1881phae.proj..493S

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KG 11365.492

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Nov. 29. 1881

B. & C. 1182. Bond 394.

4	59	41.8	5	0	44.5 0,0
5	0	41.8	5	1	0.0
					+ 2.7
					+ 2.7

Reap. Jup. II. Phot. H. P. obs.
Compared with Sat. I.

5	0	44
	23	41
5	24	25
5	1	0
	23	25
5	0	42
5	24	7 approx. time reap.

5	23	51	
		55,5	00,5
	24	5,0	34,5
		14,5	02,0
		22,5	04,0
		05,0	29,2
		40,5	04,1
		49,0	29,2
		56,5	04,2

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1881phae.proj.493S

Nov. 29. 1881.

25		2,5	287,5
		11,5	289,9
		20,0	282,9
		24,0	286,9
		27,0	277,0
		44,0	285,5 —
		52,0	272,1
26		0,0	285,6
		9,0	266,8
		16,5	7,9 —
		23,5	266,9
		31,0	11,0
		40,0	260,5
		48,0	5,5 —
		56,0	262,2 —
27		2,5	10,2
		13,5	267,5
		21,5	8,5 —
		30,0	269,0
		40,5	4,0 —
		46,5	266,2
		57,0	4,0 —
28		7,0	262,5
		19,0	14,0
		28,0	261,7
		40,5	12,7 —
29		0,5	270,6 —

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1981phae.proj..493S

Zon. 29. (KA),

V	29	9,V
		17,0
		2V,0
		JJ,0
		KV,V
		VJ,V
	J0	1,0
		K8,V
	J1	16 ±
		29,0
		KK,V
	J2	2,V
		19,V
		2J,0
	JJ	2,0
		2K,V
		K0,V
		VJ,V
	JK	J,0
		1K,0
		26,0
		JV,0
		K6,V
	JV	0,0
		16,0
		2J,V
		JK,V

	1V
	267,0
	V,0 —
	266,1
	2,8 +
	266,8
	V,V —
	269,J +
	V,V
	26J,2
	9,0 —
	264,2
	9,2
	26V,V
	2,7 —
	267,9
	3,1
	26A,2
	3,8 —
	266,V
	A,2
	264,0
	6,1 —
	26K,3
	7,3
	267,K
	7,2 —

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1881phae.proj..493S

Nov. 29. 1881.

Limit of Visibility.

✓	35	✓4, ✓	300.6
	36	17,0	334,5
		21,✓	300,2
		34,0	336,1

5	40	41.6	5	41	44.✓ 0.0
	41	41.6		42	0.0
					+2.9
					+2.9

5 55 T Aquarii examined. Identified by κ Aquarii. Decidedly bluer than a star ⊙ pr. it 24^s, s 1'. P. obs.
Color of this star 2. ½ magn. higher than T
Spectr not pec. P. obs.

Prec. star .8 magn. brtr. than T. Color 1
Spectra not pec. S. obs.

Distance of images in Photometer
R Reading 0. Prism in. P. obs.
Chron. B & C. 1182.
Star used about 1° from the equator.

6	14^m	$24^s.0$	$48^s.0$	$7^s.7$	$33^s.3$
		[33.0]	56.8	17.3	42.6
		[9.0]	8.8	9.6	9.3

Sum of 3 27.7 Mean of 3 9.23 2'.31

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1881phae.proj..493S

Nov. 29, 1881.

Reading 90. Prism in.
Wind shakes telescope.

$6^h\ 19^m$	$32^s.4$	$17^s.4$	$48^s.9$
	54.3	40.0	11.2
	21.9	22.6	22.3

Sum 66.8 Mean 22.27 5.57

Reading 45. Prism in.

$6^h\ 22^m\ 58^s.2$	Reject		
6 23	40.0	$7^s.0$	$32^s.6$
	56.0	22.3	48.2
	16.0	15.3	15.6

Sum 46.9 Mean 15.63 3.91

Reading 0. Prism out.

$6^h\ 29^m$	$6^s.3$	$55^s.2$	$42^s.0$
	44.0	32.4	19.3
	37.7	37.2	37.3

Sum 112.2
Mean 37.43
9.36

Reading 90. Prism out.

$6^h\ 32^m$	$34^s.6$	$14^s.0$	$52^s.6$
	58.2	37.5	16.2
	23.6	23.5	23.6

Sum 70.7
Mean 23.57
5.89

Reading 45. Prism out.

$6^h\ 35^m$	$29^s.5$	$16^s.0$	$58^s.5$
	59.6	46.6	29.0
	30.1	30.6	30.5

Sum 91.2
Mean 30.40
7.60

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1881phae.proj..493S

Nov. 29, 1881.

Comparison of D m. + 37° 4577 with +37° 4570.

22	22	+37.8	W obs.
29	57		
+1	31		

Pos. 0 = 324.9
45.
Set at 279.9

t = 7h 47m 31s.3 by B & C in sets.

t = 8 0 27.8 " " " after sets.

Order D m. + 37° 4570 – 4570 – 4577 – 4577.
Both in southern half of square.

Comparison of D m. + 43° 4353 with 4371.

t = 9h 4m 57s.0 by B. & C. in sets.
W. obs.

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1881phae.proj...493S

Nov. 29, 1881.

Order in first set D M. +43. 4353
4353 - 4371 - 4371

Order in other sets D M. +43° 4353
4354 - 4354 - 4353 - 4371 - 4371

All, in all the sets, in southern half of square.

$t = 9^h\ 2^m\ 14.^s0$ by B. & C.

Prob.

Comparison of D M. +24° 1200 with D M. +25° 1215

10	17	38.9	= taps on chron. by B. & C.
	18	18.2	= " " " " "
	19	1.7	= " " " " "

Order D M. +24° 1200 - 25° 1215 —
24° 1200 - 25° 1215

D M. +24° 1200 in southern and D M. +25° 1215 in northern half of square.

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1881phae.proj..493S

Nov. 29. 1881.

Comet g 1881. W. obs.

Search made for the comet.
Cloudy and bright moonlight.
Comet not found.

B + C. 1182.			Bond 394.		
11	51	40.7	11	52	0,0
	52	40.6		53	0,6

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1881phae.proj...493S

Nov. 30, 1881.

B. & C. 11 Fz. Bond 394

5	21	39.5	5	22	44.5 0.0
	22	39.6		23	0.0
					+5.0 +4.9

Reap. Jup. I. Phot. R. N. obs.

5	14	1,0
	23	41.1
5	41	42
5	23	0
0	14	42
5	22	39,6
5	41	22. approx. time resp.

Comparison satellite is nearest one following side. = Sat. II.

Limit of Visibility.

5	36	8.0	174.5	Hazy
		29.5	260,0	
		50.5	162,3	
	37	2,5	258.8	

Limit of Vis. again.

5	39	8.5	202.3	Clear.
		22,0	243.3	
		34,0	202,0	
		47.5	243.2	

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1881phae.proj.:493S

10

Nov. 30. 1881.

5 41	20,0 Susp.	
	33,0 Susp.	
	39,5 seen.	
	46,0	197,9
	56,0	345,6
42	3,5	179,1
	10,5	247,7
	17,5	145,9
	24,0	251,2
	31,5	185,0
	39,0	265,2
	49,5	164,0
	55,5	260,5
43	3,0	163,0
	10,5	263,5
	20,5	171,2
	30,0	265,6
	Image moved back.	
	55,0	179,0
44	5,5	279,0
	19,0	176,0
	33,5	267,5
	46,0	176,9
	57,0	266,0
45	4,0	162,0
	17,0	261,9

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1881phae.proj...493S

Nov. 30, 1881.

45	55,0	172,5
	49,5	264,0

Moved back again.

46	49,5	172,5
47	1,5	279,4
	17,0	176,6
	26,0	265,1
	56,0	164,0
48	15,0	266,5
49	10,0	174,7
	30,5	270,2
50	1,5	170,0
	10,5	262,5
	26,0	174,5
	39,5	267,0
	52,0	172,1
51	4,5	266,5
	17,5	176,0
	31,0	263,7
	50,0	177,0
52	29,0	272,0
	41,0	162,0
	56,5	267,0
53	19,5	164,5
	46,5	266,0
54	0,0	173,9
	17,5	266,3
(Eye - partly out of pencil)	24,0 ~~adjust~~	162,0
55	37,5	165,0
	54,0	264,4

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1881phae.proj..493S

Nov. 30. 1881.

5	6	18.5	169.3
		3.5	268.0
		3.0	171.0
	7	9.0	264.0
		32.0	169.0
		4.5	264.2
	8	7.0	161.6
		9.5	272.5

B. & C. 1182.

6	2	39.2
	3	39.2

Bond 394.

6	3	44.5 0.0
	4	0.0
		+v. 3
		+v. 3

Thin clouds more or less throughout observations.

Comet g 1881.

0	7	+5.3±
0	36	
+0	29	

Haze + Moonlight too strong.

No. 631 Incr. Phott. List. (U.A. Eid. 166 & 167)

3	9	−20.
1	15	
+2	24	

Found and identified

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1881phae.proj..493S

Nov. 30, 1881.

Photometric Hour finder. Star as above.

8 50 86.1 sf dis. W. obs.

(202.1 too bright on second look; reject.

116.1^

202.2

264.0 118.5^

22.5 234.6^ 0.9

Lane. Thin clouds.

21.4 < n.p. dis. S. obs.

8 58 89.3 67.9^

197.0 70.8^

267.8 138.7^ 2.8

9 0 Sf star somewhat reddish. Color 1.
Spectrum not peculiar. S. obs.
Color 2. Spectrum banded. W. obs.
Looked again. Spec. not peculiar. S. obs.

9 10 Star s.f. No. 631 N.P. List – same field.
Color 2 – Spectrum quite certainly banded.
Growing rather cloudy in this vicinity. W. obs.

9 13 Color 1. Spec. not peculiar. S. obs.

Incer. Phot. List # 3637.

21 54 +65

26 0

+4 6

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1881phae.proj..493S

Nov. 30. 1881.
Iner. Phot. List. #3637.

21 54
2 0
+4 6 +6 v. o

9 30 359.0 < Fol. star disappears S. obs
102.0 103.0^
187.8 87.6^
275.4 190.6^ 1.4 v

f star red. Color 2. Spectrum shows faint numerous bands. S. obs.
(Not a conspicuous object, but observation thought tolerably certain).

9 39 9.5 90.3^ W. obs.
99.8 Fol & S. disappears
176.5 113.9^
290.4 204.2^ 1.5 v

f & S. of the two Color 3 Spectrum
banded W. obs.
The star is D.M. +65° 1693
Possibly faint bands in n.p. component. (D.M. +65° 1691). W. obs.

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1881phae.proj..493S

Dec. 1, 1881

δ Ceti 0.2 of interval in brightness η Ceti to ι Ceti

6 15 S. obs.

Photometer R. Star near α Pegasi. 7.6 f 47ᵐ.6

6 40 126.7 9.8 ^ 215.8 8.5 ^ p. & f. images S. obs.
136.5 224.3 limit of visibility.

Star 9.5 magn. f 1ᵐ 50ˢ.3 S. obs.

7 0 ~~277.8~~
190.0 25.0
~~105.7~~ 255.0
94.1
174.5

α Pegasi itself does not ~~come near~~ disappear, and does not become as faint as the limits of visibility above. Perhaps something may be done by taking ~~the~~ ~~star~~ as a standard to be carried in the mind, a certain degree of faintness to which α Pegasi can be brought.

On another trial it seems likely that as the star does not stay at the same place in the field, owing to the irregularity of the clock, the zero changes too much to trust a very small difference between two readings.

Reject observations on this page. See pp. 19–21 for method of observation finally adopted by S.

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Dec. 1, 1881

α Pegasi

Limit of Visibility

8 2 41.5 W. obs.
41.6
41.4
41.5

Other side.

6 221.5
221.3
221.1
221.3

A 7th mag. star at R.A. $22^h\ 02^m$ and dec. $+14.9$ tried as below,

14 306.0 Star completely extinguished. W. obs.
303.0
303.8 Limit of Vis.
305.0
304.45

t = 0 59
H.a. = 2 7
2 52

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1881phae.proj..493S

Dec. 1, 1881,

δ Pegasi is quite completely extinguished on one side, and almost so on the other.

The 7th mag. star is extinguished without difficulty and is very sensitive to slight changes in rotation of micol, at the limit of vis. point.

δ -26

309.4
309.5
309.3
309.4

W. obs.

t = 1 11
H.A. = 2 34 −14
22 37

Other component —

δ 30

309.2
309.9
309.9
309.67

W. obs.

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1881phae.proj..493S

Dec. 1, 1881.

8 32 304.0 W. obs.
305.0
303.0
306.3
304.58

α Pegasi W. obs
317.5

No. 3766 mer. phot. list. W. obs.
279.8
330.8 51.0^ 1.8

8 55 α Pegasi W. obs
306.9
315.5 8.6^

No. 3766 mer. phot. list. W. obs.
299.0 (probably too faint)
328.5 29.5^

9 0 294.5
330.5 36.0^ 2.6

α Pegasi W. obs.

9 3 306.8
315.5 6.7^
307.8
315.2 7.4^

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1881phae.proj..493S

DEC. 1, 1881.

$t = 3\ 16 \quad +13.9$

$2\ 5\text{-}3 \quad 14.7$

$23 \quad 8$

In what follows, to foot of p. 21, the left hand column contains observations of the preceding, the other of the following, image. ~~A Pegasi~~ α Pegasi is observed by making the image of a certain brightness slightly less than that of the "ghost" in the field with it.

α Pegasi Set 1.

9 22	136.2	2.6^	225.7	1.0^	S. obs.
	138.8		226.7		
	135.7	2.2^	225.3	1.4^	
	137.9		226.4		

No. 3766 (Merid. Phot.) Set 2.

9 27	129.8	14.5^	~~4 4 3~~		S. obs.
	144.3		219.8	12.4^	In this set the images are made equal to those of α Pegasi, as remembered!
	130.1	11.4^	232.2		
	141.5		220.9		
		25.9^	230.9	10.0^	
		4.7		5.1	

No. 3766 (Merid. Phot.) Set 3.

9 32	312.2	2.0	4 0.9		S. obs.
	314.2		5-0.8	9.9^	In this set, the images are made so faint as to be seen with some difficulty, although certainly.
	312.7	7.3	4 2.7		
	320.0		5-1.8	9.1^	

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Dec. 1, 1881.

α Pegasi Set 4.

9	38	135.5		225.8	S. obs.
		137.8	2.3^	226.5	0.7^ As in
		135.6		225.2	Set 1.
		137.7	2.1^	226.9	1.7^

a star of ~~the~~ 7.6 Mag. following
α Pegasi 47ˢ Set 5

9	43	123.1		220.8	S. obs.
		145.8	22.7^	232.7	11.9^ In this set, the
		129.0		220.8	images are made
		145.0	16.0^	231.6	10.8^ equal to those
			38.7^		22.7^ in Sets 1, 2, & 4,
			3.9		5.0 as remembered.

Same star Set 6

9	47	132.1		222.7	7.5^ S. obs.
		141.8	9.7^	230.2	In this set, the
		132.2		222.7	images are made
		140.9	8.7^	230.4	7.7^ equal to those
			18.4^		15.2^ of Set 3, as
					remembered.

No. 3766 (Merid. Phot.) Set 7

9	55	132.5		223.3	S. obs.
		140.0	7.5^	229.6	6.3^ As in Set 3

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Dec. 1, 1881.

Star of 9.5 Mag. following α Pegasi $1^m 50^s$ Set 8

10	0	108.0	63.2°	196.3	58.7°	S. obs.	
		171.2		255.0		As in Set 3	
			1.4		1.5		

No 3766 (Merid. Phot.) Set 9

10	6	133.8	6.3°	223.7	6.1°	S. obs.	
		140.1		229.8		As in Set 3	

Star of 8.9 Mag. following α Pegasi $2^m 31^s$ Set 10

10	14	118.0	36.0°	~~104~~		S. obs.	
		154.0		211.2	33.6°	As in Set 3	
			2.6	244.8	2.7		

No. 3766 (Merid. Phot.) Set 11

10	17	132.9	7.2°	224.0	5.6°	S. obs.	
		140.1		229.6		As in Set 3.	

Star of 9.4 Mag. fol. α Pegasi $3^m 2^s$ Set 12

10	22	104.2	52.5°	211.3	28.6°	S. obs.	
		157.0		239.9		As in Set 3.	
			1.8		3.0		

No. 3766 (Merid. Phot.) Set 13

10	26	133.1	6.1°	224.0	6.5°	S. obs.	
		139.2		230.5		As in Set 3.	

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1881phae.proj..493S

Dec. 1. 1881.

Comet g. 1881. W. obs.

23 58 +52±

23 54 +52

3 45

43 07

23 58

23 58

0 0

Careful search made for comet – not found – Moonlight strong – moon in this quarter of the heavens.

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1881phae.proj..493S

Dec. 2, 1881

Photometer R, α Pegasi

7 5 241.2 1.2^ 242.4 P. obs.

No. 3766 Mer. Phot. List.

7 9 287.4 6.9^ 244.3 same brightness as α Pegasi P. obs.

Star 7.6 magn. f α Pegasi 47^s

7 11 235.7 11.4^ 247.1 5.0 same as α Pegasi P. obs.

Star 9.5 magn. f α Pegasi 1^m 50^s

7 15 211.6 6.0^ 273.6 1.4 Same as α Pegasi P. obs.

No. 3766 Mer. Phot. List.

7 18 239.0 6.3^ 245.3 same as α Pegasi P. obs.

Star of 8.9 mag. fol. α Pegasi 2^m 8/^s

7 21 22K.3 = ~~27~~ 34.7^ 25 9.0 2.6 P. obs.

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1881phae.proj..493S

Dec. 2, 1881.

δ Pegasi. P. obs.

7 22 241.7 0.3^
24-2.0

No. 3766 Uer. Phot. Liet.

7 26 239.1 6.9^ P. obs.
246.0

Became clear.

δ Pegasi W. obs.

24 √4
22 √9
2 √√

δ Pegasi.

