15
15	12	16

Gr. M Time

47 34.6335
47 34.3082
+0.3253

Mean = -1.15

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899plate.proj-1569

March 20, 1899.

VI

27 3.5
10 18 00 337.7 63.2
277.1 59.9 -1.13
Left of Below 337.0 123.1

-1.12

277.0
10 19 45 336.8 59.8
274.0 64.2 -1.11
338.2 124.0

4.8
10 21 35 65.8 61.0
0.5 59.7 -1.18
66.2 120.7

Right of Above -1.20

7.5
10 22 45 65.4 57.9
6.3 60.9 -1.22
67.2 118.8

10 22 45
8 1 05
10 20 16
5 -15
15 20 01 Gr. M. Time.

mean = -1.16

4734.6359
4734.3052
+0.3307

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 20 1899

VII

6.5

10 37 56 66.5 60.0

63 60.9 -1.17

67.2 120.9

-1.22

Above + Right

E.O

10 39 05 65.8 57.8

7.0 59.1 -1.26

66.1 116.9

96.2

10 41 10 159.0 62.8

97.5 60.5 -1.12

158.0 123.3

-1.16

Below + left

97.6

10 43 00 157.6 60.0

98.0 97.0 59.8 -1.20

157.8 119.8

161 05

10 40 16

*5 -15

15 40 01 Gr. M. Time.

Mean = -1.19

4734.6528

4734.3082

+0.3446

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

March 20, 1899.

VIII.

95.7
10 46 00 157.6 62.2
98.0 61.0 -1.12
159.0 123.2

Below & Left -1.15

95.0
10 47 30 157.1 59.1
96.9 61.3 -1.18
158.2 120.4

156.2
10 49 25 246.2 61.8
158.0 59.3 -1.19
246.3 120.1

Right & Above -1.22

156.1
246.0 59.9
158.2 58.2 -1.23
246.1 118.1

10 50 30
10 19 32 5
10 48 21
5 -15
15 48 06 Gr. M. Time. Mean = -1.18
4734.6584
4738.3082
+0.3502

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Mar. 20, 1899

IX

186.1
10 52 00 227.6 61.5
1862 59.8 -1.16
Right & Above 246.0 121.3
-1.20

189.0
10 53 40 247.1 58.1
187.0 59.1 -1.25
246.1 117.2

275.2
10 56 20 338.0 62.8
278.0 57.2 -1.19
Left & Below 335.2 120.0
-1.20
~~1.19~~

278.0
10 57 50 336.3 58.3 -1.20
280.0 61.5
337.5 119.8

19 50
10 54 57
5 -15
15 54 42 Gr. M. Time.

Mean = -1.20

4734.6630
4734.3082
+0.3548

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 2, 1899

+

	275.2		
11 00 00	338.8	63.6	
	277.8	59.4	−1.13
Left and Below	336.2	122.0	
			−1.17
	277.0		
11 01 35	336.0	59.0	
−	277.0	60.0	−1.21
	337.0	119.0	
	6.9		
11 03 25	66.0	59.1	
	8.0	58.8	−1.24
	66.8	117.9	
Right above.			−1.30
	8.2		
11 05 00	64.5	56.3	
+ 10 00	8.9	56.1	−1.36
11 02 30	65.0	112.4	
5 −15			
16 02 15 Gr. M. Time.		Mean = −1.24	

4734.6852
4734.3052
+0.3600

1899phae.proj.1360.

March 30 1899

XI

		6.0		
11	06	40	65.6	59.6
			7.8	58.2
			66.0	117.8
			9.1	
11	08	10	60.5	57.4
			9.8	57.9
			70	115.3
			66.7	
			97.8	
11	10	30	157	59.1
			156.9	58.0
			97.4	117.1
			155.4	
			97.8	
11	12	15	155.6	57.8
			96.8	61.2
			158.0	119.0

Right Ascension.

			-1.24
			-1.27
			-1.30
			-1.26
			-1.24
			-1.21

Left - Below

Mean = -1.26

	37	35	
11	09	24	
5		-15	
16	09	09	Gr. M. Time.

4734.6730
4734.3082
+0.3648

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 20, 1899

XII

97.0
d 12 00 Left + Below 157.6 60.6
97.2 58.9 −1.20
156.1 119.5

−1.22

98.6
i 15 10 155.4 56.8
97.1 60.7 −1.25
157.8 117.5

186.8
11 16 50 246.2 59.4
186.7 57.1 −1.27
243.8 116.5

−1.29

Right + Below

158.1
11 18 00 244.4 56.3
24 00 186.7 58.3 −1.31
11 16 00 245.0 114.6
5 −15
16 15 45 Gr. M. Time.

Mean = −1.26

4734 6777
4734.3082
+0.3695

1899phae.proj.1360.

March 20, 1899

Dis of Jup III Phot. R. W. Obsr
Compared with sat. farther out on Colson Recorder
same side = sat. IV.

11 38 39		38	21		32.2
-15	11	38	32	114.8	147.0
11 38 24			45	112.9	33.4
			57	113.8	146.3
39 26		39	09		32.0
15			19	112.0	144.0
39 11			36	109.2	33.8
			45	110.6	143.0
40 16		40	02		31.8
15			12	113.0	144.8
40 01			20	111.3	35.0
			29	112.2	146.3
			39		33.9
40 55			50	109.9	143.8
15		41	00	112.0	34.0
40 40			10	110.8	146.0
			36		32.2
41 52			46	109.8	142.0
15			59	96.3	145.1
41 37		42	07	103.0	141.4
			45		35.0
42 34			23	106.1	141.1
15			30	103.6	36.5
42 19			38	104.8	140.1
42 02			50		37.0
15				105.7	
42 47			57	101.2	142.7
		43	06	103.4	37.8

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 20 1899

			16		139.0
			24		36.0
11	43 38	+	30	1040	140.0
	15		43	1020	40.0
	43 23	+	53	1030	142.0
	44 16	+	03		39.0
	15		10	100.0	139.0
	44 01	+	19	98.1	40.0
			32	99.0	138.1
	44 57	+	40		38.2
	15		50	101.6	139.8
	44 42	+	03	95.5	41.1
			14	98.6	136.6
	40 41	+	26		43.2
	15		35	92.5	135.7
	40 26	+	47	93.2	41.8
			55	92.8	134.0
	46 17	+	04		44.0
	15		14	89.7	133.7
	46 02	+	22	92.4	42.1
			29	91.0	134.5
	4600	+	37		46.0
	15		45	86.7	132.7
	46 35	+	54	86.5	44.0
			03	86.6	130.5
	47 29	+	17		46.0
	15		25	84.1	130.1
	47 14	+	31	83.6	47.2
			42	83.8	130.8

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 20, 1899

48 02		49		47.0
15		58	81.3	128.3
47 47	48	01	79.0	01.0
		14	80.2	130.0
48 33		22		00.0
15		29	77.0	128.0
48 18		36	79.1	00.3
		41	78.6	130.0
		09		49.0
49 12	49	09	76.6	125.6
15		17	70.0	04.3
48 57		23	73.6	124.8
		26 44		04.3
49 06		01	70.7	125.0
15	50	00	66.9	00.0
49 41		09	68.8	121.9
		19		00.8
50 32		27	66.1	121.9
15		36	62.4	58.0
50 17		46	64.2	120.4
		59		58.0
51 12	51	09	59.1	117.9
15		17	59.1	57.4
50 57		25	59.1	116.0
		36		63.2
51 08		41	55.6	118.8
15		56	49.2	63.1
51 35	52	02	52.4	112.3
51 56		11		63.3

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 20, 1899

11 52 04		19	114.0
14		29	66.1
19		34	111.0
25		40	66.2
36		51	111.0
46	53	01	67.0
53		10	108.0
53 04		19	69.0
11		26	108.3
19		34	72.0
29		40	106.0
34		49	73.8
42		57	107.5
51	54	06	74.0
57		12	105.0
54 04		19	74.8
13		28	102.5
24		39	77.0
35		50	101.8
49	55	04	79.0
58		13	100.0
55 06		21	79.5
17		32	100.1

Not seen later . . .
Limit of visibility —

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 20 1899

	11 55	50		80.0
11 06 02		56	19.0	99.0
-15	56	05	21.2	79.0
11 50 47		16	20.1	100.2

Seeing fairly good

A + D. 95 A.			B. 39 A.		
13	7	14.9	13	7	0.0
	ℓ	15.0		ℓ	0.0

Chronometer Correction on above eclipse = -15 secs.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 20, 1899

Re. of Jsph. III Phot. PC

W. Obsn.
Colson Recorder

Compared with farthest of sats. on same preceding side of sat III.

Chronometer correction = −15 secs.

Limit of Visibility.

			~~33~~		
	13	24	53		76.0
13 20 09	13	25	02	240	100.0
−15			14	~~279~~	75.0
13 24 54			28	260	102.9
25 52		26	07		72.5
26 05			20		108.0
12			27		67.2
20			35		109.0
25			40		72.0
31			46		108.0
38			53		68.8
44			59		103.0
50		27	05		66.0
			~~13~~		+
27 06			21		114.0
12			27		63.2

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 20, 1899

13	27	20		35	117.9
		26		41	61.7
		33		44	118.2
		39		54	58.8
		44		59	119.0
				~~08~~	
		07	28	12	56.5
	28	23		18	121.1
		08		23	57.0
		14		29	121.0
		21		36	55.9
		29		44	121.5
		39		54	54.2
		45	29	00	122.0
		50		05	53.7
		58		13	123.0
	29	29		18	55.0
		15		25	124.3
	29	14		33	50.1
				41	122.5
				49	50.8
	30	06		56	126.4
		15		~~04~~	
	29	61	30	17	57.2
				24	127.5
				31	48.1
				38	129.0

69.3	
72.4	
70.8	
75.6	
76.3	
76.0	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 20, 1899.

13 30 42		44	89	
10		53	79.5	49.0.
13 30 27	31	00	80.2	128.5
31 13		09		49.5
10		18	80.4	129.9
30 58		25	87.8	44.9
31 47		33	83.7	131.9
10		43		46.2
31 32		51	85.1	131.3
	32	00	88.3	44.9
32 18		07	86.7	133.2
10		15		44.0
32 03		21	89.0	133.0
		29	88.2	43.8
32 52		38	88.6	132.0
10		49		43.0
32 37		57	92.8	135.8
	33	06	91.9	43.0
33 30		16	92.4	134.9
10		27		40.9
33 15		34	94.3	135.2
		44	95.0	38.5
		52	94.9	134.0
34 09	34	02		40.5
10		12	97.0	138.0
33 54		30	97.9	40.0
		36	97.1	137.9
				38.8

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 20. 1899.

34 48		43 ± 1 sec	98.4	137.2
15		52 ± 1 sec	99.7	38.0
34 33		59	99.0	137.7
	35	12		38.0
35 36		22	100.3	138.3
15			102.9	
35 21		49	101.6	36.2
	36	00		139.1
		09		34.8
36 25		20	105.7	140.5
15		30	107.6	35.2
36 10		40	106.6	142.8

Moved image of comparison sat. slightly with respect to Jupiter.

37 20		04		37.0
15		15	103.9	140.9
37 05		25	108.7	36.1 36.1 assumed.
		36	106.3	144.8
38 00		45		36.1
15		55	106.1	142.2
37 45	38	05	106.9	37.0
		13	106.5	143.9
38 50		30		31.4
15				
38 35		49	114.1	145.5
		56	113.1	31.0
	39	05	113.6	144.6
		16		32.9
		27		142.9

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 20, 1899.

39 30		36	1120	
15		43	1138	31.2
39 15		√0	1119	14√0
4008		√9		31.1
15		17	1139	14√0
8953	40	12√	1152	31.1
			1146	146.3
4051		36		32.1
15		43	1149	147.0
40 36		√6	1130	30.0
	41	09	1140	146.0
	43	26		30.4
44 16		38	1176	148.0
15		~~√0~~	1169	
44 01	44	19	1172	30.6
		~~40~~		~~14√0~~
13	45	41		147.5

Seeing pretty ~~good~~ bad.

A + D. 952			B 394.		
14	13	15.0	14	13	0.0
	14	15.0		14	0.0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 24, 1899 (Friday)

T. Andromedae

0 17 = 6.4
7 57
7 40

Too Low.

O Ceti

2 12 -3.6
7 42
5 30

Too Low.

R. Canis Majoris.

7 15 -16.2
8 15
1 00

Full aperture Used
Phot. T. W obs.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 24, 1899.

R Can. Majoris

I

These observations Copied and Ledgered

115.2 ~~110.5~~

8 10 40

1384	23.2	
Right & Close 1160	22.2	-3.49
1382 ~~1385~~	45.4	

-3.41

114.8		
8 13 10 139.6	24.8	-3.33
115.4	24.0	
139.4	48.8	

203.9		
8 15 00 229.0	25.1	-3.39
206.5	22.3	
Left & Below. 225.8	47.4	

-3.45

206.8		
8 19 20 227.8	21.0	
205.1	23.9	-3.51
229.0	44.9	

~~M~~ 21 10	
8 15 18	
5 31.	
13 14 47	Gr. M. Time.
47 38. 5520	5520
48 37. 8137	.2588
+0.7383	.6966

Mean = -3.43

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Mar 24, 1899.

II

		205.4		
8	21	05	229.0	23.6
			206.0	22.2
			225.2	45.8

-3.47

Left of Below

			206.2	
8	23	15	229.2	23.0
			205.5	23.9
			229.4	46.9

-3.44

-3.41

			295.8	
8	26	20	319.2	23.4
			296.3	21.2
			317.5	44.6

-3.53

-3.54

Right of Above.

			295.2	
8	28	15	317.6	22.4
			296.0	21.6
			317.6	44.0

-3.56

	18	55	
8	24	44	
5		34	
13	24	13	Gr. M. Time.

Mean = -3.49

47 38. 55.54
47 37. 58 37
+0.7447

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phot. proj. 1900.

March 24, 1899

III.

295.2
317.8 22.6
296.0 21.3 - 3.56
317.3 43.9

- 3.56

8 30 10

Right of Above

295.5
318.0 22.2
296.0 21.8 - 3.56
317.8 44.0

8 31 45

25.8
45.1 22.3
20.0 - 3.62
27.0 42.8
47.5

- 3.63

8 35 20

Left of Below.

26.5
47.5 21.0
21.3 - 3.64
26.0 42.3
47.3

8 37 40

8 31 55

8 38 44
5 31

13 33 13 Gr. M. Time.

Mean = - 3.60

4735.5647
4737.8137
+0.7510

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 24, 1899

IV.

8 40 00	26.3		
	47.8	21.5	
	26.9	20.3	-3.67
Left & Below	47.2	41.8	
	26.6		-3.64
8 41 40	47.8	21.2	
	26.6	21.5	-3.62
	48.1	42.7	
	115.2		
8 44 40	138.2	23.0	
	115.9	21.9	-3.51
Right & Above.	137.8	44.9	
			-3.55
	116.0		
8 46 15	137.4	21.4	
	115.8	21.9	-3.59
	137.7	43.3	

12 35

8 43 9

5 31

13 42 38 Gr. M. Time

4738.5712

4737.8137

+0.7575

Mean = -3.60

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 24, 1899

V.

8 48 10

115.0
138.8
115.7
138.0

23.8
22.3
46.1

- 3.45

Right Above

- 3.50

8 50 30

116.3
135.1
116.0
138.4

21.8
22.4
44.2

- 3.55

8 53 30

205.8
228.6
206.6
229.1

22.8
22.5
45.3

- 3.49

Left Below.

- 3.51

8 55 15

206.6
228.5
206.0
228.7

21.9
22.7
44.6

- 3.53

206 25
8 51 36
5 -31

13 51 5 Gr. M. Time.

Mean = - 3.50

47 38.5772
47 37.8137
+0.7635

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 24 1899.

VI.

		203.0		
9	19	00	229.5	24.2
			206.2	22.0
		Left & Below	225.2	46.2
				-3.45
				-3.46
			206.6	
9	20	15	228.6	22.0
			205.5	23.7
			229.2	45.7
				-3.47
			295.5	
9	22	20	317.5	22.0
			295.8	22.2
		Right & Above	318.0	44.2
				-3.55
				-3.55
			296.0	
9	24	00	317.2	21.2
			295.2	22.9
			318.1	44.1
				-3.55
	55	35		
9	21	24		
5		31		
14	20	53	Gr. M. Time.	

Mean = -3.50

4738.5978
4737.8137
+0.7841

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phate.proj.1360.

March 24, 1899

~~VII~~

9 25 13 Right & Above

295.6			
315.8	23.2		
296.2	22.0	-3.50	
315.2	45.2		
			-3.53
296.4			
318.2	22.1		
295.8	21.8	-3.56	
317.6	43.9		

9 27 00

9 30 00 Left & Below.

25.3		
47.5	22.2	
26.2	21.2	-3.59
47.4	43.4	
		-3.62
26.3		
47.2	20.9	
26.4	21.1	-3.66
47.5	42.0	

9 32 25

1 1 54 40

9 28 40

5 31

14 28 09 Gr. M. Time.

Mean = -3.58

4735.6029

4737.5137

+0.7892

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 24, 1899

VIII

		26.0		
9	34 00	48.0	22.0	
		26.6	21.0	- 3.61
	Left & Below	47.6	43.0	
				- 3.66
		27.0		
9	35 30	47.2	20.2	
		26.3	20.9	- 3.71
		47.2	41.1	
		115.2		
9	37 45	138.0	22.8	
		115.8	21.8	- 3.53
	Right & Above	137.6	44.6	
				- 3.54
		115.9		
9	39 20	137.6	21.7	
	26 35	116.0	22.4	- 3.53
9	36 39	138.4	44.1	
5	31			
14	36 08 Gr M. Time.		Mean = -3.60	

47 35.6054
47 37.8137
+0.7947

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Mar. 24, 1899

IX.

