KG
11366
v.343

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June 23, 1897. (Wednesday)

S. Cephei. Phot. I. H. Obs.

21.37 +78.3
14 15
16 38
~~9. 38~~
4 38
4 48

Index above
238.8 <var. dis. 61.3 ✓
300.1 62.3 ✓
236.0 123.6 −1.11 ✓
298.3

8 19

235.8 66.5 ✓ (−1.08) ✓
302.3 59.5 ✓
240.6 126.0 ✓ −1.06 ✓
300.1

Twilight still strong.
Index below
330.1 57.7 ✓
27.8 59.3 ✓
329.4 117.0 ✓ −1.26 ✓
28.7

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1897phae.proj.1347.

June 23, 1897.

		328.5	60.5	(-1.20)
8	28	29.0	61.3	
8	23.5	328.0	121.8	-1.15
5		29.3	~~27.9~~	Mean -1.14
13	23.5			

If waited a few minutes until it grew darker before next group. Same again.

		325.5	62.3	
8	39	27.8	66.6	
		325.4	128.9	-1.00
		32.0		

325.8	63.7	(-1.03)	
29.5	62.5		
327.1	126.2	-1.06	
29.6			

Index above

54.2	68.8		
123.0	77.2		
49.0	146.0	-0.65	
126.2			

		51.0	74.8	(-0.72)
8	45	125.8	65.0	
8	42.0	55.3	139.8	-0.78
5		120.3		Mean -0.88
13	42.0			
8	50			

C 3.5 var. var 1.5 d in finder
Var = 7 in large telescope.

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1897phae.proj.1347.

June 23, 1897.

Comp. Strs. for γ Virginis Phot. I. N. Obs.

12 24 − 3.2
15 28
3 4

Zeta comp. K

Index above and left

K dis> 74.0 28.3 ✓
102.3 28.2 ✓
74.3 56.5 ✓ +3.00 ✓
102.5

9 33

73.8 29.9 ✓ (+3.04)
103.7 25.0 ✓
73.5 54.9 ✓ +3.07 ✓
100.5

Index below and right

163.7 29.3 ✓
193.0 35.0 ✓
159.0 64.3 ✓ +2.70 ✓
194.0

163.3 32.3 ✓ (+2.69) ✓
195.6 32.5 ✓
162.5 64.8 ✓ +2.68 ✓
195.0 Mean + 2.86 ✓

9 39
9 36
5
14 36

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June 23, 1897

Eta comp. with K

Index left and below

K dis >	256.5	26.0 ✓	
9 45	282.5	30.1 ✓	
	252.0	56.1 ✓	+3.01 ✓
	282.1		
	251.9	32.7 ✓	(+2.98) ✓
	284.6	25.2 ✓	
	257.8	57.9 ✓	+2.94 ✓
	283.0		

Index right and above

	345.5	27.5 ✓	
	13.0	25.0 ✓	
	348.0	52.5 ✓	+3.16 ✓
	13.0		
	343.0	29.2 ✓	(+3.14) ✓
9 50	12.2	24.7 ✓	
9 47.5	345.3	53.9 ✓	+3.11 ✓
5	10.0		
14 47.5			

Mean +3.06 ✓

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June 23, 1897

Delta comp. with 7K

Index to right

7K dis>	337.0	39.6 ✓	
9 52	16.6	46.6 ✓	
	338.3	86.2 ✓	+2.02 ✓
	24.9		

339.5	36.7 ✓	(+2.12 ✓)
16.2	42.0 ✓	
338.0	78.7 ✓	+2.23 ✓
20.0		

Index to left

70.1	37.3 ✓	
107.4	38.3 ✓	
69.1	75.6 ✓	+2.33 ✓
107.4		

65.4	43.6 ✓	(+2.18 ✓)
109.0	42.3 ✓	
66.0	85.9	+2.03 ✓
108.3		

9 56
9 54.0
5
14 54.0

Mean +2.15 ✓

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1897phae.proj.1347.

June 23

Epsilon comp. with K

Index to left and below

K dis >	69.4	40.4 ✓	
10 00	109.8	30.9 ✓	
	71.0	71.3 ✓	+2.46 ✓
	101.9		
	70.8	32.4 ✓	(+2.42) ✓
	103.2	41.7 ✓	
	66.7	74.1 ✓	+2.37 ✓
	108.4		

Index right and above

	159.4	38.6 ✓	
	198.0	39.3 ✓	
	161.1	77.9 ✓	+2.26 ✓
	200.4		
	158.3	41.2 ✓	(+2.22) ✓
10 6	199.5	39.3 ✓	
10 03.0	158.9	80.5 ✓	+2.18 ✓
5			
15 03.0	198.2		

Mean +2.32 ✓

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1897phae.proj.1347.

June 23, 1897

Gamma comp with K

Index right and above

~~+0.9~~	151.9	
10.9	~~204.0~~ (K dis)	52.1 ✓
	204.0	61.2 ✓
	146.8	113.3 ✓ +1.34 ✓
	208.0	
	147.2	63.9 ✓ (+1.26 ✓)
	211.1	56.0 ✓
	151.0	119.9 ✓ +1.19 ✓
	207.0	

Index left and below

	241.0	55.0 ✓
	296.0	49.5 ✓
	242.9	104.5 ✓ +1.55 ✓
	292.4	
	243.3	49.4 ✓ (+1.56 ✓)
	292.7	53.6 ✓
	240.4	103.0 ✓ +1.58 ✓
	294.0	

10	20
10	14.5
5	
15	14.5

Mean +1.41 ✓

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1897phae.proj.1347.

June 23, 1897

Beta comp. with K
Index right and above

K dis.

10	12	146.5	64.5 ✓
		211.0	67.2 ✓
		145.7	131.7 ✓ +0.94 ✓
		212.9	

149.0	60.3 ✓	(+1.06 ✓)
209.3	60.3 ✓	
147.8	120.6 ✓	+1.18 ✓
208.1		

Index left and below

241.0	57.7 ✓	
298.7	62.0 ✓	
238.6	119.7 ✓	+1.20 ✓
300.6		

236.6	62.9 ✓	(+1.22 ✓)
299.5	54.3 ✓	
240.2	117.2 ✓	+1.25 ✓
294.5		

10	17
10	14.5
5	
15	14.5

Mean +1.14 ✓.

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June 23, 1897

ζ comp with π

Index left and below

π dia	235.0	68.2 ✓
10 26	303.2	83.3 ✓
	228.2	151.5 ✓ +0.55 ✓
	314.5	

~~(+0.K~)~~ ~~(+0.33)~~

	233.0	~~79.9~~ ✓
	312.9	~~84.0~~ ✓
	227.0	~~153.9~~ ✓ ~~+0.30~~ ~~+0.11~~
	311.8	

Index right and above

	319.5	79.5 ✓
	39.0	76.8 ✓
	319.3	156.3 ✓ +0.45 ✓
	36.1	✓

(+0.34)

	312.0	87.0 ✓
10 32	39.0	81.1 ✓
10 29.0	316.3	168.1 ✓ +0.22 ✓
5	37.4	
15 29.0		

Mean ~~+0.38~~ +0.34 ✓

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1897phae.proj.1347.

June 23, 1897

Selection of Comp. Stars for S. Virginis N. Obs

13	25	- 6.4
17	15	
3	50	

~~R~~ 4 S, 5.5 alpha
alpha 3.5 Beta
Beta 4, Gamma
Gamma 4.5 Delta
Delta 3. Epsilon
Epsilon 4, Zeta
Zeta 5. Eta
Eta 3.5 Theta

Iapetus Phot. T. N. Obs

13	30	-17.0
17	25	
1	55	

Object taken for Iapetus precedes Saturn 13.5 sec. and is about 3.2 min north of it. Same comp. stars used as last night.

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1897phae.proj.1347.

June 23, 1897

Index right and above

243.5	< Comp. dis.	
295.8	52.3 ✓	
242.0	53.0 ✓	
295.0	105.3 ✓	+1.53 ✓

11 15

241.9	54.2 ✓	(+1.52) ✓
298.1	50.4 ✓	
244.0	104.6 ✓	+1.50 ✓
294.4		

Index left and below

334.0	52.9 ✓	
26.9	54.3 ✓	
331.0	107.2 ✓	+1.48 ✓
25.3		

334.3	50.2 ✓	(+1.55) ✓
24.5	51.1 ✓	
332.9	101.3 ✓	+1.62 ✓
24.0		

Mean +1.54 ✓

11	21
11	18.0
5	
16	18.0

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1897phae.proj.1347.

June 23, 1897

Same again

	334.7	49.8 ✓	
11	24.5	51.5 ✓	
	335.3	101.3 ✓	+1.62 ✓
	26.8		
	334.0	52.9 ✓	(+1.60) ✓
	26.9	50.8 ✓	
	334.4	103.7 ✓	+1.57 ✓
	25.2		

Under-right and above

	61.3	55.0 ✓	
	116.3	59.8 ✓	
	59.9	114.8 ✓	+1.31 ✓
	129.7		
	60.7	~~54~~ 54.5 ✓	(+1.35) ✓
11 29	115.2	56.9 ✓	
11 26.0	59.1	101.4 ~~+1.62~~	+1.39 ✓
5	116.0		
16 26.0			

Mean +1.48 ✓

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1897phae.proj.1347.

June 23, 1897

Titan. Phot. I. N. Obs.

Index right and above

	218.5	Corr. dec	
11 31	142.1	113.6	
	36.0	106.5	
	142.5	220.1	
		~~110.1~~ 139.9	−0.78
	35.2	105.7	
	140.9	114.5	(−0.78)
	32.5	220.2	
	147.0	~~110.2~~ 139.2	−0.78

Index left and below.

	123.7	107.8	
	231.5	103.8	
	126.9	211.6	
	230.7	~~321.6~~ 142.4	−0.61
	126.9	103.7	
11 38	230.6	106.1	(−0.59)
11 34.5	125.3	209.8	
5	231.4	~~29.8~~ 150.2	−0.57
16 34.5			

Mean −0.68

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1897phae.proj.1347.

June 23, 1897

Same again

	124.5	108.1 ✓	
11	232.6	104.3 ✓	
40	126.0	212.4 ✓	
	230.3	~~32.4~~ 217.6 ✓	−0.6 ✓
	126.4	109.2 ✓	
	235.0	108.1 ✓	(−0.67) ✓
	126.5	217.3 ✓	
	234.6	~~37.3~~ 217.7 ✓	−0.7 ✓

Index right and above

	215.2	108.8 ✓	
	324.0	110.4 ✓	
	215.0	219.2 ✓	
	325.4	~~39.2~~ 180.2 ✓	−0.76 ✓
	216.4	110.4 ✓	
11 45	326.8	104.9 ✓	(−0.72) ✓
11 42.5	218.1	215.3 ✓	
5	323.0	~~35.3~~ 179.7 ✓	−0.60 ✓
16 42.5		Mean −0.70 ✓	

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1897phae.proj.1347.

June 24, 1897 (Thursday)

S. Cephei Phot. T. W. Obs.

21.	37	+78.3
14	35	
16	38	
12		
4	38	
3	03	

21	37	+78.0
14	45	
17	.08	
12		
5	08	

Index above

8 33	234.4	< vardis	69.4′
	303.8		75.0′
	232.7		144.4′ − 0.69′
	307.7		

234.0	< Stays dim in clouds	(−0.71)′
305.0	71.0′	
232.3	71.3′	
303.6	142.3′	−0.73′

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1897phae.proj.1347.

June 24, 1897

Index below

328.4 61.4'
29.8 71.7'
320.8 133.1' ~~-1.19~~ - 0.91'
32.5

323.0 73.1' (-0.84)'
36.1 67.6'
322.8 140.7' - 0.76'
30.4

Mean ~~-0.82~~ -0.78'

8 41
8 37.0
5
13 37.0

Same again

326.3 66.1'
32.4 72.4'
322.8 138.5' - 0.80'
35.2

323.5 70.8' (-0.80)'
34.3 68.5'
324.0 139.3' - 0.79'
32.5

8 44

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1897phae.proj.1347.

June 24, 1897

Index above

53.8 68.8'
122.6 78.1'
48.1 146.9' - 0.64'
126.2

(-0.66)'

49.1 76.3'
125.4 68.0'
55.0 144.3' - 0.69'
123.0 Mean - 0.73'

8	49
8	46.0
5	
13	46.0
8	54

C 3.5 var. var 1.5 d in finder
c var. = b in large telescope.

Previous observations made through some light cloud.

Iapetus Shot I. N. Obs.

15 30 -17.0
15 30
0

Object taken for Iapetus precedes Saturn 11.5 sec. and is about 3.2 min of arc north of it.

Comp. Star = S 2. - 16° 4122 (9.0)

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1897phae.proj.1347.

June 24, 1897.

Index above

63.0 < comp. dis.

9 16	112.5	49.5'	
	59.6	57.3'	
	116.9	106.8'	+1.49'
	60.8	56.2'	(+1.47)'
	117.0	52.2'	
	63.0	108.4'	+1.45'
	115.2		

Index below

~~+5.7~~

~~264.8~~

~~9 23~~ Clouds

	151.7	54.8'	
	206.5	47.5'	
	155.4	102.3'	+1.60'
	202.9		
	154.4	48.8'	(+1.54)'
9 48	203.2	57.9'	
9 32.0	151.0	106.7'	+1.49'
5	208.9		
14 32.0			

Mean +1.50'

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1897phae.proj.1347.

June 24, 1897

Same again

		150.5	54.5'	
9	50	205.0	49.1'	
		153.3	103.6'	+1.57'
		202.4		
		153.9	51.9'	(+1.52)'
		205.8	55.5'	
		150.2	107.4'	+1.48'
		205.7		

Index above

Clouds

9	55	~~241.7~~		
		243.0	52.0	
		295.0	50.0	
		246.0	102.0	+1.61'
		296.0		
		244.4	49.6	(+1.60)'
10	05	294.0	53.7	
9	58.0	242.3	103.3	+1.58'
5		296.0		Mean +1.56'
14	58.0			

All the observations on Iapetus made with difficulty. Observation through more or less cloud. Hence images faint. As images were faint and Saturn some what bright. Obs. was forced to put
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1897phae.proj.1347.

June 24. 1897

Saturn rather out of field and so brings images somewhat near edge of field

U. Virginis ≠ H. Obs

12 43 +7.0
16 50
4 07

0 5.5 p
p 3.5 alpha
alpha 4.5 Beta
Beta 4 Gamma
Gamma 5.5 Delta
Delta 3 Epsilon
Epsilon 4.5 Zeta
~~Zeta~~

Σ 1678 Phot R H Obs

12 39 +15.0
17 30
~~5~~ 51

1897phae.proj.1347.

June 24, 1897

Pos. angle 175° dis. 30 sec.
Magn. 6.0 7.0

Index right and below

	222.0	(Brighter dis.	
11 10	290.0	68.0 ✓	
	226.5	58.1 ✓	
	284.6	126.1 ✓	1.06
	225.2	58.8 ✓	(0.95)
	284.0	78.0 ✓	
	217.6	136.8	0.46
	295.6		

Index left and above

	312.0	67.4 ✓	
	19.4	65.1 ✓	
	309.3	132.5 ✓	0.93
	14.4		
	311.3	62.9 ✓	(0.94)
11 15	14.2	68.6 ✓	
11 12.0	312.9	131.5	0.95
5	21.5		mean 0.94
16 12.0			

Night poor throughout.

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1897phae.proj.1347.

June 25. 1896. (Friday).
Cloudy
ν Virginis. Wolbo.

R.A. ~~+4.~~ $12^h\ 43^m$ + 7.0 sec
Time $15^m\ 32$
$2\ 49$ = H.A.

9 20

o	4.5	p
p	6.	
α	3	α' ~~β~~
~~α'~~	3.5	~~β'~~
β	3	γ
γ	5.5	δ
δ	4.5	ε
ε	4	ζ
ζ	3	η ~~Eta~~
η	3.5	Rheta

S. Cephei. Phot. II Wolbo. Obs.

21 37 + 78.3
16 45
19 08
12
7 08

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1897phae.proj.1347.

June 25, 1897

Index above

	52.4	var. ds	69.1'
10	27	121.5	76.6'
		51.4	145.7' - 0.66'
		128.0	
		51.1	75.9' (-0.69)'
		127.0	66.8'
		54.8	142.7' - 0.72'
		121.6	

Index below

		142.0	76.9'
		218.9	78.0'
		141.0	154.9' - 0.48'
		219.0	
		141.5	76.4' (-0.56)'
10	38	217.9	70.4'
10	32.5'	144.2	146.8' - 0.64'
5		214.6	
15	32.5'		

Mean - 0.62'

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1897phae.proj.1347.

June 25, 1897

Same again

	141.7	71.3'	
10 40	213.0	77.3'	
	139.7	148.6'	-0.60'
	217.0		

140.4	78.1'	(-0.58)'
218.5	73.4'	
141.6	151.5'	-0.55'
215.0		

Index above

238.1	64.0'	
302.1	75.9'	
231.1	139.9'	-0.78'
307.0		

233.0	72.6'	(-0.77)'
305.6	67.9'	
237.1	140.5'	-0.76'
305.0		

Mean -0.68'

10 56 C 3 var, var 1.5 2 in finder,
P 1 var: var 1.C in large telescope

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1897phae.proj.1347.

June 25, 1897

Iapetus Phot. I N. Obs.

17 30
15 30 −17.0 39
22 00 17
12 ~~Comp. Star~~ = −16° K122 (9.0) 22

~~Iapetus~~ precedes Saturn by 9 sec. and is about 3.2 min north of it.

Index right and above

Comp. dis> 244.6 50.2'
294.8 49.0'
243.2 99.2' + 1.68'
292.2

244.8 50.2' (+1.62)'
295.0 54.1'
242.0 104.3' + 1.55'
296.1

Index left and below

333.7 48.7'
22.4 52.4'
331.4 101.1' +1.63'
23.8

332.6 52.3' (+1.59)'
24.9 52.2'
333.0 104.5' +1.55'
25.2 Mean + 1.60'

11 16

11 23

11 19.5'
5
16 19.5'

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1897phae.proj.1347.