8 9 241.6 0.2^ W. obs.
241.8

No 3766 (Mer. Phot.)

8 13 239.0 4.9^ W. obs
243.9

Star 7.6 Magn. f α Pegasi 47s

8 16 237.5 7.7^ W. obs
245.2

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1881phae.proj...493S

Dec 2, 1881

α Pegasi

δ 18 241.5 0.3' W. obs.
241.8

Star 9.5 Mag. f α Pegasi 1m 50s

δ 27 220.0 45.0' W. obs
265.0
2.1

Star 8.9 Mag fol. α Pegasi 2m 7s

δ 31 221.4 38.7' W. obs
260.5 2.4

α Pegasi

δ 42 241.0 0.5' W. obs.
241.5

No 3766 (Mer. Phot)

δ 46 238.5 4.6' W. obs
243.1

Star 7.6. Mag fol α Pegasi 47s

δ 48 238.9 5.3' W. obs
244.2

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1881phae.proj..493S

Dec 2, 1881

2 Pegasi.

8 49 241.0 0.8" W. obs.
241.8

Became cloudy again.
Closed dome.

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1881phae.proj..493S

Dec. 5, 1881.

6 - 10 Brought α^{-1} Aquilae into field of Photometer I; it remained visible in prism for 3m 11s. Prism to left. P. obs.

Cap. 2.5 Photometer I.
The cap is that described in Vol. XI of the Annals under that number.

0.40 Darker portions of Moon
0.80 Brighter " "
0.90 Aristarchus P. obs.

6. 50 0.11 Dark spots S. obs.
0.68 Brighter portions
1.26 Aristarchus

The object observed in the prism is the brighter part of the Moon. The focus is made as short as possible, but the image in the prism remains too distinct to be well suited for a standard of comparison.

Image in prism in focus. S. obs.

7 0 1.78 Aristarchus
1.00 Brighter portions
0.19 Dark spots.

7 5 0.88 Edge of Moon P. obs.
0.49 Mare Crisium
0.32 about as dark as the darkest parts
0.38 Plato

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1881phae.proj..493S

28

Dec. 5, 1881.

7 7 1.18 Aristarchus P. ob.

Interior of X (Manilius)

7 26 .60 P. obs.
.65
.69
1.94
.647 0.9

Boscovich – b –

28 .23 P. obs.
.33
25
.81 ~~0.5~~
.27 2.8

Godin – ~~b~~ – Z

30 .83 P. obs
1.06
23
2.72
.907 0.2

Boscovich – b –

33 .25 W. obs.
.24
24
.73 ~~0.7~~
.243 3.1

Clouds begin to cover moon.

Manilius X

35 .55 W. obs.
.57
62 12
174 58

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Dec. 5, 1881

Godin – Z –

7 37 .83 M. obs.
.76
.87
2.46
.82 0.4

Manilius – X –

8 17 .64 P. obs.
.79
63
2.10
.70 0.8

Boscovich – b –

18 .30 P. obs
.27
.24
.81
27 2.8

Godin – z –

19 .71 P. obs.
.90
90
2.51
.837 0.4

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Dec. 5, 1881

Manilius - x -

8 22 .63 W. obs

.62

.54

1.79

.597 1.1

Boscovich - b -

23 .29 W obs.

.31

.24

.84

.28 2.8

Godin - f -

24 .71 W. obs.

.82

.66

2.19

.73 0.7

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Dec 5, 1881.

Manilius — L —

8 34 .36 S. obs.
.46
39
1.21
.403 2.0

Boscovich — b —

36 .15 S. obs.
16
17
.16 3.9

Godin Z

39 .83 S. obs.
1.12
111
306
1.02 0.0

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Dec 5, 1881

Godin Z

9 1

1.22
1.17
1.18
3.57
1.19 9.6

S obs

Boscovich - b

3

0.20
0.18
0 17
.55
.183 3.7

S. obs.

Manilius - X

0.24
0.23
0 24
.71
.233 3.2

S obs

There are two bright spots in X; this measure excludes these spots.

Amer. Phot. List 631

3 +9 −20.
2 9
+1 −0

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Dec. 5, 1881.

2^h S.T. = 9^h 1^m M.T.

#631 Mer. Phot. list

9 32 98.0 < Fol. & Southern disapears. W. obs.
101.6 103.6^
268.2 121.5^
29.7 225.1^ 1.1✓

37 23.4 < Prec. disapears P. obs
92.6 69.2^
208.1 61.3^
269.4 130.5^ 3.0✓ ~~+0~~

Mer. Phot. list 12 25
A.P. 1294

6^h 45 −24
238
47

~~18 5~~

10 5 18.0 < Northern image disapears
96.2
201.7 78.2^ Star low & rather faint. S. obs
273.8 72.1^
N 0.3^ +2.6✓

The northern star has small comp. prec. } S. obs
" Southern " " " " north }
These companions not visible in photometer.

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1881phae.proj,493S

Dec 5 1881

#1225 Mer. Phot

10 19 89.3 Mobs.
207.0 117.7 ^ Southern & familiar dis.
278.3
12.3 94.0 ^ Stars rather dim.
211.7 ^ 1.4 ~~.6~~

Var. in Puppis.

5 5 -12 5
3 37
4 28

			Mag.	Dec
10h	-49m	5°4.0	8	1
	5-0	34.0	12	6
		46.0	12	5
	5/	0.0	11	3 = Var.
		25.0	11	6
		34.0	10	6
		44.0	11	6
		5-0.0	9	9
	5-2	16.0	9	6
		29.0	10	5

Var. much brighter than last Summer
Pickering

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1881phae.proj..493S

Dec. 5, 1881

+	Var °	h ° ′h	Σ ° ′a	K ′

10 50 Var = a 6 h R.dx.

11 0 h = a 5 Var S.dx.

B+C. 1142.

12	50	38.2
	51	38.2

Bond 394.

		44.5
12	51	0.0
	52	0.0
		+11.3
		+11.3

Reaps. of ups. I. Phot. R. P. obs.

12	44	40
	27	41
13	4	21
12	52	0
0	16	21
12	51	37
13	7	54 approx. time ecliptic.

Limit of Vis.

13	5	4
	22	
	38	
	57,5	

204.7
225.3
207,0
222,0

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Dec. 5. 1881

Comp. sat. is one nearest preceding. = III.

Set at 206.0

10	7	20.0	suspected.
		24.0	
		52.5	228.2
		59.5	203.0
	8	4.5	225.6
		13.0	200.4
		20.0	230.7
		29.0	195.2
		36.5	204.1
		40.5	189.2
		53.0	241.3
	9	2.0	187.5
		8.0 ±	244.0
		15.0	184.0
		21.0	246.6
		27.5	182.0
		35.5	250.2
		43.5	182.2
		50.0	246.2
	10	0.0	176.3
		9.5	252.3
		19.5	176.1
		28.0	259.3

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1001phae.proj..493S

Dec. 5, 1941.

10	10	59.0	176.1
		50.5	254.5
	11	9.0	170.7
		19.5	265.6
		32.5	167.4
		44.0	262.0
		57.0	166.2
	12	9.5	262.4
		20.5	169.0
		36.0	263.8
		47.5	164.2
		59.5	260.0
	13	34.0	170.4
		46.5	254.0
	14	4.0	169.0
		16.0	256.9
		26.5	175.0
		35.5	254.7
		47.5	170.0
	15	7.0	265.0
		20.5	167.4
		30.0	261.4
		41.0	169.0
		51.5	260.2
	16	11.0	167.2
		24.5	260.0
	~~17~~	~~18.5~~ 24'	
	17	34.5	172.0
		44.5	260.1
		54.0	171.0

Leery becomes bad, but soon learned good spin

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1881phae.proj..493S

Dec. 5. 1881.

13	17	30	206
		27.5	171.6
		42.5	261.1
		27.0	169.7
	19	11.0	209.6
		24.5	174.0
		30.0	274.6

B + C. 1882.

13	27	33.1	
	28	33.1	

Bond 394.

13	28	44.5	
		0.0	
	29	0.0	
		+11.4	
		+11.4	

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1881phae.proj..493S

Dec. 8, 1881

Stars near θ Aquilae

5 45 h h = Star fk 18^s 3's 0,3 magn. fainter than k

	9 magn.	Obs.
h		
i	10.3	
j	10.9	
k	11.7	
f	12.10	
b	12.7	
d	13.1	13.0
a	13.5	
c	14.0	
e	15	

Stars near δ Aquilae

δ Aquilae	Stopwatch 0^m 0^s	δ	Magn.	P. Obs.
	2 10.5	5	13	
i	20	5 3	12	
g	24	4	13	
f	38	3	12	
e	47	4	11	
	3 6	4	13	
	22	4	14	double
b	23	1	9	
a		4	8	
d	4 4	9	11	
	48	5	11	
	52	4	11	
	5 1	8	10	clear

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1881phae.proj.493S

Dec. 8, 1881.

		Stopwatch	δ	Magn.
C	5^m	22^s	6	$10\frac{1}{2}$
		40.5	5	10
		45	8	10
	6	9	0	9
		27	5	8.5

h	2	09	0	0	3	13.5
i	2	20	0	11.5	1	14
g	2	25	0	16	3	13

6 35 θ Celti 0.2 from η to ι Ceti. S. obs.

7 0 Star near δ Aquilæ Cluster 2 fainter than certainly near S. obs.

Cluster 2 had suspected S obs.

The star f δ Aquilæ about 3^m, 11's (D.M. +2° 3892) about 7 magn.

D.M. +2° 3904 is the red star just observed.

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Dec. 8, 1881.

Second estimate of stars near δ Aquilae

7 10

	mags.	Pickering.
a		
b		
c	10	
d	10.8	
e	11	
f	12	
i	11.5	
g	12.7	
j	12.5	

Stars too low to continue.

β Aquarii.

21 $2\sqrt{.2}$ −6.°1

24 $\sqrt{2}$

+3 7

8 0 Suspected var = Cephei. $23^h + 73°$

v = a

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1881phae.proj..493S

Dec. 8. 1881.

Amer. Phot. List 381.

2 30 +24
0 4
1 26
1 23

8 8 90.8 Prec. 9 fainter disappears W. obs.
21 5.8 125.0
286.7 95.1
23.8 212.1 1.2 0.8

1h 27m S.T. = 8h 16m M.T.

Photometer I. = Moon

8 30 ~~Manilius~~ Bouvard W. obs.
0.38
0.26
0.26

8 35 × Manilius (bright points excluded) W. obs.

Cafe not on in previous measures

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Dec. 8, 1881.

Capt. 2.5 Just on.
& Boscovich

8 40 0.11 W. obs.
0.16
0.25
0.52
0.14

X Manilius

8 42 0.40 W. obs.
0.52
0.63
1.55
0.52

Z Godin

8 44 0.82 Preceding W. obs.
0.79 and brighter
0.70 side of wall.
2.31
0.77

Walls of Godin not so bright with respect to floor as on Dec. 5. S. obs.

Z Godin. S. obs.

8 50 0.74
0.80
0.86
2.40
0.80

More contrast between two parts of floor of Boscovich than was noticed on Dec. 5. This is not owing to shadow. S. obs.

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Dec. 8. 1881.

b Boscovich. S. obs.

8 57
0.12
0.11
0.09
0.32
0.107

x Manilius. S. obs.

Shadow perceptible on one side.

9 2
0.19
0.24
0.19
0.572
0.173

Floor between walls and central peak is very narrow and seen with difficulty.

b Boscovich

9 4
0.13
0.13
0.20
0.46
~~0.153~~ 0.153

W. obs.

x Manilius

9 6
0.42
0.47
0.51
1.40
0.467

W. obs.

L Godin

9 9
0.72
0.80
0.78
2.30
0.767

Preceding and brighter side of wall.

W. obs.

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1881phae.proj..493S

Dec. 8, 1881.

× Manilius

9 12 0.17 S. obs.
0.21
0.22
0.60
0.20

b Boscovich

9 16 0.13 S. obs.
0.13
0.12
0.38
0.127

Z Godin.

9 19 0.47 S. obs.
0.71
0.84
2.02
0.673

Uner. Phot. List 1225.
6 45 −24
2 37
+4 E8

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1881phae.proj..493S

Dec. 8, 1881.

Mer. Phot. List #1225

9 39 28.5 < Northern disappears. S. obs.
98.0
211.0 69.5^
280.5 69.5^
139.0^ 2.8

U. a. Canis Majoris #92

9 59 Color 2. Probably banded N. obs.
This star observed with spectroscope by S. Dec. 5, on occasion of observing No. 1225 (mer. phot. list); spectrum thought not peculiar. (Marked 2 in U. A. and 25 probably observed before).
Observed March 21, 1881 Book R 96, 141. N. D. S. Spectrum true.

Mer. Phot. List #1225.

10 2 210.8 & brighter
281.2 < Northern disappears P. obs.
26.5 70.4^
101.3 74.8^
144.2^ 2.7

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1881phae.proj..493S

Dec. 10. 1881

Stars following δ Aquilae

+1.5 13 h. + +1.0 12 9.1 8.0

g. ·k 11 +0.5 a + 10 c

	Stopwatch		δ	Mags.		
δ Aquilae	0	0	5	3		
g	2	18	5	13		12.7
♯ h	2	21	4	13	12.5	13.0
♯ +	2	35	3	12	12.0	12.0
k	2	45	4	11	11.0	11.0
a	3	21	9	9		
c	3	54	9	10	10.5	
	4	1	13	8		
	4	54	7	10		
b	5	14	6	10	10.0	
	5	31	5	10		

13 12 11

Halfway between the 8 mags. star and b there is a group which will furnish steps between 11 and 12 mags.

2 F

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1881phae.proj..493S

Dec. 10. 1881.

Comet b 1881. M. obs.

21 33 +61.7 67 15
24 42 1 33
+3 9 61 42

$t = 1^h\ 1^m\ 47^s.0 \quad +61.8$
3 28
21 33

Setting on Comet

Pos. 0 = 220.7
4s.
26s.7

Order - Comet Star Star Comet.
Both in northern half of square.

$8^h\ 17^m\ 53^s.6$ = taps by B. & C. 1182 in midst of sets.

Fourth set has two double taps - ~~Rej~~
Reject fifth set.
" seventh " which is followed by
two or three ~~four~~ rattles.

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1881phae.proj..493S

Dec. 10. 1881.

$8^h\ 33^m$ $\sqrt{8.7}$ = taps for time by B.+C.

Comp. star D M. +61° 2166 (7.6)

Diameter of comet 0.'5 to 0.'7
Comet pretty faint, but still has quite a sharp but faint nucleus.
W. Obs.

B. + C. 1182.			Bond 394.		
8	41	30.8	8	42	0.0
	42	30.4		43	0.0

∴ B + C is 13.'7 slow

$2^h\ 12^m$ Sid. time = $8^h\ 53$ M. 5.

	16	9	9
2	24		16
16	32		
9	56	+72.6	

Var = Mean Anom
v = L
v d 5 c
ε 7 d
ε = Eqn. du ☌ c pm. 12' (arc)

10 6 Looked for Phobos. over an hour and a half from. Elong. – not seen.
W. Obs.

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1881phae.proj..493S

Dec. 11, 1881

	Chron.	B.A.C.	1182		δ	Magn.	Near δ Aquilæ Probs.
i	6	20	57.3	2 06	5	13,5	
			59.0		4	13.7	
h		21	12,0	2 21	3	13.0	
k			18.2	2 27	3,5	14,5	
j	6	22	41.5	2 05	2,5	14,0	
			57.2	2 21	3	13.0	
	6	24	44.3	4 3	3	8.0	
		25	16.0		3	11.5	
			21.2		5	12.	
e			25.4	44	3,5	11,5	
			29,5		3	11,5	

---

6 29 Suspected variable in Cepheus = a Probs.

6 30 Hazy too thick for faint stars near δ Aquilæ.

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1881phae.proj..493S

Dec. 13. 1881.

Reafs. Jafs. III. Phot. H. S. obs.

5	3	11
	23	41
5	8	2

Cloudy – Eclipse not seen.

Reafs. Jup. II. Phot. H. S. ob.

B. + C. 1182. Bond 394.

10	18	43.5	10	20	0.0
	19	43.5		21	0.0

10	11	3
	23	41
10	3	16
10	21	0
	14	16
10	19	43.5
10	33	9.5 approx. time eclipse.

Cloudy – Eclipse not seen.

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1881phae.proj.493S

Dec, 15, 1881

Stars near β Aquarii.

Triangle of pretty bright stars n f β Aq. about $2^m\frac{1}{4}$ 6' to 9' n. The f star of this triangle f β Aquarii $2^m\ 22^s,\ 5\frac{1}{2}$ n. This star may be 9.3 magn. called a below.

			δ	Magn.	S. obs.
a	0^m	0^s	10	9.3	$2^m\ 22^s$
b	1	40	2	10.5	02
b	0	0	2	10.5	
d	0	20	0.5	11.5	4 22
a	0	0	10	9.3	
c	0	33	8.5	11.0	2 55
b	0	0	2	10.5	
f	0	7.5	8.5	12.5	4 09
f	0	0	8.5	12.5	
e	0	3	8.5	12.0	4 12
d	0	0	2	10.5	W. obs.
g	0	15	8	11.2	4 37
d	0	0	2	10.5	
h	1	50	5.5	11.0	6 02

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1881phae.proj..493S

Dec. 15. 1881.

			δ	maj.		W. obs.
d	0	0	2	10.√		
c	1	0±	4.√	13.0	5	22
d	0	0	2	10.√		
j	1	√8	7.8	14.0	6	20
j	0	0	7.8	14.0		
K	0	√0	2	13.√	7	10
j	0	0	7.8	14.0		
l	0	17	2	15.0	6	37
j	0	0	7.8	14.0		
m	0	√3	9.√	14.√	7	13

Comet b. 1881. W. obs.

21 49 +60.9

2√ 46

+3 √7

Comp. star Dm. +60° 2300. (7.2)

Pos. Zero 194.7

4√.

239.7

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1881phae.proj.493S

Dec. 15. 1881,

Order * * ○ ○
Star in northern and comet in
southern half of square.

