

KG
11365
311

N 28

Reduction to 1870
of some comparison stars.

↑ R11365.3/1

9th

Occultations.

KG 11365.316

α Aquarii	T. =	1 ^h 57 ^m 57.10	
1874, Oct. 21	DT. =	10.99	
True Local Sid. Time.	=	1 57 46.11	
Sid. Time of mean noon	=	13 59 47.59	
Immersion	Diff. =	11 57 56.52	56.52
	red. =	11 57 57.48	57.62
Cambridge Mean Time	=	11 55 57.44	58.4

4 Ceti		1 10 29.98	
1874, Oct. 22		1 10 20.11	
Immersion		14 3 46.14	
		11 6 33.97	
		11 4 49.20	
		11 4 44.77	

5 Ceti		1 29 44.12	
1874, Oct. 22.		1 29 9.86	
Immersion		14 3 34.26	
		11 3 46.14	
		11 25 48.12	
		11 23 52.35	
		11 23 53.77	

B.A.C. 5		1 54 48.90	
1874, Oct. 22		1 54 9.85	
Immersion		14 3 39.05	
		11 3 46.14	
		11 50 52.91	
		11 48 56.46	
		11 48 56.45	

33 Tauri		2 2 15.10	
1874, Oct. 26		2 2 7.18	
Immersion		14 2 7.92	
		11 19 32.36	
		11 42 35.56	
		11 40 53.10	
		11 40 40.46	

β Arietis		2 33 28.88	
1874, Dec. 19		2 33 12.18	
Immersion		17 52 46.06	
		17 52 26.49	
		8 41 14.57	
		8 39 25.39	
		8 39 49.18	

β Arietis		2 44 10.90	
1874, Dec. 19		2 44 12.18	
Immersion		17 52 23.08	
		17 52 26.49	
		8 51 52.59	
		8 50 27.14	
		8 50 29.45	

ϵ Minorum.	T.	2 26 30.55	
1875, Jan. 20	DT.	34.76	
True Local Sid. Time	=	2 27 5.31	
Immersion	M. Top Sid. 0 ^h - 4 ^m	3 56 44.10	
	red. =	+ 3 35.90	
Cambridge M. Time	=	6 27 25.31	

9 ^h { 3 ^h 56 ^m 35 ^s } + 23° 47'		7 42 54.48	
1875, Feb. 12		7 43 32.15	
Immersion		7 43 26.68	
		7 36 12.72	
		+ 2 44.08	
		8 22 23.43	

36 Tauri		7 52 33.31	
1875, Feb. 12		7 53 32.15	
Immersion		7 36 5.46	
		7 36 12.72	
		+ 2 42.49	
		8 32 06.7	

9^h { 3^h 5^m 22^s }
+ 24° 7'

1875, Feb. 12

Immersion

δ Leonis

1875, Feb. 19

Immersion

B.A.C. 5253

1875, Apr. 22

Immersion

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8^h 15 7.55
+ 32.15
8 15 40.00
+ 36 12.72
+ 2 38.79
8 54 31.51

9 33 25.32
+ 39.05
9 34 4.37
+ 8 41.36
+ 2 25.95
9 45 11.68

13 9 26.24
+ 0.29
13 9 26.53
21 55 0.49
+ 1 50.67
11^h 6 17.69

Occultations

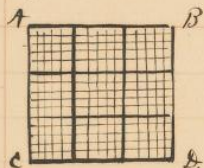
Date	Star	Phase	Cambridge Mean ^{h}	
1874 Oct 21	γ Aquarii	Im.	11 ^h 55 ^m 9.04	
Oct 22	4 Ceti	Im.	11 41 44.77	
Oct 22	5 Ceti	Im.	11 23 55.77	
Oct 22	B.A.C. 5	Im.	11 48 56.45	
Oct 26	33 Tauri	Em.	11 40 40.46	
Dec 19	β_2 Arctis	Im.	8 39 49.18	a little late
Dec 19	β_3 Arctis	Im.	8 50 29.45	
1875 Jan. 20	ϵ Geminae	Im *	6 27 25.31	
Feb 12	* γ^{3m}	Im †	8 22 23.43	
Feb 12	36 Tauri	Im	8 32 0.67	
Feb 12	* γ^{3m}	Im †	8 54 31.57	
Feb 19	1 Leonis	Im	9 45 11.68	
Apr 22	B.A.C. 5253 Em.		11 6 17.69	

* Star unsteady and blurred the moon being low. Star seemed to touch a bright part of the moon's surface just outside of the terminator, but was very faint and so much blurred that the contact was not sharp, both spots of light being blurred and overlapping at the edges. (Moon within 12^h of full)

$$\begin{array}{lcl}
 + & \alpha = 3^h 56^m 35^s & \delta = +23^{\circ} 47' \\
 + & \alpha = 3^h 57^m 22^s & \delta = +24^{\circ} 7'
 \end{array}
 \left. \vphantom{\begin{array}{l} + \\ + \end{array}} \right\} 1875.2$$

1875 April 14th.

The values of the squares ruled on glass, used by Mr. Trowelot in his maps of Nebulae, for plotting the stars, were determined by transits of B.A.C. 3339, the eye-piece used being that called "ring micrometer eye-piece No. 1", a positive eye-piece, power said to be 103. Mr. Trowelot used a large negative eye-piece for part at least of his work.



Value of Side of large Square

977".13

Value of the Side of each Small Square

65".14

These are the values with Ring Micrometer ^{Eye-piece} No. 1

Δa Oct. 15th 1874 Δb

J	a	b	Δa	Δb
2 ^m 34.2	3 32.6	3 53.0	- 58.4	- 1 ^m 18.8
4 40.0	5 38.1	5 58.5	- 58.1	- 1 ^m 18.8
4 49.5	5 47.8	6 8.5	- 58.3	- 1 ^m 19.0
6 55.0	7 53.5	7 14.3	- 58.5	- 1 ^m 19.3
6 29.0	7 27.2	7 47.7	- 58.2	- 1 ^m 18.7
8 34.6	9 33.0	9 53.2	- 58.4	- 1 ^m 18.6
8 36.7	9 35.0	9 55.7	- 58.3	- 1 ^m 19.0
11 42.4	10 40.8	10 1.3	- 58.4	- 1 ^m 18.9
11 26.9	12 25.2	12 45.9	- 58.3	- 1 ^m 19.0
2 32.4	12 31.0	12 57.5	- 58.6	- 1 ^m 19.1
47 29.5	48 28.7	48 49.3	- 59.2	- 1 ^m 19.8
49 34.3	50 33.4	50 54.0	- 59.1	- 1 ^m 19.7
49 43.1	50 42.2	51 8.0	- 59.0	- 1 ^m 19.8
51 27.6	52 26.6	52 47.2	- 59.0	- 1 ^m 19.6
53 32.2	54 31.3	54 52.0	- 59.1	- 1 ^m 19.8
53 22.1	54 21.3	54 41.9	- 59.2	- 1 ^m 19.8
27.0	26.0	54 58.5	- 59.0	- 1 ^m 19.5

1 Rev. of River. Screw = 9".803 at 40°F.

6 ^m 50.07	7 48.42	8 8.99	- 58.35	- 1 ^m 18.92
50 40.13	51 39.21	52 42.7	- 59.09	- 1 ^m 19.71
1 ^h 28.8			- 58.72	- 1 ^m 19.32

Oct. 16th 1874.

J	a	b	Δa	Δb
4 ^m -	4 59.2	7 40.4	- 2 ^m 41.2	
8 4.1	8 5.2	10 46.4	+ .1	41.2
11 24.0	11 25.2	14 6.3	1.2	41.1
32.7	33.9	15.2	1.2	41.3
14 41.6	14 42.8	17 24.4	1.2	41.6
50.6	51.8	17 32.9	1.2	41.1
18 12.4	18 13.3	20 54.7	0.9	41.4
20.9	22.0	3.3	1.1	41.3
1 ^h 9 25.7	9 25.7	12 3.3	- 2	41.6
	25.4	7.7		42.3
	14 44.4	16 46.5		42.1
	8.9	57.6		42.7
	17 49.3	20 51.7		42.4
	21 8.5	23 58.7		42.2
	13.0	58.3		42.3

0 ^h 13 0.62	$\Delta a = + 0^m 1.13$	at 1 ^h 15 ^m 18.74 = 0
0 12 52.92	$\Delta b = - 2 41.28$	= 2 ^m 42.37

0 ^h 44.1	$\Delta a = + 0^m 0.56$
	$b = - 2 41.82$

Time	a	b	
0 ^h 32 ^m	62.696	66.158	Trans. set on middle wire
38	63.181	66.640	
44	63.480	66.740	Coincidence 47.00
57	63.753	67.262	
58	64.144	67.690	

0 ^h 44 ^m 6	63.435	66.898	Trans. at 47.00 = Time
$\Delta a = - 16.435$			
$\Delta b = - 19.898$			
	$- 3.463$		
		$- 19.898$	
			1 Revolution at 40°F = 9".803

$$\Delta a = - 2' 41.11$$

$$\Delta b = - 3' 15.06$$

Oct. 20th 1874

Observations in R. A. wickens

Time	a	b	
23 ^h 25 ^m	30.707	19.861	a set on middle wire
28	30.452	20.046	
31	30.116	19.790	Coincidence
34	29.874	19.428	
37	29.710	19.714	(47.100)?
40	29.396	19.604	Trans. set on middle wire
23 ^h 32 ^m 5	30.042	19.790	47.100

$$\Delta a = - 17.958 = - 2' 47.22$$

$$\Delta b = + 10.252 = + 1' 40.48$$

$\Delta\alpha$ Oct 21st 1874 $\Delta\delta$

	a	J	b
23 ^h	55 ^m 42.3	59 17.0	1 22.0
	44.7	19.5	24.3
0	2 2.3	5 36.8	7 41.7
	10.4	44.9	49.8
	18.0	52.5	57.3

23 59 35.54 3 10.14 5 15.02

$$\Delta\alpha = +3^m 34.60$$

$$\Delta\delta = -2^m 4.88$$

Time	Time	b	a set on middle wire
0 ^h 38 ^m	22.000	34.882	Coincidence 47.080
36	21.760	34.878	
38	21.489	34.910	a not set
41	21.244	34.900	

0 37.0 21.623 34.892 Seeing very good

$$\Delta\delta = -13.269 = -2' 10.08$$

$$0^h 37^m \Delta\alpha = -25.826 = -4' 13.27$$

$$25.080 = -4' 5.78$$

$$0 37 \Delta\alpha = -25.457 = 4' 9.53$$

Oct. 23rd 1874 -

Trouble with chronograph circuit
No observations in P. M.

Time	a	b	Time set on middle wire
1 ^h 20	65.110	79.486	Coincidence 47.566
23	65.242	79.827	
27	65.493	79.888	
38	66.230	80.383	

1^h 27 65.519 79.888 Time 47.566

$$\Delta\alpha = -17.953 = -2' 58.99$$

$$\Delta\delta = -32.322 = -5' 16.86$$

Oct. 26th 1874.

J	a	b
23 ^h 17	17 34.4	19 11.0
	13.4	19.3
	20.8	26.3
	47.1	26.3
19	58.5	20 24.7
	33.0	41.4
20	6.8	12.7
	14.0	26.6
	40.6	26.6
22	46.4	24 52.4
	12.5	26.4
	21.3	26.6
23	2.2	25 0.8
	28.7	26.5
25	28.2	27 34.4
	36.6	42.8
	44.0	50.2
28	8.2	28 34.4
	43.0	14.2
	16.3	22.6
	23.8	29.9
	50.4	26.6

$$-0^m 26.3 - 2^m 5.9$$

$$26.3$$

$$26.2$$

$$26.2$$

$$26.6$$

$$26.4$$

$$26.6$$

$$26.5$$

$$26.6$$

$$26.4$$

$$26.2$$

$$26.7$$

$$26.6$$

$$26.6$$

$$26.6$$

$$26.6$$

$$26.6$$

$$26.6$$

$$26.6$$

$$26.6$$

$$26.6$$

$$26.6$$

$$26.6$$

$$26.6$$

Time	a	b	Time set on middle wire
23 ^h 35	83.287		Coincidence 50.028
37	83.346		
39	83.487		
45	83.866		
47	83.805		
49	83.952		
51		32.607	
54		33.039	
58		33.050	
0 5		33.475	
9		33.636	
12		33.898	

23^h 42^m 83.624

$$0^h 1.5 33.284$$

$$23^h 42^m \Delta\alpha = -33.899 = -5' 29.37$$

$$0 15 \Delta\delta = +16.741 = +2' 44.11$$

$$23^h 23^m 13.85 \Delta\alpha = -0^m 26.43 - 2^m 6.05$$

$$0^h 28 2.89 - 0 28.11 - 2 7.80$$

$$23 25.6 - 0 27.27 - 2 6.92$$

Moon near α stars faint
particularly α

Oct. 28th 1874. $\Delta\alpha$

T	a	$\Delta\alpha$
2 ^h 9 ^m 37. ^s ₀	10 ^m 36.7	- 0 ^m 59. ^s ₇
46.0	48.9	59. ^s ₉
54.0	53.7	59. ^s ₇
6.9	6.5	59. ^s ₆
11 15.7	15.5	59. ^s ₈
23.9	23.5	59. ^s ₆
12 29.4	13 39.2	59. ^s ₈
48.2	47.9	59. ^s ₇
56.4	56.2	59. ^s ₈
14 14.3	15 14.0	59. ^s ₇
23.2	23.1	59. ^s ₉
31.3	31.2	59. ^s ₉

Time	a
1 ^h 40 ^m	38. ^s ₆₆₆
44	38. ^s ₈₇₇
47	39. ^s ₀₄₃
49	39. ^s ₂₀₀
51	39. ^s ₃₈₈

Time set on fixed
wire coincidence 75.998

1^h 46.2 39.^s₀₃₅

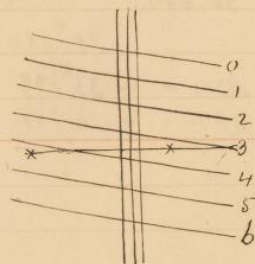
$$\Delta a = + 36.^s₉₆₃ = + 6' 2".35$$

2^h 12^m 3.^s₀₂- 0^m 59.^s₇₆

From Oct. 15th to Oct 28 inclusive, observations made with the filar micrometer in the usual way.

From Oct 30 to Nov. 24 inclusive, observations made with a reticule ruled on glass. — with 3 vertical wires for taking transits for differences of R.A. and 7 wires inclined to the transit wires at an angle of 20° for taking transits for declination differences.

The differences in R.A. are the differences between the times of transit over the vertical wires (properly corrected) and the differences in declination, are found by the differences in declination of each star from the intersection of the ^(real) southern inclined wire obtained thus



T_0 = mean of 3 transit wires

$T_0' =$ mean of 2 dec. wires

$L = al$ where a = const. diff. of dec. of inc. wires and l = no. of lines ^{between} ~~from~~ numbered in diagram

$T_0 - T_0' =$ diff of transits of inclined wires

$$\text{then } \Delta\delta \text{ from } 0 = a \frac{T_0 - T_0'}{T_0' - T_0'} + L + \frac{a}{2}$$

The value of a was found by holding the reticule 90° and taking transits over the inclined wires, the star moving between the parallel to the transit wires

the value of a wa

Wanted the following

1875.0

Em. +9° No. 46	9.5	0.2	21	32	+ 9° 34'	(4 Wires)
21° No. 579	9.0	3	38	48	+ 21 37	
21° No. 2179	9.5	10	13	54	+ 21 20	
21° No. 2163	9.4	10	7	2	+ 21 35	equal
22° No. 2144	9.5	9	49	16	+ 22 14	(selected the stars)

The dista

In these
being all

Note

I understand
glass set
inclined
20° to the
interpretation
description

Opposite page,
rather lines on
end by "wires"
lines inclined
three lines. This
with the
micrometer.
A.S.

the value of a was found to be

Oct 30	Obs. of ϵ Piscium	105.76
Nov 2	6 " " α Ceti	105.85
3	3 " " α Ceti	106.20
7	12 " " Juvos	106.26 (on 4 Wires)
18	11 " " Juvos	106.42
Mean		105.84

The distances between the inclined wires being sensibly equal
(In these observations the correction for curvature is neglected the stars
being all within 6° of the equator)

Note, March 27, 1882. In the description on the opposite page, I understand by "vertical wires" wires ~~set at~~ or rather lines on glass set perpendicular to the paths of the stars, and by "wires inclined to the transit wires at an angle of 20° " lines inclined 20° to the paths of the stars, or 70° to the set of three lines. This interpretation is suggested both by the sketch given with the description, and by the use to be made of the micrometer.
A. S.