June 25, 1897

Same again

334.1	49.4'	
23.5	50.4'	
333.9	99.8'	+1.66'
24.3		

333.5	52.5'	(+1.62)'
26.0	50.7'	
333.8	103.2'	+1.58'
24.5		

Index right and above

62.8	50.3'	
112.3	49.7'	
62.7	100.0'	+1.66'
112.4		

62.8	51.2'	(+1.62)'
114.0	51.4'	
60.9	102.6'	+1.59'
112.3		

11 25

11 32

11 28.5'

16 28.5'

Mean +1.62'

Same comp star as used last night.

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1897phae.proj.1347.

June 26, 1897. (Saturday)

S. Cephei. Phot. T. H. Obs.

21	37	+78.3
~~14~~ 13	30	
~~16~~ 12	33	
4	33	

Index above

var. dia.

	56.2	62.6'	
8 18	118.8	62.9'	
	56.4	125.5'	-1.07'
	119.3		
	57.8	59.8	(-1.12)'
	117.6	61.0	
	57.0	120.8	-1.18'
	118.0		

Index below

	150.5	57.1'	
	207.6	57.3'	
	151.0	114.4'	-1.32'
	208.3		
	146.1	73.5'	(-1.12)'
	219.6	59.7'	
8 26	148.5	133.2'	-0.91'
8 22.0	208.2		Mean -1.12'
5			
13 22.0			

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1897phae.proj.1347.

June 26, 1897.

Same again.

149.4 58.6'
8 28 208.0 69.2'
145.0 127.8' −1.03'
214.2

(−0.91)'

143.9 70.8'
214.7 68.3'
144.0 139.1' −0.79'
212.3

Index above.

237.5 63.7'
301.2 70.0'
234.0 133.7' −0.90'
304.0

233.5 71.0' (−0.88)'
8 36 304.5 64.8'
8 32.0 237.2 135.8' −0.86'
5
13 32.0 302.0

Mean −0.90

8 H 2 C 3.5 var, var 1.5 a in finder.
Sb 1 var, var. 1c in large telescope.

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June 26, 1897.

γ. Virginis Phot. I H. Obs.

12	24	−3.2
15	26	
3	2	

Zeta comp. with π
Index left and above

74.0	28.3	
102.3	31.0	
72.6	59.3	+2.89
103.6		

71.0	33.6	(+2.90)
104.6	25.4	
75.7	59.0	+2.90
101.1		

Index right and below

165.5	28.5	
194.0	31.8	
162.0	60.3	+2.85
193.8		

161.0	33.3	(+2.84)
194.3	27.1	
164.9	60.4	+2.84
192.0		

9, 13

9	18
9	16.0
5	
14	16.0

Mean +2.87

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June 26, 1897

Eta comp. with K

Index right and above

346.9	22.2		
9.1	25.0		
345.0	47.2	+3.40	
10.7			
345.6	25.4		(+3.35)
11.0	24.0		
346.2	49.4	+3.30	
10.2			

Index left and below

74.9	25.7		
100.6	28.1		
74.9	53.8	+3.11	
103.0			
76.2	25.7		(+3.12)
101.9	27.5		
75.0	53.2	+3.13	
102.5			

9 21

9 24.0

14 24.0

Mean +3.24

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June 26, 1897.

Delta comp. with K

Index left

	67.4	39.1	
9 31	106.5	42.2	
	68.0	81.3	+2.16
	110.2		

69.4	39.5	(+2.22)
108.9	37.7	
68.2	77.2	+2.28
105.9		

Index right

157.0	42.9	
199.9	42.1	
156.8	85.0	+2.05
198.9		

155.2	45.8	(+2.04)
201.0	39.7	
159.0	85.5	+2.04
198.7		

9	37
9	34.0
14	34.0

Mean +2.13

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June 26, 1897

Epsilon comp. with K.
Index right and above

339.8	38.2		
18.0	37.8		
339.0	76.0	+2.32	
16.8			
34a8	35.2		(+2.38)
16.0	36.5		
339.4	71.7	+2.45	
15.9			

Index left and below

69.4	36.6		
106.0	36.7		
69.4	73.3	+2.40	
106.1			
69.6	35.8		(+2.41)
105.4	36.8		
69.0	72.6	+2.42	
105.8			

Mean +2.40

9 21
9 46
9- 33.5
14 33.5

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June 26, 1897

Gamma comp. with Ra

Index left

61.5	53.7		
115.2	60.1		
57.8	113.8	+1.33	
117.9			
9	50		
59.5	55.5		(+1.42)
115.0	50.7		
67.3	106.2	+1.51	
113.0			

Index right

148.2	61.3		
209.5	57.2		
150.6	118.5	+1.23	
207.8			
152.0	53.0		(+1.30)
205.0	59.2		
149.0	112.2	+1.37	
208.2			

10	02
9	56.0
5	
14	56.0

Mean +1.36

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June 26, 1897

Beta comp with π

Index left

	61.0	56.6	
9	117.6	63.4	
53	55.4	120.0	+1.19
	118.8		
	55.2	62.9	(+1.20)
	118.1	56.2	
	59.8	119.1	+1.21
	116.0		

Index right

	146.5	63.9	
	210.4	64.1	
	145.2	128.0	+1.02
	209.3		
	146.0	64.0	(+1.04)
	210.0	62.5	
9	148.0	126.5	+1.05
59	210.5		
9			
5			
56.0			
14			
36.0			

Mean +1.12

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June 26, 1897

Z comp with π

Index rights and above

320.0	78.8		
38.8	79.0		
317.0	157.8	+0.42	
36.0			
318.0	80.3		(+0.44)
38.3	75.5		
319.5	155.8	+0.46	
35.0			

Index left and below

48.8	77.8		
126.6	82.6		
45.7	160.4	+0.37	
128.3			
48.7	82.4		(+0.34)
131.1	81.2		
46.8	163.6	+0.31	
128.0			

Mean +0.39

10	10
10	15
10	12
5	
15	12

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1897phae.proj.1347.

June 26, 1897

U. Virginis H. Obs.

12	43	+7.0
16	55	
4	12	

0 5 p
p 4.5 alpha
alpha 3.5 alpha'
alpha' 4 Beta
Beta 3 Gamma
Gamma 4.5 Delta
Delta 3 Epsilon
Epsilon 4.5 Zeta
Zeta 5 Eta
Eta 3 Theta

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1897phae.proj.1347.

June 26, 1897

Delta comp with ~~+0~~
Index left and above

16.4.6	32.6		
197.2	31.0		
163.5	63.6	+2.73	
194.5			
163.0	31.2		(+2.74)
194.2	31.4		
162.6	62.6	+2.76	
194.0			

Index right and below

253.0	33.2		
286.2	32.1		
251.1	65.3	+2.67	
283.2			
252.0	31.7		(+2.66)
283.7	34.1		
252.5	65.8	+2.65	
286.6			

Mean +2.70

10 49

10 55
10 52.0
15 52.0

1897phae.proj.1347.

June 26, 1897

Gamma comp. with π.

Index right

		251.9	33.6	
10	58	285.5	36.0	
		251.6	69.6	+2.52
		287.6		
		250.3	40.2	(+2.42)
		290.5	36.1	
		251.0	76.3	+2.31
		287.1		

Index left

		339.1	37.9	
		17.0	37.0	
		339.8	74.9	+2.35
		16.8		
		339.9	37.2	(+2.38)
11	04	17.1	35.5	
11	01.0	340.0	72.7	+2.42
5		15.5		
16	01.0			

Mean +2.40

Region now getting too low to proceed with further observations.

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1897phae.proj.1347.

June 26, 1897.

Iapetus Phot. I H. Obs.

15 30 -17.0
17 55
2' 25

Comp. star = -16° K/22 (9.0)
Search comp star as last night
Index right and above

246.0 Comp. dec. 45.5'
11 25 291.5 51.0'
246.3 96.5' +1.74'
297.3

246.0 47.0' (+1.76)'
293.0 48.0'
245.0 95.0' +1.78'
293.0

Index left and below

333.2 50.3'
23.5 51.0'
335.0 101.3' +1.62'
26.0

336.8 46.2' (+1.70)'
11 31 23.0 49.0'
11 28.0 335.0 95.2' +1.78'
5 24.0
16 28.0 Mean +1.73'

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1897phae.proj.1347.

June 26, 1897

Same again

~~[illegible]~~

	339.9	45.1'	
11 33	25.0	47.4'	
	335.2	92.5'	+1.85'
	22.6		
	336.9	44.5'	(+1.79)'
	21.4	52.4'	
	331.6	96.9'	+1.73'
	24.0		

Index right and above

	60.9	53.5'	
	114.4	50.0'	
	61.8	103.5'	+1.57'
	111.8		
	64.0	50.1'	(+1.57)'
11 39	114.1	53.3'	
11 36.0	61.2	103.4'	+1.57'
5	114.5		
16 36.0			

Mean +1.68'

Iapetus precedes Saturn 5.5 sec. and is about 3 min. north of it.

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1897phae.proj.1347.

June 28 1897. (Monday)

S. Cephei. Phot. I, H. Obs.

21	37	+78.3
14	25	
16	48	
12		
4	48	

21.	37	
14	40	
17	03	
12		
5	03	

21	37	+78.0
14	42	
17	5	
12		
5	5	

(Continued on next page)

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1897phae.proj.1347.

June 28, 1897

δ Cephei Phot. I. H. Obs.

Index above

		29.4	65.6	
	var. dist.	95.0	68.5	
8	20	27.0	134.1	−0.89
		95.5		
		27.1	68.0	(−0.88)
		95.1	67.4	
		27.7	135.4	−0.87
		95.1		

Index below

		121.7	62.5	
		184.2	65.4	
		119.4	127.9	−1.02
		184.8		
		119.8	65.9	(−1.00)
8	28	185.7	64.2	
8	24.0	120.0	130.1	−0.98
13	24.0	184.2		

Mean −0.94

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1897phae.proj.1347.

June 28, 1897

Same again.

		120.6	63.0
8	30	183.6	65.0
		119.1	128.0 − 1.02
		184.1	
		119.9	65.1 (−0.98)
		185.0	66.7
		118.0	131.8 − 0.94
		184.7	

Index above

		209.6	64.6
		274.2	70.9
		207.1	135.5 − 0.87
		278.0	
		205.4	73.6 (−0.81)
8	37	279.0	67.7
8	33.5	209.3	141.3 − 0.75
5		277.0	
13	33.5		

Mean −0.90

8. H7 C 4 var. var. 1 ☌ in finder.
J var. = C in large telescope.

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1897phae.proj.1347.

June 28, 1897.

U. Virginis Phot. I. H. Obs.

12	43	+7.0
15	36	
2	53	

0 6 p
p 5 alpha
alpha 3.5 alpha'
alpha' 3.5 Beta
Beta 3 Gamma
~~Gamma 4 Delta~~ Gamma 5 Delta
~~Delta 3 Epsilon~~ Delta 3.5 Epsilon
Epsilon 4 Zeta
Zeta 4.5 Eta
Eta 4 ~~7~~ Theta

9 31 No use to try any farther for U. Virginis
Heavy clouds coming

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1897phae.proj.1347.

June 28, 1897.

Σ 1833 Phot. R H. Obs.

14	16	−7.2
16	16	
2	0	

Cloudy abandoned

Σ 1894 Phot R H. Obs

14	52	−10.6
16	19	
1	27	

Clouds Thick

9 45 Clouds so thick that nothing can be done

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1897phae.proj.1347.

June 30 1897

S. Cephei Phot. I. H. Obs.

21	37	+78.0
14	42	
7	5	
12		
5	5	

Index above

26.9	64.1′	
91.0	66.1′	
25.1	130.2′	−0.97′
91.2		

8 20

25.8	67.2′	(−0.93)′
93.0	67.0′	
27.0	134.2′	−0.89′
94.0		

Index below

116.0	67.9′	
183.9	67.9′	
115.1	135.8′	−0.86′
183.0		

115.1	69.9′	(−0.85)′
185.0	67.0′	
116.0	136.9′	−0.84′
183.0		Mean −0.89′

8 28
8 240
13 24.0

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1897phae.proj.1347.

June 30, 1897

Same again

Index below

		116.0	66.2′	
8	30	187.2	71.0′	
		114.9	137.2′	−0.83′
		185.9		
				(−0.83)′
		115.9	68.1′	
		184.0	69.1′	
		~~116.2~~ 115.8	137.2′	−0.83′
		~~185.8~~ 184.9		

Index above

		205.0	69.0′	
		274.0	70.9′	
		204.0	139.9′	−0.78′
		274.9		
				(−0.80)′
		205.9	70.0′	
8	39	275.9	67.7′	
8	34.5	207.0	137.7′	−0.82′
16		274.7		
13	34.5			

Mean −0.82′

8 45 cc 3 vars, var 1.5 d in finder
var = c in large telescope.
Estimates and measurements made through some light cloud.

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1897phae.proj.1347.

June 30, 1897.

Σ 1625 Phot. R. 11 Obs.

12 10 +80.8
15 45
3 35

Pos. angle 230° distance 15 sec
Magn. 6.5 and 6.9

Index ~~0 ft and~~ below

		218.0	77.0	
9.	04	295.0	83.4	
		213.6	160.4	− 0.57
		297.0		
				0.44
		214.6	83.4	
		298.0	80.6	
		216.4	164.0	− 0.30
		297.0		Mean = − 0.49

Index above

		309.2	74.8	
		24.0	77.8	
9	08	Clouds	152.6	− 0.53
		305.7		
		23.5		0.54

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1897phae.proj.1347.

June 30, 1897

305.9 78.6
9 12 Clouds 72.8
9 12 24.5 151.4 −0.50″
310.2
23.0 Mean =

Σ 23′ Phot. R. N. obs.

12 46 +17.8
16 6
3 20

Position angle 210°, distance 3.2′
Magn 5.5 and 6.2

Under left and above

brighter dist > 394.9 102.1″
9 29 [illegible].2 37.0 102.9″
395.1 2025′ − 0.48″
38.0 155.0

−0.44″

393.4
36.2 102.8″
395.9 98.9
34.8 201.7′ − 0.41″
158.3

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1897phae.proj.1347.

June 30, 1897

Mean = −0.46

Index right and below

21.3		
126.2	104.9	
27.3	95.2	
122.5	200.1	−0.38
	159.9	
24.8		
9 38 126.2	101.4	−0.47
21.5	106.0	
127.5	207.4	
	152.6	−0.52

At end of ~~1st set~~ 2d set on above stars and before reversal it was found that reversing handle was not up against stop, but as clamp was pretty firmly set, it is probable that no motion of Phot. occurred during settings.

U. Virginis Phot F N Obs

12	43	+7.0
16	43	
4	0	

10 01 Clouds coming quite thickly
Abandoned

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1997phae.prog.1347.

June 30

Iapetus Phot I Wells.

15 30 -17.0
16 55
1 25

Object taken for Iapetus follows Saturn 6 sec. and is 2.2 miss. N of it. There is a faintish star near object taken for Iapetus. A slightly brighter star precedes this faintest star by 11 sec, and is 0.5 miss. N of it

Iapetus abandoned seeing to bad

Titan Phot I Wells

Under left and above

Cats 184.1
10 40 296.8
180.9
295.5 Reject

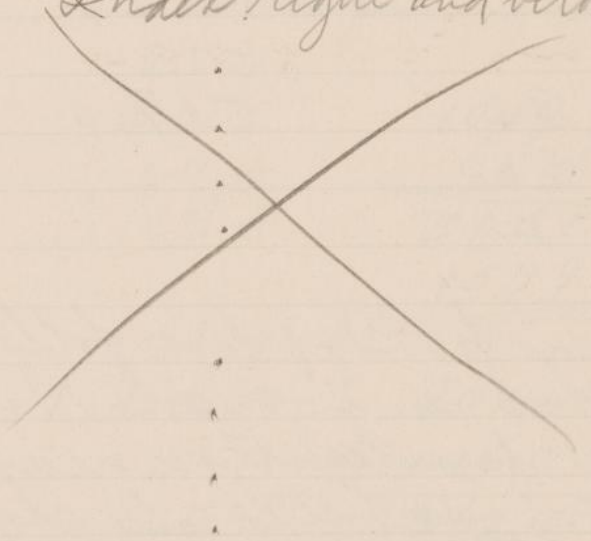
181.6
10 44 Clouds thick
Abandoned clouds growing too thick

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1897phae.proj.1347.

June 30, 1897

Index right and below



Σ 1904 Phot ~~R~~H Nbs.

14	58	+6.0
17	40	
2	~~4~~ 2	

10 53 Clouds thick

Pos. angle 340°, dis. 9sec. Magn 6.8 and 7.1

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1897phae.proj.1347.

June 30 1897

Σ 1904 Phot H N Obs

Index right and below A,

Bright 340.0
dbs 57.2 77.2
339.5 80.5
60.0 157.7 − 0.43

336.9 −0.40
62.7 85.8
341.7 75.2
56.9 161.0 − 0.36

Index left and above B. Mean = −0.30

68.2
148.4 80.2
63.7 90.1
153.8 170.3 − 0.18
[illegible]
65.6 −0.20

11 12 105.1 89.5
67.2 78.5
145.7 168.0 − 0.23

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1897phae.proj.1347.

July 1. 1897. (Thursday)

Cloudy and rainy the first of the evening.

A 3 r Still cloudy.

γ Delphini Plat. Gr. 6b.

20	31	+17.8
1 r	38	
− r	0	

	20	31	+17.8
39	~~15~~	~~34~~
	~~5~~	~~23~~
	19	23
	12	
	7	23

9 05 Clouds thick

	20	31
20	16	50
	20	19
	12	
	8	19

	20	31
	17	10
	8	39

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1897phae.proj.1347.

July 1, 1897

N. Delphini Phot. I N. Obs.

Index right and above

confuses >	42.3	33.4 ✓	
10 34 58	75.7	32.0 ✓	
	43.0	65.4 ✓	+2.66
	75.0		

I

	42.3	31.7 ✓	(+2.66) ✓
10 35 34	74.0 < Clouds	33.5 ✓	
	41.7	65.2 ✓	+2.67
	75.2		

Index ~~right~~ left and below.