9 ↓ 2 15 = taps on chron. by B. & C.
9 ↓ 2 45 = " " " " " "

Var. in Hrs. Min.
16 32 + 72.9
0 39
+11 7

11 0 Var. fainter than b, ○ S. obs.
" intermediate between the nearest
two stars of the group preceding it
called x and y below

y
x ← Var. Var. = x 3 y

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1881phae.proj..493S

Dec. 15. 1881.

Comet b. 1881. W. obs.
Reject previous sets as current was irregular.

21 49 +60 0,9
29 √7
+8 3

Pos. Zero 221.8
Set at 45.1
266.8

Comp. Star D.M. +60° 2312 (9.5)

Order ∈ ∈ * *
Star in northern and comet in southern half of square.

13 6 0 = taps on chron by B. & C.
13 6 20 = " " " " "

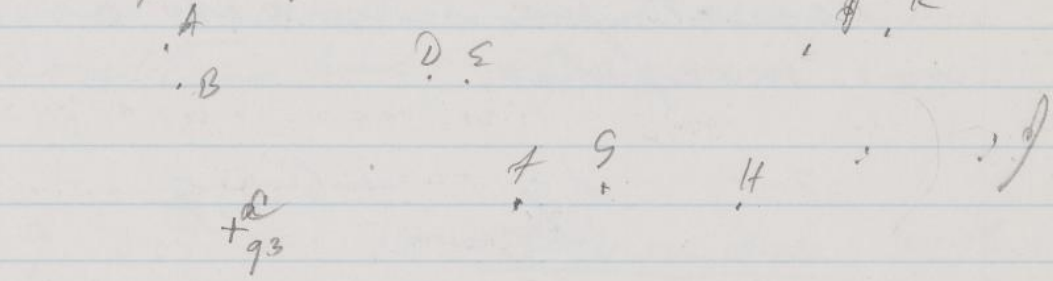
Comet too faint for morsels of light — & rather low and almost invisible.

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1881phae.proj..493S

Dec 16. 1881

Star following β Aquarii



C = 9.3 9.0
A = 13
B = 13.5
D = 14
~~H~~ = ~~12~~ ~~10.5~~ 11.5
~~J~~ = 10.5
~~I~~ = 11.
~~G~~ = 12.5
K = 12

S. L. 52

C = A = 9.0 9.3

a	I	10.5	10.5
b	J	11.	
c	H	11.5	11.0
d	K	12.0	11.5
e	G	12.5	
f	A	13	
g	B	13.5	
h	D	14.	

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1881phae.proj..493S

Dec. 16 1881.

G	13.0	S. h.
A	13.5	
B	14.0	
D	14.0	
E	14.5	E is more north of D than in sketch unless E means another star about equal to D which follows D some distance.

×D ×E?

×E?

×7 ×G

There is a star in the line from K to J which may perhaps be fainter than 14.5.

Stars foll. β Aquarii

	0^m	0^s	Dec	Mag
A	2	21.0	4	13
B		27	5	13 too near foreg.
C	2	27.0	10	9
7	3	03	9	11
8.		13.8	8	13
H		39.5	8	13
I	4	8.8	2	10
		18.3	9	12
K		27.3	1	12
J.		42.4	9	11
			5	3

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1881phae.proj..493S

Dec. 16, 1881.

Stars foll. α Aquarii

	0^m	0^s	Dec	Mag	Wire A over B
		42.0			
2 0	2	41.3	7	11	
18	3	0.0	2	12½	
24		6.3	3	13	
37		19.0	2	14	
48		29.9	6	10	
54		35.0	6	10	
3 5		47.2	√	13	
19	4	1.2	2	11	
44		25.7	{ 1	11	} double
			{ √	10	}

B C A D H

A E B

W.

d	A = 11.0	10.5	+5	11.0
f	B = 12.0	11.2		11.7
h	C = 13.5 13.0	12.0		12.5
g	H = 12.5	12.0		12.5
i	D = 13.5	~~12.0~~ 13.0		13.5
c	β = 10.5	10.1		10.6
e	? = 11.5			

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1881phae.proj.493S

Dec. 16. 1881.

Mgn.

	0	0	1	
v 4 57	1	13	5.5	10.2
a 5 46	2	2	8	10.0
6 06	2	22	2.5	

8mgn

1^h v 0^m S.T. = 8^h 7^m M.T.

Comet b 1881.

21 v1 +60.0 W. obs.

2v v1

+4

Pos. 0 = 268.3

4v

223.3

Order, Star Star Comet Comet

Star in northern half outside of square.

Comet in southern half inside of square.

t = 8^h 38^m 34.8

t = 8 38 v4.v

8 50 Cata = 9 2 c S. obs.

t = 9 0 35.3

t = 9 0 v4.0

Reject last set of all

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1881phae.proj..493S

Dec, 16. 1881.

Comp. star D M. +60° 2312 (9.5)

D M. + 60° ≠ 2312 (Mag. 6.5) is color 3 – probably banded.

Also examined independently by S; color 2 & 3; bands faint, but certain; that is there are distinct maxima and minima of light.

B. + C. 1182. Bond 394.

~~9 31 0.0~~

9	29	39.8	9	31	0.0
	30	39.8		32	0.0

∴ B + C is 64.7 slow.

D M. +61° 2208 is about a mag fainter than 2209 although both are marked as 8.0 in D M.

The same noticed last night.

2208 is red, color 2; ~~spectr~~ not fully certain of spectrum. – possibly peculiar.

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1881phae.proj..493S

Dec 16, 1881

Almost 6 means by eye of Dawes.
Not to. Satellite seen with difficulty
Much trouble from clouds.
Equatorial used that of Harvard Micrometer
Dawes. W. obs.

11 28 .17
31 .18
36 .19
95
0.180<

Log. 0.180< = 9.2553<
5
46.2765<
61.16
14.82

11 31.7
4 44.5
16 16.2
16.3

Distinctness 1

11 43 .25 P. obs.
4 44.5 Sat. not seen by P. after this.
16 27.5
16.5

0.250<

Log. 0.250< = 9.3979<
5
46.9895<
61.10
14.11

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1881phae.proj..493S

Dec. 18, 1881

Region of B Aquarii. Tolbr.

6 30 See p. 52

	Stopwatch	S	Magn.
d	0m 0s	0.5	11.5
h	1 30	5	11.3

h is apparently W.'s h on p. 52 but seems to follow d only 1m 30s as above. No star following e within the required limit which seems to answer for a 12.0 magn. to substitute for e.

g	0	0	9.5	11.7
a	0	24	10	9.3

g only precedes the limit by 2s or so, and might perhaps be used, but the neighborhood of the 3 bright stars is perhaps an objection.

For fainter stars, see pp. 56, 57.

Stars follg α Reguli

46	26	5	2.0	α
	46	9	9	
48	19	8	9.4	
	22	0.5	9.5	
49	58	9	8.8	
50				

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1881phae.proj..493S

Dec. 19, 1881.

4h 7m 30s Region of α Pegasi (S of α Pegasi in DM. 27.0 instead of 25.5 as it should be).

Star	Stopwatch	δ	Magn.
α Pegasi	0m 0s	5	2
a	2 33	9	8.8

						S. obs.
(1)	a		0m	0s		
(2)		3h	0m	29.0	8½	12.0
(3)	i		20	47.1	7	12.5
(4)	m		32	58.9	9	14.5
(5)			48	15.0	4	
(6)	h		58	25.0	8	12.2
(7)	n	4	5	32.4	3	14.7
(8)	f		25	52.0	3	11.5
(9)	g		26	53.0	5	11.7
(10)	j		45	2 12.0	1	13.0
(11)	b		54	21.4	5½	9.2
(12)		5	02	28.8	2	
(13)		5	28	55.4	4	
(14)			37	3 43	2	
(15)		5	53	20.2	3	
	New star		0	0	5½	
	b			1.5	5½	9.2
	= #6 h		0	0	8	
	✱ e			12	9½	11.0

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1881phae.proj..493S

Dec. 19, 1881.

	Stop watch	δ	Mag.
= #3 i	0 0	7	12.5
c	3.5	10½	9.5
d	19.8	10½	10.7
l	0 0	5	13.8
	8.0	6	
K	11.8	3	13.5
a	14.0	9	

Results.

a	f α Pegasi	2m 33s	δ 9	Magn. 8.8
b		4 54	5.5	9.2
c		3 24	10.5	9.5
d		3 40	10.5	10.7
e		4 10	9.5	11.0
f		4 25	3	11.5
g		4 26	5	11.7
h		3 58	8	12.2
i		3 20	7	12.5
k		4 45	11	13.0
l		2 31	3	13.5
m		2 19	5	13.8
n		3 33	9	14.5
		4 5	3	14.7

Observer suspects that the steps may be smaller with the faint stars than would be the case on the photometric scale.

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1881phae.proj..493S

Dec. 19. 1881.

Comet g 1881.

23 37 +32°

25 46

+2 9

26 26

20 37

2 49

Cloudy.

Comet b 1881.

a ~~break~~ small break in north but not enough to observe comet.

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1881phae.proj..493S

Dec. 20. 1881.

	B. & C. 1142.			Boud 394.	
7	55	32.3	7	57	0.0
	56	32.4		58	0.0

Dis. Jupiter III. S. obs.

8	2	5,2	
	23	41,1	
8	25	46.3	
7	54	0.0	
	27	46.3	
7	56	32.4	
8	24	14.7	approx. twin eclipse. by B. & C. 1142.

Jupiter visible but faint, through clouds, but satellites invisible with No. 1, ring micrometer eye-piece.

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1881phae.proj..493S

Dec. 21, 1881.

6 o Region of γ Pegasi S. Obs.

Stopwatch — δ Magn.

γ Pegasi	0m	0s	5		
c	2	25	6	10.0	
c	0	0	6	10.0	
d	2	32	0	10.5	
b	2	32	10	9.5	
a	0	0	12	9.0	
c	0	2	6	10.0	
c	0	0	6	10.0	
e	0	34	5	11.0	
b	0	0	10	9.5	
f	0	4	4	11.5	
e	0	0	5	11.0	
g	0	9	5	12.0	
c	0	0	6	10.0	
b	0	18	7	12.5	
e	0	0	5	11.0	
f	0	8	8	13.5	
i	0	0	5	13.0	
h	0	9	10	12.5	

Letter	γ Peg.	δ	Magn.
a	2m 28s	12	9.0
b	4 57	10	9.5
c	2 25	6	10.0
d	4 57	0	10.5
e	2 59	5	11.0
f	5 1	4	11.5
g	3 8	5	12.0
h	2 43	7	12.5
i	4 48	5	13.0
j	3 7	8	13.5
l	3 56	5.5	14.5

Sky hazy, magnitudes only approximate. Stars not numerous enough in this region to make observer feel sure of his scales of magnitudes. See note p. 68.

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1881phae.proj..493S

Dec. 21, 1881

e	9	0	5	11.0
l	0	57	5.5	14.5

l has two slightly brighter stars about 2′ north of it, perhaps too near each other to be used. It is not easy to find suitably isolated stars in this region for the faint standards, and the sky is rather hazy at present—

6 45

Comet g 1881.

+23 35 +30.5 $\frac{7}{2} = \frac{7}{1}$

25 22

+1 47. $\frac{14}{8}$

Reading of Circles

25 27

1 49 +31.1

22

23 38 Appr. pos. of Comet.

~~26~~ ~~00~~

~~1~~ ~~36~~

24

$23^h\ 37^m + 31.1' =$
approx. pos. by circles.

25 27

2 1

23 36

1881phae.proj..493S

Dec. 21, 1881.

Pos. 0 357.5
45
Set at 312.5

Order; Comet, Comet, Star, Star.
Comet in northern and star in southern half of square.

Second Comet in fourth + last set .5s too early.

t = 8h 36m 56.9 doubtful.
" 8 37 23.3

t = 8h 45m 27.7

Comp. star D M. +30° 5014 (9.0) K.

B. + C. 1182.			Boud 394.		
8	50	31.8	8	52	0.0
"	51	31.8	7	53	0.0

∴ B. + C. is 1m 12.7s slow of Boud 394.

Comet b 1881.

22	6	+60.0
27	7	
+5	1	

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1881phae.proj..493S

Dec. 21, 1881.

Deimos. ~~Mars~~. Phot. S.

W. obs.

10 18

0.19
0.22
0.25
0.20
0.19
0.20
1.25 <
0.208 <

Log 0.208 < = 9.3181 <
5
46.5905 <
61.10
14.51

0.208 <

Satellite seen with difficulty. P. obs.

10 40 ~~0.33~~ reject.

Whole pencil not received in eye.

Prism turned – images made to coincide
Satellite seen with difficulty.

10 48

0.24 Dist. 3. P. obs.
0.27 P. obs.
0.23
0.26
0.25
0.250 <
1.25

Log 0.250 < = 9.3979 <
5
46.9895 <
61.10
14.11

0.250 <

10 54

0.24 W. obs.
.22
.22
.27
58 .24
19 <
.238 <
1.19

Log 0.238 < = 9.3766 <
5
46.8830 <
61.10
14.22

0.238 <

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1881phae.proj..493S

Dec 21. 1881.

Decms. continued

S. Ds.

Limit of visibility 0.24

Satellite not seen.

B. & C. 1182.

11	1	31.6
	2	31.7

Bond 394 44.5

11	3	0.0
	4	0.0

+72.9
+72.8

Reap. Jupiter I. Phot. R. N. obs.

11	4	46.5
	23	41.1
11	24	27.6
11	4	0.0
	24	27.6
11	2	31.7
11	26	59.3

approx. time eclipse.

Compared with nearest pat. on same side. = Sat. IV. Limit of visibility.

11	22	35.0
		46.0
22	54	54.0
	23	15.0

31.5
39.1
70.6
35.3

210.4
242.3
206
247.7

227.4

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1881phae.proj..493S

Dec. 21. 1881.

11	26	59,5	Seen
	27	5,0	210.0
		10,0	245.4
		17,5	209.6
		22,0	249.2
		27,0	202,8
		31,5	248,2
		36,0	198,6
		40,5	209,2
		46,0	197,4
		50,0	207,9
		55,5	191,8
	28	1,5	266,2
		7,5	192,2
		10,0	267,7
		16,0	189,4
		23,0	274,4
		29,0	179,0
		36,0	277,8
		44,5	175,4
		51,0	251,4
	29	2,0	170,9
		10,0	247,4
		18,5	169,2
		28,5	247,2
		37,0	162,2

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1881phae.proj..493S

11	29	44,5	246,3
		45,0	164,3
	30	1,0	245,2
		22,5	174,0
		30,5	244,6
		47,0	163,2
	31	0,0	291,4
		19,5	162,4
		34,0	244,1
		46,0	167,0
		56,5	290,4
	32	6,0	163,5
		17,5	242,4
		29,5	164,6
		41,0	247,9
		56,5	166,4
	33	13,0	278,9
	34	4,5	172,2
		14,0	246,9
		25,5	167,4
		34,5	290,4
		45,5	169,0
		55,5	243,6
	35	17,5	170,0
		29,0	243,4
		41,0	167,7
		52,0	241,4
	36	1,0	174,9
		22,5	291,7

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1881phae.proj..493S

Dec. 21, 1881.

11	36	42.0	165.4
		54.0	290.4
	37	5.5	164.1
		20.0	244.0 — 8
		33.0	164.5
		43.0	291.4
		54.5	154.1
	38	11.5	244.4 — 9
		37.0	169.0
		49.0	245.3
	39	0.0	175.5
		10.0	287.1 — 10

B. + C. 1142.

11	41	31.5	
	42	31.5	

Bond 394

		44.5	
11	43	0.0	
	44	0.0	

~~+72.0~~
~~+72.0~~

Photometer I

Deimos. Telescope east of pier. Prism in previous observations to N/W and above. Now to left, with piece of wax on field lens of eyepiece to conceal Mars.

12	6	0.20	Dist. z.	P. obs.
12	7	0.23		
		0.21		
		~~0.64 0.213~~		

Eye piece fell out and ball of wax was replaced.

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1881phae.proj..493S

Dec. 21, 1881.

Deimos. con. P. obs.

12 19 0.31 Log. 0.250″ = 9.3979″/5
0.30 46.9895″
1.25″ 61.10
0.250″ 14.11
0.250″

Log. 0.380″ = 9.5798″/5
12 37 Deimos 47.8990″ Wash.
0.38 61.16
0.380″ 13.x20

haze increasing
Haze increasing so that the unobstructed part of the field is very bright.
This causes the dark surface of the prism in which Mars is seen to be overspread with a diffused light, which, by contrast, causes the image of Mars in prism to appear fainter than it really is. Deimos thought to have been seen in last making but only at long intervals and with difficulty. Letting seen to be too large from above cause on subsequent examination. W.
Diffused ray = Cepheus at normal lighting at 11.0

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1881phae.proj..493S

Dec 24, 1881

6 12 Stars follow β Cet.

2 02	3	12	12.5	
2 50	1	12	13.	
3 33	4	12	11.5	
4 18	1	10	10	9
4 43	2	13		
5 01	6	11	11	
5 36	4	13		
5 58	9.5	11		

12.5

13.5 14

6 16 Suspected Var: Captures of normal brightness

Not enough hr. stars must take all = 2nd brightness than 11.0

13.0

12.5

13.5 14.0

1881phae.proj..493S

Dec 25, 1881.

8.5 Suppressed Var in Cygnus of normal brightness

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1881phae.proj..493S

Dec. 30. 1881.

	1	ν 4	
	21	ν 2	+ 61.
~~+~~	~~9~~	~~ν 4~~	
	+ 4	2	

7 43 Supposed Var. in Capteus at usual brightness P.G.

Resp. Jups. I, Phot. R. P. obs.

B. + C. 1182, Bond 394.

7	44	22.6	7	46	44.ν
	4ν	22.7		47	0.0
					0.0
					+81.9
					+81.8

Comps. with sat. following. = Sat. III.