9 42 25	Right of Above	116.0		
		138.0	22.0	
		116.0	21.3	- 3.59
		137.3	43.3	
				- 3.55
9 44 50		115.6		
		138.3	22.7	
		116.2	22.2	- 3.51
		138.4	44.9	
		205.3		
9 48 00		229.0	23.7	
		206.5	22.5	- 3.45
	Left of Below.	229.0	46.2	
				- 3.52
		206		
9 50 20		228.4	21.8	
		206.2	21.8	- 3.58
		225.0	43.6	

1825.35

9 46 24

5 31

14 45 53 G. M. Time.

Mean = - 3.54

4735.6152

4737.8137

+0.8015

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 24. 1899

I

205.8

9 52 45

225.2 22.4
206.4 21.6 -3.56
Left of Below 227.0 44.0

-3.57

206.5

9 57 45

227.7 21.2
205.7 22.3 -3.58
228.0 43.5

296.0

10 00 25

317.8 21.8
296.1 22.0 -3.57
Right of Above 318.1 43.8

-3.56

295.5

10 01 50

317.1 22.6 -3.56
296.0 21.3
317.3 43.9

232 45

9 55 11
5 31

14 57 40 Gr. M. Time.

Mean = -3.56

4735.6234
4737.8137
2.2097

1899phae.proj.1360.

Mar. 24, 1899

XI

10 06 20

296.1
317.5 21.4
295.3 22.7 -3.55
318.0 44.1

Right to Above

-3.54

19 09 20

296.8
317.8 22.0 -3.53
295.4 22.6
318.0 44.6

19 13 00

25.7
47.2 22.3 -3.57
26.0 21.4
47.4 43.7

-3.59

Left & Below

25.8
47.2 21.4
26.2 21.6 -3.61
47.8 43.0

10 13 40
44 20
10 11 05
5 31
15 10 34 G.M.T.

Mean = -3.56

4738.6323
4737.8137
+0.8186

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 24, 1899.

XII

25.4

10 19 00 47.8 22.4

26.6 21.1 −3.58

47.2 43.5

Left of Below

−3.62

26.5

10 21 25 47.4 20.9 −3.65

26.5 21.3

47.8 42.2

115.3

10 23 55 137.3 22.0

115.8 22.0 −3.56

Right of Above 137.8 44.0

−3.56

116.2

10 25 45 138.1 21.9

9.0 05 115.8 22.0 −3.56

10 22 31 137.8 43.9

5 31

15 22 00 Sid. M. Time 30.6 secs fast,

H735.6403. Watch on M. P. 4h 41.

4737.8737 4m. 51 secs fast.

+0.8266

Arnold and Dent used on R. Com. Mag.

Mean = −3.59

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 27, 1899

Phot R. W obs.

M. P. 441

34.33 +62.3

11 10

7.27

These observations copied and Ledgered.

≥ 34.0

11 02.0 Left of Below Var. dis. > 302.3 68.3

235.0 68.2 -0.84

303.2 136.5

-0.86

235.5

302.6 67.1

234.8 67.5 -0.88

303.3 137.6

Right & above

326.0

325 66.5

326.0 66.2 -0.92

32.2 132.7

-0.84

11 09.5

16 05.8

4.8

16 01.0 Gr. M Time.

323.3

323.5 70.2

322.8 70.7 -0.76

33.5 140.9

Mean = -0.85

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Mar. 27, 1899

Same again.

		325.4		
11	11.0	32.8	67.4	
		323.8	68.0	-0.87
	Right & Above	31.8	135.4	
		325.2		-0.84
		32.2	67.0	
		323.0	70.5	-0.82
		33.5	137.5	
		53.6		
		122.0	68.4	
		55.8	67.6	-0.86
	Left & Below.	123.4	136.0	
		56.2		-0.88
11	17.0	121.8	65.6	
16	14.0	55.0	67.9	-0.91
	-4.8	122.9	133.5	
16	09.2 Gr. M. Trans.			

Mean = -0.86

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 25 1899 (Saturday.)

o Ceti.

2 12 − 3.6

7 22

5 10

Too Low and Cloudy.

ν Cephei.

0 50 81.1

7 58

7 08

Phot. T. Vis obs.

0 50 81.1

8 10

7 20

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 25. 1899

N. Cephei.

(Ist Equation) I.

The Obs. copied from Ledgeland.

190.0

7 57 30 Left & Above

244.3	54.3	
190.5	53.3	-1.47
243.8	107.6	

-1.48

190.0

7 59 30

243.0	53.0	
190.2	53.9	-1.49
244.1	106.9	

252.0

8 01 45 Right & Below.

334.2	52.2	
250.7	53.3	-1.52
334.0	105.5	

-1.54

251.7		
333.5	51.8	
	52.5	-1.50
251.2	104.3	
333.7		

8 03 30

242 15

F 00 39

5 -33

00 6 Gr. M. Time.

Mean = -1.51

4739.54 F

4738.2100

+1.331 F

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae..proj.1360.

March 25, 1899.

II.

		281.5		
8 05 06		333.0	51.5	
		280.1	52.9	-1.58
	Rigel & Polaris	333.0	104.4	
				-1.54
		280.0		
8 10 00		332.6	52.6	
		279.5	52.9	-1.52
		332.7	105.7	
		10.4		
8 13 40		63.3	52.9	
	Left & Above	10.8	51.4	-1.55
		62.2	104.3	
				-1.56
		11.4		
8 11 00		63.0	51.6	-1.57
		11.0	52.0	
		63.0	103.6	

	42 40	
8	10 40	*
5	23	
13	10 07	Gr. M. Time.
4739.5487		
4738.2100		
+1.3387		

Mean = -1.55

J c

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 25, 1899.

III

11.3
8 18 20 61.7 50.4
Left & Above 11.0 52.6 -1.58
63.6 103.0

-1.56

10.8
8 19 50 63.1 52.3
11.0 52.1 -1.55
63.1 104.4

Clouds thick

99.2
8 25 05 152.5 53.3 -1.49
98.8 53.5
Right & Below 152.3 106.8

-1.52

99.6
8 28 20 52.6
152.2 51.8 -1.53
99.8 104.4
152.6

Mean = -1.54

9.1 35
8 22 54
5 33
13 22 21 G.M.T.

H 39.5572 Above group taken through clouds.
H 38.2100
+1.3472

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 23, 1899

IV

δ 32 40 ~ Right of Below

99.8
153.9 54.1
104.7 50.3 -1.55
152.0 104.4

-1.04

100.0
152.7 52.7
100.2 52.8 -1.52
153.0 105.5

δ 32 40' Left of above

189.7
244.4 54.7
190.1 52.4 -1.49
242.5 107.1

-1.50

δ 41.00

190.0
243.4 53.4
191.0 53.0 -1.50
244.0 106.4

144 05
δ 36 01
5 33
13 35 38 Gr. M. Time

Mean = -1.02

4739 5964
4738.2100
+ 1.3564

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 25, 1899

V

δ 34 35

Left of Above

189.8 54.1
243.9 53.2 −1.45
191.0 107.3
244.2

−1.51

191.0

δ 36 30

242.2 57.2
190.1 53.7 −1.54
243.5 104.9

280.4

δ 49 20

334.0 53.6
281.7 52.1 −1.52
333.8 105.7

Right of Below.

281.4 −1.54
332.8 51.4
280.8 52.6 −1.56
333.4 104.0

δ 51.10

161 35
δ 40 24
5 33

13 89 51 Mean.

Mean = −1.52

4739.5693
4738.2100
+1.3593

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 23 & 24-99

IV.

9 04 20

279.0
333.3 57.3
279.6 52.6 -1.49
332.2 106.9

Digits Below

-1.50

9 06 00

280.0
331.2 57.2
279.3 54.7 -1.51
334.0 105.9



9 09 00

11.0
62.0 51.0
10.0 52 -1.58
62.2 103.2

Left & above

-1.56

9 10 10

19.6
43.0 53.4
10.5 52.0 -1.53
62.5 105.4

30 30
9 07 38
5 33

14 07 05 Gr. M. Time.

Mean = -1.53

4739.55-53
4735-2100
+1.3753

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 25 1899

VII

10.9

9 14 20 Left of Above 62.6 51.7

10.7 51.3 -1.58

62.0 103.0

-1.59

11.4

9 16 35 62.2 50.8

10.8 51.4 -1.60

62.2 102.2

99.8

9 19 05 152.5 52.7

100.0 52.4 -1.53

Right of Below 152.4 105.1

-1.50

99.8

9 20 45 153.3 53.5

53.8 -1.48

7.0 45 99.0 107.3

9 17 41 152.8

5 33

14 17.05 Gr. M. Time.

4739 59 52

4738.2100

+1.3852

Mean = -1.54

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 25 1899

VIII.

	9 55		
9 23 15 Right & Below	104.3	55.5	
	98.3	53.7	-1.44
	153.0	109.2	
			-1.46
	99.2		
9 26 50	153.3	54.1	
	99.2	53.4	-1.48
	152.6	107.5	
	190.6		
9 29 06 Left & Above	244.0	53.4	
	190.8	51.9	-1.53
	242.7	105.3	
			-1.02
	191.3		
9 30 45	243.0	51.7	
	190.0	53.8	-1.52
	243.8	105.5	

1 6 1	5 0	
9 27	57	
5	33	
14 27	24	Geo. M. Time
4739.6054		
4735.2100		
+ 1.3954		

Mean = 1.49

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 25 1899

IX

		191.2		
9	32	50	244.2	53.0
			190.1	52.9 -1.51
		Left & Above	243.0	105.9
			19	
			191.5	-1.51
9	34	25	243.5	52.0
			190.1	53.9 -1.51
			244.0	105.9
			283	
9	36	05	334.0	53.7
			282.0	50.8 -1.55
		Right & Below	332.8	104.5
				-1.54
			281.0	
9	38	25	334.1	53.1
			281.2	52.5 -1.52
			333.7	105.6
	21	55		
9	35	39		
5		33		
14	35	06	Lt. M. Time.	Mean = -1.52

4739.6077
4738.2100
1.3977

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March. 25, 1899

X

9 43 50 Regulus Below

250.2
333.5 53.6
250.0 53.5 -1.48
333.5 107.4

-1.52

9 46 00

250.0
332.2 52.2
250.0 52.2 -1.53
332.2 104.4

11.15
62.7 51.6
11.5 50.7 -1.60
62.2 102.3

-1.55

9 47 55 Left & Above

10.4
62.6 52.2
10.4 51.8 -1.56
62.2 104.0

Mean = -1.55

9 49 25

27 10
9 46 48.5
5 33
14 46 15 Gr. M. Time.

4739.6154
4735.2100
+1.4054

1899phae.proj.1360.

March 25 1899

XI

		11.0		
9	51 30	63.0	520	
	Left of above	11.2	51.8	-1.56
		62.0	103.8	
		10.7		-1.54
9	53 10	63.8	53.1	
		10.8	53.0	-1.51
		63.8	106.1	
		100.2		
9	55 35	152.8	526	
		95.5	550	-1.47
	Right of Below	153.5	107.6	
		99.5		-1.45
9	57 00	154.0	545	
	17 15	98.5	527	-1.48
9	54 19	151.2	107.2	
5	33			
14	53 46			

Mean = -1.51

G. M. Time.

H7 39 6207
H7 38 2100
+1.4107

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

March 25 1899

XII.

99.3

Vardis

10 03 00

154.3 55.0

Right & Below

99.6 54.2 -1.44

153.5 109.2

-1.44

100

10 05 00

154.6 54.6

100.0 54.2 -1.45

154.2 108.8

189.0

10 08 25

244.0 55.0

Left & Above

190.2 54.0 -1.44

244.2 109.0

190.0 -1.46

10 09 45

243.5 53.0

190.4 53.6 -1.49

244.0 107.1

26 10

10 06 33

E 33

15 06 00 Gr. M. Time.

Mean -- 1.45

4739.92

4738.2100

+1.72

1899phae.proj.1360.

March 23 1899

XII.

		159.6		
10	10 30	242.6	53.0	
	Left of Above	190.2	52.0	-1.54
		242.2	105.0	
				-1.53
		190.2		
10	12 20	243.6	53.4	
		190.5	52.4	-1.52
		243.2	105.8	
		280.0		
10	14 55	333.5	53.5	
		280.4	53.8	-1.48
		334.2	107.3	
	Right of Below			
				-1.48
		280.6		
10	16 10	333.5	52.9	
		279.3	54.0	-1.49
		333.3	106.9	

14 15

10 13 34

5 33

15 13 01 Yz. m. Trans.

4739.6340

4738.2100

1.4240

Mean = -1.50

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 25, 1899

XIV.

Right & Below

10 05 20

27.1		
334.0	56.9	
280.6	52.4	-1.46
333.0	108.3	

-1.49

10 19 55

280.6		
332.5	51.9	
279.5	53.9	-1.52
333.7	105.8	

10 23 25 Left & Above

10.0		
62.4	52.4	
103	52.5	-1.54
62.8	104.9	

10 25 00

10.1		-1.54
62.2	52.1	
10.3	52.2	-1.55
62.5	104.3	

8.6 40

10 22 40
5 33

15 22 07 Gr. M. Time.

Mean = -1.52

4739.6404
4738.2100

1.4304

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Omitted by Mistake

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Omitted By Mistake

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

52

March 25,

XV.

10.8
61.5 50.7
10 4 529 -1.57
63.3 103.6

10 27 00 Left & Above

10.2 -1.56
10 28 40 63.4 53.2
10.6 51.7 -1.54
62.3 104.9

99.4
10 33 05 153.5 54.1
100.7 53.4 -1.48
154.1 107.5

Right & Below -1.48

10 34 50 100.6
153.2 52.6
99.3 54.7 -1.48
154.0 107.3

123 35
10 30 54
5 33

15 30 .21½. m-Time.

Mean = -1.52

4739.6461
4738.2100
+1.4361

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 25 1899

XVI

10 41 59 Right & Below	100.0		
	153.0	53.0	
	99.4	54.9	-1.47
	154.3	107.9	
	100.0		-1.50
10 45 00	99.8		
	153.7	53.9	
	99.5	50.7	-1.54
	150.8	104.6	
	190.8		
10 47 45 Left & Above	243.0	52.2	
	190.6	50.4	-1.59
	241.0	102.6	
	190.7		-1.56
10 50 25	244.0	53.3	
	190.6	52.0	-1.53
	242.6	105.3	

15 25 00

10 46 15
33

5

15 45 42 G. M. Time

47 39.6567

47 38.2.00

#14467

Mean = -1.53

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 23/1899

1900
2 2 2

Slotted My Coords.
Arnold & Pent. 30. 5 secs fast.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 27, 1899. (Monday)

Plot T. Obs.
ν Cephei.

I.

0 50 +F1.1
7 57
7 07

These obs. Ledgered and Copied.

7 42 20

9.2
63.3 54.1
11.8 49.2 -1.55
61.0 103.3

Left & Above.

-1.60

12.1
7 44 20 60.4 48.3
10.4 52.8 -1.63
63.2 101.1

100.0
7 47 40 151.4 51.4
100.9 49.5 -1.63
150.4 100.9

Right & Below.

-1.62

101.6
7 49 20 150.3 48.7
23 40 99.0 52.5 -1.62
7 45 55 151.5 101.5
5 26
12 45 29 Gr. M. Time.

4741.5316
4740.8010
+0.7306

4741.5316
4740.7032
.0.8284

Mean = -1.61

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Mar. 27, 1899.

II

		99.0		
7	53 10	153.1	54.1	
	Right & Below	103.3	48.7	-1.59
		152.0	102.8	
				-1.60
		102.8		
7	55 20	151.8	49.0	
		100.0	52.8	-1.61
		152.8	101.8	
		190.8		
7	58 15	242.0	51.2	
		192.6	48.4	-1.67
		241.0	99.6	
	Left & Above			-1.64
		192.9		
8	00 40	240.8	47.9	-1.62
		191.0	53.4	
		2444	101.3	

227 25
7 56 21
5 26
12 55 53

Gr. M. Time	
4741.5388	4741.5388
4740.8010	4740.7032
+0.7378	+0.8356

Mean = -1.62

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 27, 1899.

III

		191.0		
8 05 00		241.0	50.0	
	Left of above.	192.5	47.9	-1.71
		240.4	97.9	
				-1.68
		192.2		
8 07 15		241.4	49.2	
		190.8	51.2	-1.65
		242.0	100.4	
		250.5		
8 09 30		334.2	53.7	
		282.6	49.9	-1.57
		332.5	103.6	
				-1.60
	Right of Below			
		282.5		
8 11 10		332.0	49.5	
			51.6	-1.63
		282.0	101.1	
		333.6		

32 55

8 08 14

5 26

13 07 48 Gr. M. Time

4741.5469	4741.5469
4740.8010	4740.7032
+0.7459	0.8437

∴ Mean = -1.64

1899phae.proj.1360.

March 27, 1899.

IV.

8	15	30	279.0	
			334.4	55.4
		Right to Below.	280.2	49.4 -1.54
			329.6	104.8
				-1.58
8	17	30	281.0	
			330.6	49.6
			279.4	52.0 -1.62
			331.4	101.6
8	20	10	10.3	
			61.3	51.0
			13.0	47.4 -1.70
			60.4	98.4
		Left to Above		-1.70
8	22	10	13.8	
			62.5	48.7
			111.8	49.4 -1.71
			61.2	98.1

8	22	10
	75	20
8	18	50
5		26
13	18	24 Sid. m. Time.

Mean = -1.64

4741.5545
4740.8910
+0.7635

4741.5545
4740.7032
0.8513

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 27, 1899.

V.

8 28 45 Left of Above

10.6
62.2 51.6
13.3 47.1 -1.69
60.7 98.7

-1.71

8 30 45

13.2
60.2 47.0 -1.73
11.1 50.0
61.1 97.0

100.0
152.6 52.6 -1.61
102.2 49.2
151.7 101.8

-1.62

Right of Below

8 33 30

102.5
150.9 48.4 -1.64
100.0 52.2
152.2 100.6

8 37 50

127 50
5 31 55
5 26

13 31 32 Gr. M. Time.

Mean = -1.66

4741.5636 4741.5636
4740.8010 4740.7032
+0.7626 .8604

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 27, 1899

VI.