	136.7	
~~10 37 53~~	163.8	Rejected on exact. of clouds interfering
	135.4 < Clouds thick	

	134.0	30.5 ✓	
10 48 10	164.5	30.8 ✓	
	134.2	61.3 ✓	+2.81
	165.0		

~~10~~	135.0	
~~10 49 58~~	165.3	
Clouds		Rejected

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1897phae.proj.1347.

July 1, 1897

(+2.84)

135.2	28.0	
163.2	31.5	Clou
133.8	59.5	+2.88'
165.3		

Mean +2.75

9.2)
(2.02

10 58 48

Index left and below

135.1
163.4 Clou Regent

II

Index left and below

137.0	28.0	
165.0	30.0	
134.9	58.0	+2:94'
164.9		

11 0 50

(+2.95)

135.9	26.8	
162.7	30.7	
134.2	57.5	+2.96'
164.9		

11 02 00

Index right and above

226.4	29.1	
255.5	29.3	
225.6	58.4	+2.92'
254.9		

11 03 50

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1897phae.proj.1347.

July 1, 1897

	225.9	30.1 ✓	(+2.89) ✓
11 05 13	256.0	30.0 ✓	
16 02 58. ✓	226.0	60.1 ✓	+2.86 ✓
16 47 33.	256.0		
−0 44 35 ✓			

Mean +2.92 ✓

9.2

12.19

	226.4	29.5 ✓	
11 6 54	255.9	30.6 ✓	
	225.4	60.1 ✓	+2.86 ✓
	256.0		

III

	225.1	30.3 ✓	(+2.83) ✓
11 8 10	255.4	31.2 ✓	
	225.8	61.5 ✓	+2.80 ✓
	257.0		

Index left and below

	313.0	30.2 ✓	
11 10 36	343.2	31.2 ✓	
	313.0	61.4 ✓	+2.81 ✓
	344.2		

	313.9	29.5 ✓	(+2.82) ✓
11 12 07	343.4	31.3 ✓	
16 09 27 ✓	314.9	60.8 ✓	+2.83 ✓
16 47 33.	346.2		
−0 37 6.			

Mean +2.82 ✓

9.27

12.09

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1897phae.proj.1347.

July 1 1897

		314.1	30.8 ✓	
11	13	59	344.9	32.2 ✓
			314.4	63.0 ✓ +2.75 ✓
			346.6	
				(+2.76) ✓
			314.6	30.4 ✓
11	15	40	345.0	32.3 ✓
			313.9	62.7 ✓ +2.76 ✓
			346.2	

Clouds

~~Under left and below~~ right & above,

			43.8	33.2 ✓
11	19	20	77.0	31.8 ✓
			43.2	65.0 ✓ +2.68 ✓
			75.0	

			43.9	30.1 ✓ (+2.74) ✓
11	20	23	74.0	31.4 ✓
16	17	20 ✓	42.4	61.5 ✓ +2.80 ✓
16	17	33	73.8	Mean +2.75 ✓
−0	3	0	13.	

9.27
12.02

Clouds

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1897phae.proj.1347.

July 1, 1897

	42.2	32.7 ✓	
11 33 15	74.9	29.4 ✓	
	43.5	62.1 ✓	+2.78 ✓
	72.9		V
	43.6	32.2 ✓	(+2.77) ✓
11 34 44	75.8	30.6 ✓	
	43.8	62.8 ✓	+2.76 ✓
	74.4		

Index ~~right and above~~ left & below.

	134.3	29.9 ✓	
11 36 30	164.2	29.6 ✓	
	135.1	59.5 ✓	+2.88 ✓
	164.7		(+2.88) ✓
	134.5	28.5 ✓	
11 37 43 ✓	163.0	30.8 ✓	
16 35 36.	134.2	59.3 ✓	+2.89 ✓
16 [illegible] 33.	165.0		
−0.11 [illegible].			

Mean +2.82 ✓

9.27

12.09

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1897phae.proj.1347.

July 1 1897

~~11 42 15~~

132.9
164.9
Clouds thick

11 46 10

137.2 28.5
165.7 30.2
134.8 58.7 +2.91
165.0

134.0 31.0 (+2.92)
11 47 40 165.0 27.9
135.7 58.9 +2.90
163.6

Index right and above

225.0 32.3
11 49 30 257.3 32.7
222.3 65.0 +2.68
255.0

223.9 32.1 (+2.73)
256.0 30.1
224.8 62.2 +2.78
254.9

11 51 00
193 80.
16 48. 35.
16 F) 33.
+0 1 2

Mean +2.82
9.27
12.09

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1897phae.proj.1347.

July 1 1897

	226.6	31.4 ✓	
11 52 40	258.0	31.9 ✓	VII
	225.1	63.3 ✓ + 2.74 ✓	
	257.0		
	224.3	32.7 ✓	(+2.70) ✓
11 54 06	257.0	32.4 ✓	
	223.3	65.1 ✓ + 2.67 ✓	
	255.7		

Index left and below

	313.8	31.1 ✓	
11 55 54	344.9	30.0 ✓	
	314.0	61.1 ✓ + 2.82 ✓	
	344.0		
	313.1	32.9 ✓	(+2.80) ✓
11 57 17 ✓	346.0	29.2 ✓	
218 117 ✓	315.9	62.1 ✓ + 2.78 ✓	
16 54 59	345.1		
16 47 33			
+07 26			

Mean +2.75 ✓

9.27

12.02

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1897phae.proj.1347.

July 1, 1897

	313.2	32.9 ✓	V. I I I
12 00 57	346.1	35.3 ✓	
	312.9	68.2 ✓	+2.57 ✓
	348.2		

	312.3	37.3 ✓	(+2.58) ✓
12 02 27	349.6	29.9 ✓	
	~~344.6~~	314.1 67.2 ✓	+2.60 ✓
		344.0	

Under right and above Clouds

	222.9	35.1 ✓	
12 10 09	258.0	31.3 ✓	
	224.8	66.4 ✓	+2.63 ✓
	256.1		

~~12~~	226.0	30.3 ✓	(+2.62) ✓
12 11 52	256.3	37.0 ✓	
25 25 ✓	222.5	67.3 ✓	+2.60 ✓
17 6 21 ✓	259.5		
(16 F) 33.			
+0 1 8 Kd.			

Mean +2.60 ✓

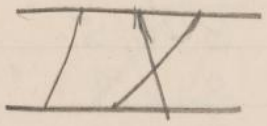
9.27
(1.F)

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1897phae.proj.1347.

July 1, 1897

	222.0	35.8 ✓	
12 14 52	257.8	30.3 ✓	
	225.5	66.1 ✓	+2.64 ✓
	255.8		



	224.1	32.3 ✓	(+2.54) ✓
12 16 35	256.4	39.5 ✓	
	220.0	71.8 ✓	+2.45 ✓
	259.5		

Index left and below

	312.0	34.2 ✓	
12 20 14	346.2	33.0 ✓	
	313.2	67.2 ✓	+2.60 ✓
	346.2		

	313.3	31.4 ✓	(+2.58) ✓
12 2200	345.1	36.6 ✓	
73 41.	310.5	68.0 ✓	+2.57 ✓
17 18 25.	347.1		
6 47 33			

Mean +2.56 ✓

9.27

11.83

+0 30 ✓2

1897phae.proj.1347.

July 1 1897

	309.9	38.6 ✓	
12 24 08	348.5	35.0 ✓	
	311.9	73.6 ✓	+2.39 ✓
	346.9		

	313.4	31.6 ✓	(+2.44)
12 26 58	345.0	38.9 ✓	
	310.4	70.5 ✓	+2.49 ✓
	349.3		

Index right and above

	40.0	39.6 ✓	
12 28 15	79.6	34.5 ✓	
	42.0	74.1 ✓	+2.37 ✓
	76.5		

	41.9	33.1 ✓	(+2.42) ✓
12 30 ~~10~~ 12	75.0	37.6 ✓	
107 88. ✓	40.9	70.7 ✓	+2.48 ✓
17 27 7 ✓	78.5		
16 47 33.			
~~+0 40 34~~			
+0 39 34			

Mean +2.43 ✓

9.27

11.70

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1897phae.proj.1347.

July 1, 1897

	39.0	38.5	
12 34 24	77.5	36.6	XI
	40.9	75.1 +2.34	
	77.5		
	38.2	39.5	(+2.33)
12 36 12	77.7	36.4	
	40.0	75.9 +2.32	
	76.4		

Index left and ~~above~~ below

	131.0	38.2	
12 38 40	169.2	38.6	
	130.4	76.8 +2.29	
	169.0		
	129.6	41.3	(+2.24)
12 40 35	170.9	39.2	
149 51.	130.2	80.5 +2.18	
17 37 28.	169.4		
16 [illegible] 33			
+0 [illegible]			

Mean +2.28

9 2

11.

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1897phae.proj.1347.

July 1, 1897

	131.2	37.4 ✓	
12 48 32	168.6	42.3 ✓	
	128.8	79.7 ✓	+2.20'
	171.1		

XII

	129.8	35.7 ✓	(+2.25)
12 44 22	165.5	40.9 ✓	
	128.2	76.6 ✓	+2.30'
	169.1		

Index right and above

	220.0	39.7 ✓	
12 46 40	259.9	41.1 ✓	
	219.9	80.8 ✓	+2.17'
	261.0		

	220.3	41.5 ✓	(+2.20)
12 48 12	261.8	37.8 ✓	
180 106 ✓	223.0	79.3 ✓	+2.22'
17 45 26	260.8		
16 47 33			
+0 ✓7 ✓3			

Mean +2.22 ✓

9.2 ✓

11.49

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1897phae.proj.1347.

July 1, 1897

	218.9	40.6 ✓	
12 53 37	259.5	40.3 ✓	
	221.0	80.9 ✓	+2.17'
	261.3		
	~~7~~ *		
	218.3	43.9 ✓	(+2.08) ✓
12 55 05	262.2	42.9 ✓	
	219.1	86.8 ✓	+2.00'
	262.0		

Index left and below

	308.5	40.8 ✓	
12 58 50	349.3	48.4 ✓	
	306.6	89.2 ✓	+1.94'
	355.0		
	304.2	51.0 ✓	(+1.86) ✓
13 00 45	355.2	44.0 ✓	
228 17 ✓	306.9	95.0 ✓	+1.78'
17 37 4.	350.9		
16 47 33			
~~11 49 31.~~			

Mean ~~+2.44~~ +1.97 ✓

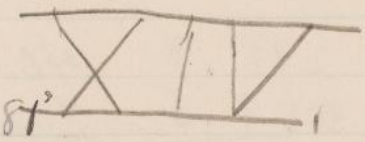
9.27

11.24

1897phae.proj.1347.

July 1, 1897

309.0 42.6 ✓
Clouds 51.2
351.6 93.8 ✓ +1.81'



13
+ 05 40

Clouds
304.8 ℄ cloud
356.0

(+1.73) ✓

13
+ 10 0

302.9 56.0 ✓
358.9 44.2 ✓
308.4 100.2 ✓ +1.65'
352.6

Index right and above
Clouds thick

13
+
+ 18 17

36.1 46.1 ✓
82.2 48.6 ✓
34.1 94.7 ✓ +1.79'
82.7

(+1.76) ✓

13
+ 19 50

32.9 52.1 ✓
~~86.0~~ 85.0 45.1 ✓
35.9 97.2 ✓ +1.73'
81.0

13 52 107. ✓
18+ 13 27. ✓
16 47 33.
+1 2 ✓ ✓ K.

Mean +1.74 ✓
9.27
No watch correction -11.01

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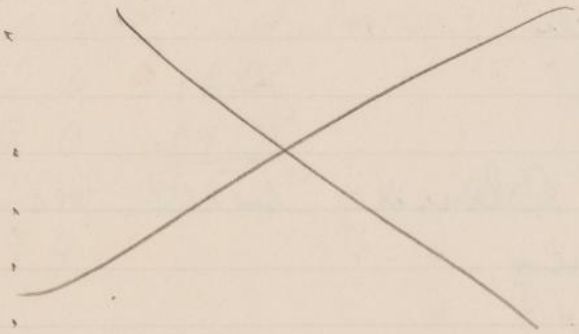
1897phae.proj.1347.

July 1, 1897

XV

34.1
83.1 < clouds

(2) 20



1

Index left and below

1 33 Stopped by clouds
Clouds coming in heavy masses
~~From~~ Greatly troubled throughout night by clouds, but observations taken carefully by waiting for clear sky so that observation are considered good
Comp star used this evening is Star a

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July 6. 1897. (Tuesday)

7 0 Cloudy

7 30 Cloudy

8 00 Still Cloudy with no prospect of clearing

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1897phae.proj.1347.

July 6, 1897

Iapetus · Plot I · N. Obs.

Comp. Star = 8.0 = S.D. −16°.4 120 (4.0)

Index left and above

Comp dis > 52.0 16.0'

9 19 68.0 19.5'

50.4 35.5' + 4.03'

69.9

52.1 18.9' (+4.04")

71.0 16.5'

52.0 35.4' + 4.04'

68.5

Index right and below

139.0 21.1'

160.1 21.8'

138.7 42.9' + 3.61'

160.5

140.6 18.9' (3.74")

9 25 159.5 19.4'

8 22.0 140.0 38.3' + 3.86'

14 220 159.4

Mean + 3.89"

7.72"

11.67"

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1897phae.proj.1347

July 6, 1897

Same again

		140.7	19.3'	
9	28	160.0	18.9'	
		140.8	38.2'	+3.87'
		159.7		

139.8	19.2'		(+3.84) ✓
159.0	19.8'		
139.2	39.0'	+3.82'	
159.0			

Index left and above

232.0	15.3'		
247.3	17.4'		
230.6	32.7'	+4.21'	
248.0			

230.2	17.7'		(+4.17) ✓
247.9	16.3'		
231.9	34.0'	+4.13'	
248.2			

9	34	
9	31.0	
5		
14	31.0	

4.00 ✓
7.92 ✓
11.92 ✓
11.67 ✓
11.92 ✓
Sec. reading

Mean +4.00 ✓

Observations somewhat difficult on account of moonlight and haze.

Object taken for Sapetus follows Saturn 21 sec. 1 min. North of it.

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1897phae.proj.1347.

July 6. 1897.

N. Delphini Phot. I N. Obs.

20	31	+17.8
17	10	
20	39	
12		
8	39	

20	31
17	19
20	48
12	
8	48

10 05 N Delphini is now up two bright for necessary observations.

Σ 2762 Phot. H. N. Obs.

21	3	+29.7
17.11	28	
20	25	
12		
8	25	

(Over)

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1897phae.proj.1347

July 6. 1897

Σ 2762 Phot H. N. Obs.

Index ~~above~~ right and above

		183.7	38.3'	
		222.0	40.4'	
10	18	180.0	78.7'	2.23'
		220.4		
		180.4	41.7'	(2.21)
		222.1	38.4'	
		182.1	80.1'	2.19'
		220.5		

Index left and below

		274.5	37.0'	
		311.5	43.6'	
		270.2	80.6'	2.18'
		313.8		
				(2.08)
		268.4	41.8'	
10	26	310.2	45.7'	
		268.1	87.5'	1.98'
		313.8		Mean 2.14

10 29 Stars have now disappeared in clouds but as near as I can remember pos. angle was about 300° dis 3.5 sec Mag 5.5 and 8.0
Observation at last especially difficult on account of clouds

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1897phae.proj.1347.

July 6, 1897

Σ 1904 Phot R. 7+ Obs

14	58	+6.0
18	52	
3	54	

Southern component thought to be slightly brighter
Pos angle 330.° dis. 9sec.
Magn 7.0 and 7.2
10 47 Clouds thick
Index
213.4
10 54 284.0
Clouds too thick estimates wholly uncertain, no stars visible to naked eye

Over

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1897phae.proj.1347.

July 7, 1897. (Wednesday)

S. Cephei. Phot. I. H. Obs.

21	37	+78.3
14	50	
17	13	
12		
5	13	

7 40 Abandoned

~~Lapetus Phot. I H Obs~~

Went over to West Dome and revised R Bootis and R Can. Ven.

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1897phae.proj.1347.

July 17, 1897

Iapetus Phot. I N. Obs.

15	00	−17.0
18	3	
2	33	

Comp. Star = SD. −16° #120 (4.0)

Iapetus follows Saturn 23.2 sec and is about .6 min of arc north of it

Index left and above

comp. dis.			
50.4	17.4′		
67.8	17.7′		
50.6	35.1′	+4.06′	
68.3			
10 54			
52.2	16.3′	(+4.12)	
68.5	17.1′		
52.0	33.4′	+4.17′	
69.1			

Index right and below

142.1	15.1′	
157.2	16.4′	
142.3	31.5′	+4.30′
158.7		
141.2	16.2′	(+4.28)
157.4	15.9′	
141.5	32.1′	+4.25′ Mean +4.20
157.4		

11	01
10	57.5
5	
15	57.5

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1897phae.proj.1347

July 7, 1897

Same again

	141.8	15.6'	
11	157.4	16.0'	
04	142.0	31.6'	+4.29'
	158.0		
	141.4	16.5'	(+4.27)
	157.9	15.7'	
	142.3	32.2'	+4.25'
	158.0		

Index left and above

	231.0	15.6'	
	246.6	16.5'	
	231.2	32.1'	+4.25'
	247.7		
	230.1	18.7'	(+4.16)
	248.8	16.3'	
	231.4	35.0'	+4.06'
	247.7		

11	10
11	07.0
5	
16	07.0

Mean +4.22

Comp. Star 4.0 mag. (Same as last night.)

Observations difficult.

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1897phae.proj.1347.

July 8. 1897. (Thursday)

Iapetus Phot I' H. Obs.

15 30 −17.0

16 0

Comp. Star ~~used~~ 30 in two sets groups = −16° 4' 20".40

Iapetus follows Saturn 25 sec. and is about 0.5 min North of it.

