

KG
11365
198

H.44

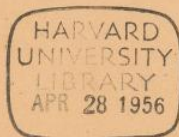
Equatorial
1861 Sept. 16th to
1861 Dec 30th

Sold by T. Groom & Co., Stationers, India Building, 82 State St., Boston.

KG 11365.198



KG 11365, 198



1861 Sept. 16

H₂ Angle at 171° 0'

Chro. 236

Star 137.418

Comet South preceding

Comet	20	11	52.8	58.0
Star		13	36.2	41.2

Comet	20	14	30.3	36.2
Star		16	13.6	19.3

Comet	20	17	12.6	17.3
Star		18	55.7	60.4

Comet	20	22	16.	37.85	18.43
		24	0	19.37	37

Comet	20	25	42	30.88	16.71
		27	19	12.17	37

Comet	20	29	34	20.69	18.58
		31	44	2.11	37

Comet	20	34	34.4	29.3
		36	16.6	21.8

Comet	20	37	28.4	33.4
Star		39	10.3	15.6

Comet	20	40	4.2	9.3
Star		41	46.2	51.5

Comet	20	45	35	6.87	19.36
		47	10	26.23	39

Comet	20	50	21	9.935	19.255
Star		52	10	29.19	385

Comet	20	53	41	15.24	19.62
Star		55	17	34.86	39

1961 Sept. 16

Comet 20 49 53.3 42.0
 Star 21 0 36.2 42.3

Comet 1 47.8 56.3
 Star 3 28.4 36.2

Comet Too hazy to observe this last time
 Star

Here observed near equator at Hot. Ang. $\delta^h 26^m W.$ $261^{\circ} 3'$

Choo. $H - x$ $N.M. in \alpha_{30}(77.1) = +3^h 21^m$ in $\delta_{30}^h 3' 29'' - 8''.7$
 $+ 0.0535 - 0.145$

20 11 55	-1 42.30	+1.269	-1 42.01		
14 33	1 43.20	1.13	42.07		
17 15	1 43.10	1.00	42.10		
22 16		-3' 1''.1	-2''.0	-3 3.1	2.8
25 42		3 3.4	1.5	4.9	1.0
29 34		3 2.1	0.9	3.0	2.9
34 37	1 42.35	+0.07	42.28		
37 31	1 42.05	-0.08	42.13		
40 7	1 42.10	0.72	42.32		
45 35		3 9.7	+1.4	8.3	2.4
50 21		3 8.7	2.1	6.6	0.7
53 41		-3 12.3	2.6	9.7	3.8
58 58	1 40.60	-1.23	41.83		
21 1 52	-1 40.25	-1.38	41.63		
			-1 42.05 ± 0.053	-3' 4.9 ± 0.77	
			$\alpha_{30} - 0.1$	$\delta_{30} - 1.85$	
			± 0.150		

Reduce to 20 36 0

20 14 34	-1 42.20	+1.14	1 42.06	
25 51	-	-3' 2''.2 - 1''.5	-3 2.7	
37 25	42.17	-0.07	42.24	
49 52		-3 10.2 + 2.0	8.2	
21 0 25	40.43	-1.31	41.74	
			42.05	

Comet 1861 II

1861 Sept. 16

BB 418

$$\begin{array}{r}
 15^h 54^m 22.70 \\
 - 54.05 \\
 + 0.06 \\
 \hline
 15^h 54^m 22.70 \\
 + 42^s 30' 17.4 \\
 + 11.9 \\
 + 0.5 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \alpha^o 15 54 5.2 \\
 \delta + 42 27.25 \\
 \hline
 \end{array}$$

1825.0

$$\begin{array}{r}
 15 53 28.71 \\
 + 1 12.98 \\
 \hline
 15 54 41.69
 \end{array}$$

$$\begin{array}{r}
 42^s 30' 29.8 \\
 - 6 17.0 \\
 \hline
 42^s 24' 12.8
 \end{array}$$

Phobos

1861.0

$$\begin{array}{r}
 15 54 41.69 + 0.04 \\
 + 1.49 \\
 - 1 42.05 \\
 \hline
 15 54 41.69 + 0.04 + 42^s 24' 12.8 + 0.8 \\
 + 4.6 \\
 - 3 6.0 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 42^s 30' 29.8 \\
 42^s 24' 12.8 \\
 2.85853 \\
 42^s 24' 12.8 \\
 \hline
 42^s 24' 12.8
 \end{array}$$

Prel. to app.
Comet - Star

for Parallax

$$\begin{array}{r}
 15^h 53^m 1.17 \\
 + 0.571 \\
 \hline
 15^h 53^m 1.17 \\
 + 42^s 21' 12.2 \\
 + 2.93 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 15 54 68.2 \\
 - 37.56 \\
 + 110.54 \\
 \hline
 \end{array}$$

Choc. 20 36 0

for 35

20 35 25

Sid Time

11 42 26

8 52 59

1 27

8 51 32

Cambridge mt.

- 23.7

- 16.1

8 11.7

6 12.6

0.92

C.

15

53

2.7

1.4

14

14

14

14

14

14

14

14

14

14

14

14

14

14

14

14

14

14

14

14

14

14

14

14

14

Rising finished 22 8" Choc. Time

$$\begin{array}{r}
 G 354^s 61' \\
 \alpha 238 40 \\
 \delta 96 28 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 42^s 30' 29.8 \\
 42^s 24' 12.8 \\
 1.3265 \\
 42^s 24' 12.8 \\
 \hline
 42^s 24' 12.8
 \end{array}$$

$$\begin{array}{r}
 42^s 30' 29.8 \\
 42^s 24' 12.8 \\
 1.3265 \\
 42^s 24' 12.8 \\
 \hline
 42^s 24' 12.8
 \end{array}$$

$$\begin{array}{r}
 42^s 30' 29.8 \\
 42^s 24' 12.8 \\
 1.3265 \\
 42^s 24' 12.8 \\
 \hline
 42^s 24' 12.8
 \end{array}$$

Chart Sept. II.

Sept. 18
1861

Comet very faint		Chro. 236.	14.4	+3.25	-5.1	Reduction
Comet	19 34 27.7	33.7		-59.60		+0.41 -59.19
Star	35 27.5	33.1				
Moon changed						
Comet	19 36 25.9	31.4		-60.05		+0.31 -59.74
Star	37 26.3	31.1				
Comet	19 38 8.2	lost		-59.20		+0.22 -58.98
Star	39 7.4					
Comet	19 39 49.9	56.2		-59.40		+0.13 -59.27
Star	40 49.4	55.4				
Comet	19 41 30.2	36.0		-59.25		+0.03 -59.22
Star	42 29.3	35.4				
Comet (north)	19 44 46	18.625		+1' 13" 35	+0.35	+1 13.7
Star	45 55	11.140				
Comet	19 47 35	13.152		+1 13.16	+0.73	+1 13.9
Star	48 39	5.687				
Comet	~~50 21~~					
Star	~~51 16~~					
	54 21	19.595		+1 9.30	+1.65	+1 11.4
	55 27	12.473				

Clouded up.

Reduce to Chro
19 42 10.

Mean.

Comet - $\Delta\alpha$ $\Delta\delta$
-0.59.29 +1' 13.0
 ± 0.064 ± 0.55

Pro. comet comp. $\pm 0.189 \pm 0.94$

Refr. and temp: very slight.

Amed 1861 II.

1861 Sept. 18.

Star for Const. = Struve 1772

Struve
p. 205. 1861
Corrections
$$\begin{array}{r} 15^h 55^m 40.58 \\ - 0.05 \\ + 50.72 \end{array}$$

$$\begin{array}{r} + 12^s 17' 41.3 \\ 0.0 \\ - 4 18.0 \end{array}$$

1.1

1.1

1461.0

15 55 31.25

0.00 + 12 13 23.3 - 0.1

Reduced to app.

+ 1.46

+ 4.6

Const-Star

- 0 59.28

+ 1 13.0

Const. for R. Sta.
for Per.

15 55 33.43

+ 12 14 40.8

+ 0.476

+ 1.91

Lat.

15 55 41.9

42 11 14.8

$$\begin{array}{r} \text{Obs. } 19 \ 42 \ 16 \\ \text{pass. } 38 \end{array}$$

19 41 33

Lideral Line

11 58 20

7 51 13

1 17

7 49 56

- 12.7

- 16.4

7 9.8

Cambridge M.T

Binnion
Observed

15 55 34.3

+ 12 14 37

55 33.7

14 42

+ 0.6

- 5

Q° 15 56 5.9

D° 42 15.53

t₉₀ 9.95838sin a° 9.93318_n

1.52407

2.70016

Qa° 9.71153_n1.41563_n

76.764

26.039

C' 354 9

C 239 8

N 94 20

t₉₀ 9.958 + 48.66

sin a° 9.904 - 9° - 15.50

1.328 40 - 11.32

9.777_n + 21.84

sid 0.130 g' - 12.74

sin b° 9.650_n N + 11.29

L 1.273 1' + 6.02

a(N+g) 9.952

sid 9.827

Met 1561 II

1861 Sept 19.

Angles of Position and Diff. AR.

Chr.