Oct. 30th. 1874

1870ph

		Jd _i	T ₁	T ₂	T ₃	T _Δ	T _o	$\frac{T_o - T_{\Delta}}{T_2 - T_1}$	δ from always +	$a \frac{T_o - T_{\Delta}}{T_2 - T_1}$	δT_o	Δx	Δy	*	
June	23 ^h	3 ^m 36.6	46.8	48.7	50.6	56.0	3 ^m 48.70	12.1 : 19.4	1	105.76	65.994	171.754	0	-6' 23.91	
"	"	4 21.3	24.3	26.2	28.4	41.0	4 26.30	5.0 : 19.7	5	528.80	26.36	555.66	- 37.60	-6' 23.91	
June	5	24.2	34.6	36.4	38.3	43.6	5 36.47	12.3 : 19.4	1	105.76	67.05	172.81	0	0	
"	6	9.8	12.2	14.2	16.0	29.0	6 14.13	4.3 : 19.2	5	528.80	23.69	552.49	- 37.66	-6' 19.68	
June	7	15.3	24.6	26.6	28.5	34.7	7 26.57	11.2 : 19.4	1	105.76	61.55	167.31	0	0	
"	"	57.7	67.8	64.8	66.1	80.0	8 40.00	4.3 : 19.3	5	528.80	22.42	551.22	- 37.43	-6' 23.91	
June	8	36.6	46.0	48.2	50.2	57.1	8 48.13	11.5 : 20.5	1	105.76	69.33	165.09	0	0	
"	9	21.6	24.0	25.6	27.9	41.9	9 25.50	3.9 : 20.3	5	528.80	20.31	549.11	- 37.37	-6' 24.02	
June	11	6.4	14.8	16.8	18.8	26.3	11 16.80	10.4 : 19.9	1	105.76	55.29	161.05	0	0	
"	"	51.0	52.3	55.2	57.2	70.0	12 55.23	4.2 : 19.0	61	105.76	23.38	129.14	- 38.43	+0' 31.91	
June	14	5.6	15.6	17.6	19.4	25.0	14 17.53	11.9 : 19.4	1	105.76	64.90	170.66	0	+	0
"	"	50.9	52.0	56.0	58.0	67.4	15 56.00	6.0 : 19.4	1	105.76	32.73	138.49	- 38.47	+0' 32.17	
June	15	28.4	38.0	39.9	41.9	47.8	15 39.93	11.5 : 19.4	1	105.76	62.71	168.47	0	0	
"	16	13.4	16.6	18.7	20.7	32.6	16 18.67	5.3 : 19.2	1	105.76	29.21	134.97	- 38.74	+0' 32.50	
June	16	49.7	58.6	17 0.6	2.5	9.0	17 0.57	10.9 : 19.3	1	105.76	59.74	165.50	0	0	(1)
"	17	33.8	37.2	39.2	41.2	53.3	18 39.20	5.4 : 19.5	1	105.76	29.30	135.06	- 38.63	+0' 30.44	com
June	18	13.4	22.7	24.9	26.7	33.8	18 24.77	11.4 : 20.4	1	105.76	59.13	164.89	0	0	(1)
"	"	58.4	61.5	63.3	65.5	78.0	19 63.43	5.0 : 19.6	1	105.76	26.99	132.75	- 38.66	+0' 32.14	com
June	19	48.2	56.7	58.7	60.5	67.5	19 58.63	10.4 : 19.3	1	105.76	57.00	162.76	0	0	
"	20	32.3	35.4	37.3	39.3	51.3	20 37.33	5.0 : 19.0	1	105.76	27.84	133.60	- 38.70	+0' 29.16	
	23 ^h	6.4	$\Delta x =$	$\Delta y =$	$- 37.52$	$\Delta x =$	$- 6' 22.88$								

November 2^d. 1874

	*	T ₁	T ₂	T ₃	T ₀	T ₁ '	T ₂ '	T ₃ '	T ₀ '	T ₁ -T ₀	T ₂ -T ₀	T ₃ -T ₀	mean	C	L + $\frac{a}{2}$	a $\frac{T_0 - T_0'}{T_1 - T_1'}$	$\Delta \sigma$ fr. 0	$\Delta \alpha$	$\Delta \delta$
2391	a.	1 ⁿ 11 ^m 36. ^s 7	38. ^s 7	40. ^s 5	38.63	23.7	44. ^s 5	34. ^s 10	+ 4. ^s 5	20. ^s 8	19.5	3	369.41	+ 24.36	393."77	+ 1 ^m 25. ^s 87	+ 1'	3."33	
2391	Juno.	13 24	46	6.5	4.50	58.0	77.7	7.85	- 3.3	19.7	4	474.96	- 17.86	457.10	0	.	0		
	v.	52.7	54.3	56.2	54.46	51.4	70.7	1.05	- 6.6	19.3	3	369.41	- 35.72	333.69	- 0	49.90	2	3".41	
0	a.	15 7.3	9.3	11.2	9.27	34.4	13.3	3.85	+ 5.4	18.9	19.5	3	369.41	+ 29.23	398.64	+ 1	25.33	1'	0".62
2391	Juno.	16 32.7	34.6	36.5	34.60	27.7	47.3	37.50	- 2.9	19.6	4	474.96	- 15.70	459.26	0	.	0		
	v.	17 22.9	24.8	26.7	24.80	20.3	40.2	30.25	- 5.5	19.9	3	369.41	- 29.77	339.64	- 0	50.20	1	59.62	
0	a.	18 34.6	53.5	58.5	56.53	41.6	15	51.55	+ 5.0	19.9	19.5	3	369.41	+ 27.06	396.47	+ 1	25.24	1	2.79
2391	Juno.	20 19.9	21.7	23.7	21.77	15.0	34.4	24.70	- 2.9	19.4	4	474.96	- 15.70	459.26	0	.	0		
	v.	21 10.3	12.1	14.0	12.13	8.1	27.4	17.75	- 5.6	19.3	3	369.41	- 30.31	339.10	- 0	50.36	2	0.16	
0	a.	23 10.9	12.8	14.8	12.83	58.2	17.1	7.65	+ 5.2	18.9	19.5	3	369.41	+ 28.15	397.56	+ 1	25.24	0	58.46
2402	Juno.	24 36.2	38.0	40.0	38.07	31.9	51.3	41.60	- 3.5	19.4	4	474.96	- 18.94	456.02	0	.	0		
	v.	25 26.7	28.6	30.7	28.67	24.6	44.2	34.4	- 5.7	19.6	3	369.41	- 30.85	338.56	- 0	50.60	1	58.46	
0	a.	26 25.3	27.1	29.1	27.17	12.2	31.9	22.05	+ 5.1	19.7	19.5	3	369.41	+ 27.60	397.01	+ 1	25.23	0	56.84
3191	Juno.	27 50.3	52.3	54.3	52.30	46.4	6.0	56.20	- 3.9	19.6	4	474.96	- 21.11	453.85	0	"	0		
	v.	28 44.0	42.8	44.7	42.50	38.7	58.0	48.35	- 5.8	19.3	3	369.41	- 31.39	338.02	- 0	50.20	1	58.83	
0	a.	29 35.0	36.9	38.9	36.93	22.0	42.0	32.00	+ 4.9	20.0	19.5	3	369.41	+ 26.52	395.93	+ 1	25.04	0	57.92
3217	Juno.	30 0.0	2.0	3.9	1.97	56.0	15.8	55.90	- 3.9	19.8	4	474.96	- 21.11	453.85	0	.	0		
	v.	31 50.7	52.6	54.6	52.63	48.9	8.2	58.55	- 5.9	19.3	3	369.41	- 31.94	337.47	- 0	50.66	1	58.38	
0						1 ⁿ 22.73		Az a + 1	25.32	As a + 0	57.99								
2350								b -	50.32	b + 1	58.98								
(12)	a = 131.33																		
x	a = 98.50																		
0	(112)	23 ⁿ 45 52.8	59.7	59.7	59.53	33.7	16.6	55.15	+ 4.7	42.9	42.6	1	164.16	+ 17.82	181."98	0	.	0	
3044	Comp.*	49 9.1	16.1	23.0	16.07	7.7	42.4	25.05	- 9.0	34.7	33.6	(4) 5	476.52	- 26.38	450.14	- 3 ^m 16.24	- 4'	28.16	
																	Err -	98.50	6.66
0	(112)	51 53.2	0.1	7.4	0.23	33.7	18.0	58.35	+ 4.4	44.3	42.6	1	164.16	+ 16.68	180.84	0	.	0	
3244	Comp.*	55 9.7	16.6	23.9	16.73	11.3	42.9	27.60	- 10.9	32.6	33.6	(4) 5	476.52	- 31.95	444.57	- 3	16.50	- 4'	23.73
																	Err -	98.50	22.3
0						at 23 ⁿ 49. ^m 0		$\Delta \alpha = - 3^m 16.37$		$\Delta \delta = - 6' 14.4$									
2976						Place of comp *													
						Place of Planet.													

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* 1879	T ₀	T ₁	T ₂	T ₃	T ₂	T ₀	T ₀	T ₀ -T ₀	T ₀ -T ₁	mean	l	T ₁ + $\frac{a}{2}$	a $\frac{T_0-T_0}{T_0-T_1}$	$\Delta\delta/\alpha$	$\Delta\alpha$	$\Delta\delta$
Juno b	1 ^h 11 ^m 29.4	31.6	33.7	35.6	48.7	33.63	39.05	-5.4	19.3	19.24	2	265.50	-29.21	236.29	-1 ^m 16.60	0.
	12 36.0	48.3	50.3	52.1	57.8	50.23	47.90	+2.3	19.8	19.24	3	371.70	+12.70	384.40	1 ^m 16.60	-2' 28.11
Juno b	13 34.2	37.0	39.0	40.9	53.6	38.97	44.44	-5.4	19.14	19.24	2	265.50	-29.21	236.29	0	0
	14 43.6	53.9	55.7	57.6	62.4	55.73	53.0	+2.7	19.8	19.24	3	371.70	+14.90	386.60	-1 16.76	-2 30.41
Juno b	15 18.6	17.9	19.9	21.8	35.4	19.87	25.50	-5.6	19.8	19.24	2	265.50	-30.91	234.59	0	0
	16 24.4	34.7	36.7	38.5	43.7	36.63	34.15	+2.5	19.5	19.24	3	371.70	+13.80	385.50	-1 16.76	-2 30.91
Juno b	17 0.0	1.8	3.9	5.8	19.2	3.83	9.60	-5.8	19.2	19.24	2	265.50	-32.01	233.49	0	0
	18 8.3	18.8	20.7	22.7	27.4	20.73	17.85	+2.9	19.1	19.24	3	371.70	+16.01	387.71	-1 16.90	-2 34.22
Juno b	18 52.7	54.6	56.6	58.6	74.5	56.60	2.10	-5.5	18.8	19.24	2	265.50	-30.36	235.14	0	0
	20 1.4	11.5	13.3	15.4	20.5	13.40	10.95	+2.5	19.1	19.24	3	371.70	+13.80	385.50	-1 16.80	-2 30.36
Juno b	20 40.6	42.2	44.1	46.0	57.4	44.10	50.00	-5.9	18.8	19.24	2	265.50	-32.57	232.93	0	0
	21 48.3	59.0	60.7	62.7	68.0	0.80	58.15	+2.7	19.7	19.24	3	371.70	+14.90	386.60	-1 16.70	-2 33.67
Juno b	22 25.0	26.7	28.7	30.8	44.6	23.73	34.80	-6.1	19.6	19.24	2	265.50	-33.67	231.83	0	0
	23 33.4	43.7	45.7	47.7	52.7	45.70	43.05	+2.7	19.3	19.24	3	371.70	+14.90	386.60	-1 16.97	-2 34.77
Juno b	24 9.9	11.0	13.0	15.0	28.9	13.00	19.40	-6.4	19.0	19.24	2	265.50	-35.33	230.17	0	0
	25 18.0	27.9	29.9	31.9	37.2	29.90	27.60	+2.3	19.2	19.24	3	371.70	+12.70	384.40	-1 16.90	-2 34.23
Juno b	25 57.8	59.1	61.0	62.9	77.0	1.00	7.4	-6.4	19.2	19.24	2	265.50	-35.33	230.17	0	0
	27 5.9	16.0	18.0	20.0	25.0	18.00	15.45	+2.5	19.1	19.24	3	371.70	+13.80	385.50	-1 17.00	-2 35.33
Juno b	28 2.1	4.8	6.9	8.7	21.0	6.80	11.55	-4.8	18.9	19.24	2	265.50	-26.49	239.01	0	0
	29 10.0	22.0	23.9	25.8	29.2	23.90	19.60	+4.3	19.2	19.24	3	371.70	+23.73	395.43	-1 17.10	-2 36.42

a = 1058

November 6th 1844.

	*	T_1	T_1	T_2	T_3	T_2	T_0	T_0	$T_0 - T_1$	$T_2 - T_1$	mean	$L + \frac{a}{2}$	$a \frac{T_0 - T_1}{T_2 - T_1}$	$\Delta \delta / \mu$	$\Delta \alpha$	$\Delta \delta$
0.11	a	1 ^h 9 ^m [42.2]	54.9	56.7	58.9	2.7	58.90	(52.45)	(+4.4)	[20.5]	1949.5	1 158.73 + 23.59	182.62	+ 0 ^m 39.27	+ 4'	28.06
	Tuno	10 31.0	34.2	36.2	38.1	50.8	36.17	40.90	- 4.7	19.8	4	476.19 - 25.57	450.68	0		0
0.41	a	11 10.7	22.5	24.5	26.5	30.3	24.50	20.50	+ 4.0	19.6	1949	1 158.73 + 21.71	180.44	+ 39.30	+ 4	31.32
	Tuno	11 53.7	1.8	3.9	5.7	17.9	3.80	8.30	- 4.5	19.2	4	476.19 - 24.43	451.76	0		0
0.91	a	12 42.9	54.6	56.5	58.5	2.7	56.53	52.80	+ 3.7	19.8	1949	1 158.73 + 20.09	178.82	+ 39.37		29.68
	Tuno	13 31.3	33.9	35.9	37.9	50.8	35.90	41.05	- 5.1	19.5	4	476.19 - 27.69	448.50	0		"
0.22	a	14 9.4	21.0	23.0	25.1	29.2	23.03	19.30	+ 3.7	19.8	1949	1 158.73 + 20.09	178.82	+ 39.17		29.68
	Tuno	57.6	0.2	2.2	4.2	16.9	2.20	7.25	- 5.1	19.3	4	476.19 - 27.69	448.50	0		"
0.36	a	15 32.0	44.0	46.0	47.9	57.8	45.97	41.90	+ 4.1	19.8	1949	1 158.73 + 22.26	180.99	+ 39.10		26.43
	Tuno	16 20.8	23.1	25.0	27.1	40.0	25.07	30.40	- 5.3	19.2	4	476.19 - 28.77	447.42	0		"
0.67	a	17 3.1	14.14	16.2	18.3	22.3	16.30	12.70	+ 3.6	19.2	1949	1 158.73 + 19.54	178.27	+ 39.13		29.69
	Tuno	51.0	53.4	55.5	57.4	111.2	55.43	0.6	- 5.2	19.2	4	476.19 - 28.23	447.96	+ 39.13		0
0.77				1 ^h 14.2											$\Delta \alpha = + 0^m 39.22$	$\Delta \delta = + 4' 29.14$

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November 7th 1874.