Comp Star same as last night

Index left

	comp dec	231.2	14.5'	
8	51	245.7	15.0'	
		230.9	29.5'	+4.44
		245.9		
		230.4	14.8'	(+4.46)
		245.2	14.2'	
		230.8	29.0'	+4.48
		245.0		

Index right

		320.3	16.5'	
		336.8	14.4'	
		320.6	30.9'	+4.34
		335.0		
		319.9	15.5'	(+4.34)
8	58	335.4	15.3'	
8	54.5	320.7	30.8'	+4.35
5				
13	54.5	336.0		

Mean +4.40

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1897phae.proj.1347.

July 8, 1897.

Same again

		320.9	14.9'	
9	00	335.8	14.6'	
		320.9	29.5'	+4.44
		335.5		

320.2	15.9'		(+4.38)
336.1	15.4'		
320.8	31.3'	+4.31	
336.2			

Index left.

50.2		15.3'	
~~64.1~~	65.5	15.0'	
50.9		30.3'	+4.38
65.9			

		50.6	15.5'	(+4.38)
9	10	66.1	15.0'	
9	05.0	50.0	30.5'	+4.37
5		65.0		
14	05.0			

Mean +4.38

9 20 Clouds

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1897phae.proj.1347.

July 8, 1897.

Same again but with comp. star N.P. −16
4116, (A.C.)

Index left and below

~~133.2~~
134.7
163.2
136.4
159.9

Reject

9 25

134.4 23.8'
9 38 158.2 26.4'
134.9 50.2' +3.26
161.3

~~Index right and above~~

138.2 22.8' (+3.36)
161.0 23.3'
136.0 46.1' +3.45
159.3

Index right and above

224.1 26.4'
~~X~~ 250.5 27.3'
223.9 53.7' +3.11
251.2

225.5 25.7' (+3.16)
9 45 251.2 26.0'
9 41.5 226.1 51.7 +3.20
5 252.1 Mean +3.26*
14 41.5

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1897phae.proj.1347.

July 8, 1897.

M.P. 4.41 Phot. R. Wks.

3 31 . +62.8

17 15

13 44

12

1 44

Index left and above

var dis 229.9 53.2'

283.1 47.4'

231.2 100.6' −1.64'

278.6

234.8 46.0' (−1.67)

280.8 52.2'

230.8 98.2' −1.70'

283.0

Index right and below

322.8 48.2'

10.0 47.9'

326.1 96.1' − 1.78'

14.0

324.0 47.8' (−1.76)'

11.8 48.7'

3243 96.5' − 1.74'

11.0 Mean − 1.72'

10 02

10 08

10 05.0

15 05.0

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1897phae.proj.1347.

July 8, 1897

Same again

	323.1	45.2′	
10 10	8.3	44.3′	
	323.6	89.5′	− 1.93′
	7.9		
	323.9	43.1′	(− 1.88)′
	9.0	47.9′	
	322.0	93.0′	− 1.83′
	9.9		

Index left and above

	52.4	47.6′	
	100.0	45.9′	
	52.1	93.5′	− 1.82′
	98.0		
	51.0	49.4′	(− 1.74)′
10 15	100.4	50.6′	
10 12.5	49.6	100.0′	− 1.66′
5	~~100.8~~		
15 12.5	100.2		Mean − 1.81′

Region low in above reacts, and images somewhat flickering.

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1897phae.proj.1347.

July 8, 1897

S. Cephei Phot I H. Obs.

21	37	+78.3
17	44	
20	7	
12		
8	7	

Index ~~[illegible]~~ and above

var. dist	24.9	68.2'	
10 27	93.1	78.8'	
	17.8	147.0'	-0.63
	96.6		
	18.8	80.7'	(-0.62)
	99.5	67.4'	
	24.6	148.1'	-0.61
	92.0		

Index below

	116.0	65.0'	
	181.0	74.4'	
	110.0	139.4'	-0.79
	184.4		
	112.7	71.9'	(-0.82)
10 34	184.6	64.7'	
10 30.5	115.2	136.6'	-0.84
5	179.9	Mean -0.72	
15 30.5			

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1897phae.proj.1347.

July 8, 1897

Same again

		116.9	63.3'	
10	36	180.2	75.9'	
		111.1	139.2'	-0.79
		187.0		
		109.5	76.6'	(-0.76)
		186.1	64.9'	
		116.2	141.5'	-0.74
		181.1		

Index above

		204.4	66.5'	
		270.9	81.6'	
		198.7	148.1'	-0.61
		280.3		
		200.1	77.9'	(-0.66)
		278.0	65.9'	
		265.6	143.8'	-0.70
		271.5		

20	46	
10	40.0	
5		
15	40.0	

Mean -0.71

11 o & c 3 var, var. 1.5 d in finder
c var = c in large telescope.

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1897phae.proj.1347.

July 8, 1897

Σ 1864 Phot II 11 Obs

14	35	+17.0
18	26	
3	51	

14	35
18	35
4	20

14	35
18	40
4	5

11 Abandoned (Star of this magn and distance not found

Σ 1888 Phot II. 11 Obs.

14	46	+19.6
18	44	
3	58	

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1897phae.proj.1347.

July 8, 1897

Σ 1888 Plotter Wells.

Index left and above

brighter	180.9	41.9		
11 24	222.8	46.4		
	171.3	88.3	−1.96	✓
	217.7			
			−2.04	✓
	175.9	44.5		
	220.4	39.5		
	179.0	83.0	−2.11	✓
	218.5			

Index right and above Mean = −2.00

271.2	39.3		
310.5	45.2		
266.0	84.5	−2.06	
311.2			
		−1.96	
260.1	55.9		
11 31 / 11.5	316.0	35.7	
272.1	91.6	−1.87	
307.8			

Pos. angle 210° dis. 4.5 sec.

Magn 4.7 and 6.5

Seeing in above groups, very blurry

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1897phae.proj.1347.

July 9, 1897. (Friday)

Iapetus Phot. I Wr. Obs

15 30 −17.0
15 30
4

Impossible to get Iapetus, moon near, and sky hazy.

S. Cephei

21 37 +78.3
16 1
18 24
12
6 24

Index above

var dia → 26.0 69.3'
95.3 76.0'
2319 145.3' −0.67
99.9

21.9 77.6' (−0.67)
99.5 67.6'
27.6 145.2' −0.67
95.2

8 46

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1897phae.proj.1347.

July 9, 1897

Index below

117.0	68.1'	
185.1	79.4'	
111.6	147.5'	-0.62
191.0		
		(-0.60)
110.9	78.5'	
189.4	71.9'	
114.1	150.4'	-0.57
186.0		

8	53
8	49.5
5	
13	49.5

Mean -0.64

Same again

116.0	68.5'	
184.5	79.8'	
109.0	148.3'	-0.61
188.8		
109.5	81.0'	(-0.54)
190.5	74.2'	
114.1	155.2'	-0.47
188.3		

8	55

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1897phae.proj.1347.

July 9, 1897

Index above

207.0	68.6'
275.6	76.5'
203.0	145.1' -0.67
279.5	

		203.1	73.5' (-0.70)
9	01	276.6	68.7'
8	58.0	206.9	142.2' -0.73
5		275.6	
13	58.0		

Mean -0.62

9 17 cc 2.5-var, var 2d in finder } bright moonlight
c var = c in large telescope. }

T Androm. Phot II H Obs.

0	14	+26.1
17		
16	47	
12		
4	47	

Too low abandoned

Σ 25' Phot. R. H. Obs.

13	9	+68.0
17	8	
3	54	

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1897phae.proj.1347.

July 9, 1897.

Σ 25' Phot. R. H. Obs.
Pos angle 290° dis. 3 min
Magn 5.8 and 6.4

Index right

	13.9	< fainter dis	104.1'	
9 42	218.0		103.9'	
	113.3		208.0'	
	217.2		152.0'	0.54
	115.0		103.1'	
	218.1		102.2'	(0.51)
	115.1		205.3'	
	217.3		154.7'	0.48

Index left.

23.6	100.2'		
123.8	97.8'		
24.3	198.0'		
122.1	162.0'	0.34	
26.0	95.1'		
9 48 121.1	102.2'		(0.34)
9 45.0 24.5	197.3'		
5 14 45.0 ~~124.7~~	162.7'	0.33	
126.7			

Mean 0.42

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1897phae.proj.1347.

92

Postect to Lun:

July 9, 1897

Σ 1694 Phot R U. Obs

12 48 +84.1
17 22
4 34

Pos. angle 310° distance 22 sec
Magn. 5.0 and 5.4

Index right

	221.4	72.7'	(higher dds)
10 00	294.1	82.9'	
	214.1	155.6'	0.47
	297.0		
	216.0	81.5'	(0.42)
	297.5	79.0'	
	218.0	160.5'	0.37
	297.0		

Index left

	312.9	64.9'	
	17.8	83.0'	
	303.0	147.9'	0.62
	26.0		
	305.5	80.5'	(0.66)
10 05	26.0	63.3'	
10 02.5	312.7	143.8'	0.70
5			
15 02.5	16.0	Mean 0.54	

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1897phae.proj.1347.

July 9, 1897.

Σ 24' Phot. R Mt. Wils.

13 04 +39.2
17 36
4 32

Position angle 290° dis. 5 min.
Magn. 5.4 and 6.1 ~~South~~ ~~fol dis.~~
~~North foll. dis.~~ S.

Index left and below B.

	~~26.1~~	192	< light	94.3'
10	19	~~124.1~~	213.5	dis 91.7'
		119.8		186.0'
		211.5		174.0' +0.11
		120.0		91.5'
		211.5		97.2' +(0.14)
		122.3		188.7'
		219.5		171.3' +0.16

Index right and above A.

216.4	80.7'	
297.1	86.2'	
214.6	166.9'	−0.25
300.8		
215.9	85.2'	(+0.26)
301.1	80.4'	
217.1	165.6'	−0.27
297.5		

10	25
10	22.0
5	
15	22.0

−0.06

Mean ~~0.20~~

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1897phae.proj.1347.

July 9, 1897.

Images rather bad from wide distance of components and rather unsteady seeing.

Σ 1835 Phot. ~~H~~ N. Obs.

14 17 +9.0
18 2
3 45

Pos. angle 185° distance 6 sec.
Magn. 5.5 and 6.7

Index right and below

	82.6	brighter is	51.9'	
10 46	134.5		56.9'	
	80.9		108.8'	1.45
	137.8			
	81.8		58.8'	(1.45)
	140.6		49.9'	
	84.3		108.7'	1.45
	134.2			

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1897phae.proj.1347.

July 9, 1897

Index left and above.

175.8	45.6'		
221.4	59.9'		
170.3	105.5'	1.52	
230.2			
			(1.531
168.7		58.7'	
~~226.9~~	227.4	46.0'	
175.1		104.7'	1.54
221.1			

10	52	
10	49.0	
5		
15	49.0	

Mean 1.49

P. Androm. H. Obs.

~~24 14~~ + 26.1

18 30

~~18 10~~

6 ~~44~~

5 16

24 14

18 30.

~~5 44~~

6 16

Too low in bright moonlight,
Abandoned.

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1897phae.proj.1147.

July 12, 1897. (Monday.)

S Cephei. Phot. I Ht. Obs

21	37	+78.3
15	20	
39		
17	43	
12		
5	43	

7 54 S Cephei seen for a moment Clouds all thick again.

8 02 Clouds

8 24 Cloudy everywhere and growing worse Too Cloudy for S. Cephei Abandoned

Σ 30' Phot R Ht Obs

16	33	+53.2
16.	4	
13	31	
12		
+1	31	

Abandoned

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1897phae.proj.1347.

July 12, 1897.

Σ 21' Phot R N Obs

12	23	+26.6
16	06	
3	43	

There is a possible doubt as to this being the right star, but it is the only one that can be found of this general description.
Pos angle 250°, distance 2.6' faint mags. 4.8 and 6.1

Index left and above

8 41

319.8	brightness	
10.3		50.5"
Clouds		59.8"
315.2		110.3" — 1.41"
15.0		
		— 1.34
317.0		
15.7		58.7"
317.1		57.8"
14.9		116.5" — 1.27"

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1897phae.proj.1347.

July 12, 1897

Index right and below

45.1
Clouds thick
102.8
46.5
Clouds thick
103.0

49.9
8 H7 100.5
(Observations made through clouds)

~~8 44~~
43.8
103.5

Images quite faint at times
8 50 Clouds everywhere and steadily grow worse.

57.7"
56.5
114.2 — 1.32"

— 1.36"

~~49~~

50.6"
59.7"
110.3" — 1.41"

Mean = — 1.35"

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1897phae.proj.1347.

July 16. 1897. (Wednesday)

Became somewhat clear suddenly the latter part of evening. Came to observatory but clouded up again.

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1897phae.proj.1347.

July 15, 1897. (Thursday)

S. Cephei. Phot. I. H. Obs.

21	37	+78.3
15	30	
59		
17	53	
12		
5	53	

7 48 Clouds and twilight. No stars visible.

7 55 Clouds

21 37 +78.0

Index above.

	26.1	67.2'	
8 12	93.3	72.9'	
Clouds	140.1'		-0.77
	23.0		
	95.9		
			(-0.74)
	21.9	73.3'	
	95.2	69.2'	
	24.8	142.5'	-0.72
	94.0		

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1897phae..proj..1347.

July 15, 1897.

Index below.

115.2 70.9'
186.1 77.0'
112.0 147.9' - 0.62
189.0

(-0.62)

113.0 75.8'
188.8 71.8'
113.2 147.6' - 0.62

8 34
8 23.0
5
13 23.0

Clouds rather thick
185.0

Mean - 0.68

Same again.

112.4 74.5'
186.9 76.3'
112.8 150.8' - 0.56
189.1

8 53

109.1 78.8'
187.9 76.0'
110.9 154.8' - 0.48
186.9

(-0.52)

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1897phae.proj.1347.

July 15, 1897.

Index above.

204.0	70.5'	
274.5	75.7'	
201.0	146.2'	− 0.65
276.7		

203.0	72.7'	(−0.66)
275.7	72.0'	
203.0	144.7'	− 0.68
275.0 .		

Mean −0.59

9	0		
8	56.5		
5			
13	56.5		

Iapetus Phot. I W. Obs

15	30	−17.0
16	55	
1	25	

There is star following Saturn 52.5 sec and about .5' of arc south of it.

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1897phae.proj.1347.

July 15, 1897.

Index right

		323.5	10.8'	
9	34	334.3	9.4'	
		324.3	20.2'	+5.27
		333.7		
		323.2	10.4'	(+5.22)
		333.6	10.8'	
		323.8	21.2'	+5.16
		334.6		

Index left.

		54.2	10.3'	
		64.5	10.0'	
		53.6	20.3'	+5.26
		63.6		
		54.1	10.8'	(+5.26)
9	46	64.9	9.4'	
9	40.0	54.8	20.2'	+5.27
5				
14	40.0	64.2		

Mean +5.24

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1897phae.proj.1347.

July 15, 1897.

Same again

		54.2	10.8'
9	48	65.0	11.6'
		53.4	22.4' + 5.04
		65.0	

		54.3	9.8' (+5.15)
		64.1	10.5'
		54.0	20.3' + 5.26
		64.5	

Index right

		144.8	10.7'
		154.7	10.9'
		144.1	21.6' + 5.12
		155.0	

		145.0	9.9' (+5.15)
9	58	154.9	11.1'
9/5	53.0	144.0	21.0' + 5.18
14	53.0	155.1	

Mean +5.15

Measurements made with much difficulty on account of bright moonlight and light clouds. Sky however somewhat clearer in region of Saturn during measurement. Object assumed to be Dafelus was the object following Saturn 52.5 Sec. and 0.5 South of it.

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1897phae.proj.1347.

July 15, 1897.

Σ 1904 Phot R. W. Obs.

14	58	+6.0
17	61	
3	3	

Pos. angle 330° dis grec.
Magn. 6.9 and 7.1

Index above A.

	32.0 (bright dis	85.0	
10 17	117.0	74.9	
	36.2	159.9	0.38
	111.1		
	37.0	73.0	(0.38)
	110.0	87.0	
	31.0	160.0	0.38
	118.0		

Index below B.

	123.0	76.5	
	199.5	90.3	
	122.3	166.8	0.25
	212.6		
	117.0	94.6	(0.16)
10 24	211.6	81.0	
	121.5	175.6	0.08
	202.5		Mean 0.27

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July 15, 1897.

Σ 1970 Phot R N. Obs

15 40 +15.8
18 20
2 40

Pos angle 260° dis 30 sec
Magn. 3.0 and 9.2

Under left

342.0 (brighter dis. 6.5
10 33 348.5 6.0
342.1 12.5 6.31
348.1

342.3 5.7 (6.27)
348.0 7.3
341.7 13.0 6.23
349.0

Under right

72.0 7.5
79.5 6.6
72.3 14.1 6.05
78.9

72.0 6.3 (6.08)
10 40 78.3 7.5
72.0 13.8 6.10
79.5 Mean 6.18

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1897phae.proj.1347.

July 15, 1897.

Σ 2096 Phot R. N. Obs.

16 41 +2.3
18 36
1 55

Pos. angle 80° dis. 20 sec. Magn. 5.9 and 9.3

Index right and above

153.0 (bright star is 25.0
178.0 32.8
149.2 57.8 2.94
182.0

10 53

150.0 30.6 (2.94)
180.6 27.1
157.1 57.7 2.95
178.2

Index left and below

243.5 23.7
267.2 21.7
243.9 45.4 3.49
265.8

244.5 24.5 (3.38)
269.0 25.2
242.2 49.7 3.28
267.4

10 59

Mean 3.16

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1897phae.proj.1347.

July 15, 1897. Phot R. M. Obs.

Σ 1962 — −8.3

15	32
18	57
3	25

11 08 Abandoned. Clouds too thick. No stars visible

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1897phae.proj.1347.

July 16, 1897. (Friday)

S. Cephei. Phot. I. H. Obs.

21	37	+78.0
15	30	
17	53	
12		
5	53	

Index above.

	206.0	66.7'	
8 8	272.7	70.2'	
	204.9	136.9'	-0.84
	275.1		
	205.9	69.1'	(-0.86)
	275.0	65.2'	
	207.5	134.3'	-0.89
	272.7		

Index below.