I.	21	9	44	79.9	Left (q. wire)				Angle of Position	
		11	18	80.8	Right	21	11	48	80.41	90.59°
		12	26	81.35	R					
		13	43	79.6	L					

Diff. AR

II. Star	21	19	36.4
Comet			50.4

Star	21	10.6
Comet		24.8

Star	21	58.9
Comet	22	13.0

47.7

Star	23	22.2
Comet		36.3

Star	24	15.3
Comet		29.3

17.0

21	30	6	80.7	R
	32	0	79.0	L
	34	+	78.7	L
	36	10	79.9	R

21	33	8	79.58°	91.42
----	----	---	--------	-------

Star	21	39	59.5	5.3
Comet		40	14.7	20.4

Star	21	41	19.7	24.5
Comet			34.7	39.0

Clouded up.

Comet 1861 II

1861 Sept. 19

Star Comet H.M. $+3^{\circ}27' - 7^{\circ}8'$
 Comet - Star $\Delta \alpha$ Comp. $\log \Delta \delta$ Reduction
 21 11 48 $+ 13.45$ 2.175 0.183 $-1.52 -1.79 -3.31$

19 50	14.0	$+ 0.32$	14.32
21 25	14.2	0.23	14.43
22 13	14.1	0.19	14.29
23 36	14.1	0.11	14.21
24 29	14.0	$+ 0.07$	14.07

Mean 21 22 19 $- 14.08$

21 33 8 $+ 14.63$ 2.211 0.605 $- 4.03 + 0.92 - 3.06$

21 40 18	$+ 15.15$	$- 0.80$	14.35
41 37	14.75	$- 0.87$	13.88

Reducto 21 25 40 $\Delta \alpha + 14.22 \pm 0.048$ $\Delta \delta - 3.2$
 fact $\frac{40}{21 25 0 \text{ sid time}}$ Prob. Err. of 1 comp ± 0.126

The angles of position were measured not by bisecting comet and star but by placing the wire parallel on opposite sides. This method certainly gives the impression of being the most accurate, at least for faint objects.

Comet about 12th magnitude (nucleus).

Comet 1861. II.

Sept 19.

Comet compared with Baily 29266 8th mag.

15 54 37.25	412 21 46.6
2 3.78 S.C.	-10 31.7 S.C.

15 56 41.03 +0.14	412 11 14.9 -1.2
-------------------	------------------

+1.44	+4.5
-------	------

+14.22	-3.2
--------	------

15 56 56.83 Dec.	412 11 18.0
------------------	-------------

+0.565	+3.67
--------	-------

α° 15 55 39.1

δ° +42 16.57

log 9.95863

sin α° 9.93267

1.91158

3.06757

9.71294

1.90280

-63.516

+167.262

C 354 11

a 239 10

st 93 16

log 9.957 +46.77

9.962 α° -12.50

1.329 δ° -11.71

9.776

sec 0.130 g' -12.74

9.665 N' +11.18

1.273 i' +6.02

9.948

sin 9.822

Chr. Time	21 25 40
fast	40

21 25 0

11 54 16

9 30 44

1 34

9 29 10

-40.3

Cambridge mt.

C. (Obs.)	15 56 57.8	412 11 13
o	57.1	17

Jan 20 1902	9	15 57 29	113 1 26
		+41 58 35	

861 Sept 23.
 H.
 East. Star 57°

Comet compared with star α . Comet following α north

Star (H. 2)	19 53.19	Fixed W.	
Comet	55 4	12.375	+ 3' 27.36

Star	57 16	12.498	
Comet	58 54	12.498	3 26.15

Star	20 0 51		
Comet	2 38	12.450	3 26.62

Comet's 33.565 (2 sets)

Angle 261° of Star	20 8 19.8	22.8
Comet	10 1.8	4.9

Star	10 26.1	27.2
Comet	12 5.9	9.1

Star	12 29.8	33.0
Comet	14 11.9	14.8

Star	14 39.9	42.9
Comet	16 21.8	24.9

Star	16 44.0	49.4
Comet	18 26.3	31.5

Star	20 26 2	Fixed W.	
Comet	27 42	12.758	3 23.60

Star	20 30 21	F.W.	
Comet	20 32 2	12.784	3 23.31

Star (2 sets young 9.0)	20 34 31	F.W.	
Comet	20 36 20	12.890	+ 3 22.31

Comet's 33.523 (2 sets)
 33.534

1861 Sept. 23

N_h in α $+3^{\circ}.35 - 6^{\circ}.14$

El.	19 55 4	$+ 3' 22.36$	$- 2''.13$	$+ 3' 25.23$
	19 58 52	$3' 26.15$	$- 1.71$	24.44
	20 2 38	$3' 26.62$	$- 1.32$	25.30

20 10 3	$+ 1' 42.05$	$+ 0''.27$	$+ 1' 42.32$
12 8	41.65	$+ 0.16$	42.01
14 13	41.95	$+ 0.04$	41.99
16 23	41.95	$- 0.08$	41.87
18 29	42.20	$- 0.20$	42.00

20 27 42	$3' 23.60$	$+ 1.37$	$3' 24.97$
32 2	$3' 23.31$	$+ 1.83$	$3' 25.14$
36 20	$3' 22.31$	$+ 2.29$	$3' 24.60$

Reduce to 20 14 55

Ref.
Prob. Err
 $+ 1'' 42.04$
 $\pm 0''.051$
 $+ 3' 24.95$
 $+ 0''.05$
 $\pm 0''.10$

Prob. Error of comp.

 $\pm 0''.113$ $\pm 0''.24$

Motion estimated $10''.5$
 Diagram of Stars



The star is not in the catalogue.

El 20 14 55 = Comet α 16 2 10 41 59.9 Ephem.

Star's place 1861.0
 Baile 1929.2

16 2 10	41 59.9	} See 1862 Feb. p
$16^{\circ} 0' 26''$	$41^{\circ} 56' 5''$	
$15 57 29$	$41 56.5$	

Star for Comet 1861. II.

1861 Sept 23.

See 1862 Feb. 7.

Planet 1861: II.

1861 Sept. 23.

9
1861

Comet 1861 II

Sept. 24.

Compared with star γ . Comet north preceding γ . P. and δ and

P. I Below	10.6	19 38 14
Above	9.9	(39 45)
Above	9.78	41 12
Below	9.03	42 24

Corr. to Angles

Reversed Lamp.

19 47 12
49 22
51 49
55 15

14.17

14.015

14.183

16.400

14.192

+19.341

.019

[see 95.10-2] + 1

ill angle ~~0.027~~
95.30' 0.025
0.017

Below	5.2	20 5 40
Above	5.15	20 9 10
Above	5.23	20 10 18
Below	4.72	20 11 3

Below	20 14 33	14.912
Right	17 23	15.060 R
Left	18 39	15.160 L
Left	19 34	15.230 L
Right	20 32	15.155 R

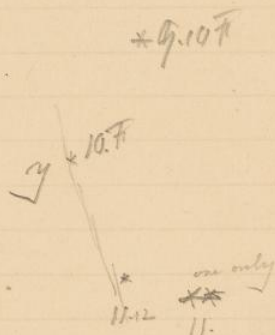
15.079
18.456
+ .019

Reversed Lamp

Right	20 22 31	14.810	15.026
Left	24 36	15.155	At angle 18.507
Right	25 50	15.150	92.25'
Left	26 59	14.990	

Below	0.55	20 31 36
Above	359.50	32 50
Above	359.8	33 54
Below	0.05	35 2

Comet 33.517 Zero 16.58
33.548 At Zone 16.58
33.535
Mean 33.533



Chro.	N. litch	Revolutions	T(mw) 260.59	9.4 I - W
19 10 24	9° 48.1	4	341 2.8	n
51 2		19.359	31 9.7	5
20 9 3	5 4.5		345 54.5	n
18 6		18.463	3 0.9	3
24 59		18.509	3 1.4	3
20 33 20	359 58.5		351 0.5	n

Reduce to

20 9 3 = T

m = 177.50

n = -44.60

dx (cor.) -0.103

dy +0.606

Find

x = 174.93

y = -44.21 by 1.6655 -3.96
15000 1.0475

$T-T'$	- 28.65	- 16.02		+ 9.05	+ 15.93	+ 4.78	$A = 0.00 + 0.312m + 0.952n$	D
m'	180.45	179.31	177.40	176.58	175.90	175.00	$0.00 + 1.95 + 0.962m - 0.302n$	C
n'	-64.96	-55.53	-44.60	-39.12	-34.96	-29.89	$0.00 + 0.24 + 0.97$	
$3y$	2.2584	2.2537	2.2491	2.2470	2.2452	2.2430	$-0.02 + 0.98 - 0.22$	
"	1.7921	1.7945	1.8092	1.8166	1.8236	1.8306	$-2.10 + 0.97 - 0.20$	
$2'$	341° 3'	342° 46'	345° 36'	347° 30'	348° 48'	350° 18'	$-2.17 + 0.17 + 0.99$	
$3y 2'$	2.2806	2.2736	2.2625	2.2574	2.2536	2.2492		
$2'$		187.75		180.88	179.3		$dm = +1.43 = 0.35$	
C-O dz		-1.95		-0.02	-2.10		$dn = +0.39 = 0.35$	
" dv	0.1		0.1			-48		
2dr						-2.17		

Comet 1861.II.