	100.1		
8 39 20	152.9	52.8	
	101.0	49.6	-1.60
Right of Below	150.6	102.4	
	103.2		-1.60
8 43 00	152.0	48.8	
	099.3	53.9	-1.59
	153.2	102.7	
	191.4		
8 45 35	243.5	52.1	
	191.5	51.0	-1.58
	242.5	103.1	
Left of Above			
	191.6		-1.56
8 47 10	243.0	51.4	
	191.0	53.0	-1.53
	244.0	104.4	

17.5 05
8 43 46
5 26
13 43 20 Sr. M. Time.

4741.5717
4740.8010
+0.7707

4741.5717
4740.8010
.7707

4741.5717
4740.7032
0.8685

Mean = -1.58

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 27, 1899

VII

8 49 20 Left of above

190.0
243.5 535
191.2 526 -1.51
243.8 106.1

-1.57

191.9 50.4
242.3 50.8 -1.63
192.2 101.2
2430

8 57 10

282.1
332.0 49.9
282.0 49.6 -1.67
331.6 99.5

-1.64

8 53 35 Right of Below.

282.6
332.4 49.8
281.6 47.6 -1.62
333.2 101.4

8 56 00
210 05
8 52 31
5 26
13 52 05 Gr. M. Trans.

Mean = -1.60

4741.5779
4740.8010
0.7769
4741.5779
4740.7032
0.8747

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 27, 1899

VIII

2824

9 20 35 Right & Below

3322 51.5
2811.0 51.0 -1.59
3320 102.8

2811.8 -1.62
3311.5 49.7
2822.2 50.6 -1.65
3328.5 100.3

9 23 25

12.0
61.6 49.6
10.5 52.1 -1.61
62.6 101.7

9 26 30

Left & Above.

11.4 -1.64
63.0 51.6
12.5 48.1 -1.66
60.6 99.7

9 29 20
19 50
9 24 55
5 26
14 24 32 Gr. m. Time.

Mean = -1.63

4741.6004
4740.8010
+0.7994
4741.6004
4740.7032
0.8972

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 27, 1899

IX.

9 32 30 Left & Above

11.2
60.8 49.6
11.4 51.9 -1.62
63.3 101.5

10.2 -1.57
9 34 30
64.0 53.8
11.4 51.9 -1.52
62.3 105.7

101.0
9 37 30 153.8 52.8
Right & Below. 101.5 51.5 -1.55
153.0 104.3

101.4 -1.59
9 39 30 153.5 51.1
24 45 107.8 49.8 -1.63
9 36 11 100.9
5 26 151.6
14 35 45 Gr. M. Time

Mean = -1.58

4741.6052
4740.5010
+0.5072
4740.6052
4740.7032
0.9050

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 7, 1899

☓

	101.0		
	151.2	50.2	
9 41 00 Right & Below	100.4	53.6	-1.56
	153.0	103.8	
			-1.58
	100.4		
9 42 15	153.1	52.7	
	101.7	49.9	-1.60
	151.6	102.6	
	191.0		
9 45 35	244.5	53.5	
	191.8	50.0	-1.57
Left & Above	241.5	103.5	
			-1.58
	192.0		
9 47 15	242.0	50.0	
16 30	190.3	52.3	-1.60
9 44 09	242.6	102.3	
5 26			
14 43 43 Gr. M. Time.			
	mean =	-160	-1.58

4741.6137
4740.7010
+0.8127
4741.6137
4740.7032
0.9105

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 27, 1899

XI

	190.1		
9 53 35 Left & Above	242.7	52.6	
	190.6	51.6	-1.55
	242.2	104.2	
			-1.37
	191.5	50.5	
9 55 20	242.0	52.4	-1.59
	190.1	102.9	
	242.5		
	250.6		
9 58 30	332.7	52.1	
	251.5	51.9	-1.56
Right & Below	332.4	104.0	
			-1.60
	252.2		
	332.0	49.8	
	252.4	50.4	-1.65
	332.8	100.2	

Mean = -1.58

10 01 10

208 35

9 52 09

5 26

14 51 43 Gr. M. Time.

4741.6192
4740.8010
0.8182

4741.6192
4740.7032
0.9160

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 27, 1899

XII

			280.6		
10	05	20	333.4	52.8	
			281.2	51.6	-1.55
		Right & Below	332.8	104.4	
			282.2		-1.60
10	08	30	331.6	49.4	
			281.6	50.4	-1.66
			332.0	99.8	
			10.1		
10	12	10	63.3	53.2	
			11.5	51.7	-1.57
		Left & Above	63.2	104.9	
			11.6		-1.52
10	13	30	64.0	52.4	
	29	30	10.2	53.6	-1.51
10	07	38	63.5	106.0	
5		26		mean = -1.56	
15	07	12			

H 741.6300
4740.8010
0.8290

H 741.6300
4740.7032
0.9268

Obs. taken with more or less difficulty on account of clouds, throughout evening

Arnold & Pent = 25.5 secs. fast

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Mar. 27. 1894.

A. + D. 9 in.			B. 39 in.		
16	5 K	2 v. 0	16	5 K	0.0
	5 v	2 v. 0		5 v	0.0

~~2 v 57~~

~~26 31~~

A + D 9 in.

17	27	20	suspected	= O-C. +19.5"
	27	30	Seen	= O-C. +20.5.

Daylight so strong, and some cloud, that nothing can be done photometricly. Clouds becoming thicker

One inch eyepiece power 270 used

W. obs. Colson rec.

A. + D. 9 in.			B. 39 in.		
17	34	24.8	17	34	0.0
	3 v	24.8		3 v	0.0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 29, 1899. (Wednesday)

Phot. T. (Wobz.)

J. Cancri.

8 35 +19.6

8 00

35

11 22

(These obs. Ledgered, Plotted, and Copied)

4.5

7 25 40 Bright + Below

Above.

71.0	66.5	
94	55.7	-1.15
64.8	121.9	

-1.13

10.5		
65.0	54.5	
0.0	69.1	-1.11
69.1	1236	

7 27 20

Below

7 31 30

89.3		
162.0	72.7	
100.2	54.4	-1.04
154.6	127.1	

-1.16

4743.5202
4734.3066
+9.2136
+9.4545
+0.2709

4743.5202
4734.5066
+8.7136

7. 23 20

99.0		
155.0	56.0	
96.0	60.2	+1.28
156.2	116.2	

117 55
7 29 39
5 -32
12 29 07 Gr. m. Time.

57.136
9.4545
0.7709

Mean = -1.14

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 29, 1899

II.

92.2
16.3 → 70.1
7 39 00 Below 97.1 61.9 −0.94
159.0 132.0

−0.92

97.8
7 48 40 155.3 60.5
90.2 72.6 −0.91
162.8 133.1

183.2
7 43 46 250.0 66.8
183.0 64.2 −0.96
247.2 131.0

−097

184.8
7 46 00 249.0 64.2
184.5 65.8 −0.98
250.3 130.0

169 20
7 42 20
5 32
12 41 48

Mean = −0.94

4743.5291
4734.8066
+8.7225

4743.5291
4734.8066
+9.2225
+9.4845
+0.2620

1899phae.proj.1360

March 29 1899.

III

	153.0		
7 56 10	252.0	69.0	
	155.0	62.6	-0.95
above	247.6	131.6	
			-0.95
	154.6		
7 58 10	248.0	63.4	
	154.3	65.7	-1.00
	250.0	129.1	
	272.6		
8 01 15	342.4	69.8	
	273.1	65.3	-0.87
Below	338.4	135.1	
			-0.84
	275.0		
8 03 25	340.0	65.0	
	270.6	73.6	-0.80
	344.2	138.6	

23 57 00
7 59 45
5 32
12 59 13 Sid. M. Time.

4743.5411
4734.8066
+8.7345

4743.5411
4734.3066
+9.2345
9.4845
-0.2500

Mean = -0.91

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 29, 1899.

IV

8 07 20

Below

271.2
343.0
274.8
340.0

71.8
65.2 −0.83
137.0

−0.81

275.1
339.4
269.1
344.1

64.3
75.0 −0.79
139.3

8 09 05

2.3
72.0
5.0
65.5

8 12 15

Above.

69.7
63.5 −0.91
133.2

−0.91

4.7
69.8
2.7
70.8

8 14 20

65.1
68.1 −0.91
133.2

43 00
8 10 45
5 32
13 10 13 Sid. Time.

Mean = −0.86

4743.5487
4734.3066
+9.2421

4743.5487
4734.3066
+9.2421
+9.4845
−0.2424

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 29, 1899

V

		1.0		
8	17 40	70.3	69.3	
		5.1	639	-0.91
	Above	69.0	133.2	
		5.3		-0.92
8	19 30	69.0	63.7	
		0.7	684	-0.94
		69.1	1321	
		96.6		
8	22 25	163.5	752	
		94.6	654	-0.76
		160.0	140.6	
	Below			-0.78
	Clouds	93.7		
8	25 20	160.4	66.7	
	84 55	90.2	72.4	-0.79
8	21 14	162.6	139.1	
8	32			
13	20 4.2	Gr. mean time.		Mean = -0.85

4743.5561
4734.8066
+8.7495

4743.5561
4734.3066
49.2495
9.4845
-0.2350

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 28, 1899.

VI

	Clouds.	90.0		
8 37 50		163.2	73.2	
	Below	93.0	69.8	-0.71
	Clouds	162.8	143.0	
	Clouds			
	Ar	93.8		-0.70
8 41 00		162.8	69.0	
	Clouds.	90	74.5	-0.70
		×89.4	143.5	
		167.9		
		180.9		
8 46 25		253.4	72.5	
		180.2	72.8	-0.67
	Above	253.0	145.3	
				-0.68
		181.2		
8 48 00		252.8	71.6	
		181.3	72.1	-0.70
17 25 55		252.4	143.7	
8 43 14				
5 32				
13 42 42	Gr. M. Time			

Mean = -0.69

4743.5713
4734.8066
+8.7647

4743.5713
4734.8066
+9.2647
9.4845
+0.2198

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1369.

74

March 29, 1899

VII.

		150.7		
8 32 40		252.8	72.1	
	Above.	150.1	74.2	-0.65
		254.3	146.3	
				-0.66
		151.1		
8 55 05		252.1	71.0	
		179.5	73.5	-0.68
		253.0	144.5	
		269.2		
8 57 25		343.2	74.0	
		271.4	70.1	-069
	Below.	341.5	144.1	
				-0.66
9 00 00	Clouds	272.0		
		342.4	70.4	
		269.0	76.7	-063
		345.7	147.1	

	225	10
8	56	18
5		32
13	55	46

Sid. M. Time.

4743.5805
4734.8066
+8.7739

4743.5805
4734.8066
+9.2739
+9.4645
-0.2106

Mean = -0.66

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1999phate.proj.1600.

March 29. 1899

VIII

9 03 50

Below

2687
3456
271.5
341.9

76.9
70.4 -0.63
147.3

-0.62

9 06 30

2702
341.8
269.6
345.7

71.6
76.7 -0.61
148.3

9 11 15

355.8
73.7
0.0
74.0

74.6
74.0 -0.60
148.6

Above

-0.58

9 13 15

339.3
74.6
0.0
74.8

75.3
74.8 -0.57
150.1

Mean = -0.60

34 50
9 8 42
5 32
14 8 10 Gr. M. Time.

4743.5890
4734.3066
+8.7824

4743.5890
4734.3066
+9.2824
+9.4845
+0.2021

1899phae.proj.1360.

March 29. 1899

			358.8		IX
9	16	30	74.0	75.2	
			0.0	75.3	-0.57
			75.3	150.5	
					-0.57
			0.3		
9	19	10	72.5	72.5	
			358.4	76.7	-0.59
			75.1	~~152.2~~	
				149.2	
			87.0		
9	23	00	164.6	77.6	-0.51
			88.2	75.6	
			163.8	153.2	
			Below		
					-0.56
			89.2		
9	24	50	164.5	75.3	-0.48
			87.0	79.7	
			166.7	155.0	

Mean = -0.54

	63	30	
9	20	52	
5		32	
14	20	20	

4743.5974
4734.3066
+9.2908
+9.4845
=0.1937

4743 5974
47 34 3066
+8.7908

1899phae.proj.1360.

March 29. 1899

I

Clouds.

9 33 00 Below Clouds

87.6		
166.7	79.1	
88.1	77.8	-0.44
165.8	156.9	
		-0.45

9 36 30

89.0		
164.6	75.6	-0.46
86.0	80.4	
166.4	156.0	

9 39 05 Clouds

177.5		
256.9	79.4	
178.3	78.7	-0.42
257.0	158.1	
		-0.44

Above.

9 42 40

178.0		
255.2	77.2	
177.6	78.4	-0.47
256.0	155.6	

15.1 15

9 37 49

5 32

14 37 17 Gr. M. Time.

4743.6092
4734.8066
+8.8026

4743.6092
4734.8066
+9.3026
9.4845
-0.1819

Mean = -0.444

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

March 29, 1899.

XI

9 55 30 Above & Right

176.7		
259.0	82.3	
176.8	79.3	-0.35
256.1	161.6	

-0.34

176.8		
256.4	79.6	
175.3	83.7	-0.32
259.0	163.3	

10 00 00

264.3		
349.3	85.0	-0.25
267.0	82.0	
349.0	167.0	

10 03 30 Below & Left

-0.25

266.1		
348.2	82.1	
264.7	84.7	-0.26
349.4	166.8	

10 05 15

247 15

10 1 49

5 32

15 1 17 Yr. Mn Time.

Mean = -0.30

4743.6259
4734.3066
+9.3193

4743.6259
4734.3066
+8.8193

9.4845
+0.1652

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 29, 1899.

XII

10 07 40 Below & Left.

264.0
349.4 F5.4
265.8 F2.1 −0.24
347.9 167.5

−0.20
~~−0.15~~

10 10 15

264.8
349.5 F4.7
263.9 F7.2 ~~−0.11~~
345.1 176.9 −0.15

10 1300

354.2
79.5 F5.3
355.8 F2.5 −0.23
75.3 167.8

Right & above.

−0.25

10 15 15

355.9
76.5 F0.6
354.1 F5.4 −0.27
79.5 166.0

46 10
10 11 3 2/3
5 3 2
15 11 01 Gr. M. Time.

Mean = −0.22

4743.6326
4734.8186
+8.8260

4743.6326
4734.3066
+9.3260
+9.4845
−0.15 85

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 29, 1899

353.8 XIII

10 17 40 79.6 F5.5

356.0 F3.7 -0.20

79.7 169.5

-0.20

Right of above

354.8

10 20 20 78.6 F3.8 -0.20

3545 F5.4

79.9 169.2

F3.1

10 22 43 169.0 F5.9

F4.0 F7.5 -0.13

171.5 173.4

Left of Below

-0.12

10 24 40 85.4

F4.6

10 5 25 170.0 -0.11

10 26 21 F2.4 F9.6

5 32 172.0 174.2

15 25 49 Gr. mean Time

Mean = -0.16

4743.6430

4734.3066

+8.3364

4743.6430

4734.3066

+9.3364

9.4845

-0.1481

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 29, 1899

XIV

10 27 35 Left of below

81.3		
170.0	88.7	
83.8	86.5	-0.09
170.3	175.2	
		-0.07

10 29 35

83.2		
170.0	86.8	
82.4	90.4	-0.05
172.8	177.2	

10 32 25

172.4		
260.1	87.7	-0.14
174.2	84.8	
259.0	172.5	
		-0.13

Right of above.

10 35 30

173.0		
260.3	87.3	
174.8	86.4	-0.12
261.2	173.7	

Mean = -0.10

125 05
10 31 16
5 32
15 30 44 Gr. M. Time.

4743.6463	4748.6463
4734.5066	4734.5066
18.8397	9.3397
	9.4845
	-0.1448

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March-29-1899

XV

10 35 30 Right & Above

173.5
261.5 88.3
174.3 88.0 -0.13
259.3 173.3

-0.10
~~0.11~~

10 40 30

173.2
260.7 87.5
17.3.2 88.0 -0.07 8
261.2 175.5

10 45 15

262.0
352.0 90.0
263.0 89.3 -0.01
352.3 179.3

Left & Below.

0.00

10 47 25
171 40

261.4
352.0 90.6
261.1 90.0 +0.01
351.1 180.6
179.4

10 42 05
5 32

15 42 23 Sum-Twice.

Mean = -0.05

4743.6547
4734.3066
+9.3481

4743.6547
4734.3066
+9.3481
9.4845
-0.1364

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 29 1899

~~XVI~~

2 3 9 0

11 09 00 Left & Below

355.0	96 0		
259.7	97.9		+0.20
354.6	190.9		
	169.1		
			+.0.26
258.2			
355.8	97.6		
258.8	99.2		+0.32
358.0	196.8		
	163.2		

10 40

13.00

349.0			
86.1	97.1		
348.8	94.0		+0.21
82.8	191.1		
	165 9		
			+0.17
349.8			
82.4	926		
348.3	94.1		+0.13
82'4	186.7		
	173.3		

Right & Above.

16 14 30

47 10

11 11 48

5 32

16 11 16 Gr. M. Time.

4743.6744
4734.3066
+0.8678

4743.6744
4734.3066
9.3678
9.4845
-0.1167

Mean = +0.22

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 29, 1899

XVI

			348.0			
10	15	50	Right & Above.	53.0	97.0	
				348.7	94.3	+0.21
				53.0	191.3	
					165.7	
						+0.22
			348.3			
14	17	05		54.5	96.2	
				348.2	95.9	+0.23
				54.1	192.1	
					167.9	
			~~10.~~			
			177.0			
18	19	16		151.0	104.0	
			Left & Below.	75.3	108.5	+0.62
				176.5	212.5	
				≠	147.5	
				77.3		+0.56
				150.0	102.7	
				75.4	103.4	+0.50
				178.8	206.1	
					153.9	

18	20	40	
	72	45	
11	18	11	
5		32	
16	17	39	Sid. Mn. Time.

4743.6759
4734.8506
+8.8723

4743.6759
4734.3066
9.3723
9.4845
-0.1122

Mean = +0.39

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 29, 1899.