	297.0	63.5'	
	0.5	66.8'	
	296.2	130.3'	-0.97
	3.0		
	294.0	71.4'	(-0.94)
	5.4	62.0'	
	298.5	133.4'	-0.91
	0.5		Mean -0.90

8	15
8	11.5
5	
13	11.5

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1897phae.proj.1347

July 16, 1897.

Same again.

299.0 60.5'
8 18 359.5 65.4'
298.6 125.9' -1.07
4.0

293.5 71.5' (-0.95)
5.0 65.8'
299.2 137.3' -0.83
3.0

Index above

24.8 71.1'
95.9 78.7'
20.5 149.8' -0.58
99.2

19.0 78.0' (-0.59)
8 24 97.0 70.9'
5 21.0
5 24.0 148.9' -0.60
13 21.0
94.9 above settings Mean -0.77

~~Comparisons~~ made in rather strong twilight

8 34 C 3 var, var 1d in finder
C 1 var, var 3d in large telescope
Considerable twilight still at time
of estimate

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1897phae.proj.1347.

July 16, 1897.

Iapetus		Phot. I.	H. Obs.
15	30	-17.0	
16	30		
1			

Star measured last night for Iapetus follows Saturn to night 57 sec and is about .6 of min south of it.

Another star follows Saturn to-night 8.4 sec and is 2 min 0 sec south of it. This star is slightly brighter than the first mentioned one. A fourth star follows Saturn 1 min 3 sec and is about .2 of min south of it.

Comp. Star = SD. -16° 4116 (A2)

(Continued on next page)

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1897phae.proj.1347

July 16, 1897.

Dapetus Phot I H. Ab

Index left Compared with a

	141.0	19.3	
9	160.3		
	139.1	20.2	
	159.3	39.5	+3.79
	138.4	21.5	(3.71)
	159.9		
	139.0	21.0	
	160.0	42.5	+3.63

Index right

	228.0	24.9	
	252.9		
	229.0	23.2	
	252.2	48.1	+3.36
	228.9	24.5	(3.32)
9 10	253.4		
9 7.5	227.7	25.1	
5			
14 7.5	250.8	49.6	+3.29

mean +3.52
4.90
12.42

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1897phae.proj.1347.

July 16, 1897.

Lapelles compared with ☉.

Index right

		231.3	19.4		
9	13	250.7			
		230.0	19.4		
		249.8	39.2	+3.41	
		231.3	18.4		(3.46)
		249.8			
		232.7	18.5		
		251.2	37.0	+3.96	

Index left

		319.9	18.1		
		338.0			
		321.1	16.1		
		337.2	34.2	+4.11	
		319.2	18.5		4.06
9	19	337.7			
9	16.0	322.0	17.3		
5					
14	16.0	339.3	35.8	+4.01	

Recom. +3.97
4.90
12.87

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1897phae.proj.1347

July 16, 1897

Same again Compared with 6.

		321.4	16.0'	
9	22	337.4	15.3'	
		321.8	31.3'	+4.31
		337.1		
		321.9	17.0'	(+4.23)
		338.9	16.6'	
		320.9	33.6'	+4.15
		337.5		

Index right

		49.2	19.9	
		69.1	19.9	
		49.9	39.8'	+3.78
		69.8		
		49.7	19.8'	(+3.80)
9	28	69.5	19.3'	
9	25.0	49.0	39.1'	+3.82
3		68.3		
14	25.0			

Mean +4.02

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1897phae.proj.1347.

July 16, 1897

Lapolles compared with a again.

Index right

	47.0	25.8	
9 33	72.8	24.2	
	46.9	50.0	+3.27
	71.1		
	48.0	22.6	(+3.30)
	70.6	25.8	
	45.3	48.4	+3.34
	71.1		

Index left

	137.0	23.8	
	160.8	22.5	
	137.6	46.3	+3.44
	160.1		
	138.7	20.6	(+3.54)
1 9 37	159.3	22.0	
9 35.0	137.9	42.6	+3.63
5			
14 35.0	159.9		

Mean +3.42

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1897phae.proj.1347

July 16, 1897

Star a is the star foll. Saturn 3½ secs. 2' south of it.

Star b is the one foll Saturn 7 secs. and 0.'6 south of it. Star b is the one with which Sapelus was comp and last night.

Here is a star c foll Saturn 1 min 3 secs. about 0.'5 south of it but it cannot be used with Sapelus tonight. It is too faint.

It seems to bear about the same relation to star b as last night, although it looks as if possibly the declination with reference to b had changed a little, but of this, cannot be certain. Star c bears the same relation to b in right ascension as last night the diff. being 6 secs.

These (stars a, b, and c) seem to be all the objects which could possibly be Sapelus. others stars being either too faint or too distant.

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1897phae.proj.1347.

July 16, 1897

Var in Urs. Min. Phot P. H. Obs.

S Ursae Minoris.

15 50 +78.2

18 6

2 16

Index right and above

215.0 < compass 84.8'

10 23 299.8 81.8'

~~220~~ 218.0 166.6' +0.25

299.8

215.9 81.3' (+0.24)

297.2 85.9'

212.8 167.2' +0.24

298.7

Index left and below

303.7 83.6'

27.3 83.7'

302.5 167.3' +0.24

26.2

302.4 86.8' (+0.20)

10 . 29 29.2 85.0'

10 26.0 302.5 171.8' +0.16

5

15 26.0 27.5

Mean +0.22

Comp. star thought to be slightly the brighter of the two.

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1897phae.proj.1347.

July 16, 1897

Σ 1464 Phot II Gr. obs.

14 3V +17.0
18 35
4 0

Pos. angle 90°. dis. 6 sec Magn 5.0 & 6.0
Index left and below

70.8 brighter dis 76.0'
10 46 146.8 59.5'
77.9 135.5' 0.87
137.4

76.2 61.6' (0.80)
137.8 80.3'
70.4 141.9' 0.74
150.7

Index right and above

160.8 78.0'
238.8 60.8'
169.5 138.8' 0.80
230.3

169.9 60.0' (-0.80)
10 53 229.9 78.9'
10 49.5 160.0 138.9' 0.80
5
15 49.5 238.9

Mean 0.80

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1897phae.proj.1347.

July 16, 1897

Σ 1858 Phot FE N. Obs.

14 46 +19.6
18 46
4 0

Pos angle 200° dis. 5 sec. Magn 4.8 & 7.6

Index right and below : Reject.

272.9 brighter 37.1'
11 8 310.0 48.4'
264.5 85.5' 2.04
312.9

268.1 43.9' (2.08)
312.0 38.3'
271.4 82.2' 2.13
309.7

Index
0.3 43.6'
43.9 16.6'
~~357.4~~ 359.3 60.2' 2.85
15.9

354.1 21.9' (3.22)
11 17 16.0 21.7'
11 12.5 355.5 43.8' 3.58
5
16 12.5 17.2 Mean 2.65

Images very blurry and obscure & seems different
Components of the star must be closing up as they
did close together

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1897phae.proj.1447

July 16 1897 Phot R. M. Obs

Σ	1904	
14	58	+6.0
19	20	
4	32	

Pos. angle 300° dis. 9sec. Magn 7.0 & 7.1

Index ~~right~~ below B.

	Bstr. dis→			
	325.7	66.3'		
11	32	32.0	82.9'	
		318.1	149.2'	0.59
		41.0		
		313.2	87.9'	(0.48)
		41.1	72.8'	
		326.0	160.7'	0.37
		38.8		

Index above A.

		49.9	75.9'	
		125.8	88.8'	
		44.2	164.7'	0.29
		133.0		
		42.1	89.2'	(0.30)
11	37	131.3	74.1'	
11	34.5	50.0	163.3'	0.32
5				
16	34.5	124.1		

Mean 0.39

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1897phae.proj.1347.

July 20, 1897 (Tuesday)

S Cephei. Phot. I H. Obs.

21	37		+78.0
15	37		
18	0		
12			
6	0		

8 17 Abandoned. Thickly cloudy everywhere

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1897phae.proj.1347.

July 21, 1897 (Wednesday)

S Cephei Phot. I H. Obs.

21 37 +78.0
15 40
6 3

Index above

206.9 <var. dis. 65.6'
8 2 272.5 70.1'
205.7 135.7' -0.86'
275.8

204.1 69.7' (-0.87)'
273.8 65.0'
207.2 134.7' -0.88'
272.2

Index below

298.5 62.0'
0.5 68.9'
294.1 130.9' -0.96'
3.0

295.1 66.4' (-0.96)'
8 9 1.5 64.1'
8 5.5 296.9 130.5' -0.97'
5
13 5.5 1.0

Mean -0.92'

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1897phae.proj.1347.

July 21, 1897.

Same again

		297.8	63.4'	
8	11	1.2	69.6'	
		294.5	133.0'	-0.92'
		4.1		
		294.8	68.3'	(-0.92)'
		3.1	65.0'	
		296.5	133.3'	-0.91'
		1.5		

Index above

		23.1	71.8'	
		94.9	77.3'	
		19.8	149.1'	-0.59'
		97.1		
		20.9	76.1'	(-0.62)'
8	16	97.0	70.1'	
8	13.5	25.0	146.2'	-0.65'
5		95.1		
13	13.5			

Mean -0.77'

8 24 C 3.5 var, var 1d in finder
C 2 var, var 2d in large telescope

Measurments and estimates in rather strong twilight and some cloud also.

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1897phae.proj.1347.

July 21, 1897

Iapetus Phot. I N. Obs

15 30 -17.0
16 43
1 13

Object which is undoubtly Iapetus
follows Saturn 32.8 sec. and 2.8'
south of it. Call Iapetus a
A slightly brighter star precedes
Iapetus 1 sec. and is 2 min north of it
Call this b.
A slightly brighter star than the
last follows Iapetus 14.5 sec. and
is about 6.7' of arc north of it. Call
this c.
A star about as bright as c follows
Iapetus 23 sec. and is 9' of arc north of
it. Call this d.
A slightly fainter star than Iapetus
precedes it 14.5 sec. and is 8.5' south
of it. Call this e
The notation of tonight has no
relation to the notation of July 16, '97
Tonight's observation proves that
star a of July 16, '97 was Iapetus
And that star b which was
observed both on July 15 and 16, '97
was not Iapetus.

8 55 Clouds

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1897phae..proj..1347.

July 21, 1897

Star b of tonight follows Saturn 3,2 sec. and is about 1' of arc north of it
Iapetus Phot I N Ills
Index left and above

	139.1	<Comp dis.	20.9'	
9 10	160.0		19.9'	
	139.9		40.8'	+3.72'
	159.8			

138.9	22.4'		(+3.62)'
161.3	22.3'		
138.5	44.7'	+3.52'	
160.8			

Index right and below

229.0		24.4'	
253.4		23.2'	
~~250.0~~	229.8	47.6'	+3.38'
253.0			

	231.5	19.4'		(+3.48)'
9 18	250.9	23.9'		
9 14.0	229.9	43.3'	+3.59'	
5	253.8			
14 14.0				

Mean +3.55'

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1897phae.proj.1347

July 21, 1897

Same again

		229.8	22.4'	
9	16	252.2	21.2'	
		230.8	43.6'	+3.58'
		252.0		

		232.0	19.2'	(+3.70)'
		251.2 <Clouds	20.0'	
9	22	230.8	39.2'	+3.81'
		250.8		

Index left and above

		318.1	21.7'	
9	28	339.8 <Clouds	21.9'	
		319.0	43.6'	+3.58'
		33. 340.9		

		317.1	23.7'	(+3.54)'
9	40	340.8	21.5'	
9	28.0	317.8	45.2'	+3.50'
5		339.3		
14	28.0			

Mean +3.62

Observations made with difficulty especially in the last group on acct of clouds.

This was surely Sapotes.

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1897phae.proj.1347.

July 21, 1897

Σ 2838 Phot. R. N. Obs.

21	48	-3.9
18	2	
20	14	
12		
8	14	

Pos angle 180° dis. 20 sec Magn 5.9 and 9.0

9 53 Clouds thick

~~19~~ 53 Index to left

~~168.6~~ 165.8

10 10 193.3

166.0

193.8

10 13 Clouds thick

166.8

10 15 194.1 Clouds thick

10 30 Abandoned Clouds thick everywhere

~~Index right~~

10

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1897phae.proj.1347.

July 23, 1897. (Friday.)

Iapetus Phot. I' N. Obs

15 30 −17.0
18 40
3 10

A star which is probably Iapetus follows Saturn 30.5 sec and 2.9' of arc south got
Call this Star A { A slightly fainter star precedes Iapetus 8 sec. and is slightly north of it.
A slightly brighter star follows Iapetus 6.5 sec. and is about 4' north of it.
Another star follows Iapetus 21 sec. and is about 7' north of it.

11 04 It is utterly impossible to take Iapetus on account of clouds

Σ 25 Phot Q. N. Obs.

13 9 +68.0
19 29
6 20

Pos. angle 300° dis. 3' Magn 5.9 and 6.3
These are the two brightest and most widely separate components

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1897phae.proj.1347.

July 23, 1897

Σ 25' Phot. R. N. Obs.

Index left and below

		136.9			
11	19	221.6	A 47	+	
		139.2	A 0.8	+	
		220.0	160.5		− 0.27
		135.0			− 0.32
		219.1	A 41		
		141.3	77.0		
		218.3	161.1		− 0.36

Index right and above Mean = − 0.47

		235.1			
		306.0	70.9		
11	23	233.0	Clouds 77.0		
		310.0	147.9		− 0.62
		234.9			− 0.62
11	24	307.7	72.8		
		234.5	75.0		
		309.5	147.8		− 0.62

Latter part of observations made through cloud

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1897phae.proj.1447

July 23, 1897

Σ 31' Phot R. N. Cls.

16	34	+4.4
19	55	
3	21	

Index right and below

68.9
11 39 ← 108.0 < Clouds thick
67.5
107.0

67.5
110.0
11 41 ← 70.5 < Clouds thick Stars gone

Reject Clouds too thick

Index

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1897phae.proj.1347.

July 24, 1897. (Saturday)

δ Cephei	Phot. I.	H. Obs.
21 37	+78.0	
15 √7		
18 20		
12		
6 20		

7 35 Pretty cloudy.

8 17 δ Cephei glimpsed but clouded up and
8 now raining

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1897phae.proj.1447

July 26, 1897. (Monday)

S Cephei. Phot I'. H. Obs.

21	37	+75.0
15	53	
18	16	
12		
6	16	

7 55 Clouds came somewhat suddenly and before S Cephei could be measured

8 47 Thickly cloudy everywhere. no stars visible

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1897phae.proj.1347.

July 30, 1897. (Friday)

S. Cephei Phot II Wedge

21	37	+78.0
16	15	
18	38	
12		
6	38	

Index above

206.3	(var. dis.	67.6'
273.9		68.8'
205.6		136.4' −0.85'
274.4		

205.0	66.3'	(−0.90)
271.3	64.7'	
208.0	< Twilight strong	131.0' −0.96'
272.7		

Index below

296.8	63.0'	
359.8	66.5'	
296.0	129.5'	−0.99'
2.5		

295.5	69.2'	(−0.94)
4.7	64.5'	
297.0	133.7'	−0.90'
1.5		Mean −0.92

7 48

7	55
7	51.5
5	
12	51.5

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1897phae.proj.1447

July 30, 1897.

Same again.

	298.0	64.0'	
7 56	2.0	67.8'	
	295.2	131.8'	-0.94'
	3.0		

294.2	70.8'	(-0.88)
5.0	66.7'	
296.3	137.5'	-0.82'
3.0		

Index above

23.5	70.5'	
94.0	77.2'	
21.9	147.7'	-0.62'
99.1		

20.9	77.0'	(-0.64)
8 1 97.9 ~~95.7 97~~	69.1'	
7 58.5 25.0	146.1'	-0.65'
5 94.1		
12 58.5		Mean -0.76

Comp. star same as before. Observations made in strong twilight.

8 12 vC H, 0.5d in finder
vC 2.5, 2.5d in large telescope
Twilight still rather strong and ~~estimate~~ difficult

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1897phae.proj.1347.

July 30, 1897.

N Delphini Phot I' N. Obs

20 · 31 +17.8

17 1

20 30

12

8 20

Index right and above.

42.8 complex 36.2'

8 24 28 79.0 37.9'

80.0 74.1' +2.37'

77.9

39.4 38.6' (+2.36)

8 25 50 78.0 36.6'

41.5 75.2' +2.34'

~~76.9~~ 78.1

Index left and below

130.6 37.9'

8 28 30 168.5 34.6'

133.4 72.5' +2.43'

168.0

134.1 34.7' (+2.44)

8 29 33 168.8 36.6'

106 191 132.2 71.3' +2.46'

8 27 5 168.8

5

13 27 5

Mean +2.40

9.27

11.67

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1897phae.proj.1347:

July 30, 1897

			131 .5	36.5'		II
8	31	7	168.0	36.5'		
			132.2	73.0'	+2.41'	
			168.7			
			132.1	35.8'		(+2.43)
8	32	23	167.9	35.8'		
			132.0	71.6'	+2.45'	
			167.8			

Index right and above

			223.0	37.5'		
8	34	30	260.5	38.6'		
			220.3	76.1'	+2.31'	
			258.9			
			221.0	38.9'		(+2.28)
8	36	4	259.9	39.6'		
	133	64	221.3	78.5'	+2.24'	
8	33	31	260.9			
5						
13	33	31				

Mean +2.36
9.27
11.63

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1897phae.proj.1347.

July 30, 1897

		220.1	40.2'	
δ	37 36	260.3	36.5'	
		222.9	76.7'	+2.29'
		259.4		
		223.6	35.5'	(+2.32)
δ	38 54	259.0	39.4'	
		220.8	74.9'	+2.35'
		260.2		

Index left and below

		311.5	40.6'	
δ	41 47	352.1	40.2'	
		310.6	80.8'	+2.17'
		350.8		
		311.8	37.6'	(+2.22)
δ	43 11	349.4	40.2'	
	161 28	310.0	77.8'	+2.26'
δ	40 22	350.2		
5				
13	40 22			

Mean +2.27
9.27
11.54

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1897phae.proj.1347

July 30, 1897.