7	29	3ν.ν
	2ϑ	41.1
7	ν3	16.6
	47	0.0
	6	16.6

ν1	48.0	Seen.
	ν4. (±)	2ν1.ν
ν2	6.ν (±)	2Η4.7
	19.ν	242.0
	ϑ0.ν	298.4
	41.0	2ϑϑ.9
	νν.0	307.0

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1881phae.proj..493S

Dec. 30, 1881.

7	-2	11.0	202.2
		22.0	304.0
		28.5	210.6
		37.5	307.7
		47.0	222.2
	-4	0.0	210.8
		8.0	218.9
		19.0	309.3
		24.0	222.3
		36.0	345.6
	-5	1.5	225.4
		12.5	313.9
		22.5	220.0
		33.5	322.1
		45.0	224.3
		55.5	317.4
	-6	11.5	220.3
		27.5	311.2
		41.0	218.6
		54.5	317.4
	-7	7.5	214.3
		19.5	318.8 214.0 214.4 34.0
		41.0	
	-4	37.0	217.2
		54.5	315.4
	-9	7.5	216.7
		21.0	315.1

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1881phae.proj..493S

Dec. 30. 1881.

7h	59	34.5	212.2
	0	3.0	312.6
		24.5	223.3
		32.5	317.7
		51.5	221.0
	1	6.0	319.6
		21.0	221.0
		36.5	320.0

Limit of Vis.

8	2	30.0	2v2.2
		43.0	27v.3
		v6.0	2v3.8
	3	7.0	277.2

B. + C. 1182.

8	9	22.5	
	10	22.5	

Road 394.

			44.5
8	11	0.0	
	12	0.0	
			+82.0
			+82.0

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1881phae.proj..493S

Dec. 30. 1881.

Deimos.

8 25 W. obs.

.20
.19.21
.19.21
.24
.23

1.09 < .218 <<

Log. 0.218 < = 9.3385 <
5 −
46.6925 <
61.10
14.41

8 43 W. obs.

.24
.27
.25
.21
.21

1.18 <<
.236 < 0.236 <

Log. 0.236 < = 9.3729 <
5 −
46.8645 <
61.10
14.24

8 59 W. obs.

.25
.25
.20
.20
.19

1.09 <
.218 a218 <

Log. 0.218 < = 9.3385 <
5 −
46.6925 <
61.10
14.41

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1881phae.proj..493S

Dec 30, 1881

Deimos.

First reading made = .56 evidently erroneous. ~~P. obs.~~ Image of Mars too near edge of prism – readjusted pencils – P. obs.

9 36 .35 prism to left P. obs.
.33 Log. 0.337 = 9.5276
.33 47.6380
1.01 0.337 61.10
13.46

Turned prism to right and re-commenced –

Images of comparison very much more satisfactory –

9 50 P. obs.

.26
.26
.25
.24
.24

These reading should be

.14
.14
.15
.16
.16
.150
.750 0.150

Log. 0.150 = 9.1761
45.8805
61.10
15.22

Note added at 11 13. Probably these measures should be rejected. The satellite was many diameters from elongation and object thought to be seen and result when the comparisons were made had position angle greater than 270°. Image was probably a ghost – although seen with

1881phae.proj..493S

Dec. 30. 1881.

11 6 Photos seen — Confirmed by looking several times and seeing it each time in same position as before — This object also in right pos. angle and distance. W. obs.

11 8 Probably seen by P. Looked for by mistake at about 190° position angle, and not seen then. Attention directed to object at position angle somewhat less than 270° which was probably Phobos. This object seen several times at about 250° and at right distance.

11 20 Setting on Photos. W. obs.

20	.25	Reading by P.
22	.25	
25	.25	
28	.24	
34	.24	
	.246	

1.23 < 0.246 <

Log. 0.246 < = 9.39 09/10 5

46.9 45/50 <

61.10

14.15

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1881phae.proj..493S

Dec. 31, 1881

δ Ceti S. obs.

6 0 to 6 5 At first sight observer thought δ Ceti unusually faint with regard to η Ceti; but this was not so certain on looking longer. Still, observer's final estimate was

θ = η 4 ε [H. P. mag.: ε 3.62, η 3.57, θ 3.77, δ 3.75]

Stars twinkling, and faint in moonlight. θ nearest Moon, but η and θ are near each other.

6 10 to 6 15 Above estimate confirmed with field glass; θ certainly considerably fainter than η.

6	30	θ .1 mag. fr the ε.	3.5 P. obs.
7	0	θ = ε	3.6
		θ = 2 / 3	3.7

Brightness of different portions of the moon measured by Phot I.
Aperture reduced by plate No 2.5

Limbus medius.

8	20	~~0.55~~ ? .45 very faint.	P. obs.
		0,46	
		0,53	
		0..68	
		~~0 + 45~~	

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1991phae.proj..4935

Dec. 31, 1881,

1 30 } At both these times I. looked at δ Ceti,
8 0 } without knowledge of 2d and 3d observations by P. on p. 84, and concluded that it was more nearly equal to η Ceti than before. No exact estimate made.

Sinus Medii

8 25 0.43 W. obs.
.46
.42

Pencils in last two sets not coincident. Now readjusted.

Sinus Medii

8 35 .55 P. obs
.56
.49

38 .50 W. obs.
.44
.45

About

42 .21 P. obs.
.21
.23

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1881phae.proj..493S

Dec. 31, 1881.

		Azout	
8	44	.28	N. obs.
		.19	
		.20	

		Sinus Medii	
8	56	.11	S. obs.
		.12	
		.11	

		Azout	
9	0	.09	S obs.
		.10	
		.09	

10 30. Phobos probably seen. Cloud increasing N. obs.

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1881phae.proj.493S

Jan. 2, 1882.

6 15 to 6 30 ♃ & ♃ Cocti S. obs.

Examined with naked eye and with field glass. Observer doubtful whether ♃ Cocti is at all brighter with respect to η and ε Cocti than on Dec. 31 at the same time. On the whole estimate ♃ = η 3 ε.

Mean Photometer I

Cap 2.5

Sinus Medii S. obs.

7 45
0.25
.24
.25

Azout S. obs.

7 30
0.21
.20
.20

] injected plane it was drawn Cetus & 88.

Cap taken off.

Phobos W. obs.

7 58
.22
.28
.26
.22
.25
.23

.98 .246

1.23 0.246

Log. 0.246 = 9.390 09
5
76.95 45
61.10
14.15

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1881phae.proj..493S

Jan. 2, 1882.

Moon. Cap. 2.5

8 4 Sinus Medii

.19
.18
.20

S. obs.

Azout

8 7 .19
.17
.16

S. obs.

Godin

8 11 .49
.70
.83

S. obs.

Boscovich

8 14 .09
.09
.09

S. obs.

Manilius too indistinct for observation, S.C.

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1881phae.proj..493S

Jan. 2, 1882

Sinus Medii

9	58	.29	W. obs.
		.24	
		.27	

Azout

10	1	.19	W. obs.
		.22	
		.21	

Boscovich (b)

10	5	.18	W. obs.
		.19	
		.23	

Godin

10	8	.63	W. obs.
		.59	
		.58	

Manilius

5	10	12	.40	W. obs.
			.40	
			.35	

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1881phae.proj,.493S

Jan. 2, 1882

Sinus Medii

10	14	.26	W. obs.
		.26	
		.20	

Caesar (γ)

10	~~22~~ 18	.24	W. obs.
		.22	
		.22	

~~Hipparchus G (ε)~~

Dionysius (η)

10	21	.85	W. obs.
		.86	
		.86	

Arago (α)

10	25	.50	W. obs
		.57	
		.48	

~~Sinus Medii~~

Aristillus (A)

10	34	.33	W. obs
		.41	
		~~.43~~	
		.43	

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1881phae.proj..493S

Jan. 2, 1878 χ^2

Deimos Media

10	36	.32	W. obs.
		.34	
		.29	
		Cap taken off.	
10	45	W. looked for Deimos.	
		Deimos.	
11	15	[~~0.23~~ ~~.26~~]	W. obs.
11	30	.25	Log. $0.252^{\prime\prime} = 9.4014^{\prime\prime}$
		.26	$\frac{47.00}{5}$ 70″
			61.10
11	40	.27	Observers here decided to
		.25	reject first two settings for
11	45	.23	uncertainty.
		$1.26'' \quad 0.25\,2''$	

As Deimos was better seen in last five settings and there was a little uncertainty about having seen it in first two, decided to reject them.

Concluded not to take any more owing to proximity of moon. Think Deimos was brighter on this side than on the preceding, as in 1879, and that it ~~it~~ would have been quite an easy object had the moon not been so near. W.

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1881phae.proj.493S

92

Jan. 3, 1882.

~~β~~ Cati F. obs.

6 0 θ = 93 apparently as usual.
Clouds coming on from the west.

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1001phae.proj.:4936

Jun. 4, 1882.

6 0 θ Cet. S. Obs.
$\theta = 7^{m}3^{s}$

Photometer I. Cap. 2.5. Moon. S obs.

6 50 Seeing so bad that after long looking spots cannot be seen distinctly enough to measure. Moon over dwelling house.

Sinus Medii (seen with difficulty) S. obs.

7 20 0.30
.34
.32

Godin

7 25 0.85 S. obs.
.91
.99

η S. obs.

7 28 1.26
1.37
1.29

Sinus Medii S. obs.

7 32 0.50
.52
.56

The previous measures were taken by the eye-piece of Mars Micrometer.

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1881phae.proj.2493S

Jan. 4, 1882.

Sinus Medii

7 45 .57 P. obs. 7
.72
.53

Agout (f small)

7 47 .41 P. obs. 7
.38
.48

Picard (H large)

.69
7 48 .62 P. obs. 9
.56

Proclus (γ)

7 49 .97 P. obs
.97
1.00

Macrobius (J large)

7 J1 .70 P. obs.
.67
.62

Lemonnier (f small)

7 J3 .23 P. obs
.21
.20

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1881phae.proj..493S

Jan, 4, 1882.

Syrtis minor (Interior of k small)

7 55 .25 P. obs
.27
.24

Sinus Medii

7 56 .40 P. obs
.50
.47

Sinus Medii

9 3 .35 S. obs.
.55
.38

Azoit (small j)

9 7 .21 S. obs
.21
.21

Picard (large H)

9 9 .38 S obs.
.48
.39

Proclus (I)

9 11 1.01 S. obs.
.96
.78

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1881phae.proj.493S

Jan. 4, 1882

Macrobius (large S)

9 14 .51 S. obs
.58
.56

Lemonnier (small f)

9 21 .19 S. obs
.15
.13

Vitruvius (small K)

9 25 .14 S. obs.
.12
.11

Sinus Medii

9 27 .23 S. obs
.27
.25

Sinus Medii

9 40 .29 S. obs.
.29
.28

Godin

9 41 .58 S. obs.
.57
.58

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1881phae.proj..493S

Jan. 4, 1882.

Boscovich

9 42 .11 5. obs.
.09
.09

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1881phae.proj.493S

June 7 1882.

θ Cet 7 F. Obs.

6 U θ = η³ c

θ Cet of normal brightness P. Obs.

Examined Pole stars & what standards

89°35 ⊙ m

⊙ n

37

Proposed sequence for other stars.

89°35	9.0	
89° 1	9.5	
m	10	
n	11	
h	11.5	
k	12	
d	13	±
l	13.5	
c	14.0	
e	14.5	
f	15.0	
g	15.5	

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1881phae.proj..4933

Jan. 7. 1882.

B. & C. 1882.

7	21	10.2	
	22	10.2	

Bond 394.

			44.5
7	23	0.0	
	24	0.0	
			+94.3
			+94.3

Reap. Jup. II. Phot. H. S. obs.

7	16	10.4
	23	41.1
7	39	51.9
7	24	0.0
	15	51.9
7	22	10.2
7	38	2.1. approx. time eclipse.

7	32	~~0.5~~	~~9 3.2~~
		51	51.2
7	33	7	90.0
		1.8	44.4
		27.5	88.6
		35.5	

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1881phae.proj.493S

Jan. 7. 1884.

7 3r	9.0	
	12.5	46.7
	20,5	24.1
	27,5	46.0
	32,5	25.9
	37,5	36.7
	42,0	69.6
	44,0	40.4
	52,5	92.9
	59,5	35.4
39	6,0	96.8
	12,5	27.4
	17,5	97,0
	26,5	24,0
	32,5	111.2
	49,0	25.7
	54,0	101.7
40	4,0	21.9
	11,0	107,0
	19,0	17,1
	25,5	112.8
	34,5	16,0
	43,5	105.7
	51,5	16.1
	59.0	98.6
41	4,5	13,9
	13,0	105.8

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1881phae.proj...493S

Jan. 7. 1881.

7	41	22,0	8,0
		30,5	10 5,5
		43,5	5,1
		~~45,0~~	~~127,0~~
	42	42,5	116,5
		51,5	10,1
		59,5	111,0
	43	7,5	13,8
		17,5	110,6
		27,5	12,8
		41,0	18,5
		50,0	14,6
		59,5	109,2
	44	9,0	16,6
		15,5	108,4
		54,5	7,0
	45	3,0	119,1
		12,0	13,2
		23,5	109,6
		34,0	14,5
		45,5	113,7
		54,5	21,0
	46	6,5	110,3
		20,0	15,8
		31,0	111,6

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1881phae.proj.1493S

Jan. 7. 1882.

7	46	4 ν 2,0	11,2
		ν 2,5	10 ν,6
	47	ν,0	12,0
		16,ν	110,0
		29,ν	12,1
		ν9,ν	111,0
		νν,ν	13,7
	48	7,0	116,2

Slowest
Comp. sat. is nearest of two on the opposite side. = ~~Sat.~~ I.

B. + C. 1182.

7	ν 3,	10.2
	ν 4	10.1

Bond 394

7	ν ν	44.ν 0.0
	ν 6	0.0
		+94.3
		+94.4

Stars following α Ceti.

~~B + C = 8h~~
B + C = 8h 4m 8.2

		Dec	Mag
		ν	2 α Ceti
	6	27.3	7 10 = a
		ν2.0	8 ~~12~~ 11.ν = b
		ν7.ν	1 12.ν
	7	12,0	2 12 double
		30.ν	3 12.ν = c
		36.3	7 11 = d
		4ν.ν	4 10 = e

~~Proposed sequents~~

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1881phad.proj..493S

Jan. 7, 1882.

Proposed Sequence

e	9.5
a	10.0
d	10.5
b	11.0
c	11.5 12.5

~~Stars preceding a 2° dec~~

f 13.0 13.5 prec a 2^s dec 5

Stars in Cephus at normal brightness.

Stars following α Tauri

		δ	mag	
8^h	22^m 7.5			
	24 5.0	6	13	
	5.2	4	12.5	
	37.0	1	12	
	25 9.8	9	12	
	28.0	7	11	
	26 5.3	6	9	
	36.3	6	10	
	27 33.0	6	13	
	28 11.0	6	12	double
	27.9	6	12	

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1881phae.proj.493S

Jan. 7, 1882.

~~Stars~~ ~~Last star~~ δ

8	31	25.4		last star of prec. set
		v-2.5	6	11
	32	17.3	6	10.5

Decims.
Phot. R. P. obs.

9 25

0.19
0.19
0.19
0.19
0.14
.19
0.94 0.188

Log. 0188 = 9.2742 / 5
46.3710
61.10
14.73

Phot I W. obs.

9 28

0.23
0.22
0.22
0.23
0.25
0.23
1.15 0.230

Log. 0.230 = 9.3617 / 5
46.8085
61.10
14.29

9 40 P. obs.

0.20
0.19
0.14
0.19
0.23
.20
0.99 0.198

Log. 0.198 = 9.2967 / 5
46.4835
61.10
14.62

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1881phae.proj..493S

Jan. 7. 1882

9 40. .28 Wds

Clock irregular

45 0.21

0.28

0.26.

47 0.25

.26

1.28 < 0.256 <

Log. 0.256 < = 9.4082 <
5-
47.0410 <
61.10
14.06

B? + α

Compared with Gen. Phe

.75

.82

9 55 .81

.77

.78

3.93 < 0.786 <

.79

Log. 0.786 < = 9.8954 <
5-
49.4770 <
61.16
11.62

W. Wds

10 7 .62

.63

.72

.68

.65

.66

3.30 < 0.660 <

Log. 0.660 < = 9.8195 - <
5-
49.0975 - <
61.16
12.00

10 30 to 11 15 W. looked for Phobos — not seen. Sky rather hazy, and a portion of the time cloudy.

W.

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1881phae.proj.493S

Jan. 9. 1882

θ Cephei — P. obs.

5 50 θ = η 3 i as usual by eye alone; also with opera glass.
5 55 θ thought to be somewhat fainter than usual P. obs.
6 05 Later was satisfied that the star was at its normal brightness, and that the first impression was due to a dazzled condition of the eye. P. obs.
6 15 Star in Cepheus also at normal brightness P. obs.

Observations of stars in vicinity of Pole.
Polaris I. S. obs.

Decl. 89° 35′, 2 Ursæ Min.

7 0
3.01
4.02 S. obs.
3.14
3 | 10.17
3.39
0
Magn. 10.5 V

0.66 S. obs.
7 08 .59
.57
3 | 1.82
.61
d
Magn. ~~13.17~~ 14.17 V

7 12 0.64 S. obs.
0.76
2 | 1.40
.72
L
Magn. ~~11.81~~ 13.41 V

7 15 0.37 S. obs.
0.38
0.38
0.38
Magn. ~~13.20~~ 15.20 V

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1881phae.proj..493S

Jan 9, 1882

		f		
7	23	0.44		S. obs.
		0.37		
		0.37		
		3/1.18	.39	Wash. ~~14.18~~ 14.15 v
		& l		
7	29	0.50		S. obs.
		0.45		
		0.49		
		3/1.44	.48	Wash. ~~14.69~~ 14.69 v
		le		
7	31	0.68		S. obs.
		0.72		
		0.75		
		3/2.15	.72	Wash. ~~11.81~~ 13.81 v
		& h		
7	37	0.85		S. obs.
		0.84		
		0.67		
		3/2.36	.79	Wash. ~~11.61~~ 13.61 v

Dm. 89°.1 Not the star; on looking with ring micrometer eyepiece, it seems to be the nearest star of a group nearly in the line of

7	42	4.81		S. obs
		3.91		
		4.32		
		3/13.04		
		4.3 v		

* Dm. 89°.1

(*) and somewhat in the form they sketched, Dm. 89° 1, being more to the left

* *

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1881phae.proj..493S

Jan. 9. 1882 X.[2]

30h 17
6 ν 11
7 11 24
8 17 45
~~9 2 ♯~~
9 24
15
9 9

Comet b. 1881.