XVIII

76.0

(d) 2220 Left of Below — 178.0 102.0

77.1 100.7 +0.43

177.8 202.7

157.3

+0.44

77.6.7

(d) 2410 176.4 99.7

74.5 103.2 +0.44

178.0 202.9

157.1

165.4

(d) 2700 265.4 100.0

Right of above 169.3 95.0 +0.29

264.3 195.0

165.0

+0.26

170.1

(d) 2850 265.0 94.9

2250 167.6 97.7 +0.24

11 25 42 265.3 192.6

5 32 167.4

16 20 10 Gr. M. Time.

4743.6641 4743.6641

4734.8866 4734.3066

8.8775 9.3775

9.4545

-0.1070

mean = +0.35

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 29, 1899

XIX

			165.2		
11	30	40	Right & above	267.0	98.8
				165.0	97.4 +0.31
				265.4	196.2
					163.8
				169.3	+0.33
11	32	30		265.4	98.1
				166.3	100.3 +0.35
				266.8	198.6
					161.7
				255.1	
				~~257.~~	
10	35	30		357.8	102.7
			Left & Below.	255.5	102.1 +0.47
				357.6	204.8
					155.2
					+0.46 7
				256.0	
				356.2	100.2
				254.3	104.2 +0.46 7
				358.5	204.4
					155.6

10	37	25	
	16	25	
11	34	06	
5		32	
16	33	34	Gr. R. ascension.

4743.6900
4734.8066
+8.8834

4743.6900
4734.3066
9.3834
9.4845
-0.1011

Mean = +0.40

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae..proj..1360.

March 29, 1899

11 45 20 Sept 8 Below

255.1		XX
1.1	106.0	
257.2	101.4	+0.52
358.6	207.4	
	152.6	

+0.51

1d 4730

256.8		
358.5	101.7	
255.1	104.3	+0.80
359.4	206.0	
	154.0	

11 56 25

345.3		
87.0	101.7	
345.0	1035	+0.48
88.5	205 2	
	153.8	

Right of Above

+0.50

345.5		
87.0	1025	
344.7	1040	+0.51
88.7	206.5	
	153.5	

11 52 15
195 30
11 48 52
5 32
16 48 20 Gr. M. Time.

4743.7002
4734.3066
+ 9.3936

4743.7002
4734.3066
9.3936
9.4845
-0.0909

Mean = +0.50

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Mar. 29 1899

XXI

		346.1		
11 35 53		58.8	1027	
	Right + above	344.5	1030	+0.49
		59.2	2057	
			1543	
				+0.56
		344.0		
11 57 30		58.6	1045	
		342.0	1079	+0.62
		59.9	2124	
			1486	
		71.3		
12 01 10		181.2	109.9	
	Left + Below	73.8	1052	+0.68
		179.0	2151	
			1449	
		73.5		+0.67
		180.1	1066	
12 03 15		72.4	1077	
237 60		180.1	1077	+0.66
11 59 22			2143	
82			1457	
5				
16 58 40	Gr. M. Time			

Arnold + Dent is 32 secs fast at 12h 12.

4743.7074	4743.7074	+9.4008	Mean = +0.62
4734.8066	4734.8066	+9.4845	
+8.9008	+9.4008	-.0837	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

March 30, 1899. (Thursday)

Eros

3 26 +23.9

5 0.5

4 39

Too much haze and milky light in field to find Eros.

V Can. Minoris

~~7 30 7 49~~ +

7 0 +9.1

9 48

2 48

6 56 +5.5

9 56

3 00

Meas. of Comp. Stars for V. Can. Minoris
see next page.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 30, 1899

Star k comp with .

b spied

= 5.1

9 32.0

47.0 21.9

26.0 22.0 + 3.56

Right 43.9

45.0

+ 3.59

25.3

47.8 22.3

20.4 + 3.62

27.1 42.7

47.5

114.6

139.8 25.2

115.5 24.9 + 3.27

140.4 50.1

Left. + 3.22

114.6

9 42.5 140.0 25.4

114.0 26.8 + 3.17

9 37.2 140.8 52.2

2

14 37.2 Gr. M. Time

Mean = + 3.40

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 30/1899

Star ζ comp with

copied

	1123		
9 47.0	140.2	27.7	
Left ~~Direct~~	114.8	25.2	+3.07
	140.0	57.9	
			+3.07
	114.2		
	142.1	27.9	
	113.4	27.0	+3.07
	140.4	54.9	
	203.0		
	229.2	26.2	
Right ~~Direct~~	201.4	28.8	+3.06
	230.2	55.0	
			+3.10
	203.7		
9 57.5	231.0	27.3	+3.14
	203.8	25.8	
14 52.2 Gr. M. Time	229.6	53.1	

Mean = +3.08

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

March 30, 1899

Star 5 comp with

(Copied)

Right

199.5

01.0
10 03.0

2333 33.8
202.0 31.3 +2.67
233.3 65.1

+2.67

202.6
233.1 30.5
200.0 34.8 +2.67
234.5 65.3

257.9
325.3 37.4
259.0 35.8 +2.40
324.5 73.2

Left

+2.47

10. 10.0

259.5
~~259~~ 260.
10 05.5 Yr. M. Time. 323.8 34.0
289.1 35.0 +2.54
324.1 69.0

Mean = +2.57

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

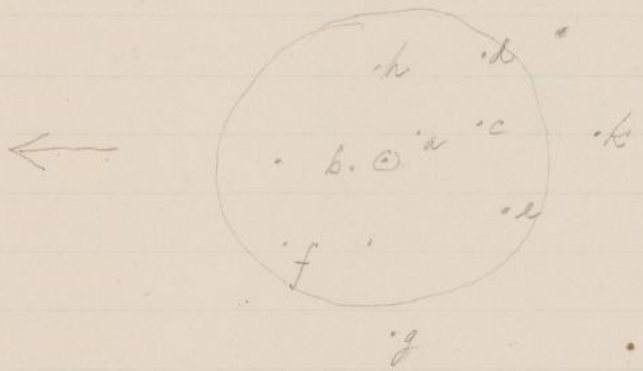
March 30, 1899

T. Camel.

4 26 +65.5

11 17

6 48



a 3 b

b 3 c

c 4 d

10 40 d 3.5 e

e 4 f

f 5 g

g 3.5 h

h 4 k.

Copied from paper.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Mar. 31. 1899. (Friday)

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

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 1, 1899. (Saturday)

Eros.

3	26	+23,9
5	16	
4	50	

7 43

2,4
2,2 b a
2,5 ~~B~~ precedes ~~a~~.
2,3
2.5
2.5

7 44

1.5
1.4
1.5 (c) follows (a)
1.4
1.4

7 46

11.1
10.9
10.6 (d) follows (a)
11.0
10.5

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

~~Mar~~ April 1, 1899.

Eros Continued

	22.4	
	22.5	
7 57	22.6	(c) follows (a)
	22.7	
	23.0	
	23.0	

	6.0	~~11.5~~
8 11.0	6.1	~~5.5~~
	6.5	
	6.2	
	6.0	

9 0 Eros not found, Troubled more or less by clouds, clouds in N. W. when finally abandoned.

Other faint stars examined besides the above.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 1, 1899

Selection of Comp. Stars for
– Canis Minoris. H. Ho.

Estimate comp. 101,

7	32	+5.6
10	05	
2	33	Striped

Star (f) comps with

10 17 Left & above

23.0		
51.1	28.1	+2.93
22.6	30.2	
52.8	58.3	

+2.96

23.7		
51.3	27.6	+3.00
23.5	28.4	
52.3	56.4	

Right & Below

113.0		
143.0	30.0	+2.84
112.0	30.7	
142.7	60.7	

+2.84

112.3		
142.6	30.3	+2.85
113.0	30.0	
143.0	60.3	

10 23.0

15 20.0 Gr. M. Time

Mean = +2.90

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April. 11 1899

Star & Companion.

	23.0	115.3		Copied
10	~~23.0~~	138.0	22.7	
		115.1	24.7	+3.49
	Right & Below	139.8	47.4	
		115.0		+3.39
		139.7	24.7	
		115.0	24.8	+3.29
		139.8	49.5	

Clouds

	206.0		
	227.2	21.2	
	205.3	21.7	+3.61
Left & Above.	227.0	42.9	
			+3.50
	204.0		
10 34.0	228.4	24.4	
~~10 39.5 Gamma Tauri~~	205.7	22.7	+3.40
15 29.5 Gamma Tauri.	228.4	~~47.1~~	

Mean = +3.45

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae..proj.1360.

April 1, 1899.

Star ε comp with.

	199.4	Copied	
10 36 5 Left & above	233.0	33.6	
	200.7	31.1	+2.69
	231.8	64.7	
			+2.70
	200.9		
	232.1	31.2	
	199.5	33.9	+2.71
	233.4	65.1	
	287.0		
	326.5	39.5	
	289.2	34.9	+2.36
	324.1	74.7	
Right & Below.			+2.42
	289.1		
10 43.0	324.0	34.9	
	289.1	35.5	+2.49
15 39.8 Gr. M. Time.	324.6	70.4	

Means +2.56

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 11 1899.

Star (d) comp with "

Copied

290.0
322.2 322
289.1 37.2 +2.63
323.3 66.4

+2.62

289.8
324.9 35.1 +2.61
291.2 31.9
323.1 67.0

H 21.5
52.0 31.5
21.0 31.1 +2.76
52.1 62.6

+2.78

20.3
52.0 31.7
22.0 30.0 +2.80
52.0 61.7

Mean +2.70

10 45.0

Right & Below

Left & Above.

10 55.5

15 50.2 G. M. Twiss.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Apr. 1, 1899.

Rel. Est. of Comp. Stars
for — Canis Minoris.

Copied.

a	6.v	b
b	v	c
c	4	d
d	2.v	e
e	4.v	f
f	6	g

g 4f

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

Apr. 2, 1899.

14 24 −13.
16 vv
2 31

Dis of Sub I. Phot R
W. Obs.
Colon Recorder

Compared with nearest sat on following side = sat II.
Seeing fairly good.

Chron. Corr = −0.2 sec.

16 08 34	16	08	18		132.0
−0.2			29	91.8	223.8
16 07 42			41	96.1	128.9
			√2	93.4	224.0 (−0.1)
09 21		09	03		132.7
−0.2			14	91.4	224.1
08 29			28	97.0	129.0
			40	94.2	226.0 (−0.2)
10 11			√3		132.2
−0.2		10	04	89.8	222.0
09 19			17	97.7	131.0
			30	93.8	228.7 (−0.1)

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Apr. 2, 1899.

		40		130.0	
10 55		49	93.1	223.1	
-02	11	01	95.2	129.8	
10 53		09	94.2	220.0	(+0.2)
03		16		130.9	
11 27		22	92.1	220.0	
-02		32	90.8	132.2	
10 55		38	91.4	220.0	(+0.1)
		47		132.0	
11 08		54	88.5	220.4	
-02	12	02	89.8	132.0	
11 06		10	89.2	221.8	(0.0)
		18		134.7	
12 29		20	85.8	220.4	
-02			85.0		
11 27		34	85.4	134.8	(+0.2)
		40		219.8	
12 07		47		133.1	
-02		54	87.8	220.9	
12 05	13	01	84.6	137.2	
		07	86.2	221.8	(+0.1)
12 21		13	80.9	137.0	+0.3
28		20	77.0	217.9	+0.5
33		25	75.1	140.9	+0.6
38		30	77.0	216.0	+0.5
44		36	75.5	139.0	+0.6
54		46	72.7	214.4	+0.7
13 01		53	67.0	141.8	+0.9

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

Apr. 2, 1899.

13	09	14	01	66.0	208.8	+0.9
	18		10	67.1	142.8	+0.9
	23		10	67.9	209.9	+0.9
	29		21	64.9	142.0	+1.0
	36		28	60.9	206.9	+1.2
	44		36	60.0	146.0	+1.2
	53		45	56.7	206.0	+1.3
	59		51	52.9	149.3	+1.5
14	00	15	57	50.5	202.2	+1.6
	10		02	49.0	147.7	+1.7
	17		09	43.5	206.7	+2.0
			~~18~~	~~33.9~~		
	33		27	33.9	147.2	+2.6
	41		33	28.1	191.1	+3.0
	52		44	28.1	163.0	+3.0
	59		51	26.1	191.1	+3.2
15	06		58	24.1	165.0	+3.4
	13	16	07	22.3	189.1	+3.5
	22		16	21.4	166.8	+3.6
	31		28		188.2	

Not seen later
limit of visibility —

	43		167.0	
17 00	59	24.2	191.2	
-02	05	21.6	165.0	
16 08	14	22.9	189.6	(+3.0)

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Apr. 2. 1899.

A. + D 9 r 2.

16 24 51.0

2 r 51.2

B. 394.

16 24 0.0

2 r 0.0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 3, 1899. (Monday.)

Showed Mr. Trowbridge the operating of the different photometers and also had him make some measures with Phot. V. as below.

~~56.5~~

~~F 46.5~~

~~124.0~~

136.2

F 51.0

221.0

~~132.5~~

225.1

132.2

224.5

134.0

221.2

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April. 3. 1899.

322.5
33.2
323.2
Below 38.6

325.4
♀ 24.0 25.2
324.2
29.4

229.8
300.0
233.1
Above 297.3

♀ 54.0
~~♀ 35.0~~ 236.2
302.2
235.0
362.8

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 3, 1899

Comp. stars for Phot. T. Wks
– Canis Minoris.

7 32 +5.6
11 05
3 36

Star f comes with . Copied

23.5
50.3 26.5
24.5 27.5 +3.10
52.0 54.0

+3.05

22.6
49.0 26.4
22.5 25.4 +3.07
57.2 54.5

111.0
142.5 31.5
112.5 29.9 +2.80
142.7 61.7

+2.54

110.5
142.0 30.2
112.0 29.2 +2.55
141.2 59.4

mean +2.96

10 24.5
Soft & above

Right & Below

10 29.0
15 26.5 Gr. M Tuns.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 3, 1899.

Star g. comp with.

Copied

	115.2		
10. 34.0 Right + & Below	140.0	24.8	
	114.8	24.4	+ 3.31
	139.2	49.2	
			+ 3.32
	114.1		
	138.8	24.7	
	114.0	24.2	+ 3.32
	138.8	48.9	
	~~20~~.		
	205.3		
	228.3	23.0	
Left & above.	205.1	23.2	+ 3.45
	228.3	46.2	
			+ 3.47
	205.0		
10 42.5	228.4	23.4	+ 3.49
	206.1	21.9	
15 39.2 Gr. M. Time.	228.0	45.3	

Mean: + 3.40

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 3, 1899.

Star E compared with

6 pairs

10 H 05 Light & Above

198.8		
232.8	34.0	
200.2	30.8	+2.68
231.0	64.8	

+2.68

200.7		
232.6	31.9	
200.1	32.8	+2.69
232.9	64.7	

Right Below

289.0		
326.8	37.8	+2.47
290.8	33.4	
324.2	71.2	

+2.79

290.0		
324.0	34.0	
290.1	35.9	+2.51
326.0	69.9	

10 53.5

15 50.0 Gr. M. Time.

Mean = +2.58

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 3, 1899

Star & comp with the

Copied.

		279.0		
	103.5	324.0	35.0	
	Right & Below	290.0	32.0	+2.61
		922.0	67.0	
				+2.62
		290.4		
		322.0	31.4	
		288.5	35.3	+2.62
		324.1	66.7	
		15.5		
		51.6	32.5	+2.77
		22.3	29.7	
	Left & Above.	52.0	62.5	
				+2.82
		22.4		
.16	11.0	51.5	29.4	+2.57
		20.5	30.2	
16	07.2 Gr. M. Time	51.0	59.6	

mean = 2.72

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April. 4. 1899 (Tuesday)

Eros.

Pleiades.

3 36 +24.
8 25
4 52

	1.0	
7 43.0	1.2	a to b.
	6.0	
7 43.5	6.0	b to c
	0.6	c to d
7 44.0	0.6	
	15.6	
7 45 0	15.5	e to f.
	16.0	
7 45.5	16.0	f to g

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 4, 1899

7 46.5 — 1.5, 1.5

New Stars and New Notation

7	57.0	5.5, 5.5	a to b.
7	57.5	5.5, 5.5	b to c
7	58	1.5, 1.5	c to d
7	59.5	11.5, 11.6	d to e

Eros not found.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 4, 1899

Comp Stars for.
– Canis Minoris

7 32 +5.6
10 19
2 47

Copied

a 6 b
b 5.5 c
c 4.5 d
d 4.5 f
f 5 g

9 30

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April. 4, 1899

Star a comp with

Copied.

	5.2		
9 38.0 Left & above	67.0	61.8	
	3.6	68.8	+0.97
	72.4	130.6	
			+0.96
	4.0		
	72.0	68.0	
	4.3	63.9	+0.94
	68.2	131.9	
	95.8		
	161.0	66.0	
	92.6	69.9	+0.56
Right & Below	162.5	135.9	
			+0.54
	90.1		
9 44.0	162.5	71.4	
	95.2	65.8	+0.53
14 41.0 Gr. M. Time	161.0	137.2	

Mean = +0.90

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April. 4/1899

Star b compared with.