		307.9	41.4'	
8	44 35	349.3	42.8'	
		309.3	84.2'	+2.07'
		352.1		

IV

(+2.07)v

		310.0	41.9'	
8	45 ~~46~~ 58	~~311.6~~ 351.9	42.3'	
		309.8	84.2'	+2.07'
		352.1		

Index right and above

		39.9	38.8'	
8	47 56	78.7	40.7'	
		39.7	79.5'	+2.21'
		80.4		

		38.3	41.4'	(+2.16)v
8	49 18	79.7	41.2'	
	187 47	38.3	82.6'	+2.12'
8	46 56	79.5		
13	46 56 v	x		

Mean +2.12v

9.27

11.39v

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1897phae.proj.1347.

July 30, 1897.

	38.0	42.9'		
δ 52 [illegible]	80.9	39.7'		
	39.3	82.6'	+2.12'	
	79.0			
				(+2.08)'
	36.9	42.1'		
δ 53 22	79.0	42.8'		
	~~40.0~~ 37.0	84.9'	+2.05'	
	79.8			

Index left and below

	128.2	42.9'		
δ 55 45	171.1	45.0'		
	128.0	87.9'	+1.97'	
	173.0			
				(+1.92)'
	127.5	45.8'		
δ 57 0	173.3	46.1'		
218 55	125.9	91.9'	+1.86'	
δ 54 44	172.0			
5				
13 54 44 ✓				

Mean +2.00 ✓

9.27

11.27 ✓

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1897phae.proj.1347.

July 30, 1897

	126.4	45.6'	
8 58.16	172.0	43.1'	
	~~125.2~~ 127.4	88.7'	+1.95'
	170.5		

(1.911) ✓

	126.9	45.0'	
8 59 55	171.9	46.8'	
	126.4	91.8'	+1.87'
~~8 59 55~~	173.2		

Index right and above

	~~126.4~~	218.4	44.6'
9 2 ~~37~~ 07	~~[illegible]~~	263.0	44.5'
	218.5		89.1' +1.94'
	263.0		

	219.2	43.0'	(+1.941) ✓
9 3 22	262.2	45.9'	
24 3 40	218.0	88.9'	+1.94'
60 55	263.9		
9 0 55			
5			
14 0 55 ✓			

Mean +1.92 ✓

9.27

11.19 ✓

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1897phae.proj.1347.

July 30, 1897

~~219.4~~ 217.2 47.8'

9 5 35 265.0 43.9'

219.1 91.7' +1.87'

263.0

V | | (+1.86)"

218.1 44.8'

9 7 7 262.9 47.3'

216.9 92.1' +1.86'

264.2

Under left and below

306.2 48.3'

9 10 10 354.5 <clouds 45.3'

307.0 93.6' +1.82'

352.3

306.8 47.2' (+1.79)"

9 12 45 354.0 48.6'

34 97 306.5 95.8' +1.76'

9 8 54" 355.1

5

14 8 54"

Mean +1.82"

Last two setts taken through some cloud

11.09"

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1897phae.proj.1471

July 30, 1897

Iapetus Phot I · H. Obs.

15 30 -17.0

18 4

2 34

Iapetus precedes ~~Star~~ A of July 23, Page 128, by 5.5 sec. and is 2.3' south of it.

9 32 Clouds

Iapetus ~~Precedes~~ follows Saturn 17.5 sec. and is about 3.6 of arc south of it.

9 34 Almost invisible in ordinary eyepiece at present time

The identification of Iapetus on July 23, was correct and the identification tonight is unquestionably correct.

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1897phae.proj.1547.

July 30, 1897.

Index left and above

	316.8	28.2		
9 43	345.0	28.7		
	318.0	56.9	+2.98	
	346.7			
	318.0	26.9		(+2.96)
	344.9	30.7		
	315.5	57.6	+2.95	
	346.2			

9 51 Clouds thick

Index right and below

.

.

.

.

N. Delphini Phot I N 1

.

20	.31	+17.8
19	1	
22	.30	
12		
10	30	

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1897phae.proj.1347.

July 30, 1897

Index left

	120.5	59.0′		
10 20 0	179.5	59.8′		
	120.2 <clouds	118.8′	+1.22′	
	180.0			
	118.6	60.4′		(+1.19)″
10 21 30	179.0	61.3′		
	118.3	121.7′	+1.16′	
	179.6			

Index right

	210.0	61.0′		
10 23 43	271.0	66.2′		
	207.9	127.2′	+1.04′	
	274.1			
	207.0	65.9′		(+1.03)″
10 25 2	272.9	62.2′		
9 0 15	207.5	128.1′	+1.02′	
10 22 34	269.7			
5				
15 22 34				

Mean +1.11″

9.27

10.38″

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1897phae.proj.1347.

July 30, 1897

	207.1	61.8'	
10 26 16	268.9	67.5'	
	206.0	129.3'	+0.99'
	273.5		

	206.7		68.3'	(+0.98)"
10 28 3	~~276.1~~	275.0	61.6'	
	208.3		129.9'	+0.98'
	269.9			

Index left

	301.2	58.8'	
10 30 14	0.0	68.0'	
	295.3	126.8'	+1.05'
	~~4.5~~ 3.3		

	298.8	67.3'	(+1.01)"
10 37 7	2.1	63.0'	
121 40	298.8	130.3'	+0.97'
10 30 25	1.8		
5			
15 30 25"			

Mean +1.00"

9.27

10.27"

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1897phae.proj.1477

July 30, 1897

			298.1	59.3'	
10	34	32	357.4	67.4'	
			294.0	126.7'	+1.05'
			1.4		
					(+1.00)'
			293.9	68.9'	
10	36	16	2.8	63.2'	
			297.9	132.1'	+0.94'
			1.1		

Index right

			27.8	63.2'	
10	38	21	~~92.0~~ 91.0	75.3'	
			22.0	138.5'	+0.80'
			97.3		
			26.0	70.9'	(+0.82)'
	39				
10	~~40~~	55	96.9	66.3'	
	148	64	26.7	137.2'	+0.83'
10	37	16	93.0		
5					
15	37	16			

Mean +0.91'

9.27

10.18'

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1897phae.proj.1047.

July 30, 1897

	28.2	66.8′		
10 42 55	95.0	71.0′		
	24.9	137.8′	+0.82′	
	95.9			
	24.1	69.8′		(+0.84)″
10 44 13	93.9	66.6′		
	~~27.0~~ 26.5	136.4′	+0.85′	
	93.1			

Index left

	119.5	61.9′		
10 47 0	181.4	69.7′		
	114.0	131.6′	+0.95″	
	183.7			
	114.1	69.7′		(+0.96)″
10 45 26	183.8	60.8′		
181 94	120.3	130.5″	+0.97′	
10 45 38	181.1			
15 45 38 ✓				

Mean +0.90″

9.27″

10.17″

1897phae.proj.1347.

July 30, 1897

			120.9	61.6'		
1	10	50	2	182.5	70.5'	
			114.4	132.1'	+0.94'	
			184.9			
			114.5	72.6'		(+0.92)"
1	10	52	3	187.1	61.7'	
			121.1	134.3'	+0.89'	
			182.8			

Index right

			207.2	63.4'		
1	10	54	1	270.6	71.4'	
			204.5	134.8'	+0.88'	
			275.9			
			209.2	64.3'		(+0.96)"
1	10	55	31	273.5	63.0'	
	21	1	37	209.2	127.3'	+1.04'
	10	52	54	272.2		
	5					
	15	55	37"			

Mean +0.92"

9.27

10.21"

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July 30, 1897

	208.4	64.8'		
10 57 14	273.2	69.4'		
	204.6	134.2'	+0.89'	
	274.0			
				XIII
	204.0	71.6'		
10 58 43	275.6	68.6'		(+0.83)"
	~~207.4~~ 206.4	140.2'	+0.77'	
	275.0			

Index left

	297.5	65.7'		
11 1 1	3.2	76.3'		
	292.2	142.0'	+0.73'	
	8.5			
	294.3	70.4'		(+0.75)"
11 2 45	4.7	67.4'		
238 103	296.0	137.8'	+0.82'	
10 59 56	3.4			
5				
15 59 56				

Mean +0.80"

9.27

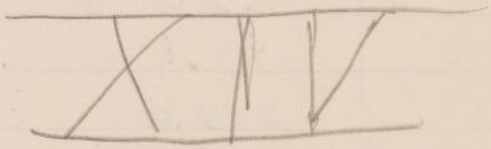
10.07"

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1897phae.proj.1347

July 30, 1897

		296.3	63.7'		
11	4	24	0.0.	75.5'	
			292.0	139.2'	+0.79'
			7.5		



			292.1	74.9'	
11	6	10	7.0	68.4'	(+0.75)"
			295.3	143.3'	+0.71'
			3.7		

Index right

			24.0	69.5'	
11	8	34	93.5	77.4'	
			20.7	146.9'	+0.64'
			98.1		

			21.0	74.0'	(+0.64)"
11	10	1	95.0	73.2'	
	28	69	21.0	147.2'	+0.63'
11	7	17	94.2		
5					
16	7	17			

Mean +0.70"
9.27
9.97"

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1897phae.proj.1347.

July 31, 1897

	26.0	69.8'		
11 18 46	95.8	75.8'		
	21.0	145.6'	+0.66'	
	96.8			
	18.0	81.9'		(+0.59)"
11 20 14	99.9	70.7'		
	23.3	152.6'	+0.52'	
	94.0			

Index left

	115.2	70.9'		
11 22 0	186.1	78.5'		
	112.4	149.4'	+0.59'	
	190.9			
	113.1	73.7'		(+0.64)"
11 23 42	186.8	70.7'		
83 102	115.1	144.4'	+0.69'	
11 21 10	185.8			
3				
16 21 10				

Mean +0.62"
9.27
9.89

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1897phae.proj.1447.

July 30, 1897.

		114.0	73.8'		
11	25	20	187.0	74.4'	
			113.6	147.4'	+0.63'
			188.0		

XVI

		113.4	76.5'		(+0.64) v
11	26	58	189.9	70.2'	
			~~+1.7.2~~ 116.2	146.7'	+0.64'
			186.4		

Index right

		206.0	68.3'		
11	28	50	274.3	72.7'	
			203.7	141.0'	+0.75'
			276.4		

		201.0	77.2'		(+0.68) v
11	30	20	278.2	70.7'	
	110	88	205.1	147.9'	+0.62'
11	27	52	275.8		
5					
16	27	52	v		

Mean +0.66 v

9.27
9.93

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1897phae.proj.1347.

July 30, 1897.

	205.3	67.7'	
11 32 14	273.0	76.3'	XVII
	202.0	144.0' +0.69'	
	278.3		
	200.8	77.0'	(+0.64)"
11 34 35	277.8	72.5'	
	204.3	149.5' +0.58'	
	276.8		

Index left

	295.5	72.6'	
11 35 21	8.1	78.8'	
	290.3	151.4' +0.55'	
	9.1		
	288.7	81.4'	(+0.56)"
11 37 1	10.1	69.6'	
138 71	295.3	151.0' +0.56'	
11 34 48"	4.9		
5			
16 3448"			

Mean +0.60"

9.27

9.87"

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1897phae.proj.1447.

July 30, 1897

	289.1	79.1'		
11 39 6	8.2	81.5'		
	288.4	160.6'	+0.37'	XVIII
	9.9			
	290.5	79.5'		(+0.46) ✓
11 40 10	10.0	72.4'		
	292.9	151.9'	+0.54'	
	5.3			

Index right

	20.7	74.4'		
11 42 36	95.1	78.5'		
	20.9	152.9'	+0.52'	
	99.4			
	19.7	78.3'		(+0.51) ✓
11 43 35	98.0	75.3'		
164 107	19.8	153.6'	+0.50'	
11 41 27	95.1			
5				
16 41 27 ✓				Mean +0.48 ✓

9.27
9.75 ✓

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1897phae.proj.1347.

July 30, 1897

	21.5	73.3		
11 44 53	94.8	76.7		
	20.6	150.0	+0.58	
	97.3			
	~~21.5~~ 19.5	79.5		(+0.52)
11 46 4	99.0	76.0		
	20.5	155.5	+0.47	
	96.5			

Index left

	114.0	73.0		
11 47 48	187.0	79.9		
	112.0	152.9	+0.52	
	191.9			
	112.9	76.1		(+0.58)
11 48 52	189.0	70.8		
18697	115.1	146.9	+0.64	
11 46 54	185.9			
5				
16 46 57				

Mean +0.55

9.27

9.82

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1897phae.proj.1447.

July 30, 1897

	112.0	75.8'		
11 49 54	187.8	76.4'		
	112.7	152.2'	+0.53'	
	189.1			
	112.2	77.7'		(+0.52)"
11 51 9	189.9	75.0'		
	112.8	152.7'	+0.52'	
	187.8			

Indexright

	206.0	69.9'		
11 52 56	275.9	77.0'		
	201.0	146.9'	+0.64'	
	278.0			
				(+0.58)"
	201.0	77.3'		
11 54 2	278.3	75.5'		
206 121	202.5	152.8'	+0.52'	
11 52 0	278.0			
5				
16 52 0				

Mean +0.55"
9.27
9.82'

12 05 No Watch Correction

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1897phae.proj.1347.

July 31, 1897. (Saturday)

S Cephei Phot. I. H Obs

21 37 +78.0
16 21
18 . 54
12
6 54

Cloudy all the time before this nothing could be done

Index above

205.9 < Var. dec. 70.8'
8 13 276.7 85.4'
197.3 156.2' -0.45'
282.7

195.2 82.8' (-0.44)'
281.0 74.1'
202.0 156.9' -0.44'
276.1

Index below

9 17 > 293.0 < Clouds thick 71.8'
4.8 80.7'
289.1 152.5' -0.53'
9.8

290.0 80.0' (-0.50)'
10.0 Clouds thick 76.1'
8 21 291.9 156.1' -0.46'
8 17.8 8.0
5
13 17.0

Mean -0.47'

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1897phae.proj.1447.

July 31, 1897

Sanae again

	291.0	76.9'	
8	33 7.9	86.2'	
	287.8	163.1'	-0.32'
	14.0		
	290.0	80.2'	(-0.42)
	10.2	72.4'	
	293.6	152.6'	-0.52'
	~~5.5~~ 6.0		

Index above

	23.3	75.1'	
	98.4	81.7'	
	~~15.1~~ 18.5	156.8'	-0.44'
	100.2		
	17.9	84.1'	(-0.40)
8	38 102.0	76.9'	
8	35.5 21.1	161.0'	-0.36'
5			
13	35.5 98.0		

Mean -0.41

8 44°C 4, 0.5 d in finder.
°C 3, 1 d in large telescope

Clear at time of observe estimate but troubled more or less by clouds during measurements.

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1897phae.proj.1347.

July 31, 1897.

Iapetus. Phot. I. H. Obs.

15 30 -17.0

17 38

2 8

Iapetus follows Saturn 15 sec and is 3' south of it

Iapetus precedes Star A of last night 10 sec and is 2.5' south of it

This is surely Iapetus

Index left and above

315.1 27.0

9 35 342.1

315.8 27.3

343.1 √40.3 3.09

316.5 25.6 (3.12)

342.1

316.1 27.5

343.6 √3.1 3.14

Index right and below

44.9 27.4

9 40 72.3 clouds

~~46.7~~ 46.1 26.1

72.2 √3.5 3.12

46.4 27.1 (3.10)

9 45 73.5

9 40.0 46.3 27.1

15 √40.2 3.09

14 40.0 72.4 mean 3.11

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1897phae.proj.1347

July 31, 1897

Same again

43.1 2A.f

9 46 71.9

~~45.9~~ 45.4

73.2 27.5 / 6.6 2.99

215.5 2A.9 (3.00)

74.4

45.0 27.5 / 6.5 3.00

72.5

Index left and above

135.8 2A.1

163.9

134.0 29.1 / 7.2 2.97

134.7 2A.3 (2.94)

9 52 163.0

9/5 49.0 134.2 2A.1

11 49.0 162.3 6.4 3.00 mean 2.99

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1897phae.proj.1347.

July 31, 1897

Same again

	136.1	25.7'		
10 7	161.8	29.8'		
	134.3	55.5'	+3.04'	
	164.1			
	132.9	30.4'		(+2.98)
	163.3	28.3'		
	134.9	58.7'	+2.91'	
	163.2			

Index right and below

~~207.9~~	226.8	25.1'	
251.9		29.1'	
223.9		54.2'	+3.09'
252.0			
226.1		26.0'	(+3.14)
252.1		26.0'	
~~228.0~~	226.0	52.0'	+3.18'
252.0			

10 14
10 10.5
5
15 10.5

Mean +3.06

Iapetus very faint in last settings

Comp. star = SD −16° 4116 (A.O.)

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1897phae.proj.1347.

July 31, 1897

Revision of Comparisons Stars for S.S Cygni

21	34	+42.6
19	14	
~~11~~	~~40~~	
−2	20	
9	40	

21	34
19	21
−2	13
9	47

10 30 All cloudy in the region

10 34 Clouds thick

10 40 C/B2 var, var 1 ~~Y~~ in large telescope

h 5 k
k 4 l
l 3.5 m
m 4.5 n
o 2 n
o certainly looks from 1.5 to 2 grades brighter than n tonight.

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1897phae.proj.1347.

July 31, 1897.

SS Cygni (continued)

10 52 Clouds

It looks very much as if star O had ~~==~~ changed, as O is a little brighter than ~~n~~ ~~this~~ and the intervale from O ~~#~~ to p must be a full magnitude

p 3.5 q
q 2 α
α 3 β
β 3 γ

11 11 Altitude is now so high that it is impossible to measure the stars photometrically. Will try however

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1897phae.proj.1347

July 31, 1897

ρ comp with m

Index left

	305.0	Comp dis	50.1'
11	18	355.1	44.4'
		307.1	94.5' +1.80'
		357.5	
		308.3	43.9' (+1.82)
		352.2	49.4'
		303.0	93.3' +1.83'
		354.4	

Index right

		33.5	51.7'
		85.2	57.0'
		31.1	108.7' +1.45'
		88.1	
	28	32.1	55.2' (+1.50)
11	38	87.3	48.9'
		~~37.0~~ 35.0	104.1' +1.56'
		83.9	

Mean +1.66

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1897phae.proj.1347.