22 ν6 +ν7.6 Wr. obs.
3 13
+4 17

22 ν6
4 6
+ν10

→ 5ν
4 10
+4 4.0

3 3
15
48

3 4ν
+4 . ν2

Search made for comet.
The region when comet co tonight is so ~~thickly~~ crowded with stars as ~~to make~~ it utterly impossible to see so faint an object. ~~to night.~~ W.

9 0 θ Ceti suspected to be a little fainter S. obs.
9 30 After looking carefully with opera glass as well as eye alone, S. is inclined to think θ Ceti somewhat faint; perhaps θ = 7 5 ℓ

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1881phae.proj..493S

Jan. 9, 1881 X²

10 5 θ ι Ceti now too low for comparison with δ. θ does not seem as faint as half an hour ago relatively to γ, but it is relatively higher.

θ fainter than γ about 2 grades
θ fainter than ζ about 1 grade. S. Sh.

P. observed θ Ceti at intervals from dark to 10 P.M., and could not detect any change from its normal brightness.

Deimos Phot. I, comp. with Mars —

11 50

0.20	W. obs.
0.22	
0.22	log. 0,216ᶜ = 9.3344ᶜ
0.22	46,672 0ᶜ
0.22	61.16
1.08ᶜ	14,43
	0.216ᶜ

12 14

0.20	W. obs.
0.21	log. 0,218ᶜ = 9.3385ᶜ
0,23	46,692 5ᶜ
0.24	61.16
0.21	14.41
1.09	0.218ᶜ

See next page.

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1881phae.proj.493S

Jan. 9. $18 \& X_1^2$

Deimos very finely seen.

12 30 Sat. now getting rather too close to planet for farther measures. W.

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1881phae.proj..493S

Jan. 11, 188X

θ Cebi S. obs.

6 0 to 6 45 Eye and also opera glass
θ = η 3 ι
θ = η 5 π } π looks a little brighter than ι, and decidedly brighter than ε, σ, or ρ.
ζ about equal to θ but the colors of the stars are too unlike, ζ being much bluer.

Comet b 1881.

~~3 0 +08.+57.5~~

2 J 0
3 ~~47~~
~~+5 47~~

8 47 Supposed Var. in Cepheus at normal brightness. P. obs.

Stars in vicinity of Pole Phot

C

9 9 0.72 P. obs.
0.71
0.75
3/2.1A .73 Wavn. 13.7A

9 10 0.81 P. obs
0.88
0.86
3/2.5V .84 Wavn. 13.3A

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1881phae.proj.493S

January 11, 1882

		e	
9	13	0.v4	P. obs.
		0.49	
		0.v4	
		3/1.v7 .v2	Mayr. 14.v2
		f	
9	15	0.48	P. obs.
		0.49	
		0.v2	
		3/1.49 .v0	Mayr. 14.60
		l	
9	17	0.64	P. obs.
		0.70	
		0.60	
		3/1.94 .6v	Mayr. 14.04
		k	
9	19	0.89	P. obs.
		0.87	
		0.90	
		3/2.66 .89	Mayr. 13.3v
		L	
9	20	0.94	P. obs.
		1.01	
		1.02	
		3/2.97 .99	Mayr. 13.1v

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1881phae.proj...493S

Jan. 11, 1882.-

Dm. 89°1

2.68 P. obs.

9 29 2.22

2.76

7.66 2.55 2 Mean 11.07

Deimos.

10 25

0.23	+3
0.20	0
0.18	−2
0.18	−2
0.21	+1
0.20	±.016

W. obs

Log. 0.200 = 9.3016
5
76.5050
61.16
14.60

1.00 / 0.208

2.17
.20 | 0.3472
17

Comets 6 1881

23 0

20 6

3 6

+7.4 W. obs.

B+C 1182

11 6 6.2

7 6.2

8 6.2

Bond 236

11 8 0.0

9 0.0

10 0.0

∴ B+C 1182 is 1m 38.3 slow.

t = 11h 39 38.7 } by B+C. 1182.

t = 11 40 0.4 }

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1881phae.proj.493S

Jan. 11. 1881 X.[7]
Comet b 1881.

Order ≡ ≡ * *
Both in northern half of square.

Pos. Zero. 10ν.7
4ν
Set at 1ν0.7

Comp. star Dm. +57° 2696. (9.2)
Comp. star (a) d.t mag.
b precedes a 2[m] 7[s] and is 2'.5 north.
a has 3 faint stars near it.
c precedes b 2[m] 9[s] and is 0.'5 south.
d fol. c 16[s] and is 5.'5 south of it.
Mag. of b 9.2 — of c 8.9 — of d 9.

B. + C. 1882.

13	18	ν.7
	12	ν.7
	13	ν.6

Bond 394.

13	13	0.0
	14	0.0
	1ν	0.0

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1881phae.proj...493S

Jan. 12, 188X²

θ Ceti S. obs.

6 0 θ = 7ᵍ 3 L = 7ᵍ 5 π as yesterday.

See page 98; also 84, 92, 93, 106, 108, 109, 111.

7 3 Supposed Var. in Cepheus at normal brightness?

		n	S. obs.	
7	4	1.06		
		.99		
		93		
		3/2.98	.99	~~Diff. wgts. = H. L~~ wgts. 13.12

		n	P. obs.	
7	7	1.16		
		1.30		
		1.03		
		3/3.49	1.16	wgts. 12.7 A

		m	S. obs.	
7	12	1.35		
		1.25		
		1.22		
		3/.82	1.27	wgts. 12.5 A

		m	P. obs.	
7	14	1.26		
		1.54		
		1.33		
		3/1.13	1.3 A	wgts. 12.50

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1881phae.proj.493S

Jan. 12, 1882.

Dm. 89°1

7 27

1.84 S. obs.
1.76
1.79
3/5.39 1.80 Mean = 11.82

Dm. 89°35

7 33

.80 P. obs.
.42
.28
3/1.50 .50 Mean. 9.40

Comet b 1881.

			M. obs.
23	3	+57	16
3	14		
+4	11		

B. + C. 1182.

7	37	4.1	
	38	4.1	

Bond 394.

7	39	0.0
	40	0.0

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1881phae.proj..493S

Jan. 12, 1882

2 26

146
-24
122

6' 18"
5' 15"

t = 3 29 40
4 36
22 53

t = 8h 10 49.7 for transit -
18 29.5
Δ = 7 39.8

Pos. 0 206.7
45
251.7

Comps. Star ~~Star~~ same as last night. vg!
2 Ju. + 57° 2696. (9.2)
t = 8 54 54.2
t = 55 12.2

Order Star comet Star comet

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1881phae.proj..493S

Jan 12, 1882

Stars in northern Comet in southern half of square

On third set on first comet use ~~the~~ last of three close taps -

~~In case~~ On second comet use last of two close taps -

In last set use mean of two close taps for last comet

	B. & C. 1882.			Bond 394.		
See next page.	9	~~3~~ ~~3~~ 6	3.6	9	38	0.0
		3 ~~4~~ 7	3.6		39	0.0

9 45 Western sky and part of northern covered with thick haze. The first star which could be examined for a sequence is χ Tauri.

0m 0s = 1st tip by stopwatch
46.0 = 2d " " "

		Dec.	Mag.
2	51.8	6	13
		4	"
		8	"
3	22.5	1	14

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1881phae.proj..493S

Jan 12, 1882

time by stopwatch.	Dec	No
3m 06.5	9	12.5
1.2	11	
8 13.7	7	11.5
14.0	7	13
11.0	6	9.5
5 21.8	5	10

Haze increasing; few stars seen and estimate of magnitude very uncertain.

Mars.
Deimos suspected but haze too thick to be sure of it W.C.
Cloudiness increasing —
10 35 Closed dome

B. & C. 1182. Bond 394.

10	31	2.3	10	33	0.0
	32	2.3		34	0.0

10 40 Reading of min. of chron. B. & C. 1182 ~~was~~ on page 116 is wrong. — A comparison first taken shows an agreement with preceding comparisons.
Minute of chron. ~~has~~ ~~first~~ now altered.
W.

∴ B & C 1182 is 1m 42.2 slow.

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1881phae.proj..493S

Jan 14, 1882.

θ Ceti S. Obs.

6 15 θ = 7 3.c = 7 5 π as usual

Region of θ Ceti

	Stopwatch m	s	Decl.	Magn.
θ Ceti	0	0	5	
	1	56	3	12
	0	0	3	12
	0	18	6	13.5
	0	0	3	12
	0	44	7	14.5
	0	0	3	12
	0	52	9	13
	0	0	9	13
	0	32	0	12.5
	0	0	3	12
re	1	37	4	11
	0	0	4	11
h	0	9	1	13
	0	0	4	11
b	0	35	1	9.5

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1881phae.proj...493S

Jan. 14, 1882

	0	0	3	12	} check
	2	15	1	9.5	
	0	0	1	9.5	
i			1	13.5	
k	0	39	4	14.5	
f			7	14.0	
	0	0	1	9.5	
	0	55	5	11.5	(1st of 2)
	0	0	0	13.5	
	0	7	5	11.5	
	0	0	5	11.5	
g	0	7	2	12.3	
	0	0	5	11.5	
f	1	0	8	11.5	
	0	0	5	11.5	
c	0	8	12	10	

			Decl.	Magn.
	f θ Ceti			
b	4m	11s	1	9.5
c	5	14	12	10
e	3	33	4	11

	f θ Ceti		Decl.	Magn.
f	6m	6s	8	11.5
g	5	13	2	12.3
h	3	42	1	13
i	4	50	1	13.5
j	4	50	7	14
k	4	50	4	14.5

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1881phae.proj.493S

Jan. 14, 1882

B & C 1182		Bond 394	
7	33	0.6	7 33 0.0
	34	0.6	34 0.0
	35	0.6	35 0.0

∴ B. C. 1182 is 16.5" fast.

Comet b 1881.

W. obs.

23 8 +57.1

3 25

4 17

$3^h\ 25^m$ S.T. = $7^h\ 48^m$ M.T.

1 8

4 03

8 56

1

8

2 2 7

1 25

4 22 +57.3

Repeat

Pos. 0 = 284.4

45.

Set at 239.4

Order; Comet, Comet, Star, Star
Comet in southern Star in northern
half of 2grand.

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1001phec.proj..4000

Jan. 14, 1882.

In third set use last of three close taps on comet

8^h	13^m	$0.^s0$
	13	17.3
	13	46.6

Use second and third taps for time.

Reject every thing before this.

Order; Comet, Comet, Star, Star.
Both in southern half of square.

In third set use first of two close taps on second Comet

$t = 8^h\ 53^m\ 55.^s2$ = tap on Chron. for time

$9^h\ 0^m\ 32.^s0$ = A.M.C. watch
$7\ 48\ 0.0$ M.T. = $9^h\ 25^m$ S.T.
$1\ 12\ 32.0$ $1\ 12\ 32.0$
Sidereal time = $4^h\ 37^m\ 32.^s0$

H.A. = 5 26 = Setting on comp Star Dec = +7.1 Mag. 7.5
~~Use use one of two close taps on first comet in fifth Set.~~
Use first of two close taps on first comet in fifth set.
Two taps for time in middle of third set.

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1881phae.proj..493S

Jan. 14, 1882.

t = 9^h 5^m $57^s.7$
Last tap for time in middle of fifth Ret.

Same Pos. O same as in rejected series —

Comp. Star a — b prec. a $32^s.2$ c fol. b $1^m 44^s.3$ — b is north of a $12'.5$ — c is north of a $8'$ —
Mag. of b 9.0 — Mag of c 8.9 —

d prec. b 36^s + is north $11'$, Mag 8.0

Comp. star Dec. +56° 2978 (7.2)

Region of α Piscium. S. obs.
A star 10 magn. f α Piscium $3^m 46^s$ S 8.
Before this there are few stars. Examine rest of zone for a group.

106 Star in Cetus is small but ruddy

1881phae.proj..493S

Jan. 14, 1882.

Reappearance Satellite II.

Phot. H. P. obs.

Comp. with nearest fol. sat. = Sat. IV.

10	15	43.5	
		44.0	142.0
		55.0	176.0
	16	6.0	130.0
		6.5	179.7
		13.0	126.9
		20.5	145.1
		27.0	123.0
		33.0	191.0
		47.5	118.2
		56.5	197.2
	17	7.5	144.5
		10.5	196.0
		20.5	110.5
		26.5	197.0
		36.0	110.0
		46.0	197.0
		53.5	114.7
	18	4.0	200.4
		11.5	104.0
		21.0	207.9

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1881phae.proj..493S

Jan. 14, 1882.

10	14	30,0	104,9
		41,0	203,0
		49,5	100,0
		55,5	207,0
	19	3,0	110,0
		9,0	202,5
		16,0	106,7
		24,0	204,0
		37,0	105,7
		44,0	206,0
		51,0	100,4
	20	8,0	220,4
		25,5	105,4
		33,5	207,4
		43,5	104,4
		59,5	204,7
	21	10,5	100,7
		21,0	206,0
		28,5	107,5
		39,5	205,4
	22	20,0	106,4
		33,0	207,2
		53,0	107,0
	20	0,5	204,0
		12,5	110,2
		20,5	205,0

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1881phae.proj..493S

9

Jan. 14, 1882

10	25	31,0	109,0
		40,0	204,3
		49,V	107,4
		V6,V	208,0
	24	8,0	104,3
		14,0	207,V
		32,0	100,0
		41,V	202,V

Limit of Vcs.

	25	2,0	141,V
		20,0	171,6
		34,V	180,V
		4V,0	172,V

B & C. 1182

10	31	0.2
	32	0.2

B 394

		44.V
10	31	0.0
	32	0.0
		-1V.4
		-1V.4

P. looked at Mars

10 35 Satellite suspected; measures not attempted.

Deimos compared with Mars.

11 0

0.24	W. obs.
0.26	
0.25	Reject this set.
0.27	
0.26	

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1881phae.proj,.493S

Jan. 14, 1882 -

11 4

0.23 ~~0.23~~
0.22
0.24
0.23
0.24

W. obs.

Reject this set.

distinctness 1

11 17

0.20 −1
0.21 0
0.21 0
0.20 −1
0.23 +2
.21 .008

1,05 < 0.210 <

P. obs.

.21).01736
.09

Log. 0.210 < = 9.3222 <
5
46.6110 <
61.10
14.49

Comp: of Deimos with o ~~Orionis~~ aurigae.

11 38

0.63 −15
0.80 +2
0.70 −8
0.80 +2
0.98 +20
.78 .094

3.91 < 0.782 <

P. obs.

1598
144
20398
156
47

.26

Log. 0.782 < = 9.8932 <
5
49.4660 <
61.16
W 11.63 s.

391

11 45

0.86
0.89
0.85
0.92
0.99

Reject this set.

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1881phae.proj..493S

Jan. 14, 1882.

11 52 W. obs.

1.02
0.97 Reject, done cuts off.
0.94

11 57 W. obs.

0.89
0.91 Reject
0.94
0.86

12 17 W. obs.

	0.66	0	−3
	0.75		+6
	0.69		0
	0.66		−3
345	0.69		0
	.69		.024

J. 4 5 < 0.6 9 0 <

Retain this set.

868
434
.05208 .07
483

log. 0.690 < = 9.8388 <
J−
49.1970 <
61.010
18.191

Deimos compared with Mars.

12 25 W. obs.

	0.20	−4/	−2
	0.26	+2	+4
	0.24	0	+2
	0.19	5−	−3
	0.23		+1
	.24		.024
	.22		

1,12 < 0.224 <

Retain this set.

.05208 .23

log. 0.224 < = 9.3502 <
J−
46.7510 <
61.10
14.35

~~Do not~~ There is a small star ~~in~~ this vicinity which, I am confident, was included in some of the ~~sets~~ previous readings, save those in last ~~two~~ two sets. Accordingly ~~to conduct~~ ~~two~~ all the sets, save last two, are to be rejected. (This remark only applies to my own settings. W.

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1881phae.proj..493S

Jan. 15, 1882

B & C. 1182 — B 394

5 55 58.8 — 5 56 44.5

56 58.8 — 57 0

Sat. I Cusp Sat II.

Reap. Thick R. S. Ans. R. me.

Thin clouds.

Limit of Visibility.

6 12 142.8

66.1

12 44 208.9 — 4/6 44.3 / 172.1

13 13 133.3

13 27 203.3 — 70.0 / 136.1

64.0 + 0.9

6 14 56 Inspected

57 can — cloudy

15 42 certainly seen.

16 5 123.7

19 218.0

27 131.0

37 219.0

44 127.0

51 219.2

17 1 126.0

9 217.0

17 128.0

26 220.3

35 122.0

44 223.0

55 131.0

18 6 220.2

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1881phae.proj..493S

Jan 15, 1882

18	19	130.3		
	32	213.3		
	44	126.8		
	57	214.1		1
19	9	128.9	84.1	
	29	214.0	91.1	
	58	129.1	176.2	
20	16	220.2	84.1	2
	31	122.0	96.2	
	48	218.2	96.1	
		126.0	191.3	call this 126.0
21	07	~~306.0~~		
	42	221.1	94.6	3
22	04	120.8	99.0	
	22	219.8	107.3	
	44	119.7	206.3	
	59	227.0	603.2	4
23	15	120.7		
	28	226.1		
	42	122.0		
	55	222.8		5
24	9	123.8		
	26	226.4		
	47	122.1		
25	06	222.5		6

B 1182
6 34 58.8
6 35 58.8

B 394
6 35 J 44.5
36 0

-14.3
-14.3

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1881phae.proj..493S

15

Jan. ~~11~~, 1882. Continued from p. 134.