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Nov. 9th. 1894

* 1876p	T ₀	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀	T ₁₁	T ₁₂	T ₁₃	T ₁₄	T ₁₅	T ₁₆	T ₁₇	T ₁₈	T ₁₉	T ₂₀	T ₂₁	T ₂₂	T ₂₃	T ₂₄	T ₂₅	T ₂₆	T ₂₇	T ₂₈	T ₂₉	T ₃₀	T ₃₁	T ₃₂	T ₃₃	T ₃₄	T ₃₅	T ₃₆	T ₃₇	T ₃₈	T ₃₉	T ₄₀	T ₄₁	T ₄₂	T ₄₃	T ₄₄	T ₄₅	T ₄₆	T ₄₇	T ₄₈	T ₄₉	T ₅₀	T ₅₁	T ₅₂	T ₅₃	T ₅₄	T ₅₅	T ₅₆	T ₅₇	T ₅₈	T ₅₉	T ₆₀	T ₆₁	T ₆₂	T ₆₃	T ₆₄	T ₆₅	T ₆₆	T ₆₇	T ₆₈	T ₆₉	T ₇₀	T ₇₁	T ₇₂	T ₇₃	T ₇₄	T ₇₅	T ₇₆	T ₇₇	T ₇₈	T ₇₉	T ₈₀	T ₈₁	T ₈₂	T ₈₃	T ₈₄	T ₈₅	T ₈₆	T ₈₇	T ₈₈	T ₈₉	T ₉₀	T ₉₁	T ₉₂	T ₉₃	T ₉₄	T ₉₅	T ₉₆	T ₉₇	T ₉₈	T ₉₉	T ₁₀₀	T ₁₀₁	T ₁₀₂	T ₁₀₃	T ₁₀₄	T ₁₀₅	T ₁₀₆	T ₁₀₇	T ₁₀₈	T ₁₀₉	T ₁₁₀	T ₁₁₁	T ₁₁₂	T ₁₁₃	T ₁₁₄	T ₁₁₅	T ₁₁₆	T ₁₁₇	T ₁₁₈	T ₁₁₉	T ₁₂₀	T ₁₂₁	T ₁₂₂	T ₁₂₃	T ₁₂₄	T ₁₂₅	T ₁₂₆	T ₁₂₇	T ₁₂₈	T ₁₂₉	T ₁₃₀	T ₁₃₁	T ₁₃₂	T ₁₃₃	T ₁₃₄	T ₁₃₅	T ₁₃₆	T ₁₃₇	T ₁₃₈	T ₁₃₉	T ₁₄₀	T ₁₄₁	T ₁₄₂	T ₁₄₃	T ₁₄₄	T ₁₄₅	T ₁₄₆	T ₁₄₇	T ₁₄₈	T ₁₄₉	T ₁₅₀	T ₁₅₁	T ₁₅₂	T ₁₅₃	T ₁₅₄	T ₁₅₅	T ₁₅₆	T ₁₅₇	T ₁₅₈	T ₁₅₉	T ₁₆₀	T ₁₆₁	T ₁₆₂	T ₁₆₃	T ₁₆₄	T ₁₆₅	T ₁₆₆	T ₁₆₇	T ₁₆₈	T ₁₆₉	T ₁₇₀	T ₁₇₁	T ₁₇₂	T ₁₇₃	T ₁₇₄	T ₁₇₅	T ₁₇₆	T ₁₇₇	T ₁₇₈	T ₁₇₉	T ₁₈₀	T ₁₈₁	T ₁₈₂	T ₁₈₃	T ₁₈₄	T ₁₈₅	T ₁₈₆	T ₁₈₇	T ₁₈₈	T ₁₈₉	T ₁₉₀	T ₁₉₁	T ₁₉₂	T ₁₉₃	T ₁₉₄	T ₁₉₅	T ₁₉₆	T ₁₉₇	T ₁₉₈	T ₁₉₉	T ₂₀₀	T ₂₀₁	T ₂₀₂	T ₂₀₃	T ₂₀₄	T ₂₀₅	T ₂₀₆	T ₂₀₇	T ₂₀₈	T ₂₀₉	T ₂₁₀	T ₂₁₁	T ₂₁₂	T ₂₁₃	T ₂₁₄	T ₂₁₅	T ₂₁₆	T ₂₁₇	T ₂₁₈	T ₂₁₉	T ₂₂₀	T ₂₂₁	T ₂₂₂	T ₂₂₃	T ₂₂₄	T ₂₂₅	T ₂₂₆	T ₂₂₇	T ₂₂₈	T ₂₂₉	T ₂₃₀	T ₂₃₁	T ₂₃₂	T ₂₃₃	T ₂₃₄	T ₂₃₅	T ₂₃₆	T ₂₃₇	T ₂₃₈	T ₂₃₉	T ₂₄₀	T ₂₄₁	T ₂₄₂	T ₂₄₃	T ₂₄₄	T ₂₄₅	T ₂₄₆	T ₂₄₇	T ₂₄₈	T ₂₄₉	T ₂₅₀	T ₂₅₁	T ₂₅₂	T ₂₅₃	T ₂₅₄	T ₂₅₅	T ₂₅₆	T ₂₅₇	T ₂₅₈	T ₂₅₉	T ₂₆₀	T ₂₆₁	T ₂₆₂	T ₂₆₃	T ₂₆₄	T ₂₆₅	T ₂₆₆	T ₂₆₇	T ₂₆₈	T ₂₆₉	T ₂₇₀	T ₂₇₁	T ₂₇₂	T ₂₇₃	T ₂₇₄	T ₂₇₅	T ₂₇₆	T ₂₇₇	T ₂₇₈	T ₂₇₉	T ₂₈₀	T ₂₈₁	T ₂₈₂	T ₂₈₃	T ₂₈₄	T ₂₈₅	T ₂₈₆	T ₂₈₇	T ₂₈₈	T ₂₈₉	T ₂₉₀	T ₂₉₁	T ₂₉₂	T ₂₉₃	T ₂₉₄	T ₂₉₅	T ₂₉₆	T ₂₉₇	T ₂₉₈	T ₂₉₉	T ₃₀₀	T ₃₀₁	T ₃₀₂	T ₃₀₃	T ₃₀₄	T ₃₀₅	T ₃₀₆	T ₃₀₇	T ₃₀₈	T ₃₀₉	T ₃₁₀	T ₃₁₁	T ₃₁₂	T ₃₁₃	T ₃₁₄	T ₃₁₅	T ₃₁₆	T ₃₁₇	T ₃₁₈	T ₃₁₉	T ₃₂₀	T ₃₂₁	T ₃₂₂	T ₃₂₃	T ₃₂₄	T ₃₂₅	T ₃₂₆	T ₃₂₇	T ₃₂₈	T ₃₂₉	T ₃₃₀	T ₃₃₁	T ₃₃₂	T ₃₃₃	T ₃₃₄	T ₃₃₅	T ₃₃₆	T ₃₃₇	T ₃₃₈	T ₃₃₉	T ₃₄₀	T ₃₄₁	T ₃₄₂	T ₃₄₃	T ₃₄₄	T ₃₄₅	T ₃₄₆	T ₃₄₇	T ₃₄₈	T ₃₄₉	T ₃₅₀	T ₃₅₁	T ₃₅₂	T ₃₅₃	T ₃₅₄	T ₃₅₅	T ₃₅₆	T ₃₅₇	T ₃₅₈	T ₃₅₉	T ₃₆₀	T ₃₆₁	T ₃₆₂	T ₃₆₃	T ₃₆₄	T ₃₆₅	T ₃₆₆	T ₃₆₇	T ₃₆₈	T ₃₆₉	T ₃₇₀	T ₃₇₁	T ₃₇₂	T ₃₇₃	T ₃₇₄	T ₃₇₅	T ₃₇₆	T ₃₇₇	T ₃₇₈	T ₃₇₉	T ₃₈₀	T ₃₈₁	T ₃₈₂	T ₃₈₃	T ₃₈₄	T ₃₈₅	T ₃₈₆	T ₃₈₇	T ₃₈₈	T ₃₈₉	T ₃₉₀	T ₃₉₁	T ₃₉₂	T ₃₉₃	T ₃₉₄	T ₃₉₅	T ₃₉₆	T ₃₉₇	T ₃₉₈	T ₃₉₉	T ₄₀₀	T ₄₀₁	T ₄₀₂	T ₄₀₃	T ₄₀₄	T ₄₀₅	T ₄₀₆	T ₄₀₇	T ₄₀₈	T ₄₀₉	T ₄₁₀	T ₄₁₁	T ₄₁₂	T ₄₁₃	T ₄₁₄	T ₄₁₅	T ₄₁₆	T ₄₁₇	T ₄₁₈	T ₄₁₉	T ₄₂₀	T ₄₂₁	T ₄₂₂	T ₄₂₃	T ₄₂₄	T ₄₂₅	T ₄₂₆	T ₄₂₇	T ₄₂₈	T ₄₂₉	T ₄₃₀	T ₄₃₁	T ₄₃₂	T ₄₃₃	T ₄₃₄	T ₄₃₅	T ₄₃₆	T ₄₃₇	T ₄₃₈	T ₄₃₉	T ₄₄₀	T ₄₄₁	T ₄₄₂	T ₄₄₃	T ₄₄₄	T ₄₄₅	T ₄₄₆	T ₄₄₇	T ₄₄₈	T ₄₄₉	T ₄₅₀	T ₄₅₁	T ₄₅₂	T ₄₅₃	T ₄₅₄	T ₄₅₅	T ₄₅₆	T ₄₅₇	T ₄₅₈	T ₄₅₉	T ₄₆₀	T ₄₆₁	T ₄₆₂	T ₄₆₃	T ₄₆₄	T ₄₆₅	T ₄₆₆	T ₄₆₇	T ₄₆₈	T ₄₆₉	T ₄₇₀	T ₄₇₁	T ₄₇₂	T ₄₇₃	T ₄₇₄	T ₄₇₅	T ₄₇₆	T ₄₇₇	T ₄₇₈	T ₄₇₉	T ₄₈₀	T ₄₈₁	T ₄₈₂	T ₄₈₃	T ₄₈₄	T ₄₈₅	T ₄₈₆	T ₄₈₇	T ₄₈₈	T ₄₈₉	T ₄₉₀	T ₄₉₁	T ₄₉₂	T ₄₉₃	T ₄₉₄	T ₄₉₅	T ₄₉₆	T ₄₉₇	T ₄₉₈	T ₄₉₉	T ₅₀₀	T ₅₀₁	T ₅₀₂	T ₅₀₃	T ₅₀₄	T ₅₀₅	T ₅₀₆	T ₅₀₇	T ₅₀₈	T ₅₀₉	T ₅₁₀	T ₅₁₁	T ₅₁₂	T ₅₁₃	T ₅₁₄	T ₅₁₅	T ₅₁₆	T ₅₁₇	T ₅₁₈	T ₅₁₉	T ₅₂₀	T ₅₂₁	T ₅₂₂	T ₅₂₃	T ₅₂₄	T ₅₂₅	T ₅₂₆	T ₅₂₇	T ₅₂₈	T ₅₂₉	T ₅₃₀	T ₅₃₁	T ₅₃₂	T ₅₃₃	T ₅₃₄	T ₅₃₅	T ₅₃₆	T ₅₃₇	T ₅₃₈	T ₅₃₉	T ₅₄₀	T ₅₄₁	T ₅₄₂	T ₅₄₃	T ₅₄₄	T ₅₄₅	T ₅₄₆	T ₅₄₇	T ₅₄₈	T ₅₄₉	T ₅₅₀	T ₅₅₁	T ₅₅₂	T ₅₅₃	T ₅₅₄	T ₅₅₅	T ₅₅₆	T ₅₅₇	T ₅₅₈	T ₅₅₉	T ₅₆₀	T ₅₆₁	T ₅₆₂	T ₅₆₃	T ₅₆₄	T ₅₆₅	T ₅₆₆	T ₅₆₇	T ₅₆₈	T ₅₆₉	T ₅₇₀	T ₅₇₁	T ₅₇₂	T ₅₇₃	T ₅₇₄	T ₅₇₅	T ₅₇₆	T ₅₇₇	T ₅₇₈	T ₅₇₉	T ₅₈₀	T ₅₈₁	T ₅₈₂	T ₅₈₃	T ₅₈₄	T ₅₈₅	T ₅₈₆	T ₅₈₇	T ₅₈₈	T ₅₈₉	T ₅₉₀	T ₅₉₁	T ₅₉₂	T ₅₉₃	T ₅₉₄	T ₅₉₅	T ₅₉₆	T ₅₉₇	T ₅₉₈	T ₅₉₉	T ₆₀₀	T ₆₀₁	T ₆₀₂	T ₆₀₃	T ₆₀₄	T ₆₀₅	T ₆₀₆	T ₆₀₇	T ₆₀₈	T ₆₀₉	T ₆₁₀	T ₆₁₁	T ₆₁₂	T ₆₁₃	T ₆₁₄	T ₆₁₅	T ₆₁₆	T ₆₁₇	T ₆₁₈	T ₆₁₉	T ₆₂₀	T ₆₂₁	T ₆₂₂	T ₆₂₃	T ₆₂₄	T ₆₂₅	T ₆₂₆	T ₆₂₇	T ₆₂₈	T ₆₂₉	T ₆₃₀	T ₆₃₁	T ₆₃₂	T ₆₃₃	T ₆₃₄	T ₆₃₅	T ₆₃₆	T ₆₃₇	T ₆₃₈	T ₆₃₉	T ₆₄₀	T ₆₄₁	T ₆₄₂	T ₆₄₃	T ₆₄₄	T ₆₄₅	T ₆₄₆	T ₆₄₇	T ₆₄₈	T ₆₄₉	T ₆₅₀	T ₆₅₁	T ₆₅₂	T ₆₅₃	T ₆₅₄	T ₆₅₅	T ₆₅₆	T ₆₅₇	T ₆₅₈	T ₆₅₉	T ₆₆₀	T ₆₆₁	T ₆₆₂	T ₆₆₃	T ₆₆₄	T ₆₆₅	T ₆₆₆	T ₆₆₇	T ₆₆₈	T ₆₆₉	T ₆₇₀	T ₆₇₁	T ₆₇₂	T ₆₇₃	T ₆₇₄	T ₆₇₅	T ₆₇₆	T ₆₇₇	T ₆₇₈	T ₆₇₉	T ₆₈₀	T ₆₈₁	T ₆₈₂	T ₆₈₃	T ₆₈₄	T ₆₈₅	T ₆₈₆	T ₆₈₇	T ₆₈₈	T ₆₈₉	T ₆₉₀	T ₆₉₁	T ₆₉₂	T ₆₉₃	T ₆₉₄	T ₆₉₅	T ₆₉₆	T ₆₉₇	T ₆₉₈	T ₆₉₉	T ₇₀₀	T ₇₀₁	T ₇₀₂	T ₇₀₃	T ₇₀₄	T ₇₀₅	T ₇₀₆	T ₇₀₇	T ₇₀₈	T ₇₀₉	T ₇₁₀	T ₇₁₁	T ₇₁₂	T ₇₁₃	T ₇₁₄	T ₇₁₅	T ₇₁₆	T ₇₁₇	T ₇₁₈	T ₇₁₉	T ₇₂₀	T ₇₂₁	T ₇₂₂	T ₇₂₃	T ₇₂₄	T ₇₂₅	T ₇₂₆	T ₇₂₇	T ₇₂₈	T ₇₂₉	T ₇₃₀	T ₇₃₁	T ₇₃₂	T ₇₃₃	T ₇₃₄	T ₇₃₅	T ₇₃₆	T ₇₃₇	T ₇₃₈	T ₇₃₉	T ₇₄₀	T ₇₄₁	T ₇₄₂	T ₇₄₃	T ₇₄₄	T ₇₄₅	T ₇₄₆	T ₇₄₇	T ₇₄₈	T ₇₄₉	T ₇₅₀	T ₇₅₁	T ₇₅₂	T ₇₅₃	T ₇₅₄	T ₇₅₅	T ₇₅₆	T ₇₅₇	T ₇₅₈	T ₇₅₉	T ₇₆₀	T ₇₆₁	T ₇₆₂	T ₇₆₃	T ₇₆₄	T ₇₆₅	T ₇₆₆	T ₇₆₇	T ₇₆₈	T ₇₆₉	T ₇₇₀	T ₇₇₁	T ₇₇₂	T ₇₇₃	T ₇₇₄	T ₇₇₅	T ₇₇₆	T ₇₇₇	T ₇₇₈	T ₇₇₉	T ₇₈₀	T ₇₈₁	T ₇₈₂	T ₇₈₃	T ₇₈₄	T ₇₈₅	T ₇₈₆	T ₇₈₇	T ₇₈₈	T ₇₈₉	T ₇₉₀	T ₇₉₁	T ₇₉₂	T ₇₉₃	T ₇₉₄	T ₇₉₅	T ₇₉₆	T ₇₉₇	T ₇₉₈	T ₇₉₉	T ₈₀₀	T ₈₀₁	T ₈₀₂	T ₈₀₃	T ₈₀₄	T ₈₀₅	T ₈₀₆	T ₈₀₇	T ₈₀₈	T ₈₀₉	T ₈₁₀	T ₈₁₁	T ₈₁₂	T ₈₁₃	T ₈₁₄	T ₈₁₅	T ₈₁₆	T ₈₁₇	T ₈₁₈	T ₈₁₉	T ₈₂₀	T ₈₂₁	T ₈₂₂	T ₈₂₃	T ₈₂₄	T ₈₂₅	T ₈₂₆	T ₈₂₇	T ₈₂₈	T ₈₂₉	T ₈₃₀	T ₈₃₁	T ₈₃₂	T ₈₃₃	T ₈₃₄	T ₈₃₅	T ₈₃₆	T ₈₃₇	T ₈₃₈	T ₈₃₉	T ₈₄₀	T ₈₄₁	T ₈₄₂	T ₈₄₃	T ₈₄₄	T ₈₄₅	T ₈₄₆	T ₈₄₇	T ₈₄₈	T ₈₄₉	T ₈₅₀	T ₈₅₁	T ₈₅₂	T ₈₅₃	T ₈₅₄	T ₈₅₅	T ₈₅₆	T ₈₅₇	T ₈₅₈	T ₈₅₉	T ₈₆₀	T ₈₆₁	T ₈₆₂	T ₈₆₃	T ₈₆₄	T ₈₆₅	T ₈₆₆	T ₈₆₇	T ₈₆₈	T ₈₆₉	T ₈₇₀	T ₈₇₁	T ₈₇₂	T ₈₇₃	T ₈₇₄	T ₈₇₅	T ₈₇₆	T ₈₇₇	T ₈₇₈	T ₈₇₉	T ₈₈₀	T ₈₈₁	T ₈₈₂	T ₈₈₃	T ₈₈₄	T ₈₈₅	T ₈₈₆	T ₈₈₇	T ₈₈₈	T ₈₈₉	T ₈₉₀	T ₈₉₁	T ₈₉₂	T ₈₉₃	T ₈₉₄	T ₈₉₅	T ₈₉₆	T ₈₉₇	T ₈₉₈	T ₈₉₉	T ₉₀₀	T ₉₀₁	T ₉₀₂	T ₉₀₃	T ₉₀₄	T ₉₀₅	T ₉₀₆	T ₉₀₇	T ₉₀₈	T ₉₀₉	T ₉₁₀	T ₉₁₁	T ₉₁₂	T ₉₁₃	T ₉₁₄	T ₉₁₅	T ₉₁₆	T ₉₁₇	T ₉₁₈	T ₉₁₉	T ₉₂₀	T ₉₂₁	T ₉₂₂	T ₉₂₃	T ₉₂₄	T ₉₂₅	T ₉₂₆	T ₉₂₇	T ₉₂₈	T ₉₂₉	T ₉₃₀	T ₉₃₁	T ₉₃₂	T ₉₃₃	T ₉₃₄	T ₉₃₅	T ₉₃₆	T ₉₃₇	T ₉₃₈	T ₉₃₉	T ₉₄₀	T ₉₄₁	T ₉₄₂	T ₉₄₃	T ₉₄₄	T ₉₄₅	T ₉₄₆	T ₉₄₇	T ₉₄₈	T ₉₄₉	T ₉₅₀	T ₉₅₁	T ₉₅₂	T ₉₅₃	T ₉₅₄	T ₉₅₅	T ₉₅₆	T ₉₅₇
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$0^h 47^m 9$ $\Delta\alpha = -0^m 17.90$ $\Delta\delta = +4' 14.30$