		274.1	6 speed	
9 47.0	Comp. Star dia. →	340.1	66.0	
		278.1	55.7	+1.16
	Left & Below	333.8	121.7	
				+1.20
		278.5		
		335.0	56.5	
		278.8	61.4	+1.24
		337.2	117.9	
		H. S		
		64.7	59.9	
		6.0	58.8	+1.22
		64.8	118.7	
	Right & Above			
				+1.22
		6.2		
9 53.0		64.3	58.1	
		6.5	60.9	+1.22
14 50.0	Sr. M. Time.	67.4	118.9	

mean = +1.21

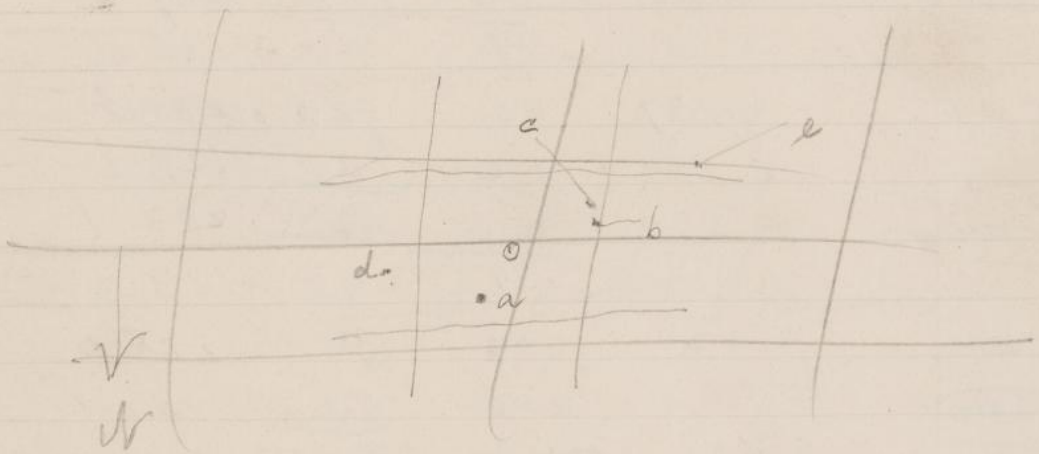
John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 4, 1899

Selection of Comp Stars for
R. Sextantis.

~~9~~	~~35~~	~~-7.6~~
9	31	-8.8
11	05	
1	34	



Wrong star taken for the variable

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 4, 1899

A + D. 95 A. B. 394.

10 27 0.0 10 26 0.0

27 0.0

Dis. of Jupt. I Phot. R. W. observer

Campbell Recorder

Comps. with closely adjacent Sat. on same side = Sat II.

				12.59	
10 36 17	36	04	1000	228.9	
-1 00		15	95.4	131.5	1
10 35 17		23	97.7	227.2	(-0.3)
		37		132.0	
37 04	37	03	92.1	224.4	
-1		12	93.5	129.6	2
36 04		22	92.8	293.1	(-0.1)
		31		133.0	
37 50		46	95.0	228.0	
-01		56	91.9	132.1	3
36 50	38	05	93.4	224.0	(-0.1)
		15		130.7	
38 43		37	96.5	227.2	
-01		54	93.8	133.2	4
37 43	39	04	95.2	227.0	(-0.2)
		12		135.2	
39 25		23	91.8	227.0	
-01		25	92.2	132.5	5
38 25			92.0		(-0.1)

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 4, 1899.

		38	223.0		
		45	134.3		
40 00		53	89.6	223.9	6
-01					
39 00	45 0	06	94.4	131.8	
		17	92.0	226.2	(-0.1)
40 36		24		135.7	
-01		33	88.3	224.6	
39 36		39	89.5	136.0	7
		45	88.9	223.5	(0.0)
41 16	46 1	00		134.9	
-01		13	98.1	232.2	
40 16		22	96.3	132.9	(-0.3)
		29	97.2	229.2	
40 37		37	87.9	135.3	+0.1
		45	86.4	223.4	+0.2
		52	87.0	135.0	+0.1
41 04	47 2	04	84.7	223.0	+0.2
		11	79.5	140.3	+0.4
		19	75.6	219.5	+0.6
		25	71.8	144.2	+0.7
		33	71.5	216.0	+0.7
		38	67.3	145	+0.9

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 4/1899

41	42		42	21 1,8	66.7	+0.9
	50		50	145.1	66.1	+0.9
	57		57	211.2	61.3	+1.1
42	05	3	05	149.9	60.9	+1.2
	14	48	14	210.8	59.9	+1.2
	26		26	150.9	56.0	+1.5
	35		35	204.9	50.2	+1.6
	43		43	154.7	47.3	+1.8
	49		49	202.0	39.1	+2.2
	53		53	162.9	31.1	+2.8
43	02	4	02	194.0	32.9	+2.6
	13	48	13	161.1	27.9	+3.0
	22		22	189.0	18.8	+3.9
	30		30	170.2	19.3	+3.8
	38		38	159.0		

Not seen later

Limit of Visibility

		55	169.0	
45	12	45 04	21.0 190.0	
-01		12	19.4 169.5	(+3.7)
44	12	27	20.2 189.2	

Seeing fairly good.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 4, 1899.

	A. & D. 95 Δ.		B. 394.		
10	51	59.8	10	51	0.0
	52	59.8		52	0.0

Chron corr. throughout = −1.m

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 5, 1899. ~~Tues~~ (Wednesday)

Comp stars for — Can. Minn.

7 32 +5.6
5 27
0 55

Star a comp with

Copied.

~~7.4~~
7.0
7 32.0 65.5 58.5
1.6 71.1 +0.98
Left & above 72.7 129.9

~~+1.06~~
0.5 +0.96
71.2 70.7
6.0 61.2 +0.94
67.2 131.9

93.5
159.9 66.4
Right & Below. 92.5 70.5 +0.84
163.0 136.9

+0.82

90.5
7 39.0 163.5 73.3
12 33.5 Sr. M. Time 94.6 65.7 +0.79
160.3 139.0

Decrease +0.94 +0.89

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 5, 1899

Star b comp. with.

		93.0	Copied	
7	41.6	~~Right~~	62.6	69.6
		Below	97.3	58.3 +1.02
			155.6	127.9
			97.8	+1.05
			156.0	58.2
			94.9	63.9 +1.14
			158.5	122.1
			153.5	
			250.6	67.1
			185.6	62.4 +0.99
			245.0	129.5
				+1.00
		Above.	155.0	
7	51.0		245.2	63.2 +1.02
			155.0	64.7
12	46.0	Gr. M. Time.	249.7	127.9

Mean = +1.04

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 5, 1899.

Nova Aurigae.

5 23 +32.0
9 04
3 41

Phot R. W. Uls.

~~Sep~~ Spectrum monochromatic.
Only one image visible.

Comp. Star Dis. > 337.4 Copied Ledgered Plotted
8 09.0 20.8 43.4
Left & Below 338.1 44.4 +1.97
22.5 87.5

338.5 +1.99
21.1 42.6
337.2 43.8 +2.01
21.0 86.4

65.6
110.3 44.7
67.2 44.0 +1.95
111.2 88.7

Right & Above 1.98
67.8
8 20.0
13 14.5 Gr. m. Twice 111.0 43.2
68.0 43.1 +2.01
111.1 86.3

Mean = +1.98

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 5, 1899

Same Again.

			Ledgered Copied & Plotted.
	67.1		
S 21.0 Left & Above	111.6	44.5	
	66.2	44.7	+1.94
	110.9	89.2	
			+1.94
	67.9		
	111.9	44.0	+1.93
	66.6	45.4	
	112.0	89.4	
	157.6		
	200.4	42.8	+2.07
	159.0	41.4	
Right & Below	200.4	84.2	
			+2.07
	158.3		
E 34.0	200.5	42.2	+2.07
(3 27.5 Yr. m. Times.	158.5	42.1	
	200.6	84.3	

Mean = +2.00

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 5, 1899.

Selection of Comp. Stars for

R Leptantis.

9	31	-5.5
9	50	
0	19	

Comp star used in meas. below =
SD. -7° 2567 (8.2).

See next page for meas.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 5, 1899

Star + comp with. (F.2)

Copied.

10 23.5

Comp ~~(F.1)~~

275.6		
332.2	56.6	
274.6	65.4	+1.15
340.0	122.0	

Left + above

273.0		+1.06
340.5	67.5	
276.4	62.0	+0.95
338.4	129.5	

Right + Below

5.0		
69.0	64.0	
5.0	64.0	+1.02
69.0	128.0	

+1.05

4.5		
68.5	64.0	+1.05
6.4	61.1	
67.5	125.1	

10 29.0

15 26.2 Gr. M. Time.

Mean = +1.06

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 5, 1899

Star (b) comp with (f. 2)

Reduced

	14.5		
10 30.5	55.0	40.5	
	17.0	37.1	+2.27
Right & Below	54.1	77.6	
			2.32
	17.6		
	54.0	36.4	+2.36
	16.8	38.0	
	54.8	74.4	

	105.0		
	150.0	45.0	
Left & Above.	108.7	37.3	+2.13
	146.0	82.3	
			+2.17
	105.0		
	147.2	39.2	
	107.3	40.2	+2.21
	147.5	79.4	

10 | 36.5
15 | 33.5 Yr. M. Trans.

Mean = +2.24

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 5, 1899.

Star (a) comp with (5.2)

	112.6	Copied	
10 39.0 Left & above	142.6	30.0	
	111.5	32.0	+2.79
	143.5	62.0	
			+2.76
	111.2		
	148.9	32.7	+2.73
	112.4	30.4	
	142.8	63.7	
	200.6		
	233.3	32.7	
	200.8	32.9	+2.68
	233.1	65.0	
Right & Below.			+2.73
	200.9		
10 48.0	232.1	31.2	
15 43.5 Gr. M. Time	201.6	31.0	+2.78
	232.6	62.2	

Mean = +2.74

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 5, 1899

Star (Y) comp with (X.2)

		Copied	
	159.0		
10 50.0	245.3	56.3	
Right & Before	153.0	66.2	+1.14
	251.2	122.5	
			+1.13
	152.3		
	247.5	65.2	
	150.8	58.2	+1.12
	245.0	123.4	
	278.6		
	335.3	56.7	
	276.6	61.4	+1.23
	338.0	118.1	
			+1.22
Left & Above	277.3		
10 56.0	338.5	61.2	
		58.1	+1.21
15 53.0 Gr. M. Time.	277.0	119.3	
	335.1		

Mean = +1.18

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 6, 1899. (Thursday)

Phot. T. W. Obs.

Measurements & Comp. Stars for
R. Leptantis

Star (a) comp with (E.2)

9 31 -5.5
8 27

1 04 Same comparison
10 56 star used as on previous night.

7 35.5 Left ✱

112.1	Copied.	
44.1	320	
113.0	27.4	+2.85
140.4	59.4	

+2.80

112.0		
143.2	31.2	
111.3	32.5	+2.73
143.5	63.7	

Right

7

200.0		
233.5	33.5	
203.0	29.0	+2.77
232.0	62.5	

+2.78

202.5		
232.0	30.5	
200.5	31.6	+2.78
232.1	62.1	

Mean = +2.79

7 45.5
12 40.5 Gr. M. Time.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 6, 1899.

R. Septantis continued

Star (X comp. with (5.2)

Copied

		186.1		
7. 47.0	Comp Star Sid	247.4	61.3	
		183.1	68.1	+0.99
	Right	251.2	129.4	
				+1.01
		183.1		
		249.3	66.2	
		185.7	61.3	+1.03
		247.0	127.5	
		275.3		
		338.5	63.2	
		272.8	69.3	+0.93
		342.1	132.5	
				+0.93
	Left.	272.6		
7 59.5		342.5	69.9	+0.93
12 53.2 Gr. M. Time.		275.8	62.6	
		338.4	132.5	

Mean = +0.97

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 6, 1891.

R Sextantis Continued.

Star (b) compared with 82

	257.5	Copied.	
8 01.0 Left.	327.1	39.3	
	256.0	42.5	+2.14
	328.5	81.8	
			+2.16
	256.6		
	328.3	71.7	
	257.1	38.9	+2.18
	326.0	80.6	
	16.6		
	56.0	39.4	
	17.1	38.2	+2.27
	55.3	77.6	
			+2.28
Right.	17.0		
	55.7	38.7	
8 08.0	17.1	38.2	+2.29
	55.8	76.9	

13 04.5 Gr. M. Time.

Mean = +2.22

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 6, 1899.

Comp. Stars for

— Puppis.

5 00 −2.7

10 17

2 17

Went over into West dome and examined sequence of stars on — Puppis, selected by Mr. Reed.

Afterwards examined fainter stars of sequence with 15" mich and added two more stars viz. m and o.

Relative Estimates on fainter comp. stars

h 4.5 k

k 4 l

l 4 m

m 5.5 n

n 3.5 o.

Copied

9 45.0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 6, 1899.

T. Camelopp.

4	40	+66.1
11	45	
7	05	

9 Sky hazy: variable but fairly faint and not found.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 5, 1899 (Saturday)

T Cancri.

8 35	+19.6
8 55	
0 20	

8 35	+19.6
9 16	
0 38	

7.00 Cloudy
7.30 Cloudy
8.00 Cloudy
8.30 Cloudy
9.00 Cloudy

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 5, 1899.

I

9 35.00 4.2
9 36.00 Clouds Thick
9 41.00 Clouds thick

Right
9 47 20 ~~Left~~ 0 Above 4.0
66.2
7.5
66 3
~~5.0~~

5.0
9 49 15 66.0
4.5
66.1

9 52 00 Clouds thick
9 52 30 Stars gone

Left + Below

Impossibly to do anything on J. Cancri.
9 53 00 Clouds thick and fog growing ~~thick~~.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Apr. 9. 1899. (Sunday)

A. & D. 9 v 2.
12 50 20,v

B. 394.
12 50 00
~~51 00~~

Dis. Jup. II Phot. R.

W. Obs.
Colson Recorder

Compared with 2nd sat. on same side = sat I.
Chronometer Corr = - 20 secs.
Seeing fairly good

		v 4			44.5	
13 09 14 x	12	09 07		8 42 x	129.0	1
-20		20		8 3.8 x	43.2	
13 08 54 x		37		8 4.0 x	127.0	+0.2 x
		49			44.4	
10 13 x	10	08		8 3.6 x	128.0	
-20		24		8 3.8 x	43.0	2
09 53 x		31		8 3.7 x	126.8	+0.2 x
		44			44.0	
10 09 x		v 3		8 4.0 x	129.0	
-20	11	04		8 6.3 x	43.8	3 x
10 39 x		14		8 4.6 x	129.1	+0.2
11 36 x		2 v			42.7	
-20		31		8 6.0 x	128.7	
11 16		41		8 3.0 x	43.0	4
		49		8 4.0 x	126.0	+0.2
	12	02			43.0	
		11			126.0	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 9. 1899

12 21		29	83.0			
-20		42	83.9	44.0		V
12 01		52	83.4	127.9		+0.3
				43.1		
		59	85.9	129.0		6
13 06	13	11	85.8	43.0		
-20		20	85.8	128.8		+0.2
12 46		31		44.0		
13 50		41	82.3	126.3		
-20		53				7
13 30	14	01	83.8	44.2		
		09	83.0	128.0		+0.3
14 38		21		44.3		
-20		30	84.5	128.8		
14 18		44	84.1	43.8		8
		54	84.3	127.9		+0.2
15 18	15	08		44.1		
-20		15	84.4	128.9		
14 58		22	85.0	43.7		9
		29	84.7	128.7		+0.2
		45		43.2		
16 02		57	85.7	128.9		
-20						
15 42	16	06	82.0	44.0		10
		16	83.8	126.0		+0.2
16 44		29		40.3		
-20		38	81.8	127.1		11
16 24		49	82.1	43.7		
		58	82.0	126.8		+0.3
		67		40.		

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 9, 1899.

17 27	17	1V		46.2	
-20		23	81.5	127.7	12
17 07		30	76.0	48.0	
		40	78.8	124.0	+0.4
17 57		V0		V1.V	
20		VV	71.7	123.2	13
1737	18	00	67.7	49.6	
		04	69.7	117.3	+0.8
17 49		09	67.0	51.0	+0.9
54		14	67.1	118.0	+0.9
59		19	68.1	V0.9	+0.9
18 04		24	67.7	119.0	+0.9
09		29	66.9	51.3	+0.9
14		34	65.4	118.2	+1.0
19		39	63.7	V2.8	+1.0
25		4V	625	117.V	+1.1
30		V0	58.0	VV.0	+1.3
35		VV	57.7	113.0	+1.3
39		V9	57.0	VV.3	+1.3
44	19	04	52.3	112.8	+1.5
50		10	56.7	60.3	+1.3
55		1V	56.2	117.0	+1.4
19 01		21	52.4	60.8	+1.5
06		26	52.4	113.2	+1.5
12		32	49.4	66.8	+1.7
17		37	47.0	110.2	+1.8
24		44	43.6	63.2	+2.0
30		V0	44.7	106.8	+1.9

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 9. 1899.

19	30		55	41.5	62.1	+ 2.1
	41	20	01	33.4	103.6	+ 2.6
	49		09	30.9	70.2	+ 2.8
	55		15	32.1	101.1	+ 2.7
20	00		20	30.9	~~70~~ 69.0	+ 2.8
	09		29	25.5	99.9	+ 3.2
	15		35	24.4	74.4	+ 3.3
	21		41	24.2	98.8	+ 3.3
	28		48	18.7	74.6	+ 3.9
	36		56	13.8	93.3	+ 4.6
	44	21	04	14.5	79.5	+ 4.5
	51		11		94.0	

Not seen later
Limit of visibility —

21	05	24		78.6
	20	31	16.9	95.5
21	15	38	19.0	77.0
		47	18.0	96.0

+ 4.0

A. & A. 952.

13	33	20.5
	34	20.5

B. 394.

13	33	0.0
	34	0.0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Apr. 9. 1899.

16 16 −19.2
IV 3.2
−3.2
11 22

Power 270

a seen
b "
c thought to be seen at intervals by indirect vision and moving region in field. back and forth.
d thought to be faintly seen.
f not ~~seen~~. certainly seen.
IV 0 g seen
h "
l k not seen
Other adjacent faint stars not seen.
~~f~~

Nothing more seen with higher power.

The above is an experiment in order to see whether a star as faint as the new Sat. of Saturn could be seen. W. W.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

Apr. 9. 1899.
Nova Sagittarii. Phot. I. Sr. obs.
Same comp. star as before. =
= SD −13° 5200 (9.0)
1 & 1 −13.0

Copied.
Ledgered.