9 20 θ Cti as usual. P.S.S.

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1881phae.proj..493S

6 5

Jan. 17, 1882.

θ Ceti F. Obs.

θ = η 3 ι = η 5 π as usual.

Region of α Piscium

See p. 124

Star fr α Psc. 3m 46s	Stopwatch		Dec.	Magn.
	0m	0s	8	10
	1	49	2	11
	0	0	4	11.7
	0	3	2	11
	0	0	8	10
	0	15	12	9.5
	0	0	8	10
	0	59	13	8.7
	0	0	8	10
	0	22	6	12.5
	0	0	8	10
	0	43	1	12.8
	0	0	1	12.8
	0	19	5	13.5
	0	0	7	14.5
	0	16	5	13.5

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1881phae.proj,493S

Jan 15, 1882 Continued from p. 131 ~~132~~

h 23 Sweep for Phaeton.

~~h 23~~ W. 1 30. +15° G +20

Began at 4 29 2 nebs at ~~20°~~ 15

4 54 4 nebs. at 20

5 03 2 nebs 185

No object of singular spectrum found.

Stars near α Piscium, Jan. 17, 1882.

f α Piscium.		Decl.	Magn.
4m	45s	13	8.7
4	1	12	9.5
3	46	8	10.
5	35	2	11.
5	32	4	11.7
4	8	6	12.5
4	29	1	12.8
4	48	5	13.5
5	8	5	13.8
4	32	7	14.5

See pp. 137 and 140

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1881phae.proj..493S

Jan. 17, 1882 Continued from p. 133

0	0	5	13.5
0	20	5	13.8

Comet b 1881. W. obs.

23	15	+56.8
3	19	
+4	4	

Pos. 0 = 220.1
4s
Set at 26 s.1

Reject -

~~Order, Star Comet Star Comet Star in southern Comet in northern half of square -~~

~~4h~~

t = 8 s2 28.8 by B+C
t = s2 47.8 " "

~~Reject preceding series as Chronograph failed~~

$4^h\ 49^m_{S.T.} = 9^h\ 0^m_{M.T.}$

$9^h\ 1^m\ 4.3$
22.7

~~Order~~

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1881phae.proj.493S

Jan. 17, 1882 –

Order in new series
Star, Star, Comet, Comet –
Star in southern : Comet in northern half of square –

In third set three close taps

Use mean of the last two for comet and use first for star

First set to be reg. used on chron. sheet is the one followed by long rattle. Think two sets preceded this. W.

t = 9 30 27.4 } By B. & C.
t = 30 44.0 }

Letting on comet.
5 20,3 = Sid. time.
6h 5.5 H.A. 56.8 dec

Comp. star D M, +56° 29 & 5 (6.7)

B. + C. 1182. Bond 394.

~~9 36 00~~

9	3	56.2	9	36	0.0
	36	56.2		37	0.0

∴ B. + C. 1182 is 11.s7 fast.

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1881phae.proj..493S

Jan. 17, 1882

S. Sky.

Region of α Piscium too low to add fainter stars See pages 133, 135

Region of α Ceti -

	Stopwatch			
α Ceti	0	0	first bar.	
		43	second "	
	2	45	7	13
			9	13
	3	2	8	9.5
	0	27.5	8.5	10
		32	0	12 Comp. near
		47	1	Cum-
	4	5	2	12
		10	7	9.5
		19.5	4	9
		43	7	13
		55	2	12
	5	0.5	0	9.5
		32.5	7	11.5
		32.5	0	11.5
		46.5	5	10.5

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Jan. 17, 1882

Region of α Tauri

Stop watch

α Tauri	0	0	over first wire	
		47	" Second "	
	2	√0.0	6	12.✗
		√2.√	8	12.√
		√3.0	4	12.✗
	3	2.0	8	13
		21.√	2	11
		25.√	8	11
		√6.0	9	10.√
	4	13.√	7	10
		√0.0	6	9
		√6.0	8	12.√
	√	22.0	6	9.√
	6	19.5	✗7	13

11 0 Seeing too bad for a good selection of a sequence for α Ceti and α Tauri this evening. Images much blurred. Both regions have bright stars enough and the faint ones can be put in whenever the seeing will allow. S. obs.

12 0 W. worked for Deimos.

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1881phae.proj.493S

Jan. 17, 1882

Deimos, Mars.

W. Obs.

12 10	0.20	−1	
	.20	−1	.03472
	.23	+2	.17
	.18	−3	
12 22	.22	+1	
	.21	.016	

1.03″ 0.206″

Log. 0,206″ = 9,3139″/5

76,5695″
61,10
14,53

Tried θ Aurigæ, but found it too near edge of shutter

Deimos, Mars

W. Obs

12 38	0.22	−2	
	.21	−3	.0651
	.26	+2	.27
	.30	+6	
12 51	.22	−2	
	.24	.030	

1.21″ 0.242″

Log. 0,242″ = 9,3838″/5

76,9190″
61,10
14,18

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1881phae.proj..493S

Jan. 19, 1882

6 06 6 15 — α Ceti — 8.5 Str.

θ = 73 c θ = 73 π π at first looked fainter than c, but as it grew darker, & that the stars were better seen, it looked if anything brighter than c.

6 30 Reviewed region of α Piscium, but found no stars to add to list on p. 134.

	Stopwatch		δ	Magn.
α Ceti	0	0	5	
b	2	23	~~7~~	9.5
	0	0	7	9.5
a	1	18	4	9.2
~~d~~c	0	0	~~7~~	9.7
a	0	10	~~4~~	9.2
a	0	0	4	9.2
d	0	43	0	10.3
Nothing about 11.0 seen within limits of region	0	0	7	9.5
e	0	25	8	11.8
f	0	0	2	12.5
a	0	15	4	9.2
a	0	0	4	9.2
g	1	13	7	13

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1881phae.proj..493S

Jan. 19. 1882.

g	h	0	0	7	13
		0	15	4	13.3
	k	0	0	2	15
	g	0	6	7	13
	a	0	0	4	9.2
	i	0	30	6	14
	i,	0	0	6	14
	j	0	5	9	14.3

	f α Ceti		Decl.	Magn.
a	3m	41s	4	9.2
b	2	23	7	9.5
c	3	31	7	9.7
d	4	24	0	10.3
e	2	48	8	11.8
f	3	26	2	12.5
g	4	54	7	13
h	5	9	4	13.3
i	4	11	6	14
j	4	16	9	14.3
k	4	48	2	15

Images steadier this evening than on Jan. 17, but apparently no fainter stars can be seen now than then.

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1881phae.proj.493S

Jan. 19. 1882.

B. & C. 1882. Bond 394.

7	42	51.6	7	43	0.0
	43	51.6		44	0.0

∴ B. & C. 1882 is 7.5 fast.

Comet b. 1881.

23	20	+5 6.6
8	46	
+4	26	

t = 7h 57m 31.3 } by B. & C.
t = 7 57 50 3 }

Pos. 0 = 200.8
45
Set at 245.8

Order, Comet, Comet, Star, Star —
Both in southern half of square —

t = 8h 50m 43.4 } by B. & C.
t = 8 50 57.8 }

Comp. star D M. +56° 5008. (9.3)

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1881phae.proj..493S

Jan. 19, 1882.

Region of α Tauri.

Stop watch S. obs.

α Tauri 0 0 over first wire.

" 44.0 " second " .

Star a fol. α Tauri $4^m 3^s$, δ = 6 Mag. 9.2

b fol. α Tauri $4^m 3.5^s$, δ = 6 Mag. 9.7

~~c fol. α Tauri $3^m 9^s$ δ = 9~~

Star fol. α Tauri $3^m 9^s$ has a star of 9.5 Mag 2' north following {Hence not suitable for use}

d & fol. α Tauri $3^m 26.5^s$ δ = 7 Mag. 11

e & fol α Tauri $2^m 34.5^s$ δ = 2 Mag 11.5

c & fol α Tauri $2^m 33.5^s$ ~~δ =~~ and 5' south of d Mag. 10.5

f fol α Tauri $2^m 38.5^s$ δ = 8 Mag. 12

g fol α Tauri $2^m 48.5^s$ δ = 7 Mag. 13

h fol α Tauri $2^m 56.5^s$ δ = 7 Mag. 13.3

i fol α Tauri $2^m 19.5^s$ δ = 3 Mag. 13.8

j fol α Tauri 2 09.5 δ = 5 Mag 14.5

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1881phae.proj.493S

Jan. 19, 1882

Region of ε Orionis

S. obs

ε Orionis	0	0	over second bar –	
	2	0	7	8.8
	2	9.7	9	11.0
		41.5	7	9.0
		√1.6	4	10.0
	3	6.0	2	10.√
		30.3	6	12.5
		√0.0	2	13.0
		√9.0	9	11.√
	4	29.0	7	10.√
		45.3	8	10.0
	√	21.7	8	11.√
		√3.2	3	14.0

Deiuve compared with Mare –

10 √0

0.29	+4	+6
0.24	−1	+1
0.19	−6	−4
0.22	−	−1
0.21		−2
0.23		.028

N. obs –

1.15 <
0.230 <

1736
434
.06076
.26

log. 0.230 < = 9.3617 <
5
46,8085 <
61.10
14.29

1002.phae.proj.:4935

Jan. 19. 1882.

Deimos compared with σ ~~Orionis~~ Aurigae.

11 6	0.68	+2	W. obs.
	0.78	+12	
	0.59	−7	868
	0.68	+2	1302
	0.58	−8	13888
	.66	.064	.21

3.31 < 0.662 <

log. 0.662 < = 9.8209 <

49.1045 <
61.10
12.00

B. + C. 1162.

11	19	50.6
	20	50.6
	21	50.6

Bond 394.

11	20	0.0
	21	0.0
	22	0.0

Jan. 21. 1881.

The following is a note I intended to make but neglected, on Jan. 19.

The star which is missing in the D M. and which was slightly brighter than D M. +56° 2694. on Jan. 17 (being very close to it) seems to have increased in brightness, as near as I can ~~recollect~~ recall my impressions of Jan. 17. — I estimate it certainly from 0.3 to 0.5 mag. brighter ~~than~~ to night than D M. +56. 2694.

W. obs.

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1881phae.proj..493S

Jan 22 1882

B	37.4 (44.5)	B	C
7	33 0.0	7	32 47
7	34 0.0	7	33 46.7

-2.5
-2.2

Photometer R

Disappearance of Jupiter II. I.
Compared with satellite on same (f) side. } = II.
Limit of visibility } P.Obs. Sec.

8. 7	54	114.5
8	6	140.2
8	20	114.4
8	45	140.8

8	10	8	
		17	107.2
		28	146.5
		35	99.8
		41	152.7
		47	100.4
		53.5	154.6
	11	0	94.4
		8	157.2
		16	89.6
		24	162.2
		34	90.0
		42	162.4
		49	90.2
		58	167.0

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1991phac.proj.493S

Jan. 22. 1885

8	12	5	84.6
		13	166.6
		22.5	85.7
		31	171.9
		41	82.7
		51	174.5
	13	0	81.1
		9	172.0
8	13	19	81.3
		32.5	172.5
		46	79.4
		58	174.2
	14	11	80.1
		24.5	173.7
		36	81.2
		46.5	175.6
	15	0	79.3
		13	173.0
		25.5	80.7
		36.5	175.6
		48.5	78.7
		58	171.2
	16	15	83.2
		28.5	173.6
		47.5	77.7
	17	3.5	178.2
		23	74.4
		36	176.0

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1881phae.proj..493S

Jan. 22, 1882

8.	18	6	80.2
		19	175.8
		29	177.0
		42	178.6
		56	74.8
	19	9	174.0
		19	177.5
		32	173.6
		47.5	79.8
	20	1	173.2
		11	179.2
		20.5	172.1

B 394

44.5

11 7 8 00 00

B 1 C

11 6 45.6

7 45.6

-1.3

-1.3

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1881phae.proj..493S

Jan. 23, 1882.

6 15 θ Ceti apparently as usual. Moon near, but the relative brightness of θ and ν appears normal. Same observation made yesterday at about same time. P. obs.

Vicinity of possible variable.

2 J	1 V	+ V 6.5
J	J 0	
+ 4	1 V	

1m 35s.2
3m 22.J
3 42.5

1 J	19.6
1	J J.7
14	V 2.8
1 J	19.6
J	22.J
76	41.9

7 26 Supposed variable in Cepheus at normal brightness. P. obs.

The above mentioned "possible variable" turns out to be in the D.M. upon more careful examination. (Not same as variable in Cepheus, just above. ☞ See p. 145).

D M. +56° 2985 (mag. 6.7) → 2986 is magn. 6.7
2985 " " 9.5

7 V Is Red. class Color 3 possibly faint bands P. obs.

D.M. +56° 2986
α 1880 23h 14m 26s δ 1880 +56° 35'.2

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1881phae.proj..493S

Jan. 23, 1882 –

Comet b (1881)

28 2
23 29 √6.2
4 33
4 6

29 39 √6.2
23 29
6 10

7 √2
23 29
+8 23

Comet not seen.
Seeing pretty bad. – also ~~H~~ W.
a faint aurora

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1881phae.proj..493S

Jan. 24, 1882.

6 30 θ Cetj about as usual, Moon too near for good estimate. P. obs.

7 0 β Urs. Min. 2 α Urs. Min. P. obs.
α Urs. Min. 1 ε Urs. Maj.
α Urs. Min. 3 γ Cass.

7 r Star in Cepheus at normal brightness P. obs

III Type star preceding γ Eridani
= 6' south of γ Eridani
Previously observed height of a star of type III or IV. P. obs

Stop watch
0m 0s = Star over first wire
44.2 = " " second "
1 36.2 1 06.2 = γ Eridani over 1st wire
1 36.4 2 20.6 = γ " " 2d "
1 36.3

Stars following γ Eridani = γ Eridani P. obs

0m	0s			
1	43.0	10	3	a
	r4.4	12	9	b
	r9.2	12.r	8	c
2	22.4	13	6	d
	40.8	10.r	8	e
	r6.r	12.r	6	f
3	44.8	12.r	4	g
4	3.0	13	9	h
	r24.2	12.9 13.r	9	i

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1881phae.proj..493S

Jan. 24, 1882.

	Stopwatch	Mag.	Dec	
v-m	21.1	11	7	j
	32.0	11.5	v	k
	38.7	9	7	l
	48.7	11	3	= three stars
v	47.9	11	1	=

Sequence in order of Magnitudes P. obs

Star	Magn		Mag. M.	
~~k~~ l	9.5	Color 2	9.5	0
a	10.0		9.8	+2
~~e~~	10.5		10.3	+2
m ~~b~~	11.0		10.9	+1
	11.5		11.3	+2
b	12.0		11.8	+2
c	12.5		12.1	+4
~~d~~	~~13.5~~		13.0	
g	13.0		12.4	+6 12.6
d	13.5		13.0	+5 13.5

~~v m v~~

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1881phae.proj..493S

Jan 24, 1882.

Stars following ζ Gem.

Stop watch		Dec.	Mag.
0m	0s	= ζ Geminorum	
2	27.8	10	9.5
	√6.5	2	10.5
3	19.0	√.5	11.0
	√8.0	10	10.0
4	21.0	3	11.5
√	4.0	7	12.5
	17.4	~~√~~.0	13.0
	25.0	7.5	12.

~~0 0 = ρ Eridani~~
~~√ 19.5 √ 13~~

~~0 0~~
2m 29.8 3√ 13.5 ~~13.5~~

ζ Geminorum
Stopwatch δ Mags.
0 0 5
2 22 3 10.3

Eyepiece dropped out. Readjusted Square.

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1881phae.proj..493S

Jan. 24, 1882

	☉	Stopwatch		δ	Magn.
γ		0	0	5	~~4.3~~
		2	16	3	10.3
		0	0	3	10.3
		0	9	10	10.6
		0	0	10	10.6
		1	20	5	8.8
γ		0	0	5	
		3	42	5	8.8

Comet b 1881.

23 31 +√6.2

7 24

+7 √7

23 31

7 40

+8 9

Comet not found. W.

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1881phae.proj..493S

~~Jan 23, 1880~~

~~7.6 A.M. Barom 30.08 Temp 0° F~~

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1881phae.proj..493S

Jan 27, 1882

7 23 Star in Cepheus at normal brightness. P. obs.

8 3 Phobos looked for and suspected once or twice but seeing ~~so~~ not sufficiently good to be sure of it. W. obs.

Points on moon.

Sinus Medii.

8 36 0.26 P. obs.
0.40
0.34 1.00

8 42 0.29 S. obs.
0.29
0.32 0.90

Endymion (small e)

8 50 0.32 P. obs.
0.39
0.31 1.02

8 52 0.29 S. obs.
0.24
0.25 0.78

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1881phae.proj..493S

Jan. 27, 1882 —

Picard (large H)

8	56	0.81	P. obs
		0.80	
		0.65 / 2.26	
8	58	0.71	S. obs.
		0.64	
		0.70 / 2.05	

Proclus (γ)

9	0	1.64	P. obs.
		1.95	
		1.92 / 5.51	
9	2	2.19	S. obs.
		1.84	
		1.95 / 5.98	

Macrobius (large J)

9	5	0.74	S. obs.
		0.67	
		0.75 / 2.16	
9	7	0.69	P. obs.
		0.85	
		0.80 / 2.34	

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1881phae.proj,.493S

Jan. 27, 1882 -

Sinus Medii.

9 9 0.33 P. obs.
0.30
0.29 0.92

9 20 0.26 S. obs.
0.35 Among clouds.
0.27 0.88

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1881phae.proj..493S

Jan. 29, 1882.

8 0 6 Clear apparently as usual. Moonlight too bright for definite estimates. S. obs. Reappearance of Jupiter I. Photometer R. S. obs.

	B 1182			B 3941		
8	22	32.5	8	23	44.5 0	+12.0
8	23	32.5	8	24	0	+12.0

Compared with nearest visible fell = Sat. II.