July 31, 1897

~~q with comp wit~~ m

Index left

	304.9	45.7'	
11 20	350.6	45.8'	
	309.3	91.5'	+1.87'
	355.1		
	308.9	41.2'	(+1.96)
	350.1	44.1'	
	308.3	85.3'	+2.04'
	352.4		

Index right

	38.4	41.6'	
	80.0	48.9'	
	35.3	90.5'	+1.90'
	84.2		
	33.8	47.4'	(+1.90)
11 ~~35~~ 20	81.2	43.1'	
	37.9	90.5'	+1.90'
	~~80.0~~ 81.0		

Mean +1.93

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1897phae.proj.1347.

July 31, 1897.

α comp. with m.

Index right and below

		36.1	46.7'	
11	32	82.8	52.2'	
		31.4	98.9'	+1.68'
		83.6		
		32.7	51.8'	(+1.66)
		84.5	48.3'	
		34.5	100.1'	+1.65'
		82.8		

Index left and above

		131.0	39.7'	
	170.7	~~+69.7~~	47.0'	
		127.1	86.7'	+2.00'
		174.1		
		124.4	47.5'	(+1.91)
11	36	171.9	46.0'	
		125.8	93.5'	+1.82'
		171.8		

Mean +1.78

11 40 It is impossible to proceed farther Observer down on his knees on the pier and telescope nearly vertical

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1897phae.proj.1347.

Aug 13, 1897. (Friday.)

Iapetus. Plot I N. Obs.

Object taken for Iapetus precedes Saturn 19 sec and is about 1.2' of arc south of it.

Object taken for Titan precedes Saturn 6 sec and is about 1.1' of arc south of it.

Index left

	227.2	(Comp. dis.	24.1'
8 22	251.3		19.5'
	229.7		43.6' + 3.58'
	249.2		

231.2	19.3'	(+3.55)
250.5	25.4'	
228.8	44.7'	+3.52'
254.2		

Index right

317.5	25.0'	
342.5	21.4'	
320.0	46.4'	+3.44'
341.4		
~~32~~		
320.0	21.3'	(+3.50)
341.3	22.7'	
317.3	44.0'	+3.56'
340.0		Mean +3.52

8	27
8	24.5
8	22.5
13	22.5

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1897phae.proj.1347

Aug. 13, 1897.

Same again

318.9	23.7'	
342.6	20.9'	
320.0	44.6'	+3.53'
340.9		

320.9	19.6'	(+3.58)
340.5	22.8'	
318.9	+2.4'	+3.64'
341.7		

Index left

46.1	27.4'	
~~71.1~~ 73.5	22.9'	
~~48.5~~	50.3'	+3.26'
71.4		

49.4	22.5'	(+3.36)
71.9	23.4'	
49.1	45.9'	+3.46'
72.5		

Mean +3.47

8 25

8 33
8 30.5
2
8 28.5
5
13 28.5

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1897phae.proj.1347.

Aug. 13, 1897.

Same again

	47.5	24.4'	
8	34 71.9	22.7'	
	48.3	47.1'	+3.40'
	71.0		
	48.3	22.9'	(+3.45)
	71.2	22.2'	
	49.0	45.1'	+3.50'
	71.2		

Index right

	137.2	24.0'	
	161.2	20.9'	
	139.2	44.9'	+3.51'
	160.1		
	138.0	21.9'	(+3.52)
5	39 159.9	22.6'	
8	36.5 138.9	44.5'	+3.53'
	-2 161.5		
8	34.5		
5			
13	34.5		

Mean +3.48

Comp. Star = −16° 4120 (5.0)

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1897phae.proj.1347.

Aug. 13, 1897.

Same comp. Star used with Titan.

Titan Phot I. N. Obs.

Index right ~~Same comp. star~~

	126.0	50.0'	
	176.0	62.3'	Comp. star Dec.
8	41	112.3'	+1.36'
	119.3		
	181.6		

120.5	59.5'	(+1.32)'
180	56.5'	
123.0	116.0'	+1.28'
179.5		

Index left

212.8	55.4'	
268.2	63.4'	
207.0	118.8'	+1.22'
270.4		

208.9	63.7'	(+1.14)'
272.6	63.0'	
203.9	126.7'	+1.05'
266.9		

8	45
8	43.0
	− 2
8	41.0
5	
13	41.0

Mean +1.23

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1897phae.proj.1347.

Aug 13, 1897

Same again

		214.0	53.2'	
8	49	267.2	62.9'	
		208.6	116.1'	+1.28'
		271.5		
		209.5	58.6'	(+1.28)'
		268.1	57.2'	
		211.3	115.8'	+1.29'
		268.5		

Index right

		301.7	56.2'	
		357.9	66.2'	
		296.1	122.4'	+1.14'
		2.3		
		295.0	62.9'	(+1.14)'
8	54	0.9	60.0'	
8	51.5	299.5	122.9'	+1.13'
	-2	359.5		
8	49.5			
5				
13	49.5			

Mean +1.21

Watch used tonight 2 min fast.

Comy

1897phae.proj.1347.

Sept. 2, 1897 (Thursday)

Iapetus. Phot. I N. Obs.

Object taken for Iapetus precedes Saturn 28.5 sec and 2.6' north of it A faint star follows this last star taken for Iapetus 1.5 sec and is .8 of a min. south of it

Comp. Star = ↺ D. −17° 4343 (9.2)

Index left and above

	336.0	(comp. dis.	20.0'	
7	38 356.0		20.4'	
	336.7		40.4'	+3.75'
	357.1			
	336.1		21.0'	(+3.68)
	357.1		21.9'	
	335.8		42.9'	+3.61'
	357.7			

Index right and below

	64.9		23.1'	
	88.0		22.3'	
	65.0		45.4'	+3.49'
	87.3			
	65.9		21.2'	(+3.56)
7	45	87.1	21.2'	
7	41.5	65.8	42.4'	+3.64'
5				
12	41.5	87.0		Mean +3.62

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1897phae.proj.1347.

Sept. 2. 1897.

Same again

		66.3	19.2'	
7	47	85.5	21.3'	
		64.9	40.5'	+3.74'
		86.2		
		66.1	21.6'	(+3.70)
		87.7	20.2'	
		66.0	41.8'	+3.67'
		86.2		

Index left and above

		157.0	19.1'	
		176.1	20.7'	
		156.5	39.8'	+3.78'
		177.2		
		157.6	20.7'	(+3.76)
7	54	178.3	20.0'	
7	50.5	157.0	40.7'	+3.73'
5		177.0		Mean +3.73
12	50.5	Comp. star = As.		

Last of above observations taken through more or less fog. Observations somewhat difficult on this account. Faint star near supposed Dafilus cannot be taken.

8 20 Very cloudy

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1897phae.proj.1347.

Sept. 2, 1897.

Σ 27' δ Bootis Phot. R. N. Obs. 9

15 10 +33.5
19 27
4 17

8 25 Clouds thick
Pos. angle 70° dis. 1.5 min. Magn 3.2 and 7.6
Index right
352.2 (brightends 14.9
8 35 7.1 16.5
351.5 31.4 4.30
8.0
~~351.4~~
351.4 16.5 (4.24)
7.9 16.6
351.5 33.1 4.19
8.1

Index left.
78.6 17.2
95.8 20.1
79.9 37.3 3.92
100.0

80.1 18.4 (4.04)
8 43 98.5 14.9
82.0 33.3 4.17
96.9

Mean 4.14

9 0 Cloudy

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1897phae.proj.1347.

Sept. 2, 1897.

9 30 Sky now clearer

Relative Estimates of Comparison Stars for α Cassiop. H. Obs.

0 +0 +4 7.7

20 3 5

~~+9 5 5~~

~~+2~~

~~-6~~ ~~1 5~~

4 V.

7 VV.

9 50 π 5 ~~π'~~

π' 3.5 α

α 4 Psi

Psi 4 Phi

Phi 3.5 δ

δ 3 ε

ε 4.5 Zeta

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1897phae.proj.1347

Sept. ~~2~~, 1897.

Relative Estimates in Comp. Stars for
T Herculis T. Obs.

16 32 +37.5
21 10
4 38

10 15 l 4 α
α 3 β
β 6 β'
β' 3 γ
γ 4.5 δ
δ 6 δ'
δ' 3.5 Beta

Comp. Stars for
S S Cygni T. Obs.

21 34 +42.6
21 45
11

10 41 Altitude too high abandoned
~~10 41~~

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1897phae.proj.1347.

Sept. 2, 1897

Comp. Stars for T Aquarii Wolfs

	20	40	-5.6
	21	50	
	1	10	

10 53 N 50 rejct. abandoned.

Clouds came up Comp. stars abandoned

11 30 Still cloudy

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1897phae.proj.1347

Sept. 3, 1897 (Friday.)

Iapetus. Phot. I. N. Obs.

15 30 -17.0

15 30

3 0

7 20 Very cloudy.

Iapetus tonight precedes Saturn 27 sec. and is 2'.5 north of it

Index left and above

335.1 (comp. dis. 21.9'

7 55 357.0 19.5'

337.1 41.4' +3.69'

356.6

336.2 20.9' (+3.64)'

357.1 22.4'

335.6 43.3' +3.59'

358.0

Index right and below

64.0 22.0'

86.0 21.2'

65.0 43.2' +3.60'

86.2

66.4 20.8' (+3.62)'

8 02 87.2 21.7'

7 58.5 65.0 42.5' +3.63'

5 58.5

12 86.7

Mean +3.63'

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1897phae.proj.1347.

Sept. 3. 1897.

Same again.

	64.0	23.7'		
8 5	87.7	20.4'		
	65.8	44.1'	+3.55'	
	86.2			
	65.1	22.4'		(+3.58)'
	87.5	20.6'		
	65.0	43.0'	+3.61'	
	85.6			

Index left and above

155.5	20.4'		
175.9	20.8'		
155.3	41.2'	+3.70'	
176.1			

		157.0	18.5'	(+3.80)'
8	12	175.5	19.2'	
8	08.5	156.9	37.7'	+3.90'
5				
13	08.5	176.1		

Mean +3.69'

Observations difficults ~~especially~~ difficult especially at the last from low altitude and moonlight

Same comp star as last night

~~Comp. Alt~~ = S2 −17° K3 ++ (2.2)

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1897phae.proj.1447.

Sept. 3, 1897.

S Herculis. N. Obs.

16 45 +15.2
19 57
3 12

8 53 Cloudy
9 05 Clouds thick
9 15 Stopped on comp. stars by clouds

Σ 2276 N. Obs.

18 0 +12.0
20 25
2 25

9 18 All cloudy

10 04 Stopped by clouds, no chance for anything farther

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1897phae.proj.1347.

Sept. 4. 1897. (Saturday)

Iapetus. Phot. I. Gr. obs.

IV	30	~~+4~~	-17.7
18	30		
+2	V0		

Iapetus seen by momentary glimpses through the clouds. Iapetus precedes Saturn 25.5 sec and it about ~~2.6~~ 2.17 arc north of it.

8 05 ~~Observations~~ Still too cloudy Index left.

334.9

8 18 359.4

8 25 Iapetus abandoned after long trying. Impossible to get it.

Σ 1965 Gr. Obs.

15	35	+37.0
19	42	
4	7	

8 43 Thickly cloudy. Abandoned.

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1897phae.proj.1347:

Sept. 4, 1897.

Σ 2078 N. Obs

16 33 +53.2
20 17
3 44

9 N5 Wis cloudy, abandoned

Σ 2082 N. Obs.

16 35 +49.2
20 35
4 0

9 30 Wis cloudy Abandoned. No chance for anything further.

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1897phae.proj.1347.

Sept. 6, 1897. (Monday.)

Iapetus Phot. I. N. Obs.

15 30 −17.0

18 35

3 5

Iapetus precedes Saturn 27 sec and is 2'.8 north of it.

Index right and above

	65.5	comp. dis.	21.4'	
7 24	86.9		19.2'	
	67.0		40.6'	+3.74'
	86.2			
	65.5		21.1'	(+3.68)'
	86.6		21.4'	
	65.8		42.5'	+3.63'
	87.2			

Index left and below

155.8	20.2'		
176.0	19.2'		
156.8	39.4'	+3.80'	
176.0			
157.0	18.3'	(+3.82)'	
175.3	20.3'		
156.0	38.6'	+3.85'	
176.3			

7 32

7 28.0'

5

12 28.0'

Mean +3.75'

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1897phae.proj.1347

Sept. 6, 1897.

Same again

		~~156.3~~	156.2	19.0'
7	38	~~176.4~~	175.2	20.0'
		~~156.2~~	156.3	39.0' +3.82'
			176.3	

156.1	20.7'	(+3.78)'
176.8	20.0'	
156.0	40.7'	+3.73'
176.0		

Index right and above.

246.1	20.7'	
266.8	19.4'	
246.9	40.1'	+3.76'
266.3		

		246.6	19.6'	(+3.76)'
7	48	266.2	20.7'	
7	43.0'	246.3	40.3'	+3.75'
5		267.0		
12	43.0'		Mean +3.77'	

Comp. Star same as on Sept. 2 and 3.

Comp. Star = SD -17° 4384 (7.2)

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1897phae.proj.1347.

Sept. 6, 1897.

Comp. Stars for H Herculis H. Obs.

16 35 +39.2
19 35
2 57

k 4 b
8 25 l 4 α
α 4.5 β
β 5 β'
β' 5 χ
χ 4 δ
δ 5 δ'
~~δ' 2 Zeta~~ δ' 2 ζ
~~Zeta 4.5 Eta~~ ζ 4.5 η
~~Eta 4.5 Theta~~ η 5 θ
~~Theta 4.5 K~~ θ 4.5 K

Cover /

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1897phae.proj.147.

Sept, 6, 1897.

H Hercules Phot. I. W. Obs.

Eta compared with d.

Index above

		160.5	13.8	
9	15	174.3	13.0	
		160.5	26.8	4.65
		173.5		
		160.2	14.3	(4.60)
		174.5	13.7	
		160.3	28.0	4.55
		174.0		

Index below

		250.0	13.2	
		263.2	13.6	
		249.9	26.8	4.65
		263.5		
		249.1	14.9	(4.59)
9	24	264.0	13.4	
9	19.5	250.1	28.3	4.53
5		263.5		
14	19.5		Mean	4.60

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1897phae.proj.1347.

Sept 6, 1897

Comp Stars for ζ Aquarii Wells

20 40 −5.6
21 2
22

10 0 ~~n 5 o~~
~~o 4.5 α~~
~~α 0 β~~
} Star α not wanted.

10 06. n 5 o
o 4.5 β
γ not wanted
β 4.5 δ
δ 3.5 ε
ε 4.5 η
η 5 η'
η' 5 λ
λ 3.5 λ'
λ' 3 μ
μ 3.5 ν

10 20 This revised sequence and especially the omission of α and γ should be looked at after the moon is out of the way.

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1897phae.proj.1347.

Sept. 6, 1897

M 8 441 Phot R. N. Obs.

28 31 +62.8
22 00
5 31
12
6 29

Index left and below

244.1 <var. dis ✓4.0 ✓
10 46 298.1
242.4 ✓6.4 ✓ / 10.2 ✓ = 1.41 ✓
298.8

242.4 ✓6.0 ✓ −(1.41)
298.4
243.2 ✓4.✓ ✓ / 10.✓ ✓ = 1.41 ✓
297.7

Index right and above

335.9
25.2 49.3 ✓
335.1 ✓0.9 ✓ / 100 ✓ = 1.6✓ ✓
26.0

334.8 ✓0.3 ✓ −(1.67)
10 54 25.1
10 ✓0.0 ✓ 335.8 ✓8.✓ ✓ / 9A.A ✓ = 1.69 ✓
24.3

Mean 1.✓4 ✓

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1897phae.proj.1347.

Sept. 6, 1897.

Same again.

334.9 ~0.1
10 55 25.0
333.6 ~2.7 / 10 2.8 = 1.~9

333.9 ~3.9 — (1.~7)
27.8
333.7 ~0.3 / 10 ~.2 = 1.~~

Index left and below

64.8 ~8.7
113.5
60.9 ~6.~ / 10~.2 = 1.~3

61.5 ~6.0 — (1.~2)
11 01 117.5
10 ~8.0 64.1 ~9.9 / 10~.9 = 1.~1
114.0

Mean = 1.~K

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1897phae.proj.1247.

Sept. 6, 1897.

S S Cygni. A. Obs.

21 34 ++2.6

22 27

53

Star δ added by Mr. Seagrave forms a very good continuation of sequence.

γ 2.5 δ

11 20 γ 1 v, v 1.5 δ

1897phae.proj.1347.

Sept. 8, 1897. (Wednesday.)

Iapetus. Phot. I. H. Obs.

15	30	-17.0
18	58	
3	28	

7 . 35. Cloudy .

7 50 Too much cloud and moonlight to do anything with Iapetus, with Photometer.

It is at times thought to be seen with ordinary eye-piece, but it is extremely difficult and only seen as it crosses the bar. If this is Iapetus it precedes Saturn about 18 sec. and is about 2.'5 north of it, but observation extremely uncertain.

S Cephei. Phot. I. H. Obs.

~~19~~	~~20~~	
21	37	+78.3
43		
19	20	
2	17	
~~79~~	43	

(over.)

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1897phae.proj.1347.

Sept. 8, 1897.

S Cephei. Phot. I. H. Obs.

Comp. star = star e.

Index left and above

		301.0 < comp. dec.	90.1'	
8	16	31.1	84.8'	
		304.2	174.9'	+0.09'
		29.0		
		304.5	83.6'	(+0.12)'
		28.1	88.2'	
		302.9	171.8'	+0.16'
		31.1		

Index right and below

		32.5	89.6'	
		122.1	84.6'	
		35.0	174.2'	+0.11'
		119.6		
		34.0	84.0'	(+0.12)'
8	22	118.0	89.8'	
8	19.0	31.5	173.8'	+0.12'
5				
13	19.0	121.3		

Mean +0.12'

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1897phae.proj.1347.

Sept. 8, 1897.

Same again.