Index above
12.1

15 43.4 58.2 46.1
12.4 45.3 +1.8F
57.7 91.4

+1.86

~~+4.1~~
13.1
58.7 45.6
12.2 47.0 +1.84
92.6

59.2
Index below
100.0
150.8 50.8
99.6 52.5 +1.58
152.1 103.3

+1.54

99.8
151.3 51.5
54.6 +1.51
106.1

~~20 54.1 Gr. M. Trans. 99.2~~
20 46.1 Gr. M. Trans 153.8

Mean = 1.70

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

Apr. 9. 1899.

Index below.

Same Again.

100.9

1V V2.0 154.8 53.9 ~~Copied~~ Ledgered

~~102.2~~ 52.1 Ledgered

100.8 106.0 +1.51

152.9

+1.52

99.0

~~151.8~~

153.1 54.1 +1.52

100.8 51.7

152.5 105.8

Index above

191.1

241.6 50.5 +1.72

193.0 46.8

~~238.5~~ 97.3

239.8

+1.76

~~194.1~~

193.9

16h 00m.1 239.9 46.0

193.2 46.6 +1.79

20 55.0 Sid. M. Time. ~~245.7~~ 94.6

~~243.1~~

241.8

Mean = +1.64

Watch used in above phot. meats was 59. secs. slow.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 10, 1899 (Monday)

Selection and measurements of
Comp. Stars for — Puppis.

8 00 -21.7 W. Obs.
8 41
0 41

Relative Estimates.

h 5.5 k
k 5 l
l 4.5 m
m 4.5 n
n 2.5 o
o 3 p
p 3 q

/ 45.0

Copied

See Next Page for Meas. of Comp Stars.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 10, 1899

Comparison Stars for – Puppis.

Star p compared with (8.9)

Comp. Star = SD. -22° 2152 (8.9)

297.5 Copied

8 04.5 315.5 18.3

295.5 16.0 +4.11

314.5 34.3

Right & Above

300.2 +4.23

314.3 14.1

299.5 16.6 +4.35

316.1 30.7

27.6

45.8 18.2

25.3 15.2 +4.17

43.5 33.4

Left & Below.

+4.15

29.0

44.5 15.5

25.2 17.1 +4.20

45.3 32.9

8 12.5

13 F.5 G.M.T.

mean = +4.20

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 10, 1899.

-Puppis

Star E compared with (8.9)

δ 14.5

Left + Below

35.3	Epoch.	
46.1	20.8	
25.8	21.8	+3.63
47.6	+2.6	
		+3.66
25.8		
47.4	21.6	
26.8	19.7	+3.70
46.5	+1.3	

Right + Above.

115.8		
135.9	23.1	
114.6	24.4	+3.39
139.0	+7.3	
114.5		+3.42
137.3	21.8	
115.2	24.1	+3.46
139.3	+5.9	

δ 22.5

13 1 F.5 Gr. M. Time.

Mean = +3.54

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 10, 1899.

— Puppis Continued

Star m compared with (5.9)

Right & Above. Copied

	115.2		
F 24.0	138.5	23.6	
	115.6	23.3	+3.41
	138.9	46.9	
			+3.40
	115.2		
	138.9	23.7	
	115.4	23.7	+3.39
	139.1	47.4	

Left & Below

	205.2		
	228.5	23.6	
	203.6	25.2	+3.20
	231.5	51.6	
			+3.27
	205.6		
F 35.0	231.2	25.6	
13 29.5 Dr. M. Time	206.2	22.9	+3.34.
	229.1	48.5	

Mean = +3.34

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 10, 1899

Star in comp. with (5.9)

Left & Below

Copied.

	203.5		
5 37.0	232.9	29.1	
	200.5	32.2	+2.51
	233.0	61.3	
			+2.54
	203.5		
	233.2	29.7	
	202.5	30.0	+2.55
	232.5	59.7	

Right & Above

	292.1		
	320.2	28.1	
	292.0	28.6	+2.99
	320.6	56.7	
			+3.00
	292.3		
5 +5.0	320.0	27.7	
13 +1.0 Gr. M. Time	292.5	28.4	+3.01
	321.2	56.1	

Mean = +2.92

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 10, 1899.

— Puppis Continued

Star 1 Comp. with (5.9)

Right + Above

Copied

290.0

323.0 33.0

8 46.5 291.1 31.1 +2.71

322.2 64.1

+2.67

290.2

322.5 32.6

290.0 33.5 +2.63

323.5 66.4

Left + Below

21.0

54.2 33.2

20.0 34.0 +2.60

54.0 67.2

+2.60

20.2

8 53.5 54.3 34.1

13 50.0 Gr. M.T. 20.5 33.2 +2.60

54.0 67.3

Mean = +2.64

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 10, 1899.

— Puppis Continued.

Star 2 comp. with (5.9)

~~Left Below~~ ~~Behind~~.

9 0.0	4.0		
	69.4	65.4	
	6.7	57.8	+1.12
	64.5	123.2	
	4		
			+1.10
	5.5		
	66.4	60.9	
	4.8	65.0	+1.07
	69.8	125.9	
	~~Right Above~~		
	10.1		
	92.5		
	155.2	63.7	
	95.0	64.6	+0.97
	159.6	130.3	
			+0.94
	93.0		
9 07.0	159.1	66.1	
14 3.5 Gr. M. Time.	92.5	66.6	+0.92
	159.1	132.7	

Mean = +1.02

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 10. 1899

— Puppis Continued

Star h compared with (E 9)

Right. ~~Equid.~~

	99.1		
9 09.0	155.0	55.9	
	99.3	52.7	+1.45
	152.0	108.6	
			+1.50
	101.3		
	152.3	51.0	
	100.0	52.9	+1.56
	152.9	103.9	

Left

	190.0		
	245.2	55.2	
	190.1	53.9	+1.44
	244.0	109.1	
			+1.44
	189.6		
9 16.5	243.9	54.3	
14 12.F Gr. mTime.	190.0	54.6	+1.44
	244.6	108.9	

mean = +1.47

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 10, 1899.

Means of Comp. Stars for
R Sextantis

9 31 -5.8
11

Abandoned

Comp Stars for S Ursa Minoris

15 49 +75.2
11 30

4 19
7 41

11 42
4 7
7 53

See next page for means.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 10, 1899.

Comp. Stars for δ Ursa Min.

Comp. Star +79° 519 (9.0)

Star a Comp with

Above

Comp. Star	Star			
	250.5			
10 37.5	333.5	53.0		
	251.1	51.4	+1.55	
	332.5	104.4		
				+1.63
	253.5			
	330.4	46.9		
	251.4	51.0	+1.71	
	332.4	97.9		

Below

	10.5			
	63.6	42.5		
	12.0	50.5	+1.52	
	62.5	93.6		
	13.4			+1.72
10 46.0	61.6	48.2		
15 41.5 Gr. M. Time	1.4	53.4	+1.62	
	64.5	101.6		

Mean = +1.65

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 10, 1899.

Comp stars for S. Ursa Minoris

Star b comp with

~~10 47~~	Below		
	12.6		
10 47.5	61.0	48.4	
	13.6	47.4	+1.76
	61.0	95.8	
			+1.77
	12.5		
	60.6	47.5	
	13.0	47.8	+1.77
	60.8 5	95.6	
	above		
	102.5		
	150.2	47.7	
	102.7	51.0	+1.69
	153.7	98.7	
			+1.66
	102.4		
10 54.0	153.4	51.0	
15 50.5	Gr. Mn Time 0 2.2	50.4	+1.62
	152.6	101.4	

Means +1.72

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 10, 1899

~~Intensity~~ Comp Stars for S Ursa Min Cont.

Star C comp with.

		Above		
		112.5		
10	55.5	140.7	2F.2	
		111.0	30.1	+2.93
		141.1	5F.3	
				+2.92
		111.2		
		140.9	29.7	
		112.0	2F.F	+2.92
		140.8	5F.5	
		Below		
		202.5		
		231.3	2F.F	
		202.3	29.5	+2.93
		231.8	5F.3	
		~~202.4~~		+2.94
11	03.5	231.8	29.4	
+8	59.5 Sh. M. Time	202.0	2F.2	+2.95
15		231.2	57.6	

Mean = +2.93

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 11, 1899 (Tuesday)

Eros.

4 00 +20.5

8 35

4 05

asteroid precedes star a

3.5

4.0

3.8

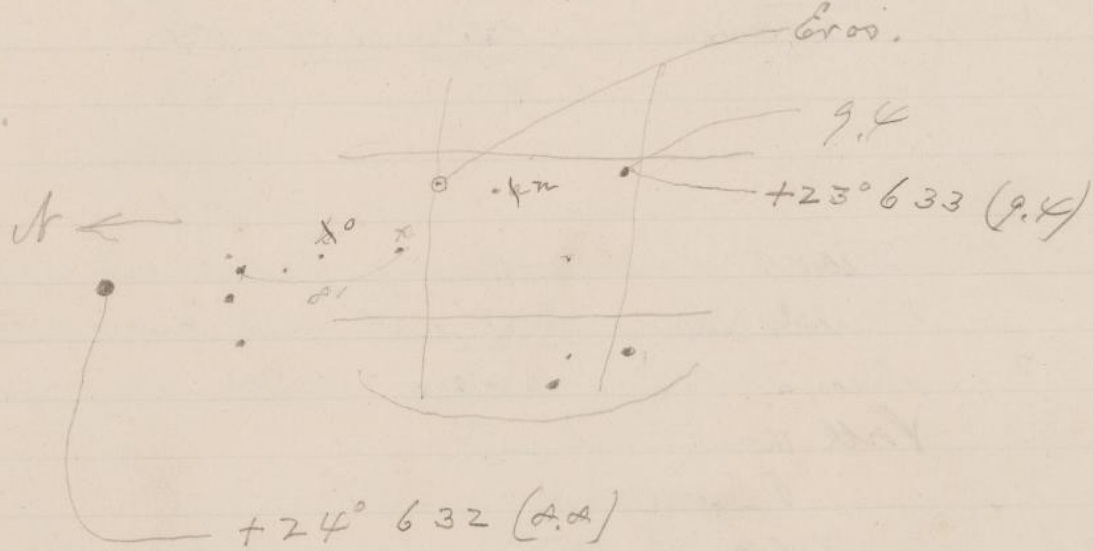
3.6

3.5

14.4

3.6 A

7 +20.0



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 11, 1899

Eros Continued.

Asteroid follows (9+) magn star 8 secs, and is 10' North

Asteroid follows comp. star a
1.5
8 11 1.5
1.4
1.6
1.7

a 12 a 4.5 eros, eros 12 0

Asteroid now extremely faint, but approximate show that asteroid now follows
5 35.0 star a 5 in 6 secs. and is also farther North than at first.

Region low.

Impossible to measure asteroid with photometer.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 11, 1899.

Meas of Comp. Stars for
— Puppis.

8 00 −21.7

11 09

3 09

Right Star In comp with (5.9)

95.2

9 53.0 153.0 56.8 Copied

97.4 55.8 +1.36

153.2 112.6

+1.36

95.6

153.5 54.9

95.0 57.0 +1.37

155.0 111.9

Left

190.0

247.0 57.0

159.0 57.0 +1.33

246.0 114.0

+1.32

1905

246.4 55.9

158.5 55.5 +1.32

247.0 114.4

18 00.0

9 113.0

9 56.5

5

14 56.5 Gr M Time.

Mean = +1.34

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 14, 1899

Comp Stars for Purpose

Stars Comp with (F.9)

Left of Above

1835

10 01.0 250.3 66.5 Copied

253.0 67.8 +0.89

250.8 134.3

+0.88

253.0

251.0 68.0

252.6 67.9 +0.86

250.5 135.9

Right of Below

274.2

340.4 66.2

273.6 66.6 +0.88

242.2 134.8

275.2 +0.94

10 08.0 340.2 65.0

15 04.5 2 m. Pino 275.4 64.4 +0.99

339.5 129.4

Mean = +0.91

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 11

Comp Stars for ~~Boffin~~
S Musa Min.

15 49 +78.2
12 07 Copied
3 42
8 15

Stars Compared with

Above			
	111.0		
10 49.0	141.9	31.7	
	113.5	28.5	+2.85
	142.0	60.2	
			+2.86
	111.5		
	141.6	30.1	
	111.7	29.3	+2.88
	141.0	59.4	
Below			
	202.0		
	230.5	28.5	
	200.2	30.0	+2.91
	230.2	58.5	
			+2.88
	200.5		
10 55.5	232.0	31.5	
	201.7	28.5	+2.86
15 52.2 G.M.T.	230.2	60.0	

Mean = +2.87

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 11, 1899

Comp Stars for L. Ursae Minoris

Star B comps with

Below Objects.

Comp. Star = Dec +78° 5'9 (9.0)

		163.0	193.5		
10	56	5	240.5	240.2	+6.7
11	13.	0	146	191.0	51.5
			242.0	242.5	98.2
					+1.70
			196	191.0	
			245	241.2	50.2
			195	192.5	47.7
11	17	0	240.0	240.2	97.9
					+1.71

Above

			255.0		
11	06	0	331.0	46.0	
			252.1	52.0	+1.71
			334.1	98.0	
			252.0		+1.72
11	05.	0	333.0	51.0	
11	44.	0	254.0	46.5	+1.72
16	11.	0	330.5	97.5	

Gr. M. Time,

mean = + 1.71

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Apr. 11. 1899.

A. & D. 95A			B. 39K.		
12	16	24.0	12	16	0.0
	+4			+4	0.0
	12	24.0		12	0.0

Dis of Jup. I. Phot. R. W. Obs.
Colson Recorder

Compared with nearer of two sats. on following side = sat III

Seeing fairly good.
Chronometer Correction = - 28 secs.

12 28 44	12	28	20		137.8
-28			39	80.0	217.8 1
12 28 16			50	78.0	137.0
		29	02	79.0	215.0 +0.4
29 31			10		137.8
-28			26	79.1	216.9
29 03			38	78.2	139.8 2
			46	78.6	218.0 +0.4
			57		138.0
30 10		30	04	80.0	218.0
-28			15	80.2	137.4 3
29 42			24	80.1	217.6 +0.4
			35		139.0
			42		218.0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Apr. 11. 1899

12 30 46		45	79.0			
28			80.2	138.3		
30 28		59	79.6	218.1	4	(+0.4)
	31	01		137.0		
31 17		13	81.0	218.0		
-28		20	77.5	137.7		
30 49		29	79.2	216.2		(+0.4)
31 48		31		140.0		
-28		476	74.8	214.0		
31 20		12	79.8	139.0		
		59	76.9	218.8	6	(+0.5)
32 16	32	01		139.9		
31 48		11	76.9	216.2		
		19	76.0	141.0		
		27	76.2	217.0	7	(+0.5)
32 49		38		140.8		
-28		46	77.2	218.0		
32 21		12	78.4	138.1		
	33	00	77.8	216.9		(+0.5)
33 16		01		139.0	8	
-28		12	81.0	220.0		
32 48		18	78.9	135.2		
		27	80.0	214.1		(+0.4)
33 47		34		139.0	9	
-28		41	79.2	218.2		
33 19		12	80.8	138.0		
	34	01	79.5	218.8		(+0.4)
33 40		08	78.7	138.0		+0.4
40		13	74.9	216.7		+0.6

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Apr. 11. 1899.

12 33 51		19	74.3	141.8	+0.6
57		21	75.1	216.1	+0.6
34 03		31	76.3	141.0	+0.5
10		38	75.5	217.3	+0.6
16		44	70.0	141.8	+0.8
21		49	69.0	211.8	+0.8
27		53	67.3	142.8	+0.9
32	35	00	68.4	210.1	+0.8
38		06	70.5	141.7	+0.8
44		12	66.4	212.2	+0.9
52		20	64.6	141.8	+1.0
57		25	64.4	210.4	+1.0
35 00		33	60.8	146.0	+1.2
12		40	56.8	206.8	+1.3
17		44	55.0	150.0	+1.4
23		47	55.0	205.0	+1.4
28		56	55.2	150.0	+1.4
		~~01~~			
37	36	01	51.2	205.2	+1.6
44		12	49.1	154.0	+1.7
51		19	51.3	203.4	+1.6
57		25	44.9	151.8	+1.9
36 02		30	36.3	196.7	+2.4
08		36	35.4	160.4	+2.5
12		40	34.6	195.8	+2.5
18		46	29.8	161.2	+2.9
26		54	27.5	191.0	+3.1
32	37	00	25.7	163.5	+3.2
40		08	24.2	189.2	+3.3

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

Apr. 11. 1899

12 36 46	37	14	24.2	165.0	+ 3.3
55		23		159.2	

Not seen later.

Limit of Visibility.

37 49		24		163.8
-28		45	27.2	191.0
37 21		54	26.6	164.1
	38	02	26.9	190.7 + 3.1

Bond #394 $13^h\ 40^m\ 00^s.0$ = Arnold + Dent # 958 $13^h\ 40^m\ 28^s.2$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 13, 1899. (Thursday)

Com. Min. W. Obs.

7 32 +5.6

9 17

1 45

Estimates on Comp. Stars.

a 6 b

b 6.5 c

c 6.5 d

d 2 e

e 4 f.

f 5.5 g

f 10

Copied.

V Canis Minoris

6 56 +5.5

10 02

9 06

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 13, 1899.

Comp. Stars for — Puppis

8 00 +21.7
10 27
2 27

h 5 k
4.5 l
l 5 m
m 5 n
m 2.5 o
o 4.5 p
p 3 q

8. 50

Copied.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 13, 1899

Comp. Stars for — Puppis. Continued

Star 5 comp. with (5 9)

Right & Above

	296.5		Copied
8 59.0	317.6	21.1	
9 00.0	297.5	20.0	+3.71
	317.5	+1.1	
			+3.70
	296.5		
	317.2	20.7	
	296.5	20.5	+3.70
	317.0	+1.2	

Left & Below

	26.5		
	47.5	21.3	
	27.0	21.6	+3.61
	48.6	+2.9	
			+3.70
	25.2		
9 06.0	45.2	20.0	
12 02.5 Gr M Time	26.6	19.6	+3.79
	46.2	39.6	

Mean = +3.70

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 13, 1899

Comp. Stars for – Puppis Continued.