Point of visibility

10	1	21	202.2
		35	233.2
		58	205.3
	2	13	228.2
10	5	46	Seen
		51	198.0
	6	0	237.9
		8	202.0
		13	239.7
		18	190.5
		26	243.2
		32	191.7
		40	240.3
		46	181.0
		56	257.0
	7	6	173.8
		16	260.2
		23	178.3
		34	249.0
		51	167.0
	8	4	254.3

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1881phae.proj..493S

Jan 29, 1882

8	29	1884	
	41	2628	
	54	179.0	
9	4	259.2	
	18	175.0	
	33	253.3	1
	48	174.4	
10	1	257.0	
	18	174.5	
	30	257.8	2
	41	176.2	
	58	259.4	
11	15	178.0	
	28	258.2	3
	41	178.5	
	57	261.0	
12	13	170.3	
	34	263.8	4
13	1	174.5	
	20	260.0	
	33	178.0	
	55	254.5	5
~~14~~		incrammed this nitly	
15	30	180.0	
	46	259.0	
16	4	178.2	
	20	252.9	6
	39	176.4	
	54	260.8	
17	8	177.8	
	22	256.2	7

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1881phae.proj..493S

Jan 29. 1882

17	06	173.2	
	48	259.2	
18	9	172.0	
	22	265.0	— 8

B & C 1182

10	23	32.0	
10	24	32.0	

B 394

10	24	0	44.5
10	25	0	

+12.5
+12.5

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1881phae.proj.493S

Jan. 30, 1882.

7 0 θ Ceti as usual — S. obs.

Deimos compared with Mars —

7 42 W. obs —

0.24	+2		
0.21	−1		
0.22	0		
0.20	−2		
0.21	−1		
0.22	0.012	.02604	0.12
		.01302	

log. 0.216″ = 9.3344″
5
46,6720″
61.16
14.43

1.68″ 0.216″

Deimos compared with β Tauri.

8 22 W. obs.

0.48	−1		
0.47	−2		
0.48	−1		
0.49	0		
0.52	+3		
0.488	0.014	.03038	0.043 0.06

log. 0,488″ = 9.6884″
5
48,4420″
61,10
12,66

2,44″ 0.488″

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1881phae.proj..493S

February 1, 1882 -

Points on the Moon -

Sinus Medii

7 30

0.45
0.43
0.55
1.43

P. obs.

Mösting (large M)

7 35

0.72
0.84
0.90
2.46

P. obs.

Ptolemaus (small y)

7 36

0.51
0.53
0.61
1.65

P. obs.

Archimedes (large G) (Walls)

7 41

0.52
0.56
0.58
1.66

P. obs.

Archimedes (small v) (Floor)

7 42

0.33
0.33
0.33
0.99

P. obs.

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1881phae.proj..493S

Feb. 1, 1882 -

Sinus Medii

7 43 0.38 P. obs-
0.39
0.43
1.20

Aristillus (large A)

7 45 0.46 P. obs-
0.60
0.63
1.69

Timocharis (large I)

7 46 0.51 P. obs-
0.54
0.52
1.57

Copernicus (B)

7 49~~4~~ 0.83 P. obs.
0.79
0.85
2.47

Aristarchus (μ) P. obs.

7 50 1.49
1.31
1.77
4.57

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1881phae.proj..493S

Feb. 1, 1882.

Sinus Medii

7	√1	0.42
		0.√4
		0.38
		1.3 4

P. obs

Bessel (large L)

7	√7	0.42
		0.40
		0.43
		1.2 √

Manilius (small x)

7	√9	0.34
		0.31
		0.28
		0.93

Arago (large C)

8	02	0.39
		0.39
		0.44
		1.22

P. obs.

Dionysius (7)

0.84
0.96
0.9 5
2.7 √

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1881phae.proj..493S

Feb. 1, 1882.

Sine Medii

8 03 0.38 P. obs.
0.35
0.37 1.10

B. + C. 1182.

8 14 24.2
15 24.4

Bond 394.

8 15 44.5 0.0
16 0.0
+20.3
+20.1

8 12 54.3
23 41.1
F 36 39.4
16 0.0
20 39.4
F 15 24.4
8 36 3.8 approx. time of eclipse.

Dis. of Sat. III. Compared with first sat. preceding on opposite side. = Sat. I.

Phot. R. P. obs.

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1881phae.proj..493S

Feb. 1. 1882.

A 23	8.0	251.6
	20.5	1.8
	35.0	76.8
	49.0	144.2
24	2.5	76.1
	15.5	174.6

Thin clouds over Jupiter.

24	44.0	77.8
	56.0	141.2
25	6.5	74.6
	18.0	177.2
	25.5	83.2
	35.0	140.4
	44.0	81.9
	52.0	174.4
26	14.5	79.4
	25.0	179.0

Image moved back.

27	0.5	81.3
	11.5	140.0
	22.0	78.4
	35.5	176.4
	47.5	82.0
	56.5	174.2
28	4.5	82.7
	15.5	171.2

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1881phae.proj..493S

Oct. 1. 1882.

8	2h	20,0	85,0
		29,0	176.8
		46,5	83,8
		56,0	176.1
	29	6,0	82.7
		15,0	179.1
		23,5	84.3
		32,0	177.4
		42,5	84.6
		50,5	173.2
		59,5	84.3
	30	8,0	176.0
		16,0	86.1
		24.0	173,6
		34,5	87,4
		44,5	175.4
		55,0	87,6
	31	5,0	173.6
	Image moved back.		
	31	33,5	82,6
		46,0	173,4
	32	1,0	83,0
		12,5	182,0
		26,0	84,2
		39.0	180,3
		52.0	83,5
	33	5,0	172,1

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1881phae.proj..493S

Feb. 1. 1882.

A	33	19,0	AV,4
		36,5	175,2
		52,0	AV,3
	34	5,0	170,8
		19,0	AA,4
		32,5	171,5
	35	5,5	92,4
		20,5	164,3
		34,0	92,6
		47,5	160,4
	36	1,0	96,6
		20,0	165,6
		37,5	95,9
		51,0	165,2
	37	10,0	94,9
		33,5	152,6
		57,5	100,6
	38	8,5	158,7
		24,0	104,2
		44,5	152,8
		58,5	104,9
	39	14,0	147,4
		36,5	109,2

Limit of Obs.

A	41	46.	114,2
	42	2	141,4
		15,5	117,2
		30,0	143,6

~~Gradually increasing clouds.~~
Observed through thin clouds.

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1881phae.proj..493S

Feb. 1. 1882.

B. + C. 1142.

8	46	24,7 (2)	
	49	24.3	
	50	24.3	

Bond 394

8	49	44.5
	50	0.0
	51	0.0

+19.4
+20.2
+20.2

Reap. Jup. III. Phot. R. Robs.
Compared with Sat. II.

9	51	12.1
	23	41,1
10	14	53.2
8	51	0.0
1	23	53.2
8	50	24,3
10	14	17.5

10	10	5,0	331,6
		14,0	290,6
		24,0	331,3
		36,5	247,6
		47,5	332,0
	11	0,0	254,3
		11,5	336,9
		20,5	245,2
		29,0	300,0

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1881phae.proj..493S

Feb. 1. 1882.

10	12	09,0	245,8
		49,5	233,7
	13	1,0	220,4
		11,5	230,7
		20,5	242,4
		31,0	235,6
		40,5	277,5
		56,0	254,0
	14	0,5	279,1
		16,5	239,4
		24,0	276,5
		36,0	239,8
		51,5	240,3
	15	0,0	240,3
		11,0	277,8
		20,5	241,2
		46,5	270,9
		54,0	243,2
	16	05,5	264,9
		48,5	246,5
	17	1,5	272,4
		9,5	249,2
		22,0	267,3
		36,5	250,0
		47,5	267,4
	18	1,5	252,2
		10,0	268,6
		24,5	250,6

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1881phae.proj..493S

Feb. 1, 1882.

10 18	35,0	264,2
	47,0	35C,6
19	7,5	264,6
	30,0	356,2
	44,5	264,4
20	0,0	351,3
	20,0	279,3
	32,5	34A,2
	46,0	270,3
	54,5	359,1
21	10,0	264,6
	25,5	350,2
	59,0	279,9
22	14,5	352,3
	~~21,4~~	
	54,5	279,1
23	9,5	353,4
	22,0	27A,7
	36,5	1,0
	49,5	276,3
24	5,5	357,4
	24,0	27A,2
	36,5	35A,3
	49,0	27K,3
25	6,5	359,7
	~~20,5~~	
	33,5	27A,7
	44,5	3,2

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1881phae.proj..493S

Feb. 1. 1882.

Limit of Vis.

10	26	11.	29.0	
		21.5	21.5	
		31.5	29.4	
		47.0	20.2	

B. + C. 1882.

10	36	24.0	
	37	24.0	

Bond 394.

			44.5
10	37	0.0	
	38	0.0	
		+20.5	
		+20.5	

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1881phae.proj..493S

Feb. 2, 1882.

Deimos compared with Mars –

8	0	0.25	+1
		0.22	−2
		0.24	0
		0.25	+1
		0.24	0
		0.24	0.008

W. obs.

Sq. $0.240^s = 9.3802^s$
5
46.9010s
61.10
14.20

.01736 .0434 .07

1.20s 0.240s

Deimos compared with β Tauri.

8	19	0.44	−1
		0.48	+3
		0.47	+2
		0.43	−2
		0.43	−2
		0.45	0.02

W. obs.

Sq. $0.450^s = 9.6532^s$
5
48.2660s
61.10
12.83

.0434 .087 .097

2.25s 0.450s

8 42 Tried Mc Clean Spectrascope recently recd from Browning – found that it worked very satisfactorily on ζ Orionis when placed two inches inside of focus without eye-piece. P. obs.

[h, g, l, o, q, u, z. K, O. Z.]

1881phae.proj..493S

Feb 2, 1882 —

Points on the moon —

Sinus Medii —

8 56

0.38
0.31
0.36
1.05

P. obs.
~~Lencibs~~

Boscovich (small b)

9 0

0.13
0.12
0.11
0.36

P. obs.

Caesar (small g)

9 2

0.14
0.15
0.13
0.42

P. obs.

Pitatus (small l)

9 6

0.20
0.18
0.18
0.56

P. obs

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Feb. 2, 1882.

Mercator (small t) P. obs.

9 9
0.22
0.21
0.23 0.66

Sinus Medii P. obs.

9 10
0.19
0.18
0.19 0.56

Pencils in first set of Sinus Medii, on preceding page, not co-incident.

Marsenius C (K) = (Kappa) P. obs.

9 13
0.95
1.43
1.23 3.61

Kepler (large F) P. obs.

9 22
0.57
0.63
0.65 1.85

Kepler (large V.) P. obs.

9 23
0.99
0.95
1.03 2.97

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1881phae.proj..493S

Feb. 2, 1882 -

Sinus Medii -

9 24

0,44
0.24
0.19
0.87

P. obs -

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1881phae.proj..493S

Feb. 3. 1882.

7 0 θ Ceti at usual brightness - S. obs.
Points on moon.

Sinus medii P. obs.

7 33 0.19
0.19
0.15
0.53

Eyepiece cleaned

Sinus Medii

7 50 0.28 Wrong object W. obs
0.22
0.21
0.68

u Floor of Hansen.

0.46
8 00 .46 Wrong object. W. obs
.46
1.38

Hansen (small u)

8 5 0.41 P. obs.
0.41
0.49
1.31

Hansen (small u)

8 6 0.49 W. obs.
0.45
0.43
1.37

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1881phae.proj..493S

Feb. 3. 1882.

Taunttius (small ○) P. obs.

8 8
0.17
0.18
0.15 / 0.50

Taunttius (small ○) W. obs.

8 11
0.17
0.19
0.18 / 0.54

Langrenus (large ○) W. obs.

8 14
0.57
0.55
0.53 / 1.65
Wall much brighter on side opposite sun. Point 90° from this, taken.

Langrenus (large ○) P. obs.

8 16
0.47
0.44
0.47 / 1.38
Same as above.

Sinus Medii P. obs.

8 17
0.21
0.17
0.15 / 0.53

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1881phae.proj..493S

Feb. 3, 1882.

Sinus Medii

8 24

0.15 W. obs.
0.15
0.23 0.53

Kant (large K)

8 34

0.43 W. obs.
0.40
0.39 1.22

Bessel (large L.)

8 40

0.33 W. obs.
0.37
0.35 1.05

Mösting (large M)

8 44

0.49 W. obs.
0.49
0.51 1.49

Timocharis (large b)

8 52

0.40 W. obs
0.44 Wrong object - Reject
0.39 1.23

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1881phae.proj..493S

Feb. 3, 1882

Sirius Medii

9 9 0.18 W. obs.
0.19
0.17
0.54

Timocharis (large J)

9 15 0.38 W. obs.
0.36
0.42
1.16

Watts of Archimedes (large J.) W. obs.

9 16 0.34
0.35
0.31
1.00

should be reform
around

Copernicus (B)

9 23 0.61 W. obs.
0.58
0.64
1.83

(large D)

9 30 0.44 W. obs.
0.50
0.45
1.39

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1881phae.proj..493S

Feb. 3, 1882.

Sinus Medii

9 32 0.22 M. obs
0.21
0.18 / 0.61

Bright Surface around Archimedes (large ♀)

9 36 0.23 M. obs.
0.26
0.28 / 0.77

Surface around Kepler (large ♀)

9 44 0.48 M. obs.
0.45
0.45 / 1.38

Endymion (small ♂)

9 52 0.24 M. obs
0.27
0.26 / 0.77

(small ♀)

9 54 0.12 M. obs.
0.12
0.11 / 0.35

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1881phae.proj..493S

Feb. 3, 1882.

Sinus Medii.

9 57

0.20	M. ob.
0.20	
0.22	0.62

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1881phae.proj..493S

February 5, 1883

Eq. Rect. Jupiter I 12 02.

11 30 Observe with 6 inch from dome alone.
Much more has drifted into dome during
second hour of last night. S.

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1881phae.proj..493S

Feb. 6. 1882.

Star in Mer. Phot. list for identification

0 2 − 2 0,2 W. obs.
4. 30
+4 28

Below horizon.

Comet b 1881.
24 1 +55°.3 W. obs.
4 36
+4 37

7 50 At 6 30 d Cet̄ examined by S. and suspected to be a little faint.
Not confirmed by P. Certainly not any different from normal brightness.

7 52 Supposed variable in Cepheus at normal brightness P. obs.

Seeing rather poor and comet's place in quite thick portion of Milky Way.
Comet not found before moon appeared.
W. obs.

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1881phae.proj..493S

Feb. 6. 1882.

~~Star~~ Very red star with exquisitely banded spectrum found. W. obs.
Identification.

5h 46m 55.1
6 .0 = Zuni.
0 14 = a, R,

Color 3, Prob. 3d " type, Fine bands throughout whole length of spectrum
This star is D M. +54° 48 (Arg. F.V.)
This star turns out to be T. Cassiop.
W.

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1881phae.proj..493S

Feb. 8, 1882

6 30 θ Ceti P. obs.
Of usual brightness; apparently brighter than Feb. 6

Resp. of sat. II. Phot. R. P. obs.
Comp. with Sat IV.

6	✓7	46.6	
	23	41.1	
6	26	27.7	
	16	0.0	
	1✓	27.7	
	1✓	14.2	
	20	41.9	

B. + C. 11 F 2.

7	14	14.2	
	1✓	14.2	

Bond 394.

			44.✓
7	1✓	0.0	
	16	0.0	
			+30.3
			+30.3

7	20	26.0	~~208.9~~
		29.0	208.9
		37.0	237.0
		43.✓	200.2
		✓1.0	238.3
		✓7.0	200.4
	21	✓.✓	240.2
		10.✓	196.7

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1881phae.proj..493S

Feb. 8. 1882.

7	21	22,0	249.7
		22.0	191.2
		40.4	254.0
		40,0	184.1
		47.0	256.0
	22	47,0	180.4
		17.0	264.3
		27.5	174.6
		27.0	261.1
		46,5	171.2
		47.5	264.3
	23	9,5	170.8
		19.0	95.3
		45,0	173.7
		46.0	267.2
	24	18,5	163.6
		30,5	270.3
		42,0	163.4
		46.0	272.3
	25	9,0	161.3
		23.0	277.6
		34.5	164.6
		46.0	275.8
	26	21,0	168.2
		27.0	275.3

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1881phae.proj..493S

Feb. 8, 1882.

7	28	30.5	164.7	
	29	7.0	276.0	
		41.5	165.0	
	30	45	276.1	—
		27.5	166.1	
		48.0	273.9	
	31	19.0	171.3	
		34.0	278.8	—
		50.0	163.0	
	32	7.5	275.4	
		19.5	162.2	
		33.0	273.7	—

Limit of Vc's.

	33	2.0	Ry: wrong side.	
7	33	14.0	208.1	
		31.5	233.2	
		44.5	206.7	
		50.0	233.5	

Clock very troublesome.

B.A.C. 1182.

7	37	14.0
	38	14.0

Bond 394

		44.5
7	38	0.0
	39	0.0
		+30.5
		+30.5

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1881phae.proj..493S

Feb. 8. 1882

Comet b 1881.

$$\begin{array}{rrr} 0^h & 3^m & +55.2 \\ 5 & 10 & \\ \hline +5 & 7 & \end{array}$$

$5^h\ 9^m$ S.T. = $7^h\ 53^m$ M.T.

Search made for comet. – not found.
Region bad from abundance of stars.
W.

$$\begin{array}{rrr} 7^h & 27^m & +55.2 \\ \hline 7 & 24 & \end{array}$$

$$\begin{array}{rr} 7^h & 55^m \\ \hline 7 & 52 \end{array}$$

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1881phae.proj..493S

Feb. 11. 1882.

Comet b 1881.

0 10 24 +55° 0' 6"

4 47

+4 37

5 45

+5 35

6° 1° 2'

+6 1'

7h 20m S. = 4h 40m S. S.

Comp. star D M. +54° 22 (9.7

Pos. 0 = 248.4

45

Set at 293.4

First set

9h	29m	26s.2	Star
		33.4	Comet
	30	18.9	Star
		43.0	Comet
Second set	31	41.2	Star
	31	49.2	Comet
	32	33.3	Star
		54.8	Comet
	33	26.7	Star
		2.4	Star
		11.3	Reject

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1881phae.proj..493S

Feb. 11, 1882.