Sept 28, 1861

J. H. S. obs.

* of Comparison is of 10.X mag. (full 10th)

236 = 20 39 44.2
 43 0.0
 44 24.0
 45 19.0

dist. = 1.74 } on the wire
 " 1.48 }
 " 1.79 } above and below
 " 1.29 } Taken at an angle of 15.9

20 48 1.0
 49 16.5
 50 20.0
 51 11.5

106.5 right of wire
 106.1 left "
 106.3 left "
 106.5 right "

20 54 22.0
 55 15.5
 56 19.0
 57 51.0

dist = 0.72 above
 " 0.85 below
 " 1.00 below
 " 1.03 above } Taken at an angle of 18.2

Coincidence of wires 33.55
 " " 33.55

236 = 21 2 42.0
 4 20.5
 5 13.0
 6 6.0

104.6 left of wire
 105.2 right "
 105.4 right "
 105.1 left "

21 10 2.5
 12 57.5
 13 34.0
 14 31.0

dist = + 0.26 below
 - 0.09 above
 + 0.12 above
 - 0.16 below } Taken at an angle of 14.9

Coincidence of wires 33.56

Comet n.f. * of Comp.

* 2 19.32.0 - 37.2 8' 15" 8.11
 a. B.2 46.8 51.9 28 2 29.5
 * 2 23.19.1

Comet 1861 II.

Sept. 18, 1861 =

Star a = Laland 29715 = BZ 418
9^m

1436.5

1843.0

Baily (H 174) 16 8 43.55 + 41° 49' 46.8
+ 2 2.74 - 9 26.1

16 9 44.9 16 10 10.0

+ 41 45.01 + 41 43.08

BZ 418 16 10 27.85 41 45 44.3
- 53.99 + 7.7
- 0.03 - 0.2

40 9.95062 9.95014

9.96768 9.96809

1.9150 1.68244

3.06759 2.65853

9.06532 9.06380

1875.0 16 9 33.83 41 45 51.8
+ 12.46 - 5 32.9

1.80960 1.58067

2.75291 2.52233

- 64.54 - 38.08

1861.0 L. 16 10 46.29 + 0.14 41 40 20.7 + 1.2

B. 46.29 + 0.04 40 10.9 + 0.8

Ad 16 10 46.36 41 40 19.6

Red to app. + 1.34 + 5.2

Z - a - 2 14.7 + 5.47

Red to app -

Z app. place (approx) 16 8 33.0 41 46 12.

G 354 30

a 242 42

H 83 29

H - * + 26.09 + 2 14.4

R

tan 9.949 + 69.56

tan 9.924 9° - 15.46

g 1.315 11° - 13.94

tan 9.734

sec 0.177 11.21

tan 9.741 91° - 7.67

h 1.273 11° + 10.38

tan 9.920 1° + 6.05

sec 9.823

Chr.

Sept. 28 1861.

Choo. time

20 43 8	1.425	15.9	260° 58	Angle had off.	Conc. $\frac{33.553}{32.128}$	5' 14.65	+0.03	5' 14.9
49 12				106° 21'				
55 57	0.900	14.2			32.603	5' 20.00	+0.29	5' 20.3
21 4 35				105 4				
12 46	0.032	14.9			33.521	5' 28.51	+0.12	5' 28.5

Red to

20 57 12

Adjusted. 5' 21.0

Pa.

64° 37'

65° 54'

291. n

134. m

dy + 0.162

dx - 0.081

T'-T'	-14.1	-7.5	-1.2	+7.4	+15.6	0 = -2.2 + 0.43 dm	+0.90 dm
	+1.2	+0.6	+0.1	-0.6	-1.3	+0.1 - 0.90 dm	+0.43 dm
	7 9.0	-4.8	-0.8	+4.8	+10.0	-0.6 + 0.42 dm	+0.91 dm
m'	135.2	134.6	134.1	133.4	132.7	-1.0 - 0.91 dm	+0.41 dm
n'	282.0	286.2	290.2	295.8	301.0	+0.4 + 0.40 dm	+0.91 dm
	2.1309	2.1290	2.1274	2.1252	2.1229		
	2.4582	2.4567	2.4527	2.4710	2.4786		
V1	64° 23'	64 49	65 12	65 43	66 13	[m 2] 6.2	
	2.4957	2.5001	2.5047	2.5112	2.5171	dm = + 0.4 ± 0.75	m = 134.4
	312.7		319.7		328.9	d = + 0.7 ± 0.66	n = 291.7 24650
	2.2		-0.6		+0.4	1 amp ± 1.09	15 and 1.0485
		+12'		-11'			1.4165
		+1.1		-1.0			

 $\Delta a + 26.309$ Δd

Temp.

Ref.

+0.02

+0.2

+ 2' 14.4

Choo. time

20 57 12

fuel 54

20 56 18

-12 29 45

-1.23

8 25 10 Camb. m!

Br.

16 8 59.0

+ 4.1 48 27

O.

8 59.4

28

for Refs. *Astr. Unterr. Bessel I. p. 166*

$$N = 15^{\circ} 42' \quad \text{alt. } u \quad 9.9964$$

$$d^{\circ} \quad 41.48 \quad \text{in} \quad 9.9395$$

$$p = 65^{\circ} 12'$$

$$7.7526 \quad 45^{\circ} a. q \quad \gamma = 63^{\circ} 29'$$

$$0.0547 \quad 45^{\circ} \sin \gamma$$

$$x'' \quad 6.443$$

$$0.1030 \quad 45^{\circ}$$

$$y'' \quad 2.585$$

$$0.0060 \quad \tan u$$

$$8.948$$

$$0.158 \quad 45^{\circ} \sin \gamma \cos p - q \quad 9.856$$

$$9.676 \quad \tan u \sin p - u$$

$$0.157$$

$$0.283$$

$$0.333$$

$$0.15 \quad u. d$$

$$\Delta d = +0.02$$

$$\Delta d = +0.12$$

Comet 1861 II.

661 1/2 W. 1
17.11.5

out 1. ~~Comet~~ ^{10.33} ^{44.3} ^{43.5} following
+ ~~Comet~~ ^{10.33} ^{44.3} ^{43.5} preceding star a. of Sept 26.
Observation at angle 351° d'

Star - Comet	20	40	9.5	15.8			
Comet	42	30.3	37.0		+ 2	21.00	
Star		43	58.0	64.4			
Comet		46	19.2	25.4	2	20.90	
Star		47	15.4	21.5			
Comet		49	36.7	43.2	2	21.50	
Star		50	29.5	35.9			
Comet		52	50.5	56.9	2	21.00	
Star		53	48.4	54.5			
Comet		56	6.3	13.1	2	21.25	
Star	21	0	56		26.65		
Comet		3	14		9.967	+ 16.683 552,	+ 2' 43.49
Star		4	44		26.507		
Comet		7	6		9.908	16.599	2 42.67
Star		8	52		36.241		
Comet		11	33		19.467	16.774	2 44.39
Ground Circle 180° (and lamp also)							
Star		13	38		14.557		
Comet		17	13 (minute certain)		31.097	16.540	2 42.09
Star		18	56		14.854		
Comet		20	58		31.280	16.426	2 40.97
Star		22	10		32.445		
Comet		24	38		48.818	+ 16.373	+ 2 40.46

Comet 1861 II.

1861 Oct 1.

Star	21	27	48.6	53.3	
Comet		30	12.6	17.0	+ 2 23.85
Star		32	38.4	44.3	
Comet		35	1.7	8.0	2 23.50
Star		36	11.6	17.3	
Comet		38	35.9	41.7	2 24.35
Star		39	29.4	35.3	
Comet		41	53.8	59.7	2 24.40
Star		42	53.0	59.8	
Comet	21	45	17.4	24.8	2 24.70

Nucleus at first rather brighter than of last.

Estimated on scale $11 \frac{1}{2}$ mag.

N.M. 3.58

N.M. - 4"

Reduced.

			Reduced				Reduced.
20	42	34	+1.82	2	22.82		21 3 14 -0.71 + 2' 42.78
	46	22	1.60		22.50		7 6 -0.46 42.21
	49	40	1.41		22.91		11 33 -0.16 44.23
	52	53	1.22		22.22		17 13 +0.22 42.31
	56	10	+1.03		22.28	2 21.13	29 58 +0.47 41.44
21	30	14	-0.95		22.93		24 38 +0.65 2 41.11
	35	5	1.22		22.28		+ 2 42.36 ± 0.31
	38	39	1.43		22.92		
	41	57	1.62		22.78		
	45	21	1.82		22.89	2 24.16	
21	13	48		2	22.65 ± 0.5063		
				1 comp ± 0.5209			

Reduce to 21 13 58

Refr. and Temp. omitted

Comet 1861. II

1861 Oct 1.

Km. (on Sep. 28) 16 10 16.35 + 41 40 19.6
 Red to app. +1.23 + 4.9
 Comet - Km + 2 22.65 + 2 42.4

Comet's d 16 13 10.44 + 41 43 5.2
 - 0.548 4 3.21

Chr. 21 13 58
 fact 34
 21 13 24
 12 41 35
 8 31 49
 1 24

8 30 25

M. J. Cambridge

Seeling

16 13

9.3

41 0 43.1

g 35 38
 a 242 42
 J 80 27

g 9.9494 f + 19.83
 v (G + d) 9.9252 g' - 16.32
 g 1.3381 h' - 15.026
 v (G + d) 9.7322

l (d) 0.0477 ^{12.59} g' - 11.70
 v (H + d) 9.7780 h' + 10.02
 h 1.2739 i' + 7.18
 u (H + d) 9.9032
 s (d) 9.8235

i 0.9053

3
2
b
0
2
8

Comet 1861 II

1861 oct. 9.
M.V.