November 12th. 1874.

1870ph

*	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9	T_{10}	T_{11}	T_{12}	T_{13}	T_{14}	T_{15}	T_{16}	T_{17}	T_{18}	T_{19}	T_{20}	T_{21}	T_{22}	T_{23}	T_{24}	T_{25}	T_{26}	T_{27}	T_{28}	T_{29}	T_{30}	T_{31}	T_{32}	T_{33}	T_{34}	T_{35}	T_{36}	T_{37}	T_{38}	T_{39}	T_{40}	T_{41}	T_{42}	T_{43}	T_{44}	T_{45}	T_{46}	T_{47}	T_{48}	T_{49}	T_{50}	T_{51}	T_{52}	T_{53}	T_{54}	T_{55}	T_{56}	T_{57}	T_{58}	T_{59}	T_{60}	T_{61}	T_{62}	T_{63}	T_{64}	T_{65}	T_{66}	T_{67}	T_{68}	T_{69}	T_{70}	T_{71}	T_{72}	T_{73}	T_{74}	T_{75}	T_{76}	T_{77}	T_{78}	T_{79}	T_{80}	T_{81}	T_{82}	T_{83}	T_{84}	T_{85}	T_{86}	T_{87}	T_{88}	T_{89}	T_{90}	T_{91}	T_{92}	T_{93}	T_{94}	T_{95}	T_{96}	T_{97}	T_{98}	T_{99}	T_{100}
α	11 ^m 10.2	17.0	19.0	21.0	22.6	19.00	19.90	-0.9	19.4	19.07	2	264.93	-4.99	259.94	+40.93	+26.61																																																																																				
$\Delta\alpha$	46.4	58.0	59.9	19	5.7	59.93	56.05	+3.9	19.3	19.07	2	264.93	+21.62	286.55	0	0																																																																																				
α	12 21.2	27.5	29.2	31.3	39.9	29.33	30.55	-1.2	18.7	19.07	2	264.93	-6.65	258.28	+40.07	+29.38																																																																																				
$\Delta\alpha$	57.0	8.5	10.4	12.3	15.7	10.40	6.35	+4.1	18.7	19.07	2	264.93	+22.73	287.66	0	0																																																																																				
α	13 26.3	42.8	44.7	46.7	55.5	44.73	45.90	-1.2	19.2	19.07	2	264.93	-6.65	258.28	+40.94	+27.16																																																																																				
$\Delta\alpha$	14 12.5	23.7	25.7	27.6	31.4	25.67	21.95	+3.7	18.9	19.07	2	264.93	+20.51	285.44	0	0																																																																																				
α	14 45.3	57.4	53.3	55.3	41.1	53.33	54.70	-1.4	18.8	19.07	2	264.93	-7.76	257.17	+40.97	+28.83																																																																																				
$\Delta\alpha$	15 20.5	32.2	34.4	36.3	40.2	34.30	30.50	+3.8	19.4	19.07	2	264.93	+21.07	286.00	0	0																																																																																				
α	15 55.8	2.1	4.0	6.0	14.7	44.03	5.25	-1.2	18.9	19.07	2	264.93	-6.65	258.28	+40.97	+26.61																																																																																				
$\Delta\alpha$	16 31.5	43.1	45.1	46.8	51.0	45.00	41.40	+3.6	19.2	19.07	2	264.93	+19.96	284.89	0	26.61																																																																																				
α	17 9.0	15.1	17.0	19.1	27.5	17.07	18.25	-1.2	18.5	19.07	2	264.93	-6.65	258.28	+40.93	+24.95																																																																																				
$\Delta\alpha$	45.3	56.0	58.0	0.0	4.2	58.00	54.75	+3.3	18.9	19.07	2	264.93	+18.30	283.23	0	0																																																																																				
α	18 20.0	26.5	28.4	30.5	39.4	28.47	29.70	-1.2	19.4	19.07	2	264.93	-6.65	258.28	+40.76	+23.84																																																																																				
$\Delta\alpha$	56.4	7.3	9.2	11.2	15.9	9.23	6.15	+3.1	19.5	19.07	2	264.93	+17.19	282.12	0	0																																																																																				
α	19 35.1	41.6	43.6	45.6	54.1	43.60	44.60	-1.0	19.0	19.07	2	264.93	-5.54	259.39	+40.73	+22.73																																																																																				
$\Delta\alpha$	20 11.6	22.4	24.3	26.3	30.9	24.33	21.25	+3.8	19.3	19.07	2	264.93	+17.19	282.12	0	0																																																																																				
α	21 44.7	50.6	52.7	54.7	63.5	52.67	54.10	-1.4	18.8	19.07	2	264.93	-7.76	257.17	+40.83	+26.61																																																																																				
$\Delta\alpha$	21 20.4	31.5	33.5	35.5	39.7	33.50	31.05	+3.4	19.3	19.07	2	264.93	+18.85	283.78	0	+26.61																																																																																				

 $\alpha = 16.5$
 $\Delta\alpha = +0^m 40.94$
 $\Delta\delta = +0' 26.30$

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November 19th. 1874

[illegible]

*[] Laps lost - supplied from mean ($T_{D_2}^1 - T_{D_1}^1$)

November 24th 1874.

Oh 41^{mg}

$$\Delta \alpha = 2 \quad 39.01 \quad \Delta \delta = +3 \quad 54.64$$

R.

Date	Ant. Sid. μ	λ	δ	$P. - \times$	refraction	parallax	rel. to dec. obs.	C. Sid. of dec. obs.	$\Delta \alpha$	m of obs.	Comp. $\times$
Oct 15	1 ^h 28.8	- 1 ^h 46 ^m	+ 0 ^o 18'	+ 0 ^m 58.72	- 0.00	- 0.17			- 0 ^m 58.89	6	y
	1 28.8	1 46	+ 0 14'	- 1 19.32	- 0.01	- 0.17			- 1 19.50	6	z
16	0 44.1	2 30	+ 0 5'	+ 0 0.56	+ 0.00	- 0.25	- 0.01	0 44.6	+ 0 0.30	5	v
	0 44.1	2 30	+ 0 4'	- 2 41.82	- 0.04	- 0.25	- 0.01	0 44.6	- 2 42.12	5	x'j
20											x
											w
21	23 59.6	3 13	- 0 58	+ 3 34.60	+ 0.07	- 0.31	- 0.75	0 37.0	+ 3 33.61	2	o
	23 59.6	3 13	- 1 0	- 2 4.88	- 0.05	- 0.31	- 0.75	0 37.0	- 2 5.99	2	x
23											s
											u
26	23 55.6	3 44	- 1 59	- 0 27.27	- 0.02	- 0.34	+ 0.33	23 42.0	- 0 27.30	8	g
	23 55.6	3 44	2 3	- 2 6.92	- 0.10	- 0.34	- 0.14	0 1.5	- 2 7.24	8	f
28	2 12.0	0 59	2 29	- 0 59.76	- 0.00	- 0.10	+ 0.67	1 46.2	- 0 59.19	4	p
30	23 6.4	4 1	2 44	- 0 37.52	- 0.04	- 0.36		23 6.4	- 0 37.92	4	m
	23 15.4	3 52	2 48	- 0 38.60	- 0.04	- 0.35		23 15.4	- 0 38.99	6	n
Nov. 2	1 22.3	1 43	3 17	+ 1 25.32	+ 0.02	- 0.18		1 22.3	+ 1 25.16	6	j
	1 22.3	1 43	3 22	- 0 50.32	- 0.01	- 0.18		1 22.3	- 0 50.51	6	i
3	1 19.7	1 40	3 29	- 1 16.85	- 0.01	- 0.19		1 19.7	- 1 17.05	10	k
6	1 14.2	1 49	4 2	+ 0 39.22	+ 0.01	- 0.19		1 14.2	+ 0 39.04	6	h
7	23 10.0	3 52	4 6	+ 0 0.59	+ 0.00	- 0.35		23 10.0	+ 0 0.24	5	h
	23 12.2	3 50	4 9	- 0 17.85	- 0.02	- 0.35		23 12.2	- 0 18.22	8	i
9	0 47.9	2 13	4 24	- 0 17.90	- 0.00	- 0.22		0 47.9	- 0 18.12	16	f
12	0 16.6	2 42	4 49	+ 0 40.90	+ 0.02	- 0.27		0 16.6	+ 0 40.65	9	d
18	0 49.4	2 5	5 15	+ 1 39.09	+ 0.02	- 0.21		0 49.4	+ 1 38.90	10	c
19	1 20.9	1 33	5 31	- 6 39.33	- 0.08	- 0.16		1 20.9	- 6 39.59	7	e
	1 26.4	1 29	5 25	- 7 58.91	- 0.08	- 0.15		1 26.4	- 7 59.14	5	g
24	0 41.9	2 11	5 51	+ 4 48.2	+ 0.07	- 0.22		0 41.9	+ 4 46.7	9	a
	0 41.9	2 11	5 49	+ 2 39.01	+ 0.04	- 0.22		0 41.9	+ 2 38.83	9	b

Parallax Factor $\times 1.033 = 0.97$

Conversion of hours to hours
been multiplied by 48 in
sheet of 28

Dec.

Obs. Time	δ	α	μ	κ	μ	μ	μ	μ	μ	μ
										11 ^h 50 ^m
										11 50.7
0 ^h 44 ^m 20 ^s	+0° 5'	-1' 41.11	-0.06	+5.59	-2' 35.58	5				11 2.7
0 446 2 30	+0 4	-3 15.06	-0.13	+5.59	-3 9.60	5				11 2.7
23 32.5 3 40	-0 46	-2 47.22	-0.08	+5.62	-2 44.68	6				9 35.0
23 32.5 3 40	-0 48	+1 40.48	+0.08	+5.62	+1 46.18	6				9 35.0
0 37.0 2 37	0 58	-2 10.08	-0.08	+5.65	-2 4.51	11				10 35.5 31.5
0 37.0 2 40	1 00	-4 10.27	-0.16	+5.65	-4 40.27	1				10 35.5 35.5
1 27.0 1 46	1 25	-2 55.99	-0.11	+5.72	-2 50.38	4				11 17.4
1 27.0 1 46	1 23	-5 16.86	-0.18	+5.72	-5 11.32	4				11 17.4
23 42.0 3 27	1 57	-5 29.37	-0.37	+5.70	-5 24.04	5				9 21.0
0 1.5 3 8	2 3	+2 44.11	+0.20	+5.72	+2 50.03	5				9 40.4
1 46.2 1 23	2 29	+6 2.35	+0.20	+5.83	+6 8.38	5				11 17.0
23 6.4 4 1	2 44	-6 22.88	-0.55	+5.72	-6 17.71	4				8 29.7
23 15.4 3 52	2 48	+0 31.55	+0.04	+5.74	+0 37.33	6				8 28.7
1 22.3 1 43	3 17	+0 59.99	+0.04	+5.89	+1 5.92	6				10 33.5
1 22.3 1 43	3 22	+1 58.98	+0.08	+5.89	+2 4.95	6				10 33.5
1 19.7 1 45	3 29	-2 32.84	-0.10	+5.91	-2 27.03	10				10 26.9
1 14.2 1 49	4 2	+4 29.14	+0.18	+5.96	+4 35.28	6				10 9.6
23 10.0 3 52	4 6	-4 43.97	-0.39	+5.80	-4 38.56	5				8 1.9
23 12.2 3 50	4 9	+1 57.10	+0.17	+5.80	+2 3.07	8				8 4.1
0 47.9 2 13	4 24	+4 14.30	+0.19	+5.97	+4 20.46	16				9 31.6
0 16.6 2 42	4 49	+0 26.30	+0.02	+5.96	+0 32.28	9				8 48.6
0 49.4 2 5	5 15	+4 25.20	+0.19	+6.05	+4 31.44	10				8 57.7
1 20.9 1 33	5 31	+2 36.00	+0.10	+6.11	+2 42.21	7				9 25.2
1 26.4 1 27	5 25	-7 32.08	-0.32	+6.11	-7 26.29	5				9 30.6
0 41.9 2 11	5 51	-0 46.98	-0.03	+6.08	-0 40.93	9				8 26.6
0 41.9 2 11	5 49	+3 54.64	+0.18	+6.08	+4 0.90	9				8 26.6

Observations of Juno.