		32.5	89.0'	
8	24	121.5	86.2'	
		33.0	175.2'	+0.09'
		119.2		

35.3	83.4'	(+0.11)'
118.7	89.6'	
32.4	173.0'	+0.13'
122.0		

Index left and above.

124.6	84.8'	
209.4	90.0'	
121.5	174.8'	+0.10'
211.5		

		121.3	90.8'	(+0.09)'
8	30	212.1	85.0'	
8	27.0	125.1	175.8'	+0.08'
5				
13	27.0	~~209.5~~ 210.1		

Mean +0.10'

8 38 d 3, 1.5 e in large telescope

Moon too bright for finder.

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1897phae.proj.1347.

Sept. 8, 1897.

Var. in Urs. Min. Phot. R. H. Obs.

δ Ursae Minoris.

15	50	+78.2
20	7	
4	17	

Index right and above.

	149.2	< var. dis.	60.5'
8	51	209.7	63.5'
		148.5	124.0' −1.11'
		212.0	
		148.1	62.4' (−1.14)
		210.5	59.1'
		149.9	121.5' −1.16'
		209.0	

Index left and below

		243.2	54.2'
		297.4	57.9'
		240.9	112.1' −1.37'
		298.8	
		243.0	54.0' (−1.42)
8	58	297.0	54.2'
8	54.5	243.3	108.2' −1.46'
5			
13	54.5	297.5	

Mean −1.28

var. is the brighter.

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1897phae.proj.1347.

Sept. 8, 1897

Same again.

		242.4	56.4'	
9	0	298.8	54.6'	
		2425	111.0'	-1.39'
		297.1		
		243.9	55.1'	(-1.40)
		299.0	55.8'	
		243.0	110.9'	-1.40'
		298.8		

Index right and above.

		331.9	47.1'	
		19.0	54.9'	
		332.8	102.0'	-1.61'
		~~26.2~~	27.7	
		331.3	57.2'	(-1.48)
9	7	28.5	56.1'	
9	3.5	330.9	113.3'	-1.34'
5				
14	3.5	27.0		

Mean -1.44

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1897phae.proj.1347.

Sept. 5, 1897.

Σ 2115 Phot. R. H. Obs.

9 29 Companion very faint on acct of moonlight and some fog

16 56 +15.1

20 46

3 50

Pos. angle 225°, dis. 20 sec. Magn. 5.6 and 10.4

Index above and left

352.3 < brighter dis.

9 31 5.8 ~~63.5~~ 135

352.2 ~~63.5~~ 13.5

5.7 ~~127.0~~ 27.0 −4.63

352.9 −4.63

5.2 ~~62.3~~ 12.3

351.4 ~~64.7~~ 14.7

6.1 ~~127.0~~ 27.0 −4.63

Index right and below Mean = 4.60

81.0

98.1 171

83.0 125

95.5 29.6 −4.43

83.6 −4.56

9 38 95.0 11.4

81.2 14.9

96.1 26.3 −4.69

Observations very difficult on acct of faintness of companion and bright moonlight

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1897phae.proj.1347.

Sept. 8, 1897.

Σ 2140 Phot. H N. Obs.

17 9 +14.5
21 7
3 58

Pos angle 110°, dis. 4/5 sec. Magn 3.3 and 6.3
Index right and above
86.5 < brighter dis.

9 50 136.4 49.9
86.5 49.0
135.5 98.9 − 1.68

87.4 − 1.59
138.2 50.8
83.4 53.6
139.0 106.4 − 1.50

Index left and below Mean = 1.64
178.0
228.2 50.2
178.9 47.7
226.6 97.9 − 1.71

181.1 − 1.70
9 59 226.2 45.1
176.0 53.7
229.7 98.8 − 1.69

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1897phae.proj.1347.

Sept. 8, 1897. Phot II N. Obs.

Σ 2161

17 19 +37.3
21 32
4 13

Pos. angle 300° dis 3.5 sec. Magn. 4.0 and 5.1
Index left and below.

266.3 ← brighter dis.

10	9	320.0	53.7	
		262.8	57.2	
		320.0	110.9	− 1.40
		265.7		− 1.36
		319.1	53.4	
		262.9	60.9	
		323.8	114.3	− 1.32

Index right and above. Mean = − 1.31.

		353.2		
		51.8	58.6	
		350.5	54.6	
		55.1	113.2	− 1.34
		351.7		1.25
10	17	53.1	61.4	
		349.9	60.2	
		50.1	121.6	− 1.16

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1897phae.proj.1347.

Sept. 8, 1897.

Σ 2220 Phot. R. Z H Obs

17 42 +27.8
21 49
4 7

Pos. angle 240°, dis. 28 sec. Magn. 3.6 and 9.5
Index left and above

~~174.9~~ 174.9

10 26 183.0 Brighter dis. 8.1
176.5 5.9
~~182.4~~ 14.0 − 6.07

~~176.3~~ − 6.06
182.7 6.4
~~175.3~~ 7.7
~~183.0~~ 14.1 − 6.05

Mean − 6.06

Index right and below

265.2
273.2 8.0
266.4 6.3
~~272.9~~ 14.3 − 6.02

~~266.2~~ − 6.09
10 35 272.3 6.0"
15 5 G.M.T. 265.9 7.4"
273.3 13.4" − 6.16

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1897phae.proj.1247.

200

Sept. 8. 1897.

Σ 2264 Phot. ~~R~~. H. H. Obs

17. 56 +21.6
21 66
4 10

These two stars are almost identically equal in brightness.
Following star however thought to be perhaps slightly the brighter.
Pos. angle 250°, dis. 6sec. magn. 4.8 and 4.9
Index right and above A.

~~221.2~~ 243.1 (foll & brighter dis
10 49 ~~317.7~~ 333.2 90.1
247.0 81.6
328.6 171.7 — 0.16

249.0
327.0 78.0 — 0.20
244.9 88.6
333.5 166.6 — 0.25

Index left and below B. Mean = — 0.16
332.4
64.0 91.6
336.9 82.2
59.1 173.8 — 0.12

340.0
10 55 58.9 78.9 — 0.12
329.0 95.2
64.2 174.1 — 0.11

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1897phae.proj.1347.

Sept. 8, 1897.

Σ 2276 Phot. H Hbs

18 0 +12.0
22 30
4 30

Index left and below.

335.3 brighter dis

11	6	60.9	5.6	
		342.8	72.5	
		55.3	158.1	− 0.42
		343.1		− 0.46
		50.9	67.8	
		333.4	86.1	
		59.5	153.9	− 0.50

Index right and above Mean = − 0.37

		64.0		
		152.2	88.2	
		69.1	74.0	
		143.1	162.2	− 0.34
		71.8		
11	15	146.4	74.6	− 0.28
		61.9	92.8	
		154.7	167.4	− 0.23

Pos. angle 245°.7 sec. magn 6.5 and 7.2
Observations difficult on acct of low altitude and moonlight. Stars look rather faint.

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1897phae.proj.1347

Sept. 5, 1897.

Σ 2404 Phot. H. N. Obs.

18 45 +10.8

22 50

4 5

11 26 Seeing becoming so bad, it is impossible to measure doubles.

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1897phae.proj.1347.

Sept. 9, 1897. (Thursday)

		Iapetus.	Phot. I	M. Obs.
		15 30	-17.0	
		18 47		
		3 17		

Iapetus precedes Saturn 16 sec. and is 2'.8 north of it.

Index right and above

		66.5 < comp. dis.	20.8'	
7	31	87.3	18.2'	
		68.0	39.0'	+3.82'
		86.2		
		65.7	20.5'	(+3.76)
		86.2	20.9'	
		65.9	41.4'	+3.69'
		86.8		

Index left and below

		156.4	19.8'	
		176.2	19.3'	
		156.4	39.1'	+3.82'
		175.7		
		157.0	19.2'	(+3.84)
7	40	176.2	19.4'	
7	35.5	156.8	38.6'	+3.85'
5				
12	35.5	176.2		Mean +3.80

Comp star: same as Sept. 6, -SD-17° 4388 (7.2)

7 45 Observations extremely difficult on acct of low altitude and full moon. Only 1 group could be taken.

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1897phae.proj.1347

Sept 9, 1897

S Cephei Phot. I N. Obs.

21 37 +78.3
19 18
2 19
12
9 41

Index left and above

211.0 < var. dia 89.4'
300.4 89.4'
212.0 178.8' −0.02'
301.4

211.5 89.2' (+0.02)'
300.7 93.3'
208.6 182.5'
301.9 177.5' +0.05'

Index right and below

296.0 100.1'
36.1 89.6'
298.8 189.7'
28.4 170.3' +0.18'

299.5 90.8'
30.3 98.9' (+0.18)'
296.0 189.7'
34.9 170.3' +0.18'

Mean +0.10'

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1897phae.proj.1347.

Sept. 9, 1897.

Same again.

6		298.2	95.6′	
8	12	33.5	90.2′	
		~~300.+~~ 299.8	185.8′	
		30.0	174.2′	+0.11′
		300.1	90.6′	
		30.7	98.8′	(+0.14)′
		295.2	189.4′	
		34.0	170.6′	+0.18′

Index left and above.

		31.3	94.5′	
		125.8	89.9′	
		32.5	184.4′	
		122.4	175.6′	+0.05′
		31.0	91.6′	
8	22	122.6	93.0′	(+0.08)′
8	17.0	29.1	184.6′	
5				
13	17.0	122.1	175.4′	+0.09′

Comp star = star Mean +0.11′

8 30 l/ var, var 3 f in large telescope.

✓ Too much moonlight for finder.

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1897phae.proj.1147

Sept. 9, 1897.

Σ 2021 Phot. M. M. Obs.

16 8 +13.8
20 23
+ 10

Pos. angle 240°, dis. 3.5 sec. magn. 6.7 and 6.9
Index left and above B.

	249.3	91.8	
8	56 341.1	88.5	
	246.5	180.3	+ 0.01
	335.0	179.7	
			- 0.02
	245.5	90.1	
	335.6	87.3	
	247.7	177.4	- 0.05
	335.0		

Mean = - 0.10

Index right and below A.

	339.5	79.5	
	59.0	90.1	
	334.2	169.6	0.20
	64.3		
			- 0.18
	335.6	86.5	
9	4 62.1	85.0	
	335.5	171.5	0.16
	60.5		

Observations rather difficult on acct of closeness of components and rather poor seeing.

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Sept. 9, 1897.

Σ 2103 Phot M. N. Obs

16 44 +13.4
20 44
4 0

Pos. angle 40°, dis. 6 sec., magn. 5.4 and 10.0
Index right
189.9
9 17 208.5 18.6
191.5 18.8
210.3 37.4 − 3.92

190.5 − 3.90
209.9 19.4
190.3 18.6
208.9 38.0 − 3.88

Index left Mean = − 3.81
281.0
300.6 19.6
279.8 21.4
301.2 41.0 − 3.71

278.0 3.72
9 27/26 299.2 21.2
279.4 19.7
299.1 40.9 − 3.72

Observations extremely difficult on acct of faintness of companion, ~~cal~~ bright moonlight and light clouds.

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1897phae.proj.1347

Sept. 9, 1897.

Σ 2078 Phot M. M. Obs.

16 33 +53.2
21 5
4 32

Pos angle 95°, dis. 3.5 sec. magn. 5.0 and 6.0
Index left and below B.

256.2 Σ Uraniæ.
9 40 323.8 67.6
261.0 61.1
322.1 128.7 − 1.00

362.8 −1.06
319.4 56.6
256.6 67.2
323.8 123.8 − 1.11

Index right and above. A. Mean = − 1.04

345.5
51.8 66.3
348.0 61.9
49.9 128.2 − 1.02

349.9 −1.02
9 49 49.9 60.0
345.9 67.9
53.8 127.9 − 1.02

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Sept. 9, 1897.

Σ ~~33~~ 2130 Phot. H. W. Obs perhaps

Components about equal but N preceding component the slightest to be very slightly brighter. Power ^ achromatic 400 used on Phot. H.

17	3	+54.6
21	28	
4	25	

Pos. angle 130°, dis 3 sec. magn. 5.0 and 5.1

Index below B.

226.0 Brighter dis.

10	12	317.2	91.2	
		225.9	91.9	
		317.8	183.1	+ 0.06
			176.9	
		226.0		+ 0.02
		317.0	91.0	
		227.7	89.8	
		315.5	178.8	− 0.02

Index above A. Mean = + 0.01

315.3			
46.9	91.6		
316.9	90.2	+ 0.03	
47.1	181.8		
	178.2		
		0.00	
317.0			
10 20 46.5	89.5		
~~316.8~~ 316.8	88.1		
44.9	177.6	− 0.04	

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1897phae.proj.1347

Sept. 9, 1897.

Σ 2161 Phot 14 N. Obs

Power achromatic 400

17 19.2 +37.3

22 0

4 41

Pos. angle 295°; dis. 4sec; magn 4.1 and 5.4

Index above

58.4 brighter dis

10	32	118.3	60.1	
		54.0	67.9	
		121.9	128.0	− 1.02
		56.0		− 0.96
		120.9	64.9	
		54.0	68.3	
		122.3	133.2	− 0.91

Index below

Mean = − 0.97

		143.2		
		211.0	67.8	
		146.0	63.2	
		209.2	131.0	− 0.96
		147.3		
10	40	210.1	62.8	− 0.98
		144.2	66.7	
		210.9	129.5	− 0.99

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1897phae.proj.1347.

Sept. 9, 1897.

Σ ~~2276~~ 2323 Phot H N. Obs

Power achromatic 400

18 22 +58.7

22 30

4 8

Pos. angle 250°; dis. 3 sec. magn. 4.6 and 7.8

Index left and above

		252.5		
11	2	283.4	30.9	
		252.2	31.9	
		284.1	62.8	− 2.76
		252.9		
		284.4	31.5	− 2.75
		253.8	30.1	
		283.9	61.6	− 2.80

Index right and below. Mean = − 2.82

		343.2		
		10.6	~~32.4~~	
		342.5	31.0	
		13.5	~~62.4~~	− 2.92
		340.9		
11	10	12.1	31.2	− 2.86
		342.8	30.8	
16.1 gm.		13.6	62.0	− 2.79

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1897phae.proj.1347

Sept. 10, 1897 (Friday)

Iapetus	Phot. I.	H. Obs.
15 30	-17.0	
18 55		
3 25		

7 25 Practically impossible to see Iapetus with ordinary eye piece. Low altitude, full moon and clouds.
Utterly impossible to measure it with the photometer tonight.

S Cephei	Phot. I.	H. Obs.
21 37	+78.3	
19 7		
2 30		
9 30		

Index left and above.

210.2	<var. dis.	93.2'	
7 45 303.4		90.5'	
209.9		183.7'	
303.4		176.3	+0.07'
211.3		88.1'	(+0.03)'
300.4		91.2'	
211.8		179.3'	-0.01'
303.0			

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Sept. 10, 1897

Index right and below

	298.5	91.5'
	30.0	93.1'
	299.1	184.6'
	32.2	175.4' + 0.09'
	297.9	96.3'
7 54	34.2	100.7' (+0.20)'
7 49.5	296.3	197.0'
5		
12 49.5	37.0	163.0' + 0.32'
7 58	Clouds rather thick	Mean + 0.12'

Same again.

	298.9	92.5'
8 8	31.4 <clouds thick	91.5'
	298.9	184.0'
	30.4	176.0' + 0.08'
	295.5	93.0'
	31.5	93.7' (+0.10)'
	299.7	186.7'
	33.4	173.3' + 0.13'

Index left and above

30.1	97.1'
127.2	89.1'
30.6	186.2'
119.7	173.8 + 0.12'

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1897phae.proj.137.

Sept. 10, 1897.

		29.1	95.0'	(+0.12)'
8	23	124.1	91.9'	
8	15.5	30.2	186.9'	
5				
13	15.5	122.1	173.1' +0.13'	Mean +0.11'

Observations made through increasing clouds, Observation very difficult especially in last group. Observations probably not of full weight.

δ 30 e 1.5, 2.5 f in large telescope especially as comparison is nearly 0.5 from variable.

Comp. Star = e =

Σ 31'	Phot R.	N. Obs
16 34	+4.4	
20 20		
3 46		

Pos. angle 240° dis ~~7.5~~ e 1.2, magn. 6.0 and 7.0

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Sept. 10, 1897

Σ 31' Phot R. N Obs

Index right and below

56.9 < brightedis

8 54 119.5 62.6

57.8 63.4

121.2 126.0 − 1.06

56.3 − 1.11

118.3 62.0

57.4 < Cloudsthick 59.5

56.9 121.5 − 1.16

Index left and above Mean = − 1.03

144.3

~~214.2~~ 214.2 69.9

147.0 64.0

211.0 133.9 − 0.90

146.2 − 0.95

9 12 212.0 65.8

147.9 62.9

210.8 128.7 − 1.00

Observations somewhat difficult being made through much cloud

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1897phae.proj.1347.

Sept. 10, 1897

Σ 2241 Phot R. H Ob

17 45 +72.2
20 50
3 5

Pos. angle 20°, dis. 30 sec magn 4.0 and 5.4
Index right, and above

238.2
9 22 304.8 66.6
239.0 61.7
306.7 128.3 − 1.01

240.0 − 1.03
306.6 60.6
238.1 65.9
304.0 126.5 − 1.05

Index left and below Mean = − 1.12

329.0
30.8 61.8
328.9 58.3
27.2 120.1 − 1.19

329.8
9 27 28.5 58.7 − 1.22
330.0 59.2
14.4 29.2 117.9 − 1.24

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Sept. 10, 1897

Σ 2276 Phot H. N. Obs.

15	0	+12.0
21	5	
3	5	

9 34 Clouds too thick Stars invisible

Σ 2280 Phot. R. N. Obs.

15	3	+26.1
21	11	
3	8	

9 38 Clouds thick no stars visible in large telescope

~~9 38~~

Σ 2305 Phot R N. Obs.

15	9	+80.0
21	15	
3	6	

9 42 5th magn invisible in large telescope
no chance for any thing further

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1897phae.proj.1247.

Sept. 11, 1897. (Saturday)

7 45 All cloudy everywhere.

Abandoned for a new book.

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