Comet north. follow

At Angle $351^{\circ} 0''$

					Miles	
I. Star	20	32	1.7	8.5		
Comet	33	58.7	5.4		+ 1 56.95	+ 1.34
X						
II. Star	34	24.4	31.0			
Comet	36	20.9	28.0		+ 1 56.75	+ 1.20
III						
Star	37	29.6	36.3			
Comet	39	26.4	33.1		+ 1 56.80	+ 1.01
IV						
Star	40	1.2	7.9			
Comet	41	58.1	64.5		+ 1 56.75	+ 0.66
V						
Star	42	28.8	35.6			
Comet	44	26.1	32.8		+ 1 57.25	+ 0.69
I. Star 20 47 44						
Comet 49 40.2	46	56	30.453			
	48	53	23.068		+ 72.57	- 0.55
II. Star						
Comet 52 44	50	11	28.740			
	51	59	21.146		74.42	- 0.2
III Star						
Comet 33 14	53	31	25.525			
	55	25	17.774		75.96	+ 1.4
II. Star						
Comet 0 4	57	7	23.625			
	59	16	15.932		75.39	- 0.4
V. Star						
Comet	21	2 5	18.707			
	3	59	10.985		+ 75.68	- 0.6
					74.80	

Comp ± 0.97
Whole ± 0.44

Third Set. Comparison in AR again

I. Star	21	6	11.7	16.9		
Comet		8	10.3	15.9	+ 1	58.80 - 0.73
II. Star		26	39.0	44.3		
Comet		10	37.6	42.8	+ 1	58.55 - 0.90
III. Star		11	0.0	15.6		
Comet		12	59.0	64.5	+ 1	58.95 - 0.04
IV. Star		13	35.5	40.9		
Comet		15	34.5	40.1	+ 1	59.10 - 1.20
V. Star		15	57.8	62.9		
Comet		17	56.8	62.1	+ 1	59.10 - 1.35

Reduce to El. 20 55 54 N.M. $+3.675$ - 0.96

1 58.29	16	20 39	+ 1 56.90
57.95	0		
57.81	1	21 13	+ 1 58.90
57.61	8		
57.94	0		
58.07	3		
57.65	6		
57.91	0		
57.90	0		
57.75	1		
1 57.89	35		

1 comp ± 0.132
Total ± 0.5042

Omit 1861.I.

1861 Oct. 9

1300.0

16 20 35.77 +41 42 0.7

+ 2 1.37 s.c. - 8 29.3 s.c.

Hankam
90th

1861.0

16 22 37.14 + 0.14 +41 33 31.4 -1.3

+ 1 1.10 + 4.3

Comet-Star

+ 1 57.89 + 1 14.8

16 24 36.27 +41 34 49.2

+ 0.523 + 2.72

for Par.

El 20 55 54
slow 0

X

13 10 7

7 42 47

1 16

7 41 31

Computed
J.B.S.

16 24 37.56

36.50

41 34 57.6

58.5

a° 16 21 36.3

δ° 41 37.75

lg δ° 9.94678

sid° 9.95868

1.91150

3.08759

a₁° 9.61936

-65.911

+121.37

G 355 3

α 245 39

.14 71 55

lg δ° 9.9477 f +50.58

9.9405 g -17.08

1.3444 h -17.05

9.6896

Jerd 0.1260 j' -10.81

9.8291 n' + 9.26

1.2765 i' + 8.84

9.8681

9.8218

for Encke's Comet.

1861 Oct. 21.

Predicted Place (6^h 30^m Cambridge)

23 35 40 + 15° 53'

Mer. lat. — 6.4 — 34"

6.4 23 30 41 + 16° 4'

9.5	23 35 43	15 56	}
9.5	35 54	15 50	

1861 Oct. 22

Comet's place 6^h 30^m Cambridge23^h 33^m 5^s + 15° 39'

Too faint from Bessel.

Diff. MR. Dec.

9.	23 30 3	+ 15° 46'
9.	30 19	47'

following.	north.	W. 23. 608
16.59	+ 1' 14"	" 616.

Oct. 23

Comet. 23 30 33 + 15° 26'

9.	23 27 28	+ 15° 21'	Bessel.	MR in Weisse.
9.10	31 7	15 30	Argelander	
9.10	31 36	15 31	"	

Oct. 24

Comet. 23 28 2 + 15 11

Mag.

9.	23 27 32	+ 15 11	Bessel.	}
9.	27 54	15 6	"	

Diff. Dec. 5' 28"

There is a little doubt about these stars.

I have taken them from Argelander.

Search for Euck's Comet. Barometer

Oct. 23, 1861.

The Director saw something supposed to be the Comet
7 $\frac{1}{2}$ ' south of the preceding Highlander Star and 40' preceding it.
Clouds came on.

Subsequent observations proved that the above
object was actually the Comet.

For change in position of Barometer to East Transit Room. See
Director's (printed) Report.

Cistern in new position is 78.8^{ft} above mean high & low water at
Charlestown Dry Dock.

Oct. 26th

for Oct 1861. II.

Encke's Comet

Oct. 24. 1861.

C. P. B. ds.

Compared with α qh B. 7 @ $23^h 27^m 32^s$ Dec $+15^\circ 06'$

Chron 236

21^h	23^h	42.0
	24	23.0
	26	10.5

Any of Pos.

$344^\circ 15'$	}
$343^\circ 50'$	
$348^\circ 20'$	

Zero

 $351^\circ 0'$

Comet is n.f. star.

29 1.0

31 7.0

32 43.0

 22.05 21.45 20.28

Zero

 33.80 33.79

"

S

Method of Reduction A. N. no 266. (Struve)

Saw the Comet again at $0^h 15^m$ in 15° left AR but owing to Moonlight & Aurora it was fainter than before

Encke's Comet

Oct 26th 1861.

	$T-I$	-4.15	-3.47	-1.67	+1.07	+3.27	+4.87
$dx = -0.593$	m'	+122".4	+122".1	+121".0	+119".3	+118".1	+117".1
$dy = -1.97$ $\Delta = -1.52$	n'	+9.3	8.3	5.5	+1.2	-2.0	-4.4
Reduce to 21 ^h 27 ^m 5 ^s	q	2.0678	2.0667	2.0628	2.0766	2.0723	2.0686
	q	0.9685	0.9191	0.7404	0.0792	0.3010	0.6425
$m = 120''$	v'	4° 21'	3° 54'	2° 36'			
$n = 3''$	gZ'	2.0691	2.0677	2.0637	2.0766	2.0724	2.0689
	z'	~~6.45~~			119".3	118".1	117".2
	$Ob.$	6° 15'	7° 10'	2° 40'			
	$Ob.$				115.1	121.0	132.4
	$-dx$				+6".1	-2.9	-15".2
	$-2dv$	-5".1	-7".0	-0".1			

$$\begin{aligned}
 0 &= -5.1 - 0.08 \, dv + 1.00 \, dv \\
 &- 7.0 - 0.07 \quad 1.00 \\
 &- 0.1 - 0.05 \quad 1.00 \\
 &+ 4.2 + 1.00 \, dv + 0.01 \, dv \\
 &- 2.9 \quad 1.00 \quad -0.02 \\
 &- 15.2 \quad 1.00 \quad -0.04 \quad 332
 \end{aligned}$$

$$\begin{aligned}
 0 &= -11.5 - 0.25 \, dv + 3.00 \, dv \\
 &- 13.0 + 3.00 \, dv - 0.35 \, dv \\
 &- 1.0 - 0.02 \, dv + 0.35 \, dv \\
 &- 14.0 + 2.98 \, dv
 \end{aligned}$$

$$\begin{aligned}
 dm &= +4.7 \quad m = +124.7 \\
 dn &= +4.2 \quad n = +7.2
 \end{aligned}$$

$$\Delta d = + 0.50$$

$$\pm 0.22$$

$$\Delta d = + 2' 4.7$$

$$\pm 3.2$$

$$\begin{aligned}
 &-1 \\
 &-66 \\
 &4) 265 \\
 &66.25 \\
 &+8.1 \\
 &\pm 5.5 \quad 1 \text{ sec.}
 \end{aligned}$$

Encke's Comet

Oct 27th 1864.

P. 106	23 26	17.26 +14° 54' 51".4	1843.0
		-12.18	23 26 54.1
		0.00	23 26 54.1
		+ 1.6	

1825.0	23 26	5.08 +14 54 33.4	1900	9.42831
	1	48.68 +11 54.5	Sim 20	9.15611
		53.26		2.68244
				2.85853

1861.0	23 27	48.46 +15 0 27.9	2000	9.99546
S.G.		+0.04		
Rev to ap.		+4.37		26666
Comet - Sta		+0.50		0.11049
				55099
				2.67555

2 1 8	23 27	58.67 +15 9 5.7		- 1.887
				+ 7.764

Par. ($\Delta = \frac{23}{24}$)		-0.23	+4.3	G	356 2
Revised				2	351 57
				54	56 11

9.431	+52".10
9.3180	-1.31
1.356	+14.83
9.990	

Ans. 21 27 51
 part. 1 10
 21 26 41
 14 12 15
 7 14 26
 1 11
 7 13 15 M. Cambr.

7 13 15
 5 38 6

12 51 21

M. 7 57	2 31.13	2.17935
12 43 24	M. 00.11	9.72439
	14 11.3	2.92008

C.	23 27	56.83	15 11	3.1
O.		58.44		9.10.0
b-o.		+2.69		+1' 53".1
		-1.61		

for Encke's Comet.