Date 1894	Camb. Mer.	Comp. Star.	$\Delta\alpha$	α	No. of comp.	$\alpha - \text{Equ.}$	$\Delta\delta$	δ	No. of comp.	$\delta - \text{Equ.}$	No.
Oct. 15	11 ^h 50.7	y	-0 ^m 58.89	3 ^h 15 ^m 7.10	6	+10.8	—	—	—	—	
	11 50.7	z	-1 19.50	3 15 7.00	6	10.2	—	—	—	—	
16	11 2.7	v	+0 0.30	3 14 47.41	5	10.2	-2' 35.58	+0° 3' 14.37	5	+38"	
	11 2.7	a'	-2 42.12	3 14 47.33	5	10.1	-3 9.60	+0° 3' 16.34	5	40	
20	9 35.0	r	-2 41.68	—	—	—	-2 41.68	—	6	—	
	9 35.0	w	+1 46.18	—	—	—	+1 46.18	-0 47 19.99	6	28	
21	10 35.5	o	+3 33.61	3 12 43.00	2	9.7	-2 4.57	0 31.46	4	17	
	10 35.5	x	-2 5.99	3 12 42.84	2	9.6	-4 7.78	0 31.69	1	16	
23	11 17.4	s	—	—	—	—	-2 50.38	-1 25 55.29	4	19	
	11 17.4	u	—	—	—	—	-5 11.32	-1 25 52.87	4	19	
26	9 21.0	q	-0 28.13	3 10 53.1	8	10.3	-5 24.04	-2 22.99	5	15	
	9 40.4	t	-2 8.24	3 10 4.67	8	10.2	+2 50.03	-2 1 31.55	5	16	
28	11 17.0	p	-0 59.19	3 8 50.46	4	11.3	+6 8.38	-2 25 55.36	5	50	
30	8 29.7	m	-0 37.92	3 7 38.95	4	10.5	-6 17.71	-2 47 12.49	4	33	
	8 38.7	n	-0 38.99	3 7 38.82	6	10.7	+0 37.33	-2 47 14.64	6	34	
Nov. 2	10 33.5	j	+1 25.16	3 5 36.32	6	10.9	+1 5.92	-3 20 29.03	6	27	
	10 33.5	l	-0 50.57	3 5 36.29	6	10.9	+2 4.95	-3 20 28.82	6	27	
3	10 26.9	k	-1 17.05	3 4 55.28	10	10.8	-2 27.03	-3 30 36.53	10	35	
6	10 9.6	h	+0 39.04	3 2 50.20	6	10.6	+4 35.28	-3 59 30.55	6	42	
7	8 1.9	h	+0 0.24	3 2 11.42	5	10.5	-3 38.56	-2 7 44.48	5	25	
	8 4.1	i	-0 18.22	3 2 10.74	8	10.9	+2 3.07	-4 7 45.23	8	25	
9	9 31.6	f	-0 18.12	3 0 43.88	16	10.6	+4 20.46	-4 25 27.17	16	27	
12	8 48.6	d	+0 40.65	2 58 38.50	9	10.7	+0 32.28	-4 48 17.31	9	31	
18	8 57.7	c	+1 38.90	2 57 33.97	10	8.3	+4 31.44	25 18.03	10	—	
19	9 25.2	e	-6 39.57	2 53 56.02	7	8.2	+2 42.21	-5 29 17.67	7	15	
	9 30.6	g	-7 57.14	2 53 55.84	5	8.2	-7 26.29	-5 29 20.22	5	14	
24	8 26.6	a	+4 4.67	2 51 41.90	9	10.1	-0 40.93	-5 46 17.65	9	27	
	8 26.6	b	+2 38.83	2 51 4.93	9	+10.1	+4 0.90	-5 46 17.82	9	27	

Comparison Stars.

No Obs.	*	α 1874.0			δ 1874.0			$\Delta\alpha$	$\Delta\delta$	Apparent place at time of observation				
										α				
2	y	3	16	29.4	+ 0	18	17.95	+ 3.05		3 ^h 16 ^m 5.59				
4	z	3	16	23.45	+ 0	14	16.22	+ 3.05		16	26.50			
2	v	3	14	44.03	+ 0	5	27.85	+ 3.08	+22.10	14	47.11	+ 0° 5'	49.75	
2	x ¹	3	17	26.38	+ 0	6	3.88	+ 3.07	+22.06	17	29.45	+ 0	6 28.94	
2	x ²	3	11	51.66	- 0	45	6.94	Ref.						
2	w	3	14	42.71	- 0	49	28.22		+22.05			- 0	49 6.17	
4	o	3	9	6.22	- 0	56	49.52	+ 3.17	+22.10	9	9.39	- 0	56 27.42	
3	x	3	14	45.72	- 0	58	49.19	+ 3.16	+22.01	14	48.88	- 0	58 27.18	
2	s	3	11	55.60	- 1	23	26.86		+21.95			- 1	23 4.91	
3	u	3	13	57.05	- 1	21	5.52		+21.95			- 1	20 43.57	
3	q	3	10	29.37	- 1	56	20.82	+ 3.24	+21.87	10	32.61	- 1	55 58.95	
3	t	3	12	8.96	- 2	4	43.40	+ 3.23	+21.87	12	12.19	- 2	4 21.53	
3	p	3	9	46.39	- 2	32	22.53	+ 3.26	+21.79	9	49.65	- 2	32 0.74	
2	m	3	8	13.58	- 2	41	16.45	+ 3.29	+21.67	8	16.87	- 2	40 84.78	
3	n	3	8	14.52	- 2	48	13.65	+ 3.29	+21.68	8	17.81	- 2	47 51.77	
2	j	3	4	7.83	- 3	21	56.45	+ 3.33	+21.50	4	11.16	- 3	21 34.95	
*	l	3	6	23.47	- 3	22	53.17	+ 3.33	+21.45	6	26.80	- 3	22 33.77	
6	k	3	6	8.99	- 3	28	30.89	+ 3.34	+21.39	6	12.33	- 3	28 9.50	
3	h	3	2	7.79	- 4	4	26.99	+ 3.37	+21.16	2	11.16	- 4	4 5.83	
3	h	3	2	7.79	- 4	4	26.99	+ 3.39	+21.07	2	11.18	- 4	4 5.92	
3	i	3	2	26.58	- 4	10	9.36	+ 3.38	+21.06	2	29.96	- 4	9 48.30	
2	f	3	0	58.60	- 4	30	8.51	+ 3.40	+20.88	1	2.00	- 4	29 47.63	
2	d	2	57	54.42	- 4	49	10.18	+ 3.43	+20.89	2	57	57.85	- 4	48 49.59
3	c	2	52	51.60	- 5	17	14.96	+ 3.47	+19.74	2	52	55.07		
3	e	3	0	32.11	- 5	32	19.82	+ 3.48	+19.74	3	0	35.59	- 5	31 39.88
2	g	3	1	51.43	- 5	22	13.67	+ 3.48	+19.74	1	54.91	- 5	21 53.93	
3	a	2	46	56.75	- 5	45	56.00	+ 3.48	+19.28	2	47	0.23	- 5	45 36.72
3	b	2	48	22.62	- 5	50	37.98	+ 3.48	+19.26	48	26.10	- 5	50 18.72	

* This star was looked for 3 times with the Merid Circle and was not seen.

Note Dec. 28, 1880. The δ of the comparison star c seems to have been considered doubtful. The resulting δ for June (in pencil on p. 24) $-5^{\circ} 25' 18''$ seems to be an interpolation, and the observation seems to give $-5^{\circ} 17' 14.96'' + 19.74'' + 4' 31.44''$, which would be $-5^{\circ} 12' 23.78''$, so that there is evidently some error, not fully corrected by taking the $\Delta\delta$ with the contrary sign.

Double Stars of Cambridge List.

No	Date	Position	Distance	Mag.		No.	Date	Position	Distance	Mag.
1						11				
2	Dec. 11, '74	193°.0	21.4	9-10		12	Dec. 11, '74	Not seen double 3 hours past Meridian -		
3						13				
4						14				
5						15				
6						16				
7						17				
8						18				
9						19				
10						20				

No	Date	Position	Distance	Mag.	No.	Date	Position	Distance	Mag.
21					31				
22					32				
23					33				
24					34				
25					35				
26					36				
27					37				
28					38				
29					39				
30					40				

No.	Date	Position	Distance	Mag.	No.	Date	Position	Distance	Mag.
41					51				
42					52	Dec. 15. '74			
43					53	Dec. 15. '74	^{97.6} ~~98.0~~	39".3	8-10
44					54	Dec. 15. '74	177".0	46".5	8-10 $\frac{1}{2}$
45					55				
46					56				
47					57				
48					58				
49					59				
50					60				

No.	Date	Position	Distance	Mags.	No.	Date	Position	Distance	Mags.
61					71	Dec. 12, '74	298°9'	13.2	7 $\frac{1}{2}$ -9 $\frac{1}{2}$
62					72?	Jan 16, '75	97°6'	21.9	9-10
						Dec. circ. mod. 28°-13'			
163	Apr. 23, '75	94°4'	2".4	8-8	73	Jan 16 '75	Not seen double with No 4		
						perhaps misidentified			
64					74	No Stars above 10 ^{mag} within 10' of No 73.			
65					75				
66					76				
67					77	Jan 16 '75	246.8	13.6	10 $\frac{1}{2}$ - 11
						perhaps misidentified			
168	Apr 27, '75	258°5'	4".0	9-11 $\frac{1}{2}$	78				
169	Apr 27, '75	108°9'	17".4	10 $\frac{1}{2}$ - 11 $\frac{1}{2}$	79				
						measures Rough, Stars very faint			
						1870.0 $\alpha = 10^h 36^m 50^s$ $\delta = -12^\circ 11'$			
70					80	Jan 23 '75	127°6'	8".2	9 $\frac{1}{2}$ - 10 $\frac{1}{4}$

no.	Date	Position	Distance	Mag. p.		no.	Date	Position	Distance	Mag. p.
81	Jan. 23 '75	184.95	24".3	8 $\frac{1}{2}$ - 10 $\frac{1}{2}$	very uncertain	91				
82	Jan. 14 '75 Jan. 17 '75	81.2 —	18".5 —	9-9 9-10		92				
83	Jan. 14 '75	Not seen double with no. 5. Faded light				93				
84	No place given					94				
85						95				
86	Jan. 17 '75 R.A. = 5 ^h 8 ^m .3	254.99 Dec. = -90° 3'	5".7	9-10	[No Star at 7° 10']	96	Jan. 14 '75	123.8°	11".7	7 $\frac{1}{2}$ - 8 $\frac{1}{2}$
87 182	June 4 '75	11.0	6".1	9 10 $\frac{1}{2}$		97	Jan. 14 '75	82.8	31".0	7 $\frac{1}{2}$ - 10 $\frac{1}{2}$
88 184	Can not be found June 4 '75					98				
187	Jan. 14 '75	22.6	2".0	8-8		99	Jan. 16 '75 Lac 11564-5	248.0° 5 ^h 59 ^m 36 ^s + 10.918'	22".0	8 - 9 $\frac{1}{4}$
186	Not double Jan 14 '75 (within under 0.5")				100	Not Star measured by C.S.P. = Σ 840 247° 2' 21".15 Feb. 10 '68 6.7 $\frac{1}{2}$, 8 $\frac{1}{4}$				

The Comet Reticule used in many of the following Observations consists of two occulting bars inclined at an angle (α) of $44^\circ 53'5''$ to each other. One bar is placed in the Meridian the other crossing from S. pole to N. pole.

The Diff. ~~bar~~ is given by the diff. of times of transit over the vertical bar, and the Diff. of Dec.

$$= [\delta - T - (\delta_1 - T_1)] (\cotan. 44^\circ 53'5'') (\cos Dec)$$

After May. 2^d the Inclined bar was placed by the position circle so as to make the angle as nearly 45° as possible.

January 27th, 1875

Transits				$\Delta\alpha$
	(109)	*		
6 ^h 22 ^m	21.6	23 ^m 20.4	-	58.8
	27.8	26.5		58.7
	38.3	36.9		58.6
24	10.6	25 9.1		58.5
	16.7	15.4		58.7
	27.4	26.2		58.8
25	47.1	26 45.8		58.7
	53.3	52.1		58.8
26	3.9	27 2.4		58.5
27	27.4	28 26.2		58.8
	33.7	32.4		58.7
	44.5	43.3		58.8
29	16.7	30 15.9		59.2
	23.3	22.2		58.9
	33.7	32.9		59.2
7 19	52.3	20 52.8		60.5
20	9.0	21 10.0		61.0
	13.8	14.7		60.9
	27.2	28.2		61.0
21	46.6	22 47.5		60.9
22	3.2	23 44.4		61.2
	8.2	9.3		61.1
	21.7	22.6		60.9
23	40.4	24 41.5		61.1
	57.3	58.4		61.1
24	1.8	25 3.4		61.6
	15.2	16.6		61.4
25	36.3	26 37.6		61.3
	53.3	54.6		61.3
	58.0	59.3		61.3
26	11.5	27 12.7		61.2
27	29.7	28 31.4		61.7
	47.0	48.3		61.3
	51.8	53.0		61.2
28	4.9	29 6.3	-	61.4
6 ^h 57.4				- 60.5

Time		Micrometer readings		
		(109)	*	Diff
6 ^h 38.0		43.297	45.257	- 1.960
	41.2	.422	.214	.792
	44.8	.687	.414	.727
	47.3	.465	.214	.949
7 1.3		.887	.374	.507
	3.8	.909	.413	.504
	6.4	44.162	.700	.538
	9.3	.320	.677	.357
	11.2	.235	.786	.551
	13.2	.470	.862	.392
6 ^h 57.65				- 1.628 = -15.96

Readings increase North

$$\text{At } 6^h 57.5 \quad \Delta\delta = -15.96$$

$$\text{Comp } \alpha = \text{D.M.} + 21.2179$$

$$\begin{aligned} \text{At } 6^h 57.5 \quad \Delta\alpha &= -60.15 & \Delta\delta &= -15.96 \\ \text{Corr Parallax} &= 0.25 & &+ 2.78 \\ & & &+ 0.00 \\ \text{C.M.T. } 10^h 29.6 \quad \Delta\alpha &= -60.41 & \Delta\delta &= -13.18 \end{aligned}$$

$$1.433 \times \text{Parallax Factor} = 0.724$$

$$\text{C.M.T. } 10^h 29.6$$

February 1st, 1875,

Transits				$\Delta\alpha$	Time	Micrometer Readings		
*	(109)					(109)	*	Diff
5 ^h 43 ^m 35.8	44 ^m 33.9			+ 58.1	5 ^h 59.7 ^m	48.729	53.244	+ 10.315
	52.3	50.44		58.1	6 5.5	42.974	.104	.130
	57.2	55.21		58.2	7.9	.897	.587	.690
44 10.5	45 8.8			58.3	11.0	.676	.265	.839
45 27.3	46 25.2			57.9	12.9	.636	.178	.542
44.1	41.9			57.8	18.6	.509	.067	.558
48.9	47.0			58.1	24.4	.511	.192	.681
46 1.8	47 0.4			58.6	27.2	.586	.317	.731
47 30.7	48 28.9			58.2	30.9	.395	.240	.845
47.8	45.8			58.0	33.7	.572	.224	.652
52.5	50.6			58.1				
48 5.7	49 4.0			58.3				
49 32.0	50 30.0			58.0				
49.0	46.7			57.7				
53.6	51.7			58.1				
50 6.9	51 4.8			57.9				
6 40 59.5	41 55.1			55.6				
41 16.3	42 12.0			55.7				
21.2	17.0			55.8				
34.6	30.2			55.6				
42 48.4	43 43.9			55.5				
43 5.3	44 1.4			56.1				
10.0	6.1			56.1				
23.6	19.4			55.8				
44 39.4	45 35.3			55.9				
56.3	52.2			55.9				
45 1.3	57.0			55.7				
14.7	46 11.3			55.6				
46 30.3	47 25.8			55.5				
47.1	42.8			55.7				
52.0	47.4			55.4				
47 5.4	48 1.0			55.6				
48 20.8	49 16.1			55.8				
37.7	33.0			55.8				
42.3	37.8			55.5				
55.6	51.4			+ 55.8				
6 ^h 20.7 ^m				+ 56.74				

5 ^h 59.7 ^m	48.729	53.244	+ 10.315
6 5.5	42.974	.104	.130
7.9	.897	.587	.690
11.0	.676	.265	.839
12.9	.636	.178	.542
18.6	.509	.067	.558
24.4	.511	.192	.681
27.2	.586	.317	.731
30.9	.395	.240	.845
33.7	.572	.224	.652
6 ^h 17.2 ^m			+ 10.373 = + 103.65

Readings increase north

$$\text{at } 6^h 17.2^m \quad \Delta\delta = + 1' 43.65''$$

comp. x $\sin + 21.2163$

$$\begin{aligned} \text{at } 6^h 20.7^m & \Delta\alpha = + 56.74 - 0.28 + 0.01 = + 56.47 \\ [6^h 17.2 & \Delta\delta = + 1' 43.65 + 2.93 + 2.23 = + 1' 46.61] \\ 6 \quad 20.1 & \Delta\delta = + 1' 47.01 \end{aligned}$$

$$1.033 \times \text{Parallax Factor} = 0.725$$

C. 7m. 7

$$9^h 32.6 \quad \Delta\alpha = + 56.47 \quad \Delta\delta = + 1' 47.01$$

February 2^d 1875

Transits				Ax.	Time	Micrometer readings		
(09) *						*	(109) on middle wire 49. ^R 953	
6 ^h 46 ^m	47 ^s 4	46 ^m 52 ^s	2.8	- 56.6	7 ^h 5 ^m	18.010	49.953	+ 31.943
	55.9	47	2.8	6.9	13	.640	49.953	.313
47	5.6		12.4	6.8	14	.550	49.953	.403
49	13.8	49	20.4	6.6	15	.217	49.953	.736
	21.9		29.1	7.2	16	.272	49.953	.681
	32.0		38.9	6.9				
50	37.5	50	44.7	7.2	7 ^h 12.6			+ 31.615 = + 309.92
	46.4		53.3	6.9				
	56.0	51	3.0	7.0				
51	18.3		25.5	7.2				
	27.1		34.2	7.1				
	36.7		43.7	7.0				
	55.2	52	2.2	7.0				
52	11.0		10.9	6.9				
	13.4		20.6	7.2				
	40.4		47.4	7.0				
	49.0		—	—				
	58.7	53	5.9	7.2				
53	34.6		41.8	7.2				
	43.2		50.3	7.1				
	52.9	54	0.1	7.2				
54	19.8		26.9	7.1				
	28.5		35.6	7.1				
	38.3		45.3	7.0				
55	3.3	55	10.5	7.2				
	11.8		19.1	7.3				
	21.7		28.9	7.2				
6 ^h 51 ^m				- 7.04				

Readings increase north

At 7^h 12.^m6 $\Delta\delta = + 5' 9.92$

Comp_r * = $\text{Dm} + 21^\circ.2163$.