~~9 35 21.4~~

Third set -

~~9 36 ✓.4~~

15.0

Third set.

9h	37	24.4	Star
		36.3	Comet
	38	18.9	Star
		36.4	Comet

Fourth set

9	38	✓9.2	Star
	39	✓.4	Comet
		✓3.0	Star
	40	8.8	Comet

B 394

9	✓0	0.0
	✓1	0.0
	52	0.0
	53	0.0

B + C

9	49	10.3 (reject)
	50	9.3
	✓1	9.3
	52	9.3

7,2 2,21 1882

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1881phae.proj..493S

Feb. 11, 1882.

Sweep for planetary nebula ~~at 20~~
from 15° to 20° south P. obs.
Telescope set at 30° to the West.

c 2 1.

6 433-150/ 0^h 5^s 1^m 0^s 5th Mag at 15.3
1 30 Sweep begins
1 ∨∨ Sweep
2 ∨0 up
3 12 down
4∨ up
4 8 down
∨0 up
∨ 30 down
6 1∨ up
6 ∨0 down
50.6 16.9 4.9 7 ∨ ~~two~~ 3 — 6th Mag 16.∨
∨0 up
8 20 down
9 0 up
4∨ down
10 18 up
∨2 down
11 30 up
12 20 down
13 0 up
581 15.5 4.5 2∨ 6th Mag 1∨.8
14 22 up

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1881phae.proj.493S

Feb. 11, 1882.

~~[Probably several sweeps taken~~ between

			10h	14	+8	cluster 16.0
				16	28	6th Mag. 16.5
				18	35	up
7h	3m.9	16.0		19	35	6th Mag. (?) III type 16.0
				20	25	up
				21	13	down
				21	50	up
4.6	18.5	6.8		22	10	5th Mag. 18.5
				22	50	down
				23	35	up
5.8	17.1	6.4		24	11	5th Mag. 17.8
					32	down
				25	4	up
					50	down
				26	18	up
				27	5	down
					33	up
				28	10	down
					38	up
				29	13	down
					40	up
				30	17	down
13.5	19.1				38	5th Mag. 19.2
					52	up
				31	9	down
					33	up
					57	down - Sweep ends.

Sweep −15° to −20° 6h 45 to 7 15

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1991phae.proj..1935

Feb 11, 1882.

9 vv Var. in Cephens
&
10 40 at normal brightness -
P. obs.

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1881phae.proj..493S

Feb. 14. 1882.

Comet b 1881.

24 16 +vv°.1
5 30

Reds. of sup. I. Phot. R.A. Lat. used for comp. is nearest on preceding side. = II. S. obs.

B. + C. 1182. Bond 394.

8	7	5.4	8	8	44.v 0.0
	8	5.5		9	0.0
					+39.1
					+39.0

8	3	11.2	
	23	41.1	
8	26	v2.3	
	9	0.0	
	17	v2.3	
8	8	v.v	
8	2v	v7.8	

Limit of Vis.

8	21	47.	27v.0
	22	7.v	306.2
		28.0	277.3
		43.v	30v.0

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1881phae.proj.493S

Feb. 14. 1882.

A	26	17.5	
		23.0	270.2
		37.5	309.0
		47.0	267.0
		56.0	315.A
	27	4.5	261.0
		13.0	324.4
		21.5	280.5
		29.5	319.0
		38.5	285.3
		47.5	332.0
		58.5	280.0
	28	8.5	334.4
		19.0	280.A
		27.0	330.5
		37.0	247.2
		46.0	334.0
		55.5	240.A
	29	6.5	334.0
		15.5	249.0
		25.5	334.5
		41.0	24A.3
		52.0	341.3
	30	7.5	245.9
		20.5	336.0
		42.0	240.5
		54.5	340.0

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1881phae.proj..493S

Feb. 14. 1882.

8	31	9.0	246.7
		22.0	337.2 - 2
		40.0	246.5 -
		46.0	338.0
	32	15.5	247.1
		30.5	335.5 - 3
		40.5	244.2
	33	6.5	336.3
		25.5	246.8
		39.5	338.7 - 4
	34	1.0	243.8
		16.0	334.2
		31.5	245.1
		49.5	331.9 - 5
	35	9.5	245.5
		29.0	335.7
		48.0	247.3
	36	4.0	335.8 - 6
		22.5	249.0
		51.5	341.3
	37	11.5	246.4
		27.0	336.3 - 7
		45.5	246.0
		59.5	334.7
	38	13.5	247.0
		32.5	336.3

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1881phae.proj..493S

Feb. 14. 1882.

Clock not working. Tube of photometer moves easily and disturbs focus.

B. & C. 1142.

8	43	5.2	
	44	5.1	

Bond 394.

			44.5
8	44	0.0	
	45	0.0	
			+39.3
			+39.4

θ Ceti S. obs., at about 7h 40m, looked at least as bright as usual, apparently a little brighter; but the presence of zodiacal light and the low altitude of the stars in that region made the observation uncertain.

Comet b 1881.

W. obs.

24 16 +5.1

6 32

6 52 0 8

0 16 > 06

0 16

6 36 6 50

1881phae.proj..493S

Feb. 14, 1882.

Pos. 0 = 264.0
45
309.0

t = 10h 21m 29s.4 by B.&C. 1182. W. obs.
22 37.0
46.2
23 7.6

10 23 40.8
24 48.0 Reject.
57.8
25 19.4

10 26 37.0
27 44.6
56.7
28 17.7

Order = Comet - Comet - Star - Star.
Both in northern half of square.
Comp. star D.M. + 54° 48 = 5 Cassiop.
There are some fine, faint stars which have a misty appearance which may be due to the low altitude as well as their concentrated faintness. The above transits were taken partly to give a place for ~~subsequent~~

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1881phae.proj..493S

Feb. 18, 1882,
examination on a subsequent evening
in order to see if this ~~for~~ existence has
disappeared.

W.

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1881phae.proj..493S

Feb. 15. 1882.

+ Cam. mm. (Sequences) Prob.

	Time.			Dec.	m' mag.		
7	21	18.5	a	5	0		
	23	16.0	b	4	12.0 11.5	13	13.0
		29.0	b	6	12.5		13.0
		31.0	c	5	10.5	12	11.0
		38.0	d	8	14.3		14.5
		45.0	d	6	13.5	13	13.5
		53.0	e	4	9.5	11	10.5
		57.0	f	7	11.0	13	12.5
	24	13.0	g	6	11.4	13	12.7
		21.0	h	4	10.8 10.7 10.5	12	11.5
		27.5	i	5	10.8 11.2	13	12.0
	25	55.5	j	6	10.5	13	12.5
		51.5	k	1	10.2	10	10.0
		50.5	l	1½	10.8	11	10.7

m' climbs by N

	26	52.5	m	8	9.6 9.7		11.0
	27	13.5	n	2	9.2		9.5
		27.5	o	10	9.0		
		45.0	p	4			
	27	27	p	5			15.0

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1881phae.proj..493S

Feb. 15. 1882.

n	=	9.5		10.1
k	=	10.0		9.5
e	=	10.3		10.0
c	=	10.7		10.7
h	=	11.3		11.0
g	=	11.8	12.5	11.5 11.8
f	=	12.5	12.0	11.5
o	=	13.0		13.0
	=	13.5		
	=	14 p		
q	=	16.5		14.4
p	=	15.0		15.0

See p. 213.

B. + C. 11 h 2.

q	50	3.1	
	51	3.2	

Bond 394

q	51	44.5 0.0
	52	0.0 +41.4 +41.3

Recps. Sup. II. Phot. R. Photo.
Comps. with set. I.

q	33	54.4
	23	41.1
q	57	39.9
	52	0.0
	5	39.9
	51	32
q	56	39.1

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1881phae.proj..493S

Feb. 15. 1882.

9	56	34,0	
	56	38,0	79.2
		45,5	99.4
		54,0	75.6
	57	6,0	102.7
		20,0	71.4
		39,5	109.8
		54,5	64.8
	58	8,5	115.3
		24,0	51.6
		41,5	127.4
		55,5	46,3
	59	12,0	130,2
		29,0	49.6
		37,5	132,2
		52,0	46.6
10	0	5,5	130,2
		18,0	44,3
		31,0	136.5
		51,5	40.7
	1	5,5	134,4
		26,5	39,4
		46,0	132,6
	2	2,0	46,2
		15,5	132,6
		34,5	41,4
		50,5	136,2

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1881phae.proj..493S

Feb. 15. 1882.

10	3	57.0	44.4	
		19.0	129.2	
		24.5	42.4	
		42.0	131.4	– 4
		54.0	42.4	
	4	7.0	133.3	
		24.0	37.2	
		43.5	135.9	– 5
		54.0	41.0	
	5	14.0	137.4	
		24.5	41.3	
		46.0	132.6	– 6

Limit of Vis.

10	6	14.5	74.4
		35.5	99.6
		46.5	75.2
	7	0.0	99.2

Clock gave much trouble and stopped near beginning of series.

B. + C. 1882.

10	17	3.0
	18	3.0

Bond 394.

		44.5
10	18	0.0
	19	0.0
		+41.5
		+41.5

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Feb. 17, 1882.

Comet b 1881. W. obs.

$0^h\ 19^m.9 \quad +5\overset{\circ}{4}\ 4'.7$

7 45 θ Cet as usual. S. obs.

$5^h\ 32^m$ S.T. = 7 42 M.T.
7 27 = 9 37
10 15
+5 4.8

5 41
0 20
5 21

5 21
5 45
0 24

6 6
0 10
5 5 6

Examined region of comets' position on Feb. 11. Seeing rather poor so that no very definite conclusion could be reached as to whether a faint nebs. might be in this region or not. Will defer ~~etc~~ until a night of better seeing. W.

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1881phae.proj..493S

Feb. 17, 1881

Comparisons of stars at different altitudes.

8	40	α Lyrae (near setting)	=	β Cephei	.3	δ Urs. Min. Pols.
	41	"	=	"	.3	" W.
	46	"	=	"	.4	" W.
	47	"	=	δ Urs. Min.		P.
	50	"	=	β Cephei	.6	δ Urs. Min. W.
	52	"	=	"	.7	" W.
	53	"	=	"	.8	" W.
	55	"	=	"	.9	" W.
	56	"	=	δ Urs. Min.		W.
	57	"	=	.2 fainter than δ on same scale.		W.
	58	"	=	.3	" "	" " W.
	59	"	=	.5	" "	" " W.
9	0	"	=	.6	" "	" " W.
	2	"	=	.7	" "	" " W.
	3	"	=	.8	" "	" " W.
	4	"	=	.9	" "	" " W.
	5	"	=	1.0	" "	" " W.
	55	"	=	practically invisible.		W.

7 0 12	13 20	19 28
0 19	6 50	2 27
6 53	6 30	12 1

Above observations made to determine absorption of antera. At 8 43 α was taken each time dark band. ~~Clouds~~ Center of each at β Draco

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1881phae.proj.493S

Feb. 17, 1882,

Identification of stars near the pole.

Comparisons of stars at different altitudes.

9 48 γ Draconis. = γ Cass. .7 ~~γ Cephei~~ ~~δ Urs. Min.~~ Nrly
50 " = " .6 γ Cephei Nr.
51 " = β Urs. Min .8 γ Urs. Min. Nr.

31 41 — 19 28 = 12 13

17 50 — 7 49 = 10 1

10 2 ~~α Cass. .3 γ Cephei~~ + Cass. .3 γ Cephei. Nr. 5h.
7 γ Draconis = γ Urs. Min. .2 δ Urs Min. Nr.

7 59 — 2 28 = 5 31

8 2 — 2 3 = 5 59

10 14 γ Draconis. = γ Urs. Min .2 δ Urs. Min. Nr.
15 " = γ Cass .5 γ Cephei Nr.

8 5 — 0 51 = 7 14

32 11 — 19 44 = 12 27

8 11 — 19 44

8 15 — 6 44 = 1 31

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1881phaet.proj..493S

Feb. 17. 1882.

DM. +87° #51 has banded spectrum
10 32 Color 2. 51 Cephei. W. Obs
Another star differing from this
about 12^h in a.R. (Dec = 86.8) has
also a banded spectrum. Color 2. W. Obs.
~~Perhaps DM. +86° 269; 8 Urs. Min.~~
DM. +86° 282 (7.0) W.

+ 24 Radcliffe 4208
1 14 α 1880 18^h 53^m 57^s.4
δ 1880 86° 33' 18"
10

Looked at Mars.
Seeing very bad. Much wind. W.

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1881phae.proj..493S

February 18, 1882.

Star following a double star in the Zoodiacal light

First star in series = 3 Piscium (double)

Stop Watch		Mag.	Dec	P. Th.
0	0.0	4	ν	
	15.0	11	1	
	20.0	9	9	
1	7.8	12	3	
	38.2	9	7	
	48.7	13	8	
2	2.7	13	ν	
	13.8	12	2	
	19.7	12	1	
	28.ν	10	4	
	ν0.0	12	2	
3	1.9	12	2	
	30.0	10	ν	
	32.0	10	8	
	ν2.ν	13	2	
4	4.4	{12 / 11}	{3 / ν}	
	8.3	12	7	
	41.6	13	6	
ν	10.4	11	4	

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Feb. 18, 1882.

~~Dec~~ =

	Stop Watch		Mag	Dec
0	0		4	ν
	1ν.0		12	1
	20.8	.8	10	9
1	8.ν	.7	12	3
	39.1	.9	10	6
	48.8	.1	13	8
2	ν.2	1.5	13	ν
	1ν.0	1.2	12	2
	19.6	-.1	12	2
	29.4	.9	10	ν
	ν1.2	1.2	11	1
3	3.0	1.1	12	3
	31.1	1.1	11	5
	33.1	1.1	11	8
	ν3.6	1.1	13	2
4	6.0	1.6	{12 11	2 ν}
	10.0	1.7	13	7
	33.2		13	8
	47.8		13	3
ν	11.3	0.9	12	4

Position of these stars checked by third transit. P. Obs.

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1881phae.proj 493S

Feb. 18. 1882.

Satellites of Mars.
Not looked for as by Ephemeris
not out to night.

Comet b 1881.

0 22.5 +54 4V

5 25 5.5. = 7 41 2m. 5,

0 22.4
5 25
5 3

0 22
5 02
5 10

0 22
5 41
5 19

Comet not found. Region and seeing pretty bad. W.

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Feb. 18. 1882.

Completion of sequence on δ Can. Ven.
– continued from p. 203. W. obs.

	Time	Decl.		Mag.		
"	7 23 31.0	c	3	10.4	11.0	"
	32.0	r	3	13.6		
	24 27.8	s	1	14.0		

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1881phae.proj..493S

Feb 23, 1882

Preliminary trial of new Wilfge Spectroscope

5 30 A 28.0 66.8 Slit 0.4
a 29.0 58.3
30 27.3

Lines vanish with rest of spectrum & bright lines vary with change of focus.

Trial of the ~~Plain~~ McClane Spectroscope.

7 28 After setting on a Orionis - bands well seen P. obs.

34 Looked at star with bright lines near ~~0'~~ Canis Majoris - found a red star 3' south of it and following it 2 minutes - having bands. ? Variable P. obs.

	Stop Watch	
0^m	0.0	= star with bright lines - over wire A
	46.7	= " " " " " " B
2	35.5	= red star over wire A
3	22.8	= " " " " B

Color of red star 2.5

2 35.5 } Red star of Lal. 13412 2^m $35^s.8$
2 36.1 }

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1881phao.proj.4023

Feb. 23, 1882.

Star to identify the red star or Var.

Stop watch		Dec.	Mag.	
0	0	8	10	
	14.2	6	10.3	
	25.4	5	12	c
	29.4 = Var.	= the Red star =		a
x'	8.8	4	12	
	21.3	4	10	= b

Red star p b $41^s.9$, ~~Red star~~

7 $\sqrt{3}$ Bands in spectrum of red star well marked — P. obs.

b

c

a

r

Observations of red star by Pritchard's method.

r

8 11	27.2	+.4	P. obs.
	26.7	−.1	
	26.6	−.2	
	80.5	±.2	
	26.8		

Dis. of star immediately preceding it.

c ~~d~~

8 13	14.1	+.9	P. obs.
	11.3	−1.9	
	13.3	+.1	
	39.7	±1.0	
	13.2		

c (This star is called c on p. 2 of R 101).

Star fol. red star.

b

8 15	25.4	+.3	P. obs.
	24.2	−.9	
	25.6	+.5	
	75.2	±.6	
	25.1		

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1881phae.proj..4933

Feb. 2.3, 1882.

New star 2m foll. bright lined star Ld. 13412 and 3' south S. obs.

Stop watch ~~Ld. 13412~~
0m 0s = Ld. 13412
~~a~~ b 2 43.5 = star with prec. spec. S. foll. Ld. 13412
~~b~~ b 3 20.8 = " " comp. S. of it; S. foll. the last star
57.8 = " " comp. n.p.; foll. the last ^ about same dec.

All these transits approximate through field of ~~telescope~~ spectroscope. S. obs.
The last star suspected of having peculiar spectrum. S. obs.

a	0m	0s	
b	~~X~~	26.8	Reject
c	1	12.5	

a	0m	0s	The star here called b is apparently the same as the red star of 11.214, 215; that called c here is that called b on the previous pages.
b		25.0	
c	1	7.2	

a prec. b and is about same dec.
a about .5 of a mag. fainter than b
b " .2 " " " " " " c

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Feb. 23, 1882 — 217.

[b] r (Red star) Observations with wedge of tinted glass.

10 12 — 22.5 + 4.1
17.7 − .7 S. obs.
15.0 − 3.4
55.2 ±2.7
18.4

a (Star preceding red star ~~25~~ 25°)

10 16 — 18.0 + 3.3
14.3 − .4 S. obs.
11.7 − 3.0
44.0 ±2.2
14.7

10 17.5 Clouds

10 18 Clouds near in previous measures and may have affected results. S. obs.

See book 101 —

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