1861 Oct. 25thAt 6^h 30^m Cambridge23^h 25^m 31^s +14° 57'

Star (not in any catalogue) 9.10 mag.

23 24 52 +14° 59'

Comet 23 15 54 +13 56.5

✓ 8.2	23	10	26	13 56	}
✓ 8.3		11	13	57	

Star (S) of last night

23 27 54 +15 6

Star d. 11399.

23 29 57 +15 2

1861 Oct 26thComet 23^h 23^m 3^s +14° 42'.6

Star (in no catalogue)

9.0 23 25 53 +14 43

1861 Oct. 28thAt 8^h 57^m N.Y. Camb.

Comet 23 17 57 +14° 11'.6

7.5	23	13	57	+14 16	Star followed 50.5 3' 50.
9.5		19	52	14 8	

Encke Comet

1860 Oct 29th

G. P. B. obs.

Comet South following, Star α . Circ $351^{\circ} 0'$

M. no:

Star (10^h) α . 23 36 43.7 by Obs. 236 Eb.
 Comet 37 39.9

23 35 46.3
 36 42.8 56.5

Star α B. 38 12.8
 Comet 39 9.3

37 16.6
 38 12.3 55.7

Star α . 40 9.2
 Comet 41 5.6

39 12.1
 40 8.4 56.3

Differences of Declination

List of Position

35704' observed.

Star 23
 Comet 45 56 circa

Zero nine
 58.57

Coincidence 33.77
 23 45 0 -24.7

Star 23
 Comet 49 11

Zero nine
 59.06

23 48 14 25.27

Star 23
 Comet 54 8

Zero nine
 61.24

23 53 11 28.47

Star
 Comet 0 0 30

Zero nine
 62.00

23 59 33 -28.43

Star
 Comet 0 5 17.8
 6 12.7

0 4 20.9
 5 16.0 55.1

Star 0 6 36.3
 Comet 7 30.7

0 5 39.4
 6 33.5 54.1

Star 0 7 54.7
 Comet 8 47.8

0 6 56.8
 7 50.7 53.9

Encke's Comet.

1861 Oct. 29th

Place of Star &c.

Chro.

El.

nearly 9 th	Star a	8.8	4 14	0 14	41. -	45. -	0 13	44.1	48.3
	" b	8.9	5 15	15	28.6	32.7	14	31.6	35.8
	" x	10.	7 1	18	54.7	58.4	17	57.5	61.5
	Star a		4 5	0 19	39.4	43.3	0 18	42.3	46.4
	" b		5 6	20	26.6	30.7	19	29.6	33.8
	" x		6 49	23	52.3	56.5	22	55.3	59.4

Obst - x

AM - 5.09

- 27.5

Moon

At El.

23 38 21

+ 0" 56.17

- 1.30

23 51 34

- 26.75 - - 4' 22.2

- 2.6

0 6 34

0 54.37

+ 1.42

Reduce to

23 52 10 Δ. + 0 55.33

ΔΔ. - 4' 24.8

Star x - a

+ 4 13.15

+ 2' 45.5

- b

3 25.72

+ 1 44.5

Ref. Temp. omitted

Encke's Comet

1861 Oct. 29

Star a N. 23.186. = Baily 45586 = Runk 10969.
 " 2 " 23.211 = Baily 45615

1430.5

Star a Baily 23 7 19.76 + 13 36 21.1 (p. 37)
 + 3 2.86 + 19 53.11
 Nimm 8 34.38 44 26.2 7.106
 1 47.94 + 11 44.51
 Runka 9 7.375 48 1.92
 1 14.969 + 8 9.41

23 8 50.9 23 9 38.3
 13 47.27

9.38980 9.38987

9.34507 9.33862

1.91150

3.08759

9.98910 9.98943

0.64587 0.63979

3.07669 3.07702

A. - 4.42 - 4.36

1443.0

23 9 28.4 23 10 15.7

+13 50.31 +13 51.35

9.39153 9.39209

9.33966 9.33310

1.68244

2.85853 9.96969

9.98936 9.98989

0.61363 0.40762

2.84789 2.84822

A. -2.59 -2.56

1444.5

23 9 44.9

13 52.11

9.39257

9.33748

1.52407

2.70016

9.98947

0.25406

2.68463

-1.5797

Star b Baily 23 6 7.27 13 37 25.3 (p. 37)
 + 3 2.92 + 19 54.11
 Nimm 9 21.78 45 28.6 2.106
 1 47.98 + 11 45.01

Sb.

Star a B. N. 23 10 22.62 + 13 56 14.2 - 2.4
 N. B. 22.32 - 0.01 10.7 + 0.9
 R. 22.34 + 0.07 11.3 + 0.3
 Ad.

Star b. N. 23 11 10.19 + 13 57 19.4 - 2.4
 2.7106 9.76 - 0.01 13.6 + 0.9
 Ad.

L. D. R.
 Ad. (a) B. R. 1 23 10 22.36 + 13 56 11.6
 x - a 4 13.15 + 2 45.5
 (b) 11 9.75 57 14.5
 x - b 3 25.72 1 44.5
 Correction -0.02 58.6
 x 1861.0 23 14 35.47 + 13 58 57.9

* This is corrected for the difference between $i(\text{air})$ and x in reduction to app.

$i(\text{air})$ is used to compute red to app.

Encke's Comet

1861 Oct. 29.

$\begin{array}{r} 14661.0 \\ \text{Rev to ap.} \end{array} \quad \begin{array}{r} 23 \quad 14 \quad 35.47 \\ + 4.26 \\ + 0 \quad 55.33 \end{array} \quad \begin{array}{r} 58.6 \\ + 13 \quad 58 \quad 57.9 \\ + 32.1 \\ - 4 \quad 24.8 \end{array}$

$\begin{array}{r} \text{Comet app. pl.} \\ \text{Per.} \end{array} \quad \begin{array}{r} 23 \quad 15 \quad 35.48 \\ + 0.07 \end{array} \quad \begin{array}{r} 58.9 \\ + 13 \quad 55 \quad 5.2 \\ + 4.3 \end{array}$

$\begin{array}{r} \text{El.} \quad 23 \quad 52 \quad 10 \\ \text{fast.} \quad 19 \end{array}$

$\begin{array}{r} 23 \quad 51 \quad 51 \\ 14 \quad 31 \quad 58 \end{array}$

$\begin{array}{r} 9 \quad 19 \quad 53 \\ 1 \quad 32 \end{array}$

$\begin{array}{r} 9 \quad 18 \quad 21 \\ 5 \quad 38 \quad 6 \end{array}$

$\begin{array}{r} - 7 \quad 40 \end{array}$

$\begin{array}{r} 14 \quad 18 \quad 37 \end{array}$

$\begin{array}{r} + \quad 61709 \\ - 2'' \quad 25.01 \\ - 15' \quad 0'' \quad 6 \end{array}$

$\begin{array}{r} 2.15232_{\infty} \end{array}$

$\begin{array}{r} 9.799035 \end{array}$

$\begin{array}{r} 2.95453_{\infty} \end{array}$

$\begin{array}{r} \text{Oct 29} \quad \text{a}^{\circ} \text{Brd.} \\ \text{Merini} \\ \text{C} \\ \text{O} \\ \text{C-O} \end{array} \quad \begin{array}{r} 23 \quad 16 \quad 59.90 \\ - 1 \quad 27.63 \\ 23 \quad 15 \quad 31.27 \\ 35.13 \\ - 3.86 \end{array} \quad \begin{array}{r} + 14 \quad 5 \quad 34.1 \\ + 9 \quad 15.7 \\ + 13 \quad 56 \quad 18.4 \\ 55 \quad 9.5 \\ + 1' \quad 8.9 \end{array}$

	$\frac{a+b}{2}$	x
G	356.25	
a	342.41	348.39
H	51.2	
td	9.395	9.396
in(G)	9.438	9.411
g	1.361	1.361
al(G)	9.983	9.985
td	0.013	0.013
in(H)	9.796	9.805
L	1.287	
in(H)	9.892	9.886
in	9.382	9.383
f	52.67	52.67
g	-1.56	-1.47
10	+12.49	+12.74
g'	+22.08	+22.19
h'	+3.64	+3.60
i'	+0.33	+0.33
Δx	+63.60	+63.94
Δd	+32.05	+32.12

Star for Cooke's Comet (y Oct. 25th)66 Oct 30th

Five-foot Equatorial Ring-Micrometer.

Star a
b = Comp. Star
ca and b compared - Inner Ring of N. 2
b - a

<u>I.</u>		<u>a</u>		<u>b</u>		<u>V</u>	<u>8-</u>
α	0	13	11.8	0	13	38.5	
β			21.6			47.8	
γ		14	19.4		14	43.0	
δ			30.0			53.2	
$\Delta\alpha$	0	13	50.9	0	14	13.85	+ 24.95
$\Delta\gamma$			50.7		14	15.40	24.70

<u>II</u>		<u>a</u>		<u>b</u>	
α 2	0	17	21.6	0	17
β 2			31.8		57.2
γ 2		18	29.8		18
δ 2			39.5		62.7
Δ 2	0	18	0.55	0	18
					25.15
					+ 24.60
Δ 2			0.80		25.15
					<u>24.35</u>

Mean + 24.65

$z.c$	$z.$	c		Out.	In
z	96.0	127.3	μ	2.9646	2.8734
0.8596			μ'	2.8421	2.6225
	57.9	103.2	r	3.0301	2.9697
				2.7379	2.7467
				2.9115	2.9207
				546.9	558.1
				815.6	833.2
			$z - c$		

4' 29".3

35.1

Mean 4' 32.2

Stars for Encke's Comet

1861 Oct. 30th

Five - first Quadrant Ring - Micrometer

B and C compared - I II, 9 Inner Ring of No. 2. - III Outer Ring.