Ref_r Parallax

At 6^h 51.9 $\Delta\alpha = 7.804 - 0.00 - 0.25 = -7.829$

[7^h 12.6 $\Delta\delta = + 5' 9.92 + 0.12 + 2.67 = + 5' 12.71$

6 51.9 $\Delta\delta = + 5' 8.71$

1.033 x Parallax Factor = 0.725

Readings increase North

At 7^h 12.6 $\Delta\delta = + 5' 9.92''$ Comp. * = $\text{Dm} + 21^\circ.2163$.

Refr. Parallax

$$\begin{aligned}
 \text{At } 6^h 51.9 \quad \Delta\alpha &= -7.04 - 0.00 - 0.25 = -7.29 \\
 [7^h 12.6 \quad \Delta\delta &= +5' 9.92 + 0.12 + 2.67 = +5' 12.71] \\
 6 \quad 51.9 \quad \Delta\delta &= \quad \quad \quad +5' 8.71
 \end{aligned}$$

1.033 x Parallax Factor = 0.725

C.M. 7. 10^h 0.24 $\Delta\alpha = -7.29$ $\Delta\delta = +5' 8.71$

Winnicki's Comet Feb. 8, 1875

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

Comet Ritchie

Ritchie's comet Feb 9, 1895

Comparison $\alpha = \text{Feb. 24.35}$

Transits				$\Delta\alpha$		δ		$\delta - T$		$\delta - *$		$\Delta\delta$	
*						*		*					
14 ^h 28 ^m 4.2		44.0		+ 39.8		14 ^h 28 ^m 8.4	30.9	+ 4.2	- 13.8	- 17.3		- 4'	20.27
29	2.2	42.2		40.0			6.3	4.1	13.4	- 17.5		4	23.28
30	1.8	41.2		39.4			5.4	3.6	12.4	16.0		4	0.72
31	12.0	52.8		40.8			15.6	3.6	13.7	17.3		4	20.27
32	17.4	57.7		40.3			21.3	3.9	11.3	15.2		3	48.68
33	12.3	52.4		40.1			15.4	3.1	12.1	15.2		3	48.68
34	2.5	41.4		41.9			6.6	4.1	13.6	17.7		4	26.29
34	67.1	40.7		41.6			2.6	3.5	12.4	15.9		3	59.22
36	2.3	43.4		41.1			5.4	3.1	12.0	15.1		3	47.17
37	22.2	64.4		42.2			25.8	3.6	11.6	15.2		3	48.67
38	23.4	67.1		43.7			28.2	4.8	11.9	16.7		4	11.25
39	22.8	66.5		43.7			27.2	4.4	12.9	17.3		4	20.27
40	21.2	62.3		41.1			24.4	3.2	11.2	14.4		3	36.65
41	18.4	61.4		43.0			22.2	3.8	12.2	16.0		4	0.72
42	21.9	65.3		43.4			25.5	3.6	13.5	17.1		4	17.26
43	22.5	65.4		42.9			26.0	3.5	13.0	16.5		4	8.24
44	26.2	70.4		44.2			29.3	+ 3.1	- 14.3	- 17.4		4	21.77

$+ 41.72$
 Cor. Parallax $- 0.28$
 $+ 41.45$
 corr. ref. $+ .07$
 41.52

$\cos \delta \times (- 4' \frac{0.53}{10.55})$
 Cor. Parallax $+ 4.91$
 $- 4' \frac{5.64}{5.64}$
 Cor. ref. $- 1.27$
 $- 4' \frac{6.91}{6.91}$
 $3' \frac{56.89}{56.89}$

Angle of inclined wire with Meridian = $44^\circ 53.5'$

1.033 X Parallax Factor = 4.760

G.M.T.
At 17^h 17.6
 $\Delta\alpha = + 41.845$
 $+ 41.52$
 $\Delta\delta = - 4' 5.64$
 $- 4' \frac{6.91}{6.91}$
 $- 3' 56.89$

corrected for refraction

Comet Reticle.

Kinnick's Comet Feb. 15, 1875

Transits		4x		8		8-7		8-*		Ad	
	*				*		*				
14 ^h	37 ^m 51.9	39 ^m 23.0	- 1 ^m 31.1	14 ^h	38 ^m 6.2	39 ^m 4.2	+ 14.3	- 18.8	+ 33.1	+ 8'	17.99
	39 45.0	41 15.7	30.7		39 58.3	40 58.0	13.3	19.7	33.0	8	16.49
	41 40.3	43 10.2	29.9		41 52.3	42 49.5	12.0	20.7	32.7	8	11.97
	43 31.6	45 0.7	29.1		43 42.2	44 38.4	10.6	22.3	32.9	8	14.98
	45 33.4	47 2.2	28.8		45 42.5	46 39.7	9.1	22.5	31.6	7	55.43
	55 44.6	57 11.8	27.2		55 55.0	56 49.7	10.4	22.1	32.5	8	8.96
	57 36.7	59 2.2	25.5		57 46.0	58 38.4	9.3	23.8	33.1	8	17.99
	59 22.6	60 48.0	25.4		59 31.7	60 24.4	9.1	23.6	32.7	8	11.97
15	1 5.5	2 30.3	24.8		1 14.4	2 6.8	8.9	23.5	32.4	8	7.46
	2 48.0	4 12.8	24.8		2 56.0	3 46.9	8.0	25.9	33.9	8	30.04
	6 33.3	7 56.4	23.1		6 42.0	7 32.9	8.7	23.5	32.2	8	4.45
	8 16.8	9 41.4	24.6		8 26.9	9 17.0	10.1	24.4	34.5	8	39.06
	9 58.7	11 21.7	23.0		9 57.7	10 57.0	9.0	24.7	33.7	8	27.02
	11 41.4	13 4.8	23.4		11 50.0	12 39.4	8.6	25.4	34.0	8	31.54
	13 49.3	15 11.4	22.1		13 57.2	14 48.4	7.9	26.0	33.9	8	30.04
	15 35.3	16 57.1	- 1 21.8		15 48.1	16 31.4	+ 7.8	- 25.7	+ 33.5	+ 8	24.01

53
 55)
 91
 64
 27
 91
 89

- 1^m 25.89
 Corr. Parallax - 0.28
 ref. - 0.15
 - 1 26.32

Comet. Lat. J.
 15^h 44.4

+ 7 57.45
 Cor'd x (+ 8' 18.09)
 + 4.89
 + 2.65
 + 8' 25.53
 8 4.89

1.033 x Parallax Factor = 0.762

C.M.J.
17^h 20^m 44

$\Delta\alpha = -1^m 26.32$

$\Delta\delta = +8' 25.53$

Comparison Star - Lat. 35940

Comet Reticle

Winckles' Comet Feb. 16th 1875

Transits				Δx	δ				$\delta - \gamma$	$\delta - x$	$\Delta \delta$
δ	α	δ	α		δ	α	δ	α			
15 ^h 16 ^m 35.3	16 ^m 39.4	-	4.1	15 ^h 16 ^m 52.4	16 ^m 58.6	+	17.1	+	19.2	+ 2.1	+ 31.59
17 19.8	17 23.7		3.9	17 37.9	17 43.0		18.1		19.3	+ 1.2	+ 18.06
18 20.2	18 24.6		4.4	18 32.1	18 37.9		11.9		13.3	+ 1.4	+ 21.07
	49.1		5.3	19 2.7	19 7.4		13.6		13.0	- 0.6	- 9.03
19 58.3	20 2.2		3.9	20 16.6	20 15.4		12.3		13.2	+ 0.9	+ 13.54
20 32.0	36.2		4.2	20 44.1	49.4		12.1		13.2	+ 1.1	+ 16.55
21 6.5	21 10.4		3.9	21 18.4	21 23.6		11.9		13.2	+ 1.3	+ 19.55
	36.0		3.8		49.0		13.0		12.8	+ 0.2	- 3.01
22 5.4	22 9.3		3.9	22 17.8	22 22.0		12.4		12.7	+ 0.3	+ 4.51
	38.5		2.8		50.6		12.1		13.1	+ 1.0	+ 15.04
23 19.3	23 21.4		2.1	23 32.1	23 34.9		12.8		13.5	+ 0.7	+ 10.53
	45.0		3.0		58.3		11.3		12.3	+ 1.0	+ 15.04
24 10.6	24 12.8		2.2	24 23.1	24 25.9		12.5		13.1	+ 0.6	+ 9.03
	39.1		3.1		51.4		12.3		12.7	+ 0.4	+ 6.02
25 10.7	25 12.7		2.0	25 23.6	25 25.9		12.9		13.0	+ 0.1	+ 1.50
	40.8		1.6		53.0		12.2		13.0	+ 0.8	+ 12.04
26 9.4	26 11.4		2.0	26 21.8	26 23.5		12.4		12.1	- 0.3	- 4.51
	40.0		1.3		51.5		11.5		12.3	+ 0.8	+ 12.04

- 3.19
 Cor. ref. 0.00
 Cor. index - 0.27
 - 3.46

15^h 22.1

$\times \cos \delta$ (+ 0' 9.87)
 Cor. ref. = 0.00
 Cor. Parallax + 4.96
 + 15.27
 14.85

1033 x Parallax Factor = 0.762

6. m. S.

17^h 34.1 $\Delta x = - 3.46$ $\Delta \delta = + 14.85$

Comparison star = Lac. 36162

Comet Reticule

February 18th 1875

	Transits				$\Delta\alpha$		δ		$\delta-T$	$\log-x$	$\Delta\delta$
	*	(log)					*	(log)	*	(log)	
6 ^h	12 ^m 12.5	12 ^m 36.4			+ 23.9	12 ^m 3.6	12 ^m 49.9	- 8.9	+ 13.5	+ 22.4	+ 5' 37.01
	13	44.1	14	7.9	23.8						
	15	32.8	15	56.0	23.2						
	17	15.2	17	38.2	23.0	17	6.4	17	52.3	8.8	14.1
	18	51.4	19	15.2	23.8	18	43.0	19	28.0	8.4	12.8
	21	57.9	22	20.7	22.8	21	49.1	22	34.1	8.8	13.4
	23	51	23	28.2	23.1						
	24	11.4	24	34.4	23.0						
	26	3.1	26	26.0	22.9						
	27	4.4	27	28.2	23.8						
	28	35.9	28	57.1	23.2						
	29	43.2	30	5.7	22.5						
	31	22.0	31	45.7	23.7						
	32	11.4	32	33.8	22.4						
	34	26.1	34	48.8	22.7	34	16.9	35	1.4	- 9.2	+ 12.6

6^h 24.1

+ 23.19

6^h 20^m 8

+ 5' 32.49

redu to 6^h 24.7

+ 0.13

[$\delta = 22^\circ 16'$]6^h 24.1^m $\Delta\alpha = +23.19$ $\Delta\delta = (+5' 32.49) \cos \delta$ refr 0.00
Parallax - 0.25+ 0.24
+ 2.68Clt. T.
8^h 29.7 $\Delta\alpha = +22.94$ $\Delta\delta = (+5' 35.57) \cos \delta$
 $\Delta\delta = +5' 7.81$

1.033 x Parallax factor = 0.705

Companion * = L.M. 22° 21' 44"

Comet Reticule

Encke's Comet, Feb. 26, 1875.

Transits		Δx		δ		$\delta - T$		$\delta - x$	
δ^h	m^m	s^s	x	δ^h	m^m	s^s	x	δ^h	m^m
6 ^h	12 ^m	37 ^s .6	12 ^m 144.3	-6.7	6 ^h	12 ^m 47 ^s .1	12 ^m 31.9	+9.5	-12.4
	13	8.2	13 15.6	7.4		13 17.0	13 4.1	8.8	11.5
	13	26.6	13 143.7	7.1		13 47.0	13 31.9	10.4	11.8
	17	58.3	18 57	7.4		18 7.2	17 57.2	8.9	14.5
	19	12.3	19 19.2	6.9		19 12.6	19 8.3	10.3	10.9
	19	44.3	19 51.2	6.9		19 50.2	19 39.4	10.9	14.8
	20	15.7	20 23.2	7.5		20 28.9	20 11.8	13.2	11.4
	20	47.6	20 52.4	6.8		20 59.2	20 44.1	11.6	10.3
	21	29.1	21 38.4	6.3		21 40.4	20 25.4	11.3	10.0
	22	2.2	22 9.0	6.8		22 13.4	21 59.6	11.2	9.4
	22	36.4	22 143.2	6.8		22 49.2	22 33.7	12.8	9.5
	23	8.2	23 14.2	6.0		23 20.2	23 5.2	12.0	9.0
	23	44.2	23 50.9	6.7		23 54.4	23 42.0	13.2	8.9
	27	17.2	27 24.1	6.9		27 30.2	27 13.3	13.0	10.8
	27	44.2	27 51.1	6.9		27 57.3	27 44.2	13.1	9.9
	28	16.7	28 23.3	-6.6		28 29.3	28 13.4	+12.6	-9.9

323.6
24819.7
1.3
6.86

Mean = +22.300

22.300 x 15 x 45.5

x Cos δ

= + 330.84

 $\delta^h 20.8 \quad \Delta x = -6.86 \quad \Delta \delta = +5' 30.84$

parallax +0.25 + 3.28

At $7^h 55.0$ Cent. M. $\delta^h 4x = -6.61 \quad \Delta \delta = +5' 34.12$

parallax factor = 0.56

Comparison $x = \delta^h + 90' 46$ Comp $x = W_2 III 655$

Comet Peltule.

1875, March 4th - Each's comet and (112)

Transits	$\Delta\alpha$	δ	$\delta - T$	$\delta - *$	$\Delta\delta$
$6^h 30^m 49.0$ $31^m 9.7$	- 20.8	$6^h 30^m 31.7$ $30^m 45.1$	- 17.8	- 24.6	+ 7.3
31 40.7 32 2.0	21.1	31 24.6 31 37.4	16.3	24.6	8.3
32 30.7 32 52.1	21.4	32 14.7 32 28.0	16.0	24.1	8.1
33 28.2 33 49.0	20.8	33 12.3 33 24.9	15.9	24.1	8.2
34 19.0 34 40.3	21.3	34 24.4 34 16.6	14.6	23.7	9.1
35 7.1 35 28.0	20.9	34 52.2 35 4.3	14.9	23.7	8.8
36 2.4 36 22.9	20.5	35 48.7 35 59.6	13.7	23.3	9.6
36 51.2 37 11.9	20.7	36 36.8 36 49.8	14.4	22.1	7.7
41 14.0 41 34.4	20.4	40 57.5 41 9.9	16.5	24.5	8.0
42 8.4 42 28.9	20.5	41 53.4 42 4.8	- 15.0	- 24.1	9.1
3541	8.3			84.2	
	20.83			+ 8.420	

$$\begin{aligned} \delta &= +11^\circ 9' \\ +8.420 \times 15 \tan 45^\circ 6.5' \\ &\times \cos \delta \\ &= +124.38 \end{aligned}$$

At $6^h 35.4$ $\Delta\alpha = -20.83$ $\Delta\delta = +2' 4.38''$

parallax + 0.26 + 3.46

At $7^h 46.0$ Camb. M. J. $\Delta\alpha = -20.57$ $\Delta\delta = +2' 7.84''$

parallax factor = 0.59

$1.053 \times \text{parallax factor} = 0.42$

*	(112)		*	(112)	*	(112)	(112) - *
$7^h 42^m 16.7$	42 44.6	+ 27.7^s	$7^h 41^m 58.8$	42 35.0	- 18.1	- 9.6	+ 8.5
43 20.5	43 48.3	27.8	43 2.6	43 39.0	- 17.9	- 9.3	8.6
44 16.9	44 45.0	28.1	43 58.9	44 34.9	- 18.0	- 10.1	7.9
45 18.2	46 17.2	29.0	45 30.4	46 7.2	- 17.8	- 10.0	7.8

$$\delta = 21^\circ 28'$$

$7^h 43.7$ + 28.15
parallax + 0.17

+ 8.2 + 2' 3.37
 $\times \cos \delta =$
+ 1' 54.81
parallax + 1.82

At $7^h 43.7$ $\Delta\alpha = +28.15$ $\Delta\delta = +1' 54.81''$

Magnitude = 12.