Star m compared with (F.9)

Left & Below

	25.6	~~25~~	Copied
9 07.5	45.8	20.2	
	26.4	19.6	+3.7F
	46.0	39.8	
	27.0		+3.8F
	46.0	19.0	
	25.4	19.7	+3.8F
	45.1	38.7	

Right & Above

	116.0		
	137.4	21.4	
	115.8	22.0	+3.8-9
	137.8	43.4	
	114.4		+3.85
9 15.0	136.8	22.4	
14 11.2 2 M. Tauri	115.0	22.6	+3.8/
	137.6	45.0	

mean = +3.6F

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 13, 1899

Comp Stars for Puppis. Continued

Star m comp. with 5.9

6 Speed

Right & Above

	112.2		
9 16.0	139.2	27.0	
	111.0	29.5	+3.00
	140.5	56.5	

+2.96

	111.0		
	140.0	29.0	
	111.5	29.1	+2.93
	140.6	58.1	

Left & Below

	202.7		
	235.0	32.3	
	202.4	32.7	+2.68
	235.1	65.0	

+2.70

	201.0		
9 23.5	233.5	32.5	
	201.4	31.2	+2.73
14 20.5 Gr. M. Time	232.6	63.7	

Mean = +2.53

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 13, 1899.

Comp. Stars for – Puppis Continued

Star Comp. with (5.9)

Left & Below

Copied.

	195.2		
9 25.0	236.6	41.4	
	195.5	39.1	+ 2.15
	237.6	80.5	
			+ 2.21
	195.4		
	236.3	35.9	
	196.2	42.6	+ 2.24
	238.8	78.5	

Right & Above

	255.0		
	326.5	35.5	
	257.8	38.0	+ 2.30
	325.8	76.5	
			+ 2.26
	257.0		
9 37.0	326.8	39.8	
14 32.5 Gr. m Tuc.	257.6	39.7	+ 2.21
	326.3	79.5	

Mean = + 2.24

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 13, 1899.

Means of Comp Stars for R Sextantis.

V. Oh 2.

Comp Star = (5.2)

9	31	-5.8
11	22	
1	51	
9	31	-5.5
11	37	
2	03	
9	35	-7.3
2	02	
2	27	

See Next Page For Measurements.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 13, 1899.

Comp. Stars for R Leptantis.

Star Y compared with E.2

Left & Above

Copied

	97.0		
10 25.5	155.2	58.2	
	92.2	62.8	+1.17
	155.0	121.0	
			+1.16
	92.0		
	156.6	64.6	
	97.0	57.8	+1.14
	154.8	122.4	

Right & Below.

	156.0		
	243.0	57.0	
	153.6	63.5	+1.15
	247.1	120.5	
			+1.12
	154.0		
10 37.0	249.3	65.3	
15 32.8 Greenwich time	155.6	60.7	+1.06
	249.3	126.0	

Mean = +1.14

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 13/1899.

Comp Stars for R Lextantis Continued.

Stars comp. with (5.2)

Right & Below

210.3

10 39.5 224.4

210.0

223.9

209.6

224.0

210.0

225.2

Left & above

300.0

313.9

300.3

313.2

300.2

10 47.0 313.0

~~10 43.2 Gr M~~ 300.0

313.3

Wrong star measured.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 13, 1899

Comp Stars for R Sextantis Continued

(mw)

Stars comp with (52)

Left & above

Copied

	295.9			
10 49.0	316.3	15.4		
	299.0	17.4		+4.01
	316.4	32.8		
				+4.02
	295.8			
	316.2	17.4		
	295.0	17.9		+4.04
	315.9	35.3		

Right & below

	27.6			
	45.1	17.5		
	27.5	16.7		+4.11
	44.5	34.2		
				+4.08
10 55.0	27.7			
	45.5	17.8		
15 03.5	Gr M Tau 27.2	17.6		+4.04
	44.8	35.4		

Mean = +4.05

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 13/1899

Comp Stars for R Leporis Continued
(Lambda)
Star λ comp. with (5.2)

Below & Right

Copied

11 00.0	23.1		
	25.9	22.5	
	24.7	22.3	+3.50
	27.0	25.1	
			+3.52
	24.8		
	27.5	22.7	
	24.9	21.4	+3.53
	26.3	24.1	

Above & Left

	1143.		
	139.2	24.9	
	114.0	26.5	+3.20
	140.5	51.7	
			+3.15
	113.4		
11 07.0	140.5	27.4	
16 3.5 Th in Trines	114.5	25.0	+3.17
	139.5	52.4	

Mean = +3.33

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 15, 1899 (Saturday)

Eros.

4 13 +24.0
9 19
5 04

Eros not certainly seen.
Regions rather low; ~~very light~~ & twilight and moonlight also, & some haze.

N. Cephei.
Phot 7. W. 6ts

0 30 +5'.7
10 15
9 45

0 50 5'.1
10 20
9 30

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 15, 1899

N Ophei

Reject fol. means of N Ophei.

Very cloudy and stars varying relatively.

I

Right & Below

8	270.0		
8 49.50	345.1	75.1	
	97.0		
	159.4	62.4	0.42
	137.5		
	39.4		0.43
8	92.2		
8 51 30	157.5	65.3	
	90.0	71.2	
	161.2	136.5	0.48

Left & above

	177.0	70.0	
8 53 00	257.0		
	184.6	67.4	
	250.0	147.4	0.63
	183.6	67.4	0.63
8 54 05	251.0		
	176.3	79.7	
	256.0	147.1	0.63
			0.73

206 25

8 51 21

- 3 20

13 48 01 Gr. M. Time.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 15, 1899.

U. Cephei.

Left of above

176.3

9 12 20	255.0	54.7		x
	177.0	50.5	− 0.34	
	207.5	162		

Clouds.

	182			−0.44 x
9 13 35	203.2	74.6		x
	178.0	77.6	− 0.54	
	255.6	156		

Right of above

265.2

9 15 35	345.5	80.6		
	270.3	727	− 0.51	x
	343.0	1533		

−0.58 x

	265.3			
9 17 30	337.3	69.0		
	265.1	765	− 0.66	x
H 19 00	Gem. T. 3 H 8.6	145.5		
9 14 45				
5 -3 20				
14 11 25	Gem. Time			−0.51 x

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 15, 1899.

U Ophei

Right & above
267.0 Clouds thick.
9 22 40 345.0 51.0 −0.39 *
268.7 78.3
347.0 Clouds thick. 1593
Stars gone −0.43 *

Stars gone 269.5
9 26 10 345.0 73.5 −0.48 *
265.0 79.2
344.2 1527

Left & Below
357.0
9 27 50 75.0 78.6
0.9 71.9 −0.58 *
72.2 1499

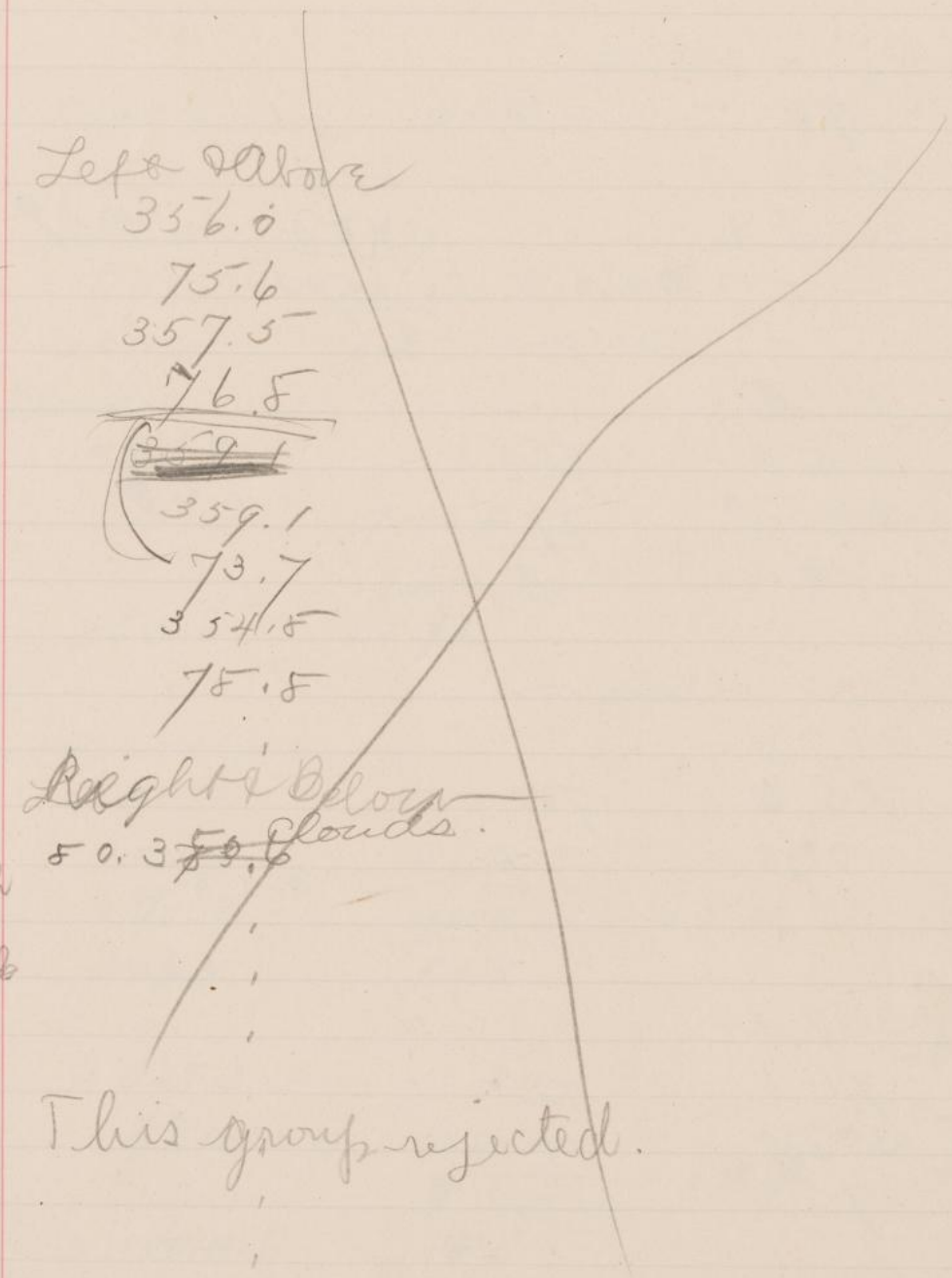
359.0 −0.56 *
9 29 20 71.5 72.8
26 00 356.0 79.3 −0.53 *
75.3 1521
9 26 40
5 3 20
14 29 20 Gr in Time −0.59

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.1

April 15, 1899

ν Cephei



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 15/1899

U. Ophei

Right & Below

78.1
9 50 15 175.0
80.2
171.5
X
Clouds thick. x78.5
9 57 50 170.0
Clouds thick. 78.3
1740

Left & above

Clouds thick
9 5

Reject Above.

Troubled throughout by increasing clouds. Settings much of the time difficult and some of the time somewhat uncertain.

Bliss & Creighton 3m 19.5 secs fast & Bond 394

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 15, 1899

Σ 2010
1623 +17.4 W Ltz.
12.13
4.10
7.50

Clouds thick in this region.
Abandoned.

Σ 2078 W Ltz.

1623 +53.2
1215
415
742

Abandoned Cloudy

Σ 1065 W Ltz.

713 +50.4
1223
510
713
1230
517

Abandoned Cloudy

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 15 1899

Σ 872

Phot. R.

6 07 +36.2 W. Obs

1236

559

Position angle 95°. Distance 62 secs.

Magns. 7.5 & 9.0.

Above

1535

10 57.0 200.0 46.2

147.0 59.5

206.5 105.7 − 1.52

150.0 − 1.52

204.0 54.0

150.4 51.4

201.8 105.4 − 1.58

Below

243.0 Mean = 1.56

291.2 48.2

240.2 52.8 − 1.63

293.0 101.0

241.5 − 1.60

294.0 52.2

241.0 51.0 Watch 2.5 m. slow.

292.0 103.2 − 1.58

11 03.0

120.0

11 00.0

+2.5

11 2.5 Slight haze. Sky not clear in this region.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 17, 1899 (Monday)

S Canis
8 35 +19.6
9 10
0 42
Phot T. (W lb) I.

	Above			
var. dis.	216.3	All these Observations Ledgered, Plotted,		
7 20 50	287.3	71.0	and Copied.	
	220.4	59.6	-0.97	
	280.0	130.6		
				-0.96
	219.3			
7 22 34	280.8	61.5		
	215.3	70.2	-0.94	
	285.5	131.7		
	Below			mean = -0.91
	303.6			
7 24 59	16.3	72.7		
	310.3	61.9	-0.88	
	122	134.6		
				-0.86
	309.3			
7 26 34	14.3	65.0		
14 37	304.3	72.0	-0.83	
7 23 44	16.3	137.0		
5 -50				
12 22 54	Gr M Times	4762.5159	9.4845	
		4753.2502	9.2357	
		+9.2357	-0.2488	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17, 1899

S Cancri.

II

Below

305.6

7 30 20 16.2 70.6

307.4 64.7 -0.57

12.1 135.3

-0.59

305.0

7 32 12 12.2 64.2 -0.91

307.0 69.0

16.0 133.2

mean = -0.84

Above

33.1

7 35 35 106.1 73.0

37.2 65.6 -0.80

102.5 138.6

36.2 -0.80

7 37 17 1047.2 68.0

34.2 71.1 -0.79

15 24 105.3 139.1

7 33 51

5 -30

12 28 01 Yr M Time.

+762.5229 9.4843

+753.2502 9.2427

+9.2427 -0.2416

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 17, 1899.

S Cancri

III

Above

36.2

7 42 34 106.2 70.4

35.6 68.1 -0.F0

103.7 13F.5

-0.F1

37.6

44 40 105.1 67.5

35.7 70.3 -0.F2

106.0 137.F

Below

122.3

47 06 196.2 73.9

128.2 65.6 -0.7F

193.8 139.5

127.5 -0.79

49 00 192.F 65.3

123.7 73.3 -0.F0

197.0 13F.6

23 20

7 45 50

-5 0

12 45 00 Gr. M. Time.

Mean = -0.F0

4762.5313

4753.2F02

9.4F43

9.2511

+9.2511

-0.2334

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17, 1899

~~L Canis.~~

IV

	Below			
	122.1			
γ 5309	197.5	75.4		
	125.6	660	-0.75	
	194.6	141.4		
				-0.79
	127.8			
5553	193.5	65.7		
	125.3	71.7	-0.83	
	197.0	137.4		
	Above			
	214.2			
5806	287.3	73.1		
	216.5	665	-0.75	
	2833	139.9		
	2167			-0.79
5953	2845	678		
	215.6	70.9	-0.80	
27 01	287.3	1357		
γ 56 45	286.5			
5- -5-0				

mean = -0.79

12 55- 55 G.M.Time

4762.5355	9.4545
4759.2502	9.2546
+9.2546	-0.2259

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17, 1899

S Cancri.

V.

			Above		
			213.9		
04	03	23	285.1	74.2 ×	
			214.9	69.1	-0.71
			284.0	143	
					-0.76
			218.0		
	05	15	282.8	64.8 ×	
			214.9	73.1	-0.82
			288.0	137.9	
			Below		
			303.5		
	05	05	18.0	74.5 ×	
			305.5	69.6	-0.69
			15.4	144.1	
					-0.66
			305.1		
	10	13	17.2	72.1 ×	
			303.2	74.5	-0.64
			18.0	146.9	
	26	56			
5	04	44			
5		-50			
18	03	54	Sid. Time		mean = -0.71

4762.5443	9.4845
4753.2502	9.2641
+9.2641	-0.2204

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17, 1899.

VI.

Below

	302.5		
E 15 11	15.6	75.8 *	
	305.5	72.0	-0.62
	17.5	147.8	
	303.1		-0.61
16 42	17.9	74.2 *	
	304.0	74.3	-0.60
	15.3	148.5	

Above.

	38.0		
19 23	107.6	74.6 *	
	35.0	71.5	-0.65
	106.5	146.1	
	35.2		-0.66
21 37	107.5	72.3 *	
	33.6	73.2	-0.66
	106.8	145.5	

72 55

E 15 14

5 - .50

13 17 24 Geo M Tuttle

Mean = -0.64

4762.5535	9.4545
4753.2502	9.2736
+9.2736	-0.2109

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17, 1899.

S Canoris.

VII

Above

34.1

8 36 09 106.8 72.7

36.1 72.5 -0.67

108.6 145.2

-0.65

34.0

25 12 107.5 73.5

33.5 73.5 -0.63

107.3 147.0

Below

31 55 121.3

32 00 201.2 79.9

121.2 74.1 -0.50

198.3 154.0

-0.52

125.2

33 40 198.0 72.8

119 56 120.8 78.8 -0.54

8 29 59 20.1 167.6

5- -5.0 199.6

13 29 09 G.M.T. mean = -0.58

#762.5619 9.4845

#753.2502 9.2817

+9.3117 -0.2028

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 17, 1899

VIII.

Below

	119.9		
α 36 3	200.8	80.9 *	
	123.8	74.7	-0.47
	195.5	155.6	
	123.8		-0.48
3818	197.9	74.1 *	
	120.2	50.2	-0.49
	300.4	154 3	

Above

	212.8		
4116	289.0	76.2 *	
	215.7	71.3	-0.62
	287.0	147.5	
	213.9		-0.60
4316	286.8	72.9 *	
	213.0	76 2	-0.59
	289.2	149.1	

Mean = 0.54

1539 21		
δ 39 50		
-50		
18 39 00	Gr. M. Time.	
#76	2.5-6FF	9.4F45
#77	3-3.2F02	2.2FF6
	+9.2FF6	-0.1959

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17, 1899

S Cancri.

IX

Above

212.5

8 46 49 257.8 75.3

215.2 71.3 -0.64

286.5 146.6

213.3 -0.63

45 18 256.0 72.7

213.2 75.0 -0.62

255.2 147.7

Below

300.0

51 40 21.6 51.6

301.1 77.2 -0.39

19.0 159.5

301.4 -0.38

52 58 19.9 75.5

19945 295.6 52.5 -0.36

8 49 56 21.1 161.0

5 -0.0

13 49 06 Gr. M. Time.