I.

B.

C.

$\alpha. 2$	0 29 47.7	0 31 45.8		
$\beta. 2$	56.7	56.5		
$\gamma. 2$	30 52.6	32 55.3		
$\delta. 2$	31 2.2	33 4.5		
$\Delta \delta. 2$	30 24.95	32 25.15	+ 2	0.20
$\Delta \gamma. 2$	30 24.65	24.90	2	0.25

II.

$\alpha. 2$	0 35 4.6	0 37 2.8		
$\beta. 2$	14.7	11.2		
$\gamma. 2$	36 9.2	38 12.5		
$\delta. 2$	19.0	21.3		
$\Delta \delta. 2$	35 41.8	0 37 42.05	2	0.25
$\Delta \gamma. 2$	41.95	41.85	1	59.90
		Mean	+ 2	0.15

III.

$\alpha. 1$	0 46 4.5	0 47 49.7		
$\beta. 1$	23.6	48 1.5		
$\gamma. 1$	47 21.5	49 44.7		
$\delta. 1$	40.5	49 57.0		
$\Delta \delta. 1$	0 46 52.5	0 48 53.35	2	0.85
$\Delta \gamma. 1$	52.55	53.16	2	0.55
$\Delta \alpha. 1$	1 36.0	2 2.3		
$\Delta \beta. 1$	57.9	1 43.2		

Taygeta

• Anyone

1 2 41.

55

4 27.5

41.5

2 0.5

132.5

1 8 12.5

26.5

100

142

2 1.7

1 33.5

$\Delta \delta$ 21' ^{21.0} ~~20.8~~ Bessel
20.8 Lindber

$$\frac{1}{2}(\delta + \delta') \quad 23^\circ 51'.3$$

7. 11 46
 0.8357

In.
2.0170

2₂ 2 π 3.3311 3.2707
r 3.0301 2.9697

1.9685

A. 2.0832
0.8369

7.8527 2

 2.8054

3. 1307

1.8663

0.65

7

Stars for Ecker's Comet.

1861 Oct 30

a = *Keiser* 23.578

1825.0	23 ^h 24 ^m 40.9	+ 15" 0' 2"
	1 48.6	+ 11 54
a 1861.0	23 26 29.5	15 11 56
Correction to Bessel's	+ 1 ^m	
2 - a (Ring Star)	± 24.6	
3. 1861.0	23 27 54.1	

c = *Ramker* 11399

1836.0	23 28 38.09	14 53 42.1
	+ 1 15.50	8 16.5
	23 29 53.6	15 1 58.6
	- 2 0.3	+ 4 32.2
	23 27 53.3	15 6 31

Declination (of star on 25th) is nearly right.

AR. should be changed.

Encke's Comet.

1861 Oct 31
G.P.B. obs.

JHS rec.

+ 23 14 0 +13 33 8.9

Comet. 23 10 56 +13 26 -21.1 +10.2 9.4

19 20.7 }
40.7 }Star α 10.11 m.Loris set at $351^{\circ} 0'$

Chro. 236.

Star 0 32 16.8
Comet n.s. 28.?

Comet s.f.

El.

0 31 19.9
32.0 +12.1Star 32 51.7
Comet 3.931 54.9
32 7.3 12.4Star 33 20.8
Comet 34.131 26.0
37.4 13.4Star 33 49.4
Comet 34 2.731 52.6
33 6.0 13.4Star 34 15.7
Comet 34 28.831 18.3
0 33 32.0 13.7
El.

for Dec. 0 37 55

19.97 } Star at 0 37 0

" 39 33

19.87 } coincidence 36 36

" 41 55

20.77 } 20.203 2 16.07 1.7 40 58

Coincidence

33.81. not very good.

Star 0 47 48.3
Comet 59.40 46 51.2
47 2.7 +11.5Star 48 16.6
Comet 27.847 19.8
31.4 11.6

Encke's Comet.

1861 Oct. 31 continued.

G.O.B. obs.

J.H.S. rec.

Star	0	48	47.6	0	47	50.8	
Comet		48	59.		48	2.3	11.5
Star		49	18.3		48	21.6	
Comet		49	31.2		34.7		13.1
Star		49			48	48.6	
Comet	0	49	57.7		49	0.7	+12.1

Star α compared with star $a = R$.

El.

α	1' 1"	0	52	29.1	33.0	0	51	32.3	36.5
a	8 17		55	51.5	55.6		54	54.7	58.9
α	0 47	1	2	2.2	6.3	1	1	5.6	9.6
a	8 2		5	24.7	28.8		4	28.0	32.1

N.H. - 5' 66 - 37' 84

Motion

At El 0 32 35

8" - +
+13.00

-0.70

0 38 51

-2' 13.4

-0.6

0 48 2

+11.96

+0.70

Reduce to El 0 39 49

+12.52 -2 14.0

$\alpha - a$	- 3" 22.42	- 7' 15.5
Ref.		- 0.2
Temp (46°)		+ 1.0

 $\alpha - a$ - 3 22.42 - 7.14.7

Encl. Cont.

1661 Oct 31.

P 11042 = a

S.C.

S.C.

1636.00 23^h 12^m 45.832 +13° 25' 4".65
+1 15.144 +8 11.02

1661.0 23 13 58.976 + 0.065 + 13 33 15.67 + 0.3

R₁₀ to app.

x-a -3 22.42 -7 14.7
C₁₀ + 0.02 + 0.1

2 1661.0 23 10 36.64 +13 26 1.4
R₁₀ to app. +4.22 +32.0
Comet - x + 12.52 -2 14.0

Comet L.O. 23 10 53.38 +13 24 19.4
P₁₀ + 0.17 +4.5
~~Altitude~~

C-O

El. 0 39 49.9
P₁₀ 19.9

Lat. 0 39 30
14 39 51
9 59 39
1 38

9 58 1 Comb. mt.
+ 38 6

Alt. -7 48

15 28 19

64466 2.13777

2 17.33 9.60933

15 10.2 2.95914

23 12 19.01 +13 35 25.5

-1 28.53 -9 46.2

23 10 58.48 13 25 39.3

C-O

-3.07 +1 15.4

L₀ 23 13 21.3
S₀ +13 29.16

G₁₀ 9.37989

mi₁₀ 9.30562

1.52407

2.70016

G₁₀ 9.99094

0.20958

-1.620

76.764

a

2

8

G

356 34

L

348 30

H

49 0

8

6 33

t₁₀

9.3820

alt₁₀

9.4111

2

1.3630

alt₁₀

9.9851

Lat

0.0123

Lat₁₀

9.7464

L

1.2852

alt₁₀

9.8995

Lat

9.3698

Lat

9.3661

f

52.91

g₀

-1.43

h₀

+12.16

g₁₀

+22.29

h₁₀

+3.81

h₁₀

3.62

h₁₀

1.17

Comet 1861. II

1861 Nov. 7

Comet ref. star

Declinations

Star at coincidence

Chro. 236	21	45	24	19.963	El.
		47	40.	19.250	
		49	50	19.163	
		51	37	19.470	

*	21	54	39.1 - 48.6
~~21~~		55-	23.6 32.6

Very windy. Following series instrument damped

*		56	56.6 58.6
~~21~~		57	35.6 43.8

*		58	28.2 37.0
~~21~~		59	13.5- 22.5-

*	22	0	0.0 8.7
~~22~~			45.4 54.1

*		1	54.2
~~22~~		2	39.7

El	22	2	15.8 24.2
		3	1.2 9.6

*		3	14.1
~~22~~		3	59.8

		3	35.8 44.6
		4	21.8 29.8

*		4	40.4
~~22~~		5	25.6

		5	2.2 10.7
		5	48.2 56.6

*		6	4.7
~~22~~		6	50.7

		6	26.0 34.5
		7	12.0 20.7

Comet II 1861 (Continued)

Nov 7. 1861

22	10	16.5	49.783	EC ^o (see below)
	11	28.0	48.714	
	13	22.5	48.300	
	14	57.0	48.319	

Note. Corr. 30^s slow of El. Reduce to El. 22^h 1^m 34^s

Coincidence 33.79 assumed. This will disappear from the result.

Star. Mot 1^s 13 + 9^m 0

Chro. time

 Δ

Comp Motion

 Δ Imp Motion

El.	21	45	54	15.9		+ 2' 16.5	+ 2".4	18.9
		48	10		+ 2.06	2 22.5	1.9	24.4
		50	20			2 23.2	1.7	24.9
		52	7			2 20.3	1.5	21.8
	21	55	58	+ (44.05)				
		58	9	45.10	+ 0.26	45.36		
		59	48	45.40	0.14	54		
	22	1	20	45.40	+ 0.04	44		
		3	5	45.40	- 0.08	32		
		4	26	45.60	0.17	43		
		5	52	45.95	0.28	67		
		7	16	46.10	0.37	45.73		
						46.50		
	22	10	46			+ 2 29.9	- 1.3	28.6
		11	58			2 26.3	1.5	24.8
		13	53		+ 2 25.2	2 22.2	1.8	20.4
		15	27			2 22.4	2.0	20.4
								2' 23.0

* This is rejected because the instrument was not clamped till after this set was taken. Windy.