Comp. * = W₂ III 655

Comet Reticals.

March 8th 1875 Eucher Comet

Transits				$\Delta\alpha$	δ	$\delta-T$	$\delta-x$	
h^m	s^s	h^m	s^s		h^m	s^s		
6 ^h 43 ^m 32.1	43 ^m 49.3	+	17.2	6 ^h 43 ^m 16.7	44 ^m 0.3	-15.4	+11.0	+26.4
45 52.4	46 9.2		16.8	45 37.9	46 21.1	14.5	11.9	26.4
47 28.1	47 46.3		18.2	47 14.0	47 57.7	14.1	11.4	28.5
56 15.2	56 33.2		18.0	56 2.2	56 48.3	13.0	15.1	28.1
57 16.2	57 34.7		18.5	57 4.2	57 49.8	12.0	15.1	27.1
58 17.4	58 36.6		19.2	58 6.1	58 57.8	-11.3	+15.2	+26.5
308.7			107.9					
51.45			17.98					
							40.0	+26.667 x 15.94625
							+26667	x cos δ
								= +392.69

at 6^h 51.7^s $\Delta\alpha = +17.98$ $\Delta\delta = +6' 32.69$
 parallel + 0.27 + 3.57

at 7^h 46.6^m Camb. M. T. $\Delta\alpha = +18.25$ $\Delta\delta = +6' 36.26$

parallel factor = 0.61

Comparison * = W. O. 764

Comet Reticule, δ March 8th 1895

(112)

Comparison * = Δ M. + 21^o, 579

Transits				δ				$\delta - \gamma$				(112) - *			
(112)	*	(112)	*	(112)	*	(112)	*	(112)	*	(112)	*	(112) - *			
7 ^h 26 ^m 59 ^s	27 ^m 25 ^s	-	26 ^s .6	7 ^h 27 ^m 18 ^s .2	27 ^m 11 ^s .1	+	19 ^s .2	-	14 ^s .5	+	33 ^s .7				
27	43.0	28	9.1	28	2.2	27	54.4	19.2	14.7		33.9				
28	24.8	28	51.0	28	44.5	28	36.5	19.7	14.5		34.2				
29	42.1	30	7.9	30	1.2	29	53.3	19.1	14.6		33.7				
31	3.4	31	29.4	31	22.4	31	14.8	19.0	14.6		33.6				
31	40.8	32	7.3	32	0.7	31	52.7	19.9	14.6		34.5				
32	22.9	32	48.9	32	12.9	32	34.4	20.0	14.5		34.5				
58	18.2	58	42.8	58	38.7	58	28.4	20.5	14.4		34.9				
59	19.1	59	42.7	59	32.2	59	21.6	23.1	11.1		34.2				
8 0	5.8	0	29.8	8 0	20.0	0	8.6	14.2	21.2		35.4				
0	53.7	1	18.3	1	8.3	0	57.0	14.6	21.3		35.9				
6	8.1	6	32.4	6	22.4	6	12.0	14.3	20.4		34.7				
9	23.4	9	47.4	9	47.4	9	26.6	14.0	20.8		34.8				
20	34.4	20	57.1	-	22.7	20	59.4	20	38.6	+	26.0	-	18.6	+	34.5

Comparison * = $\delta_{\text{m.}} + 21^{\circ}$, 579 $\delta = 21^{\circ} 41'$

$$+ 34.464 \times 15 \times \cos \delta \times \tan 45^{\circ}$$

$$\text{mean} = 34.464 \quad = + 381.55$$

$$= 482.20$$

at 7^h 47^m.3 $\Delta \alpha = -25.07$ $\Delta \delta = + 8' 2.20$

Mag. = 12.2

Transits				δ				$\delta - \gamma$				(112) - *
(112)	*	(112)	*	(112)	*	(112)	*	(112)	*	(112)	*	(112) - *
5 ^h 5 ^m 25 ^s .4	6 ^m 8 ^s .1	+	32 ^s .7	5 ^h 5 ^m 12 ^s .0	6 ^m 22 ^s .4	-	13.4	+	14.3	+	27.7	
7	4.9	7	48.0	6	51.4	8	2.3	13.5	14.3		27.8	
8	37.7	9	23.4	8	26.9	9	37.9	12.8	14.5		27.3	
10	19.6	11	3.4	10	6.4	11	17.3	13.2	13.9		27.1	
12	0.5	12	44.6	11	47.4	12	58.3	13.1	13.7		26.8	
13	32.6	14	16.4	13	19.3	14	30.3	13.3	13.9		27.2	
15	4.0	15	47.8	14	51.2	16	1.9	12.8	14.1		26.9	
16	28.0	17	11.7	16	15.1	17	25.4	12.9	13.7		26.6	
17	52.3	18	36.2	17	39.2	18	50.6	13.1	14.4		27.5	
19	50.2	20	34.4	19	38.4	20	50.4	-	11.8	+	16.0	27.8

$$1.023 \times \text{parallax factor} = 0.38$$

$$\text{mean } 27.270$$

at 8^h 12^m.6 $\Delta \alpha = + 43.68$ $\Delta \delta = + 6' 21.55$

parallax

+ 0.16

+ 1.73

$$27.270 \times 15 \times \cos \delta \times \tan 45^{\circ} 6.5' = 381.55$$

Comet Nebula

March 25, 1875 (112)

Transits		$\Delta\alpha$	δ	$\delta-T$	(112) - *
(112)	*		(112)	*	
8 ^h 32 ^m 57 ^s	32 ^m 17 ^s 2	- 11 ^s 5	8 ^h 32 ^m 10 ^s 3	32 0.7	+ 4.6
32 32.1	32 45.4	13.3	32 39.2	32 29.2	7.1
33 28.2	33 41.7	13.5	33 36.4	33 25.1	8.2
36 17.6	36 31.0	13.4	36 24.9	36 14.4	7.3
38 27.2	38 40.3	13.1	38 35.3	38 24.6	8.1
39 3.0	39 15.6	12.6	39 10.5	38 59.2	7.5
39 40.9	39 54.2	13.3	39 49.0	39 38.0	8.1
40 15.8	40 29.2	13.4	40 25.0	40 13.0	9.2
41 8.0	41 21.0	13.0	41 17.7	41 4.4	9.7
42 25.1	42 38.2	13.1	42 33.2	42 22.1	8.1
43 1.0	43 14.2	13.2	43 9.2	42 57.9	8.2
45 5.4	45 18.0	12.6	45 10.5	44 59.2	5.1
46 47.4	47 0.4	13.0	46 57.9	46 44.4	10.5
48 44.4	48 56.2	11.8	48 52.0	48 40.1	7.6
49 19.0	49 31.0	12.0	49 27.0	49 14.4	8.0
49 49.5	50 1.4	11.9	49 56.9	49 46.4	7.4
50 28.6	50 41.6	13.0	50 37.2	50 25.7	8.6
51 35.2	51 47.4	12.2	51 43.0	51 31.8	7.8
52 1.5	52 13.4	11.9	52 9.2	51 57.6	7.7
52 35.2	52 47.0	11.8	52 42.7	52 31.6	7.5
53 6.8	53 18.5	11.7	53 14.4	53 2.9	7.6
53 37.1	53 48.8	11.7	53 45.2	53 33.2	8.1
54 25.6	54 38.6	13.0	54 34.1	54 22.2	8.5
54 52.4	55 3.9	11.9	55 0.3	54 48.2	7.9
55 18.0	55 30.4	12.4	55 26.8	55 14.4	8.8
55 50.0	56 2.4	12.4	55 58.2	55 46.2	8.2
9 1 44.0	1 54.9	10.9	1 53.5	1 39.4	9.5
2 34.4	2 45.8	11.4	2 38.2	2 26.4	3.8
3 29.1	3 40.4	11.3	3 40.4	3 27.4	11.3
4 1.9	4 14.1	12.2	4 11.4	3 57.4	9.5
4 32.4	4 43.1	10.7	4 41.0	4 26.4	8.6
5 21.4	5 32.3	10.9	5 28.6	5 15.9	7.2
6 49.7	7 1.0	11.3	6 59.1	6 44.6	9.4

 $\delta = 22^\circ 57' \frac{1}{2}$ $\Delta\delta$ $24.448 \times 15 \times \cos\delta$ $\times \tan 45^\circ 6.5'$
 $= 335.04$

10734 parallax factor = 0.35 parallax = 0.15

+ 1".62

8^h 49^m 7^s $\Delta\alpha = 12^\circ 28'$ $\Delta\delta = + 6' 35.04''$ Mag. 13 $\frac{1}{2}$

Comet periodic (angle 45° east)

May 2, 1875

(62)

Transits		$\Delta\alpha$	δ		$\delta - T'$	(62) - x
(62)	*		(62)	*		
12 ^h 36 ^m 45.8	37 ^m 7.1	- 21.3	12 ^h 37 ^m 3.6	37 ^m 11.9	+ 17.8	+ 13.0
40 47.8	41 9.5	21.7	41 6.2	41 13.9	18.4	13.7
41 58.4	42 20.3	21.9	42 17.0	42 24.3	18.6	14.6
43 48.1	44 6.7	21.6	44 3.0	44 11.1	17.9	13.5
44 40.3	45 2.8	22.5	44 59.1	45 6.9	18.8	14.7
45 37.4	46 0.0	22.6	45 55.0	46 4.1	17.7	13.6
46 19.0	46 44.0	22.0	46 36.9	46 48.5	17.9	13.4
47 1.3	47 23.1	21.8	47 19.2	47 27.5	17.9	13.5
48 15.5	48 37.5	22.0	48 33.1	48 41.3	17.6	13.8
49 6.2	49 28.3	22.1	49 23.9	49 32.3	17.7	13.7
51.5	50 13.7	22.2	50 9.4	50 18.0	17.9	13.6
50 51.0	51 13.1	- 22.1	51 8.4	51 17.4	* 17.4	13.1

$$\text{mean } 13.502 \times 16 \cos \delta = 193.17$$

12^h 45.5

$$\Delta\alpha = -21.98$$

$$\text{parallax} - 0.13$$

$$\text{refraction} - 0.02$$

$$-22.13$$

$$\Delta\delta = +3' 13.17 \times 16 \cos \delta$$

$$\text{parallax} + 2.82$$

$$\text{refraction} + 0.50$$

$$16.49$$

Cant. Me^m10^h 23.1

$$\Delta\alpha = -22.13 \quad \Delta\delta = +3' 16.49$$

Mag. 12 $\frac{1}{2}$

Comparison * = Argem 15146

$$\text{Parallax factor} \times 1.033 = 0.394$$

Lunar Reticule

May 23, 1875

Camp x = Polaris 14844

Camp x = Polaris 44865

Lunar					J				
* (62)					* (62)				
AL-X					AL-X				
14 ^h	14 ^h	54 ^m 14.6	54 ^m 36.3	+ 21.7	14 ^h	54 ^m 38.2	54 ^m 13.9	+ 5.7	- 16.0
	55	35.2	55 56.6	21.4		55 58.1	56 44.4	6.3	
	56	48.0	57 9.2	21.2		57 11.2	57 16.2	5.0	
	58	4.0	58 25.4	21.4		58 26.4	58 33.0	6.6	
	59	26.5	59 48.0	21.5		59 49.1	59 55.9	6.8	
15	0	52.2	1 13.8	21.6	1	15.0	1 20.6	5.6	
	3	40.4	4 1.9	21.5	5	5.1	5 11.4	6.3	
	8	21.8	8 42.5	20.7	8	46.3	8 53.1	6.8	
	9	36.5	9 57.5	21.0	10	1.1	10 7.9	6.8	
	10	51.3	11 12.4	21.1	11	17.0	11 22.4	5.4	
	12	4.6	12 25.4	20.8	12	29.2	12 36.0	6.8	
	13	21.4	13 42.4	21.0	13	46.1	13 52.8	6.7	
	14	38.9	15 0.0	21.1	15	3.6	15 10.3	6.7	
	15	58.6	16 19.4	+ 20.8	16	23.4	16 30.1	+ 6.7	
At	15 ^h	5.8		+ 21.20				+ 6.3	- 14.90
				parallax - 0.02					
				refraction + 0.00					
11 ^h 0.2	14 ^h 56.3			$\Delta x = + 21.18$					

$$\Delta \delta = - 3' 31.55''$$

$$\delta = - 16^{\circ} 35'$$

$$(\Delta \delta - \Delta x) \times 15 \cos \delta$$

$$- 214.20$$

$$\text{parallax} + 2.87$$

$$\text{refraction} - 0.22$$

$$- 211.55$$

* (62)					* (62)				
14 ^h	54 ^m 36.3	55 ^m 15.3	- 39.0		14 ^h	54 ^m 13.9	54 ^m 57.2	- 13.3	+ 25.7
	55 56.6	56 36.0	39.4			56 44.4	56 17.7	13.3	
	57 9.2	57 48.4	39.2			57 16.2	57 30.2	14.0	
	58 25.4	59 4.9	39.5			58 33.0	58 46.6	13.6	
	59 48.0	60 27.3	39.3			59 55.9	60 9.2	13.3	
15	1 13.8	1 52.9	39.1		1	20.6	1 35.1	14.5	
	4 1.9	4 41.4	39.5		5	11.4	5 25.2	13.8	
	8 42.5	9 22.7	39.2		8	53.1	9 6.8	13.7	
	9 57.5	10 37.1	39.6		10	7.9	10 21.3	13.4	
	11 12.4	11 52.1	39.7		11	22.4	11 36.3	13.9	
	12 25.4	13 5.2	39.8		12	36.0	12 49.4	13.4	
	13 42.4	14 22.1	39.7		13	52.8	14 6.4	13.6	
	15 0.0	15 39.6	39.6		15	10.3	15 23.8	13.5	
	16 19.4	16 59.3	- 39.9		16	30.1	16 43.6	13.5	
At	15 ^h 5.8		- 39.54					- 13.63	+ 25.91

$$\text{parallax} - 0.02$$

$$\text{refraction} - 0.00$$

$$11^h 0.2 \quad 14^h 56.3 \quad \Delta x = - 39.56$$

$$\Delta \delta = + 6' 15.57''$$

$$\delta = - 16^{\circ} 40'$$

$$(\Delta \delta - \Delta x) \times 15 \cos \delta$$

$$+ 372.32$$

$$\text{parallax} + 2.87$$

$$\text{refraction} + 0.38$$

$$+ 375.57$$

May 23, 1875

10533 + parallax factor = 0.394

Lunar Reticule

May 26, 1875

Transits				$\Delta\alpha$	δ				$\Delta\delta$	$\Delta\delta - \Delta\alpha$
(62)	*				(62)	*				
14 ^h 42 ^m 24.8	42 ^m 27.0			-2.2	14 ^h 42 ^m 7.9	42 ^m 16.9			-9.0	
43 3.1	43 5.7			2.6	46.4	55.4			9.0	
	36.2	39.0		2.8	43 20.0	43 28.9			8.9	
44 10.6	44 13.3			2.7	54.0	3.3			9.3	
	44.2	46.6		2.4	44 27.3	44 36.7			9.4	
45 24.5	45 27.1			2.6	45 7.9	45 16.9			9.0	
46 1.5	46 4.3			2.8	45.0	54.1			9.1	
	39.2	42.2		3.0	46 22.4	46 31.8			9.4	
47 22.1	47 24.7			2.6	47 5.4	47 14.5			9.1	
48 1.5	48 4.5			3.0	45.3	54.4			9.1	
	42.2	45.2		3.0	48 25.6	48 35.3			9.7	
49 51.6	49 54.5			2.9	49 35.3	49 44.4			9.1	
50 34.9	50 37.5			2.6	50 18.3	50 27.9			9.6	
51 12.6	51 15.8			3.2	55.3	51 5.7			9.4	
	47.8	50.7		2.9	51 31.5	41.2			9.7	
52 22.4	52 25.2			2.8	52 6.1	52 15.2			9.1	
53 58.3	54 1.2			2.9	53 41.9	53 51.3			9.4	
54 40.2	54 43.1			2.9	54 23.3	54 33.0			9.7	
55 17.0	55 19.9			2.9	55 9.8	55 10.1			9.3	
	52.0	55.0		3.0	35.8	45.0			9.2	
56 27.0	56 29.9			2.9	56 10.0	56 19.6			9.6	
57 17.6	57 20.6			3.0	57 1.0	57 10.6			9.6	
58 5.2	58 11.0			2.8	51.9	58 1.4			9.5	
	47.3	50.3		3.0	58 30.5	40.4			9.9	
59 23.0	59 26.0			3.0	59 6.5	59 16.0			9.5	
15 0 11.5	0 14.4			2.9	55.2	60 4.5			9.3	
at 14 ^h 51 ^m 0				-2.83					-9.42	-6.59
				parallax -0.03						
				refr 0.00						

Count. M. J.