4762.5758 9.7243

4753.2502 2.293-6

79.2956 -0.1859

Mean -0.50

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17 1899.

S. Cancri.

X

Below

8 57 38	300.2		
	23.0	F 25	
	301.6	79.9	-0.33
	21.5	1627	
			-0.32
	300.0		
59 18	20.2	F0.2	
	298.2	F3.6	-0.31
	21.8	163.F	

Above

9 06	31.1		
9 01 51	110.6	79.0	
	31.0	79.1	-0.41
	110.1	158.6	
			-0.40
	31.0		
03 03	111.5	F0.5	
241 50	31.6	79.3	-0.36
9 00 28	110.9	159.8	
5 50			

#1359 3F Greenwich. mean = -0.36

4762.5F30	9.4845
4753.2F02	9.3028
+9.3028	+.01817

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17, 1899

S Cancri.

Phot T. Wells XI

	Above			
9 — 0	31.8			
9 05 53	109.6	77.8		
	30.1	F1.7	-0.40	
	111.5	159.2		
				-0.39
	X30.3			
05 03	170.3	F0.0		
	30.0	F0.3	-0.35	
	110.3	160.3		
	Below			
+	120.0			
10 50	201.2	F1.2		
	115.6	F4.2	-0.25	
	202.8	165.4		
	117.3			-0.24
12 07	204.0	F6.7		
36 53	120.1	F2.9	-0.20	
9 09 13	203.0	169.6		
5 — .50				
				Mean = -0.32
14 05 23	Gr. M. Time			
4762.5892	9.4845			
4753.2802	9.3090			
+9.3090	-0.1755			

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17, 1899

S Cancri.

XII.

Below

	120.6		
9 16 42	204.6	84.0	
	120.5	84.3	-0.22
	204.8	168.3	
			-0.20
	119.3		
18 27	205.0	85.7	
	119.4	85.4	-0.19
	203.8	170.1	

Above

	211.4		
21 25	290.1	78.7	
	208.8	83.5	-0.34
	292.3	162.2	
			-0.32
	208.8		
23 07	291.6	82.8	
	210.8	82.2	-0.29
	292.0	163.0	

79 41
9 5 - 19 50 - 3 0

mean +0.26

14 19 00 Gr. M. Time -

4762.5965	9.4454
4773.2802	9.3163
+9.3163	-0.1291

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 17. 1899

δ Cancri.

XIII.

	Above			
	208.5			
9	~~30 45~~	292.4	53.6	
	31 00	208.3	54.7	-0.22
		293.0	168.3	
		207.9		-0.23
	32 53	292.1	54.2	
		209.0	53.3	-0.24
		292.3	167.5	
	Below			
		295.0		
	35 15	23.5	55.5	
		295.5	59.1	-0.09
		24.6	174.9	
		294.5		-0.06
	37 17	24.4	59.9	
		296.0	58.5	-0.02
		24.5	178.7	
	1625			
	9 34 07			
	5 ~~30~~			
	14 33 17	Sidereal Time.		
	4762.6066	9.4543		
	4753.2502	9.9264		
	+9.3564	-1.5279		

mean = -0.14

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17 1899

Cancri.

XIV

Below

295.9

9 [illegible] 26.3 904

9 44 00 295.7 89.3 −0.01

25.0 179.7

−0.02

296.0

45 55 27.3 883

295.0 90.2 −0.03

25.2 1785

Above

29.5

48 48 113.6 84.1

25.2 90.1 −0.11

115.3 174.2

−0.11

27.0

50 27 115.3 85.3

28.4 889 −0.11

1890 114.3 174.2

9 47 18

5 −50

1446 25 Greenwich mean = −0.06

4762.6185 9.4843

4753.2502 9.3353

9.3353 −0.1490

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1369

200

April 17, 1899.

S Cancri

XV.

	Above			
	26.2			
10 00 26	116.0	59.5		
	25.4	90.5	+0.01	
	116.2	150.6		
		179.4		
	25.5		+0.02	
02 12	116.2	90.7		
	26.2	90.2		
	116.4	150.9	+0.02	
		179.1		
	Below			
	115.9			
05 25	206.4	90.5		
	115.1	92.7		
	207.5	153.2	+0.06	
		176.5		
	115.5		+0.07	
07 15	207.4	91.9		
	114.6	92.5		
15 38	207.1	154.4	+0.05	
10 03 54		175.6		
5 50				
15 03 04	Sum Twins		Mean = +0.04	
4762.6272		9.4543		
4753.2503		9.3470		
9.3769		=0.1073		

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17 1899

L Cancri.

XVI.

Below

10 10 17 2 115.1
2050
114.5
205.7

92.9
93.9
186.8
173.2

+0.13

114.2.

+0.14

1234 205.8
115.5
209.3

94.6
93.8
188.4
171.6

+0.16

Above

205.2
16 16 296.5
204.3
295.3

91.3
94.0
185.3
174.7

+0.10

~~295~~
~~205~~
20 46 205.1
296.1

205.5
295.0
91.0
186.5
173.5

+0.11

+0.12

59 50
10 14 58
5 -50
15 14 08 Greenwich.

4762.6348 Mean = +0.12
4735.2502 9.4540
+9.3546 9.3546
-0.1299

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 17, 1899.

δ Canis.

XVII

	Above			
	203.0			
10 27 20	295.0	93.0		
	203.4	94.9	+ 0.15	
	295.3	187.9		
		171		+ 0.18
	202.4			
28 45	295.4	96.0		
	204.5	94.5	+ 0.20	
	299.0	190.5		
		169.5		
	Below			
	292.0			
30 46	300	95.0		
	291.3	99.0		
	303	197.0	+ 0.32	
		163.0		
	290.7			+ 0.32
32 24	30.4	99.7		
11 9 15	291.F	97.F		
10 29 49	29.6	197.5	+ 0.33	
5	5.0	162.5		

15 25 59 Greenwich Time

4762645	9.45745
4753.2502	9.36449
+9.36449	-0.11196

Means = + 0.25

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17, 1899.

S Concri.

XVII

Below

29.21

10 3402	29.4	97.3	
	29.2	101.2	+ 0.35
	30.4	198.5	
		161.5	

+ 0.35

	2585		
3603	30.1	101.3	
	29.8	100.4	
	30.2	201.7	+ 0.41
		1583	

Above

21.6

3525	119.6	98.0	
	20.0	100.9	+ 0.35
	120.3	198.3	
		161.7	

+ 0.34

	20.2		
	120.5		
40 09	118.7	100.3	
145 72	22.2	97.8	+ 0.34
10 37 15	120.0	198.1	
5 5.0		161.9	

15 36 25 Grinwich.

4762.6504	9.3703
4753.2802	
+9.3702	

Mean = + 0.36

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1660

April 17, 1899

S Cancri

XIX

Above

	21.2			
10 43 27	119.2	95.0	x	
	20.5	99.2		
	120.0	197.2		+0.33
		162		
	21.4			+0.35
45 09	120.5	99.4	x	
	20.5	100.0		
	120.5	199.4	x	+0.37
		160.6		

Below

Clouds

	107.2			
47 35	211.5	104.5	6	
	110.3	101.5		
	212.3	206.0	4	+0.50
		153.4	6	

Clear faint

	112.0			+0.45
49 02	211.5	99.5		
	111.3	101.0		
	212.3	200.5		+0.40
		159.2		

25 13

10 46 18

5 -.50

1545 25

Mean = +0.40

Gaussians

+762.6566	9.4840
+753.2502	9.3764
	-.1051
+9.3764	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17, 1899

S Cancri.

XX

Below

111.2.

10 58 40	212.9	101.7	
	110.4	102.2	+ 0.46
	212.6	203.9	
		156.1	+ 0.45

110.0.

52 40	212.5	102.5	
	111.0	100.4	+ 0.44
	211.4	202.9	
		157.1	

Above.

201.2

53 10	301.0	99.8	
	200.4	101.7	+ 0.41
	302.1	201.5	
		156.5	

199.5 + 0.43

57 10	302.5	102.7	
	~~200~~.5	100.7	+ 0.45
15 40	300.5	203.4	
10 53 55		156.6	
5 .50			mean = + 0.44

15 53 05 Gr. M. Time.

+768.66.9	9.8545
+780.2502	9.3517
+9.3517	-0.1025

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.13602

April 17, 1899

ι Cancri

XXI

Above

200.2

11 04 30	300.9	100.7		
	197.7	103.3		
	301.0	204.0	+0.46	
		156.0		
	1893			+0.48
06 50	302.5	104.2		
	199.9	102.4	+0.51	
	302.3	206.6		
		153.4		

Below

255.0

10 10	33.2	105.2		
	257.8	105.6		
	33.4	210.8	+0.59	
		149.2		
	255.5			+0.56
12 20	32.7	104.2		
	259.5	103.5		
33 50				
11 08 28	33.0	207.7	+0.53	
5 50		152.3		

16 07 38 Sid. Time.

Mean = +0.52

4762.6719	9.48445
4703.2502	9.39117
+9.3917	-0.09328

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17, 1899

S Cancri.

XXII

Below

	255.1		
11 14 53	330	104.9	
Clouds	257.2	107.5	
Stars faint	35.0	212.7	+0.63
		147.3	
	257.1		+0.66
15 10	34.4	107.3	
	256.3	107.9	+0.65
	34.2	215.2	
		144.8	

Above

	15.0		
23 50	124.3	106.3	
	17.5	105.9	+0.62
	123.7	212.2	
		147.8	
	10.5		+0.63
23 40	1235	1050	
	18.0	105.4	
11 20 39	1234	213.4	+0.64
5	5.0	146.6	

Mean = +0.64

16 19 49 Gr. M. Time

4762.6805	9.4545
4753.2402	9.4003
+9.4003	-0.0542

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 17, 1899

f Cancri.

XXIII.

Above.

17.1

11 32 25	124.4	107.3	
	16.7	107.4	+0.67
	124.1	214.7	
		143.3	
	16.0		+0.66
34 35	123.9	107.9	
	17.4	106.5	
	123.9	214.4	+0.66
		146.6	

Below

105.0

38 15	214.2	109.2	
	105.5	105.0	
	213.5	214.2	+0.72
		142.5	
	105.2		
42 10	215.6	110.4	+0.74
145 25	106.0	109.0	
11 36 21	215.0	219.4	+0.76
5 -5 0		140.6	

16 30 31 Gr. M. Time.

mean = +0.70

4762.6914
4703.2802

+9.4112
9.4845

-0.0733

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17/1899

S Canes.

XXIV

	Below			
	104.5			
11 43 15	216.6	112.1		
	105.0	111.5		+0.F5
	216.5	223.6		
		136.F		
	105.5			+0.F3
43 05	217.0	111.5		
	105.7	110.9		
	216.0	221.F		+0.F1
		136.2		
	Above			
	195.0			
47 20	301.1	110.1		
	194.1	111.0		
	301.1	221.1		+0.F0
		136.9		
				+0.F2
	195.4			
48 35	307.3	111.9		
24 15	195.0	111.0		+0.F3
11 46 04	306.0	222.9		
5 -50		137.1		
16 45 14 Gr. M. Time.				Mean = +0.F2
476 2.6950		9.4545		
475 3.2502		9.4178		
+9.4178		-0.0667		

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 17, 1899

δ Cancri

XXV

Above

	1951.2		
11 50 25	306.0	110.5	
	194.3	112.5	+0.54
	306.5	223.3	
		136.7	
	196.0	109.5	+0.54
52 05	305.5		
	195.0	112.5	
	307.5	222.6	+0.53
		137.4	

Below

54 10	283.5	113.5	
	297.0	114.0	
	283.0	227.5	+0.93
	37.0	132.5	
	284.1	113.0	+0.92
56 00	37.1	114.0	
12 40	284.0	227.0	+0.92
11 53 10	36.0	132.0	
5 50			
16 52 20	Gr M. Trans.		
4762.7030		9.4545	
4753.2802		9.4228	
+9.4228		−0.0617	

Mean = +0.85

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 17/1899.

Bond 394	Arnold & Dent.
12 05 00	12 05 50
12 06 00	12 06 50

Chronometer used on preceding measurements on ♃ Can ☉ = 3 sec fast.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 15, 1899 (Tuesday)

Went over to West Dome and revised R. Leptantis Comp. Stars for R Leptantis. W Ulr.

9 31 −5.8
10 15
0 44

9 35 −7.4
10 21
0 46

α 4 β
β 3.5 γ
γ 1 δ
δ 5 Zeta (ζ)

δ 55

(ζ) Beta 5 Eta (η)
(η) Eta 3.5 Kappa (κ)
(κ) Kappa 4 Theta (θ)
(θ) Theta 6 λ / Lambda 25 Lambda′ (λ′)
(λ′) Lambda′ 5 μ

Opened.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 15, 1899.

Comp Stars for R Leporis.

Star λ Comp. with (F. 2)

Observed

Left & above

145.6

9 09.0 173.1 22.5

148.2 24.9 + 3.39

173.1 47.5

149.7 + 3.34

174.6 24.9

147.7 24.9 + 3.25

172.6 49.8

Right & Below

238.8

262.8 24.0

238.8 23.2 + 3.40

262.0 47.2

+ 3.39

239.0

9 18.0 262.8 23.8

239.0 23.8 + 3.38

14 13.3 262.8 47.6

2 Times.

Means = + 3.36

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360

April 15, 1899

- Can. Minoris

7 32. +5.6
11 40
4 05

Abandoned for the present.

- ℏ. Puppis.

5 00 -21.7
11 41
3 41

Rel. estimates (W Ob.)
0. 4.5 p.
p. 4 q. Copied

9 35.0

- Can Minoris

7 32 +5.6
11 47
4 15

Rel. estimates (W Ob.)
C 6 d
d 2 e Copied
e 4 f

10 00.0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 15, 1899.

R. Sextantis Resumed.

Sky some Clearer.

9 35 −7.4
12 05
2 30

Too much haze and moonlight to measure anything farther on this star.

Comp Stars for
ζ Ursa Minoris.

15 49 +78.2
12 47
3 02
8 58

1899phae.proj.1360

April 15/1899.

W. Ulbr

T Ursa Minoris

Star a Comp with (g.o)

Left & Above

Copied.

Comp ~~dist~~	131.9		
11 00.0	155.7	56.5	
	133.0	50.6	+1.48
	185.6	107.4	
	134.6		+1.48
	185.7	51.1	
	132.5	56.5	+1.47
	189.0	107.6	
Right			
	224.1		
	276.0	51.9	
	227.1	48.7	+1.64
	275.8	100.6	
	227.3		+1.67
11 05.0	274.8	47.5	
	225.0	50.8	+1.70
16 2.0 Yr. M.Trans.	275.8	98.3	

Mean = +1.58

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 1st 1899.

Dis of Jup. I. Phot. R.

W. Obs.
Colton Recorder

Compared with sat on following side
= ~~Sat~~ III.

Chronometer Correction = -0.4 secs.

14 23 24.14	23	14	314.1	
-0.4		20	84.9 39.0	1
14 24 30.x		27	80.6 320.8	
		36	82.8 41.4	+0.3
23 08.x		44	317.9	
-0.4		04	84.1 42.0	2
23 04.x	26	08	89.0 311.3	
		11	86.6 40.3	+0.1
26 28.x		18	317.4	
-0.4		23	81.6 39.0	3
26 24.x		32	79.8 318.2	
		37	80.7 38.0	+0.4
26 52.x		43	315.1	
-0.4		50	81.9 37.0	4
26 08.x		51	78.2 318.9	
	27	01	80.0 37.1	+0.4
		06	319.8	
		12	37.6	

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1999photo.proj.1360.

April 1899

14 27 16		20	78.5	317.2	
-54		26	80.2	39.2	+0.4
14 26 22		31		118.8	
27 40		38	77.3	36.1	
-54		44	79.5	317.9	6
26 46		49	78.4	37.4	+0.4
		55		319.6	
28 04	28	01	78.6	38.2	7
-54		07	76.1	319.9	
27 10		14	77.4	36.0	+0.5
27		21	80.0	316.8	+0.4
34		28	76.7	36.8	(+0.5
41		35	78.9	320.1	+0.4
49		43	82.2	39.0	+0.3
57		51	78.7	316.8	+0.4
28 04		58	72.3	35.5	+0.7
11	29	05	69.8	323.2	+0.8
16		10	68.2	33.0	+0.8
22		16	69.2	324.8	+0.8
31		25	71.0	34.0	+0.7
39		33	67.0	323.0	+0.9
		~~40~~			
54		48	65.0	30.0	+1.0
29 00		54	62.8	325.0	+1.1
06	30	00	58.0	27.8	+1.3
11		05	56.4	329.8	+1.4
18		12	55.4	26.2	+1.4
25		19	49.2	330.8	+1.7
30		24	50.0	20.0	+1.7

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 8. 1899

14 29 35	29	51.2	330.0	+1.6
42	36	43.0	21.2	+2.0
47	41	40.6	338.2	+2.2
57	51	39.0	18.8	+2.3
30 00	59	34.4	339.8	+2.5
11 31	85	34.0	14.2	+2.6
18	12	31.6	340.2	+2.7
26	20	27.3	11.8	+3.1
33	27	26.5	344.5	+3.1
46	40		14.0	

Not seen later

Limit of Visibility

32 22	32	05	340.9	
-54				
31 28				
		14	29.3 10.2	
			35.3	
		28	32.3 337.7	+2.7
		39	13.0	

Sat. disappeared very close to limb of Jupiter making observations especially at the last, some what difficult; and a little uncertain

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

April 18, 1899

The sat. disappeared almost on the edge of Jupiter.

A. & D. 9 v A.			B. 394.		
	54				
14	~~49~~	54.v	14	54	0.0
	~~55~~			~~55~~	~~0.0~~
	56	54.v		56	0.0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1992phdt.....69S

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae..proj..1360.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1899phae.proj.1360.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System