At 22 1 54 El H-x + 45.50 $\pm$ 0.039 $\pm$ 0.104
 + 2 23.0 $\pm$ 0.75 $\pm$ 2".13

Comet 1861. II

1861 Nov. 7.

Star's place

BZ heb 17 7 59.78 + L¹² 19' 3".3
 + .1.108 - 12.96
 + 0.062 + 0.30

1625.00 17 8 0.93 + 42 18 50.64
 Per. 1 7.882 - 2 40.62

Only 3 mi 17 7 13.27 42 20 44.4
 + 1 54.93 - 4 34.24

L. 17 9 8.204 + 0.14 L¹² 16 10.16 - 1.2
 D. 9 8.785 - 0.025 10.02 + 0.8

Adopted (B) 17 9 8.83 + 42 16 10.8
 due to app. + 0.67 + 4.4
 Comet - Star + 45.50 + 2 23.0

Comet app. a.d. 17 9 55.00 + L¹² 18 38.2
 for Per. + 0.547 + 3.00
 " Per. + 0.20 + 1.1

Refractor invisible.
 Temperature ab. 48°

El 22 1 54
 fast 33
 22 1 21
 15 7 27
 6 53 54
 1 9

6 52 46 M.T. Camb.

h 4 0.4347

1830.5

1843.0

L¹² 17 8 13.3 17 8 34.9
 J¹² 42 18.43 42 17.50

17 9 9.5912 9.95888
 17 9 9.98881 9.98893
 1.91150 1.68262
 3.08759 2.88853
 17 9 9.35054 9.34728

1.45943 1.63025
 72.348 42.683
 187.182 110.537

G 357.5
 α 257.17
 H 41.56

(G+H) 9.9836 4 + 53.77
 14.0 9.9585 9° - 20.57
 γ 1.0698 10° - 23.17
 G. (G+H) 9.4305

Δ 0.1308 5' - 6" 31
 in (N. of) 9.9409 N + 6.45
 h 1.2931 3' + 4.27
 G. (H. of) 9.6885
 Δ in Δ 9.8277

By i 0.7557

Comet 1861 II

1861 1007

From ephemeris

$$\begin{array}{r} 21 \Delta \quad 0.4347 \\ \quad 2.6970 \\ \hline \quad 3.1317 \end{array}$$

$$\begin{array}{r} 6 \quad 52 \quad 46 \\ - \quad 23 \quad 41.5 \\ \hline - \quad 22 \quad 34 \\ 6 \quad 6 \quad 30.5 \end{array}$$

$$F \quad .25252$$

$$\begin{array}{r} 24' 49.3 \quad 3.17298 \\ 29' (8-0.5) \quad 9.39001 \\ 29' 35.4 \quad 2.33325 \end{array}$$

$$- 365.6$$

$$- 52.9$$

$$C. \quad 257 \quad 28 \quad 49.6 \quad + 42^{\circ} 18' 40.4$$

$$O(\text{comp}) \quad 28 \quad 48.0 \quad 18 \quad 39.3$$

$$C-O \quad + 1.6 \quad + 1.1$$

Amet 1861. II

1861 Nov. 8

Compared with BZ 426 $17^{\circ} 7' 59.78''$

Positions

	^h	^m	^s		
21	19	47		133.5	R
	21	30		134.3	L
	22	53		135.6	L
	24	10		134.7	R

Clouded up.

Clark's Object Glass

1861 Nov 13th

At 6^h 30^m P.M. Saw the double companion
of α Capricorni ($2''?$). δ Aquarii & other stars - excellent
definition - in color red predominates as in our
object glass the blue rays do at best adjustment

Comet 1861. II

1861. Nov 10

Compared with $\star \alpha = 9^h 5^m$
S. S. P.

Chro.	22	51	26	Below	13.125 ⁿ	At angle 206.°6
	(52)	(20)		Above	13.544	
	55	35		"	13.970	
	56	50		Below	13.483	

With Ranging (series on Comet's side)

23	0	56
2	54	
4	11	
6	25	

300.8	Left
299.6	Right
299.4	Right
301.0	Left

Coincidence 33.795

23	12	29	Above	15.090	At angle 211.°6
14	30		Below	14.865	

Redetermined 1861. Nov. 11.

Star α comp: with Star $\alpha = \text{BZ } 426$ 17 11 56.43
 α south following α

α	23	23	3.3	8.6	9' 56"	9' 58"
α		25	9.0	14.4	4 12	4 16

α		26	19.0	24.4	9 26	9 29.5	} Not very good.
α		28	24.7	29.6	3 46	3 48*	

Comet about as easy to see as a star of $11^m/12^m$ magnitude

Therm. 35.°

2	5.54 [*]	-	5	41.9	
			+	0.2	
			+	1.1	
			-	5	40.6

+ I am not certain about this last Temp. Refr.

+ The obs. gave Nov 10 by Chro. 2 5.57
Nov 11 5.52

Amel 1861. II

1861 Nov 10.

Star a

$$\begin{array}{rcl}
 187.426 & 17 & 11 & 56.43 & + & 42^{\circ} 40' 31''.7 \\
 & & & + 1.095 & & - 14.11 \\
 & & & + 0.086 & & + 0.063
 \end{array}$$

$$\begin{array}{rcl}
 1875.00 & 17 & 11 & 57.61 & + & 42 & 40 & 18.2 \\
 & & & 7.15 & & - & 2 & 28.5
 \end{array}$$

$$\begin{array}{rcl}
 1800.00 & 17 & 11 & 10.40 & 42 & 42 & 3.7 & \text{tgd} \\
 & & & 1 & 53.75 & - & 4 & 13.7 & \text{in cl}
 \end{array}$$

$$\begin{array}{rcl}
 1861.0 & 17 & 13 & 4.15 + 0.15 & 42 & 37 & 50.0 - 1.2 \\
 & & & 4.76 + 0.045 & & 37 & 49.7 + 0.8 & \text{in cl}
 \end{array}$$

$$\begin{array}{rcl}
 \text{Provisional only} & \text{Adopted (1861.02)} & 17 & 13 & 4.63 & 37 & 49.9 \\
 & x-a \text{ (app)} & & 2 & 5.54 & - & 5 & 40.6 \\
 & a-2 \text{ (B2 to app)} & & & - 0.01 & & & - 0.3
 \end{array}$$

$$\begin{array}{rcl}
 x \ 1861.0 & 17 & 15 & 10.16 & + & 42 & 32 & 9.0 \\
 \text{Red to app.} & & & + 0.63 & & & & + 4.5 \\
 \text{Next page - Comed - star x} & & & - 13.48 & 50 & - & 2 & 0.5
 \end{array}$$

$$\begin{array}{rcl}
 H \ a \ d & 17 & 14 & 57.29 & + & 42 & 30 & 13.0 \\
 \text{Pro.} & & & 57.99 & & & & 10.7 \\
 & & & + 0.21 & & & & + 1.4
 \end{array}$$

$$\begin{array}{rcl}
 \text{Chro.} & 23 & 1 & 58 \\
 \text{fact.} & & & 8 \\
 & 23 & 1 & 49 \\
 & 15 & 19 & 17 \\
 & 7 & 42 & 32 \\
 & & & 2 + 1.16 \\
 & 7 & 47 & 14
 \end{array}$$

* There is no essential error in the Amel's Bureau's Table

with Struve

$$\begin{array}{rcl}
 & & + 54.17 \\
 & & - 21.04 \\
 & & - 23.63 \\
 & & + 9.30 \\
 & & - 5.86 \\
 & & + 6.11 \\
 & & + 3.96 \\
 & & + 4.19 \\
 & & - 21.01 \\
 & & - 23.68 \\
 & & + 9.48 \\
 & & - 5.17 \\
 & & + 6.21 \\
 & & + 3.97 \\
 & & + 4.51
 \end{array}$$

$$\begin{array}{rcl}
 \text{Amel 1861.0} & & + 1.963 + \frac{4}{100} \\
 & & - 4.341 + \frac{2.83}{8} \\
 1830.5 & & 1843.00 \\
 17^{\circ} 12' 7.9 & & 17^{\circ} 12' 31.2 \\
 42^{\circ} 39.92 & & 42^{\circ} 39.06 \\
 9.96457 & & 9.96435 \\
 9.99066 & & 9.99061 \\
 1.91150 & & 1.68246 \\
 3.08759 & & 2.85853 \\
 9.21670 & & 9.32222 \\
 1.86653 & & 1.63760 \\
 2.40429 & & 2.17175 \\
 -73.535 & & -43.391 \\
 11 & & 20 \\
 G & & 357.18 \\
 a & & 258.16 \\
 14 & & 38.57 \\
 G & & 9.9641 \\
 14 & & 9.9861 \\
 8 & & 1.3729 \\
 14 & & 9.3966 \\
 14 & & 0.1333 \\
 14 & & 9.9490 \\
 14 & & 1.2949 \\
 14 & & 9.6602 \\
 14 & & 4 \text{ compared} \\
 14 & & 9.8308 \\
 14 & & 9.8300 \\
 14 & & + 54.17 \\
 14 & & - 21.04 \\
 14 & & - 23.68 \\
 14 & & + 9.30 \\
 14 & & - 5.86 \\
 14 & & + 6.11 \\
 14 & & + 3.96 \\
 14 & & + 4.19
 \end{array}$$

Comet 1861 II

1861 Nov 10.

$\begin{array}{r} 22 \ 52 \ 28 \\ 56 \ 12 \\ 23 \ 1 \ 55 \\ 5 \ 18 \\ 13 \ 20 \end{array}$
 $\begin{array}{r} 13.334 \\ 13.876 \\ 300.2 \\ 300.2 \\ 14.978 \end{array}$

At 166.