10^h 33.9 $\Delta\alpha = -2.86$ $\Delta\delta = -1' 31.88$

-94 - 94.79

parallax + fr 2.91

refraction = 0.00

91.88

10.33 x Parallax factor = 0.394

Magnitude 13
(a good estimate) $\delta = -16^{\circ} 29'$ $(\Delta\delta - \Delta\alpha) \times \cos \delta \times 15$

Comet Retinale

June 2, 1875

Comp. $\alpha =$ Bellgen 14/12

Staurits					$\Delta\alpha$	δ					$\Delta\delta$	$\Delta\delta - \Delta\alpha$
$\times$		(62)				$\times$		(62)		$\mu - \times$		
15 ^h	1 ^m	57.4	3 ^m	1.2	+ 63.8	15 ^h	1 ^m	48.7	3 ^m	11.5	+ 82.8	
3	39.7	4	43.7		64.0	3	31.0	4	53.7		82.7	
5	18.6	6	22.2		63.6	5	9.5	6	32.5		83.0	
7	12.6	8	16.3		63.7	7	3.6	8	26.3		82.7	
8	54.1	9	57.8		63.7	8	45.1	10	8.3		83.2	
23	7.6	24	10.8		63.2	22	59.0	24	21.4		82.4	
24	45.7	25	48.8		63.1	24	37.0	25	59.9		82.9	
26	26.1	27	29.2		62.1	26	17.2	27	40.0		82.8	
28	9.2	29	12.0		62.8	28	0.2	29	22.4		82.2	
30	57.3	32	0.2		62.9	30	48.7	32	11.3		82.6	
32	47.1	33	50.0		62.9	32	38.4	34	0.4		82.0	
34	39.7	35	42.3		62.6	34	31.2	35	53.3		82.1	
36	18.7	37	21.3		62.6	36	10.2	37	32.7		82.5	
37	57.3	38	59.8		62.5	37	48.4	39	10.9		82.5	
40	1.7	41	4.3		62.6	39	53.0	41	14.9		81.9	
											+ 82.55	+ 19.41
At	15 ^h	23.2			+ 63.14							

1033 + Parallax factor = 0.391

$$\delta = -16^{\circ} 16'$$

$$(\Delta\delta - \delta\alpha) 15 \cos \delta = +279''.50$$

At 15 ^h 23.2	$\Delta\alpha =$	+ 63.14	$\Delta\delta =$	+ 4' 39''.50
	Parallax	- 0.01	+	2.52
	Refraction	+ 0.00	+	0.24

Paul. M. S.
10^h 38.5

$$\Delta\alpha = +63.13$$

$$\Delta\delta = + 4' 42''.56$$

Magnitude 12 $\frac{3}{4}$

Observation of Double Stars

No	α 1870	δ 1870	Date	Obs.	Mag.	Pos.	Dist.	Remarks
2	$0^h 3.6$	$+4^\circ 16'$	1868 Nov. 17	P	9.0 9.6	185°	$15''$	Dist $4^\circ, 9$
53	1	$10.5 +120$	1868 Dec. 2	A	8 10	Sf	20	
54	1	$10.7 +11$	1868 Dec. 2	A	8 $10\frac{1}{2}$	S	25	
71	2	$19.9 -15 53$	1869 Dec. 17	P	7 9	μ	10	
72	2	$40.2 -28 28$	1870 Jan. 9	P				
*	$3^h 20^m$	$-16 53$						
*	3	$30 -16 53$						
80	3	$55 -16 10$	1867 Jan. 28	W.	9 10	139	9.2	
81	3	$55.4 -15 58$	1870 Jan. 9	A.				
82	4	$1 -16 10$	1867 Jan. 28	W.	9 9	80.8	18.5	
*	4	$30.8 -1 12$						
86	5	$8.2 [-7 10]$	1869 Jan. 25	Wc.	$8? 10?$	n.p.	4.3	
*	5	$28.9 -1 0$						
*	5	$29.5 -1 0$						
*	5	$29.6 -1 4$						
96	5	$34.3 -20 31$	1868 Jan. 15	S'	$7\frac{1}{2} 8\frac{1}{2}$	115	8	(Estimated)
97	5	$34.3 -20 31$	1870 Jan. 21	P				
$\Sigma 840^*$	5	$59.2 +10 48$						
163	10	$0.6 -24 4$	1868 Mar. 5	S.M.S.	$7.8 7.8$	96.0	1.7	near
167	10	$34.5 -12 17$	1869 Apr. 22	C.S.P.	9 11	sp	3	Probably = no 168
168	10	$34.5 -12 26$	1868 Mar. 24	C.S.P.		255	4.4	W x 598 near.
169	10	$36.8 -12 41$	1868 Mar. 24	C.S.P.	10 10	μ & f	5	
182	15	$11 -7 46$	1868 Jan. 21	J.W.	9 11	n or s	5	
184	15	$13 -7 41$	1868 Jan. 21	C.S.P.	9 9	μ & f	10	
186	15	$33.4 -19 25$	1868 July 4	C.S.P.		n & s		
187	15	$34.4 -19 18$	1868 July 4	C.S.P.	8 8	65	2.1	

99* $5^h 58.2 + 10^\circ 45'$ 1868 Feb. 10 P. $8\frac{1}{2}$ 9 123.4 19 Lat 11864-5

Observations of Double Stars

Obs.	Date	Magn.	Pos.	Dist.	Remarks.
R. W. W.	1874 Dec. 11	9 10	193.0	21.4	
R. W. W.	Dec. 15	8 10	98.6	39.3	
R. W. W.	Dec. 15	8 10½	177.0	46.5	
R. W. W.	Dec. 12	7¼ 9¼	296.9	13.2	
R. W. W.	1875 Jan. 15	9 10	97.6	21.9	Several double within a minute or two of R.A. - This may be the wrong one
R. W. W.	Jan. 16	10½ 11	246.8	13.6	Meant to observe No. 77
R. W. W.	Jan. 16	9½ 9½	68.4	6.8	
R. W. W.	Jan. 23	9¼ 10¼	127.6	8.2	The difference seems large potentially as 82 a good well with 2 min
R. W. W.	Jan. 23	8½ 10½	184.5	24.3	very uncertain measure
R. W. W.	Jan. 14	9 9	81.2	18.5	Jan. 17 Magn. Est. 9 & 10 Pos. about 270°
R. W. W.	Jan. 25	9¼ 10	244.2	27.3	
R. W. W.	Jan. 17	9 10	257.9	5.7	1875.0 $\alpha = 5^h 8^m 3^s$ $\delta = -9^{\circ} 3'$, no double at $-7^{\circ} 10'$
R. W. W.	Jan. 22	9 10½	352.8	24.0	
R. W. W.	Jan. 22	10 10½	43.1	18.0	
R. W. W.	Jan. 22	8½ 9	303.2	16.3	
R. W. W.	Jan. 14	7½ 8½	123.8	11.7	
R. W. W.	Jan. 14	7½ 10½	82.8	31.0	Approximate
R. W. W.	Jan. 16	8 9¼	248.0	22.0	Meant to measure 99* $\alpha 1875 = 5^h 57^m 2^s$, $\delta +10^{\circ} 48'$
R. W. W.	Apr. 23	8 8	94.4	2.4	
R. W. W.	Apr. 26				No Star in place of 167 relatively to 168; therefore 167 = 168
R. W. W.	Apr. 27	9 11½	258.5	4.0	
R. W. W.	Apr. 27	10½ 11½	108.9	17.4	Measure rough, ** faint $\alpha 1870 = 10^h 36^m 9^s$ $\delta 1870 = -12^{\circ} 41'$
R. W. W.	June 4	9 10½	11.0	6.1	
R. W. W.	June 4				Can not be found after thorough search
R. W. W.	June 14				Examined with various powers up to 6 which it barely showed - could detect no sign of duplicity; could certainly have seen components if distances over 0.5
R. W. W.	June 14	8 8	22.6	2.0	An Error in reducing pos. readings of July 4, 1868

In most cases but few observations were made of Pos. and Dist. the object not being to make careful micrometer measures so much as to revise the list in hand

* Σ 840 This is the same star called No 99 on the list and is Sal. 4564-5 but an error of 1^m was made in reducing it to 1870 Something seems to be wrong with P's measure; as my measure (coming from only two settings) agrees well enough with Struve

	Pos.	Dist.
Σ .	247.20	21.145
P.	123.4	19.
W.	248.0	22.0

Star	No. obs	Place of Comp * 1875.0							mag.	redn to time of obs	
W.	1	2 ^h	55 ^m	50.71	+21°	29'	39"		8	+0.504	+6.35
W.	1	3	31	55.34	+21	26	8.9		7.8	-0.83	+7.42
									9.0		
W.	1	3	37	39.39	+21	38	21.1		9	-0.36	+7.45
Bonn.	1	4	5	38.72	+22	46	0.5		8.9	-0.44	+7.83
Ac.	2	18	22	55.09	-16	16	15.9		8	-1.27	-9.64
Ac.	2	18	22	23.53	-16	10	21.6		8.9	-1.27	-9.65
Ac.	2	18	28	8.46	-16	13	59.6		7.8	-1.26	-9.79
Ac.	2	19	4	58.03	-16	38	2.2		8	-1.22	-10.48
Lal.	1	19	9	29.47	-16	29	44.5		8½	-1.20	-10.59
									9.5		
									9.4		
									9.4		
									9.5		
									9.5		
W.	1	0	35	38.91	+11	15	34.9		8.9	-1.29	-5.69
W.	2	0	45	1.88	+12	6	20.1		8	-1.31	-5.05
Ac.	1	15	55	24.77	-17	30	36.6		8.9	+1.65	-11.99
Ac.	2	15	38	45.31	-16	33	21.8		8	+1.92	-12.63
Ac.	2	15	39	46.07	-16	43	2.0		7.8	+1.92	-12.62
Ac.	1	15	36	51.92	-16	28	15.0		7.8	+1.94	-12.68
Ac.	1	15	30	35.98	-16	19	1.2		8.9	+2.03	-12.81

Date	Cont. M. T.	Apert.	Comp. x	$\Delta\alpha$ H ₁ - x	$\Delta\delta$ ob ₁ - x	no comp.
1874 Nov. 7	9 ^h 59.8	(112)	N_2 II, 1308	-22.97	+0' 43.16	9 Red plate
1875 March 4	8 54.3		N_2 III, 655	+28.32	+1 56.63	4 Comet Nucleus
	8 42.0		Dr. 21° 519	-24.90	+8 41.02	14 " "
	8 7.2		N_2 III, 813	+43.84	+6 23.28	10 " "
	25 8 37.4		Dr. 22° 650 B	-12.13	+6 36.66	33 " "
1875 Feb. 8	17 ^h 12.7	III, 189	Ac. 18304	+10.58	+2 16.02	22 " "
	8 39.5		Ac 18290	+49.00	-3 44.99	8 " "
	9 17 17.6		Ac 18426	+41.52	-3 56.89	17 " "
	15 17 20.4		Ac 19234	-86.32	+8 4.89	16 " "
	16 17 34.1		Lac. 36162	-3.46	+0 14.85	18 " "
1875 Jan. 27	10 29.6	(109)	Dr. 21° 2179	-60.41	-0 13.18	235, 10. Filar Min
Feb. 1	9 32.6		Dr. 21, 2163	+56.47	+1 47.01	" 36, " 10. " "
	2 10 0.4		Dr. 21, 2163	-7.29	+5 8.71	" 26, " 5 " "
	18 8 29.7		Dr. 22, 2144	+22.94	+5 7.81	" 15, " 5 Comet Nucleus
1875 Feb. 26	7 55.0	Euck's	Dr. 9° 46	-6.61	+5 34.12	16 Comet nucleus
March 4	7 46.0		N_2 C ^h 596	-20.57	+2 7.84	10 " "
	8 7 46.6		N_2 C ^h 764	+18.25	+6 36.26	6 " "
1875 May 2	10 3.1	(62)	Ac. 15746	-22.13	+3 16.49	12 " "
	23 11 0.2		Ac. 14844	+21.18	-3 31.55	14 " "
	23 11 0.2		Ac. 14865	-39.56	+6 15.57	14 " "
	26 10 33.9		Ac. 14815	-2.86	-1 31.88	26 " "
June 2	10 38.5		Ac. 14712	+63.13	+4 42.56	15 " "

Observations of Comets & Asteroids

Concluded Places.

57

Year	Date	Comet No. I.	α	δ	Star of comparison	No. of Comp.
(112)						
1874	Nov. 7	9 ^h 59. ^m 8	2 ^h 55. ^m 27. ^s 48	+21° 30'	29. ^s 41 W ii, 1308	9 Ruled plate
1875	Mar. 4	8 54.3	3 32 23.33	+21 28	12.95 W iii, 655	4 Comet Reticle
	Mar. 8	8 42.0			Dist. 21°, 519	124 " "
	Mar. 8	9 7.2	3 38 22.87	+21 44	51.83 W iii, 813	10 " "
	Mar. 25	8 37.4	4 5 26.15	+22 52	44.99 Dist. 22°, 650.5	33 " "

III, 1819

1875	Feb. 8	17 ^h 12. ^m 1	18 ^h 23 ^m	4. ^s 40 -16° 14'	9. ^s 52 Beltgen 18304	22 Comet Reticle
	Feb. 8	17 39.5	18 23	11.26 -16 14	16.24 " 18290	8 " "
	Feb. 9	17 17.6	18 28	48.72 -16 18	6.28 " 18426	17 " "
	Feb. 15	17 20.4	19 3	30.49 -16 30	7.79 " 19234	16 " "
	Feb. 16	17 34.1	19 9	24.79 -16 29	40.24 Lalande 36162	18 " "

(109)

1875	Jan. 27	10 29.6			Dist. 21°, 2179	2 35, 5 10 Filas Mir.
	Feb. 1	9 32.6			" 21°, 2163	36, 10 " "
	Feb. 2	10 0.4			" 21°, 2163	26, 5 " "
	Feb. 18	8 29.7			" 22°, 2144	15, 5 Comet Reticle

Encke's Comet

1875	Feb. 26	7 55.0			Dist. 9°, 46	16 Comet Reticle
	Mar. 4	7 46.0	0 35	17.05 +11 17	37.05 W, 0 ^h 596	10 " "
	Mar. 8	7 46.6	0 45	18.82 +12 12	51.31 W, 0 ^h 764	6 " "

(62)

1875	May 2	10 3.1	15 ^h 55 ^m	4. ^s 29 -17° 27'	32. ^s 10 Beltgen, 15146	12 Comet Reticle
	May 23	11 0.2	15 39	8.41 -16 37	5.98 " 14844	14 " "
	May 23	11 0.2	15 39	8.43 -16 36	59.05 " 14865	14 " "
	May 26	10 33.9	15 36	51.00 -16 29	59.56 " 14815	26 " "
	June 2	10 38.5	15 31	41.14 -16 14	31.45 " 14712	15 " "

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