Assumed

$\begin{array}{r} 23 \ 1 \ 55 \\ 23 \ 11 \ 5 \\ 230.8 \end{array}$

$$\begin{array}{l} dx + 1.043 \sin 42^\circ 30' = 0.769 \\ dy + 0.166 \end{array}$$

$$\begin{array}{l} m = -2' 0.8 \\ n = -2' 28.4 \end{array}$$

Temp 35 Corr - 0.1
 Dist 11 11*
 Rev.

$$\begin{array}{r} 20.461 = 3 \ 20.4 + 0.7 \\ 19.919 = 3 \ 19.1 + 0.5 \\ 18.817 = 3 \ 18.3 + 0.3 \end{array}$$

230.8
230.8

	-9.5	-5.7	0.10	+3.4	+11.6
m'	-2' 2.4	-2' 1.7	-2' 0.8	-2' 0.2	-1' 58.9
n'	-2' 38.3	-2' 32.8	-2' 28.4	-2' 25.8	-2' 19.5
h'	2.0678	2.0853	2.0821	2.0749	2.0752
h'	2.1923	2.1841	2.1714	2.1638	2.1466
$h' x'$	2.2968	2.2908	2.2818	2.2764	2.2631
x'	199.1	198.3			188.3
y'	231° 50'	231° 28'	230° 54'	230° 30'	229° 34'
$dx (C-0)$	-2.3	+0.7			-1.0
$z'v$			+0.2	+1.0	
	144.4				139.4
$m + dm$			-2' 0.5		
$n + dn$			-2' 29.4		
			2.1732		
			2.3058		
dx			-3' 27.2 = -12.48	13.50	

δ This is a correction for the projection of the distance

which are observed.

$$\begin{array}{l} O = -2.3 - 0.62 \sin -0.79 \sin \\ +0.7 - 0.62 \sin -0.79 \sin \\ +0.2 + 0.79 \sin -0.63 \sin \\ +1.0 + 0.81 \sin -0.63 \sin \\ -1.0 - 0.63 \sin -0.79 \sin \end{array}$$

aa	ab	an	bb	bn
0.38	+0.44 49	+1.4	+0.62	+3.0 1.8
0.38	+0.44 49	+0.4	0.62	+0.6 -0.6
0.62	-0.43 50	+0.2	0.40	-0.1
0.66	-0.43 51	+0.4	0.38	+0.6
0.40	+0.44 49	-0.6	0.61	+0.8
		-0.2		
2.44	+0.46	+1.6	2.63	+2.5
			+2.63	+2.6 5
			-0.09	+0

$$\begin{array}{l} \delta n = -0.64 + 0.71 \\ \delta m = +0.3 - 1.77 + 0.89 \end{array}$$

Problem 1 double setting
 ± 0.90

$$\begin{array}{r} 1830 \\ - 848 \\ \hline 982 \\ - 103 \\ \hline 879 \end{array}$$

5.3

Comet 1861. II

1861 Nov. 10

Comparison with Ephemeris

Camber mt

1.4

7 40 1

40 0 44 16 - 22 56

- 23 62

6 53 23

W.M.T. corr. for Ab.

+ 287 07

1-05 - 212 93

25' 3.2 3.17416

9.32876

4 1.9 2.38364

- 5' 20.2

- 51.5

C 258 44 26.0 7 + 42 30 10.5

Obs for Run

44 3

37.0

+ 3.2 5

14.34

- 3.9

Comet II, 1861

Nov. 11, 1861.

S.H.S. obs.

Comet ^{n.f.} α & γ 11.7 Position and Distance

Obs. 22 54 44 330.5 Right
 56 49 330.3 Left
 57 50 330.5 Left
 23 0 32 331.4 Right

23 3 7 at Angle 61° 15.260 Below (Coincidence ^{33.877} ~~under~~)
 4 35 15.375 Above 15.312
 5 50 14.860 Above
 7 12 15.475 Below 15.168

23 9 38 328.7 Right
 11 20 327.5 Left
 12 52 326.7 Left
 14 58 326.0 Right

23 20 12 At Angle 55° 13.956 Below
 21 47 14.342 Above 14.149

Scale (at 352° 14')

E.C.

Q — 9 33
 X 3 45 3 50 (of last night)
 Y 3 1 3 3
 Q 29 9 31
 X — 3 50
 Y 3 0 3 1.5

23 27 39.4 44.9
 29 44.8 50.1
 31 51.3 10.3
 32 39.9 40.5
 34 40.9 54.0
 36 6.0 11.8

The star γ is probably 107. Stars and moonlight render observations difficult. Stars α and ϵ are the same as last night.

22 55 46

20."6

59 11

20.05

Cor.

23 3 51

3' 1.9 + 0.0

1.5

6 31

3 13.3 + 0.1

2.8

1.0

2.5

23 10 29

22.9

1.2

13 55

24.65

1.0

2.2

23 21 0

3 13.3 - 0.0

24.06

4.81

Mean J. 23 7 15

Assumed Pos. 22° Distance 3' 4"0

m = 5 km p

n = 5 km p

m = 170."6

n = 68."9

day = 1.067 m d = + 0."771

dx = + 0.173

dm = ds cos p - 8dp sin p

dm cos p + dn sin p = ds

dn = ds sin p + 8dp cos p

$\delta \mu$	- 2'0	- 1.4	- 0.6	- 0.1	+ 0.6	+ 1.2	+ 2.4	0	- 3.2	+ 0.94	0.38
$\delta \mu$	- 8.9	- 6.2	- 2.6	- 0.6	+ 2.5	+ 5.1	+ 10.6	+ 0.9	0.94	0.35	
m	+ 168.6	169.2	170.0	170.5	171.2	171.8	173.0	+ 0.9	0.92	0.39	
	+ 60.0	62.7	66.3	68.3	71.4	74.0	77.5	- 4.4	+ 0.92	0.39	
	2.2269	2.2284	2.2304	2.2317	2.2335	2.2350	2.2380	+ 0.5	+ 0.36	+ 0.94	
	1.7781	1.7793	1.8215	1.8344	1.8537	1.8692	1.9006	+ 0.3	0.37	0.93	
$\gamma \cdot \delta'$	2.2528	2.2563	2.2611	2.2640	2.2683	2.2720	2.2797	- 2.9	0.42	0.92	
γ'	19 35	20 20	21 18	21 50	22 38	23 18	24 42				
δ'			182.4	183.7			190.4	7.9			
$\delta \mu$			+ 0.5	+ 0.3			- 2.9	0 = - 1.4 + 4.01 \mu + 0.30 \delta \mu			
$\delta \mu$	- 3.2	+ 0.9			- 0.9	- 4.4		+ 0.9 + 0.30 \delta \mu + 0.12 \delta \mu			

dn = + 1."4 ± 0."80

dn = 2"0

dm = + 1.5 ± 0."70

dm = - 0.8

39.

- 10

- 7

22

± 1."40

Comet 1861 II

Apr. 22. 1861.

185

Coincidence $33^{\circ} 53' 00''$ El

Mean

Comet - Star. Alt. for
Ref. Temp.

Comet south prev. 27 55 7.2 15.5
Star 56 19.2 28.5

21 55 11 - 1 12.50
+ 1.45

Comet 57 0.8 10.2
Star 58 13.5 22.8

57 6 - 1 12.65
+ 1.31

Comet 58 59.9 65.8
Star 22 0 12.5 18.0

59 3 - 1 12.40
+ 1.17

Comet 0 38.4 44.0
Star 1 51.0 56.4

22 0 41 - 1 12.50
+ 1.05

Comet 2 33.3 29.0
Star 3 35.3 41.0

2 26 - 1 12.00
+ 0.91

South
Comet on Coincidence: $33^{\circ} 53' 00''$
Star $8^{\circ} 31' 2''$

El. 22 6 12

- 4' 10.2
+ 2.2

Comet ^{Chro. time} 22 9 56.0 (Chro. 24. slow of El.)
Star 7.813

22 9 24

4 15.1
+ 1.4

Comet 22 11 20
Star 8.770

22 11 20

4 5.7
+ 1.0

Comet 22 14 25
Star 8.076

22 14 49

4 12.5
+ 0.1

Comet 22 17 38
Star 8.422

22 17 59

4 9.1
- 0.6

Comet 22 20 50
Star 8.616

22 21 14

- 4 7.2
- 1.4

Coincidence $33^{\circ} 55'$

E.C.

Count	22	29	7.4	11.8	22	29	10	-1	10.35
Star		30	18.1	21.8			-1.00		
Count	31	59.2	16.7		32	3	-1	10.90	
Star	33	10.4	17.3				-1.20		
Count	33	58.2	65.0		34	2	-1	10.15	
Star	35	8.4	15.1				-1.36		
Count	36	19.3	26.0		36	23	-1	9.80	
Star	37	29.2	35.7				-1.51		
Count	38	4.8	11.5		38	8	-1	10.40	
Star	39	15.2	21.9				-1.64		

Reduce to E.C. 22 15 19 AM 4.31 + 14"4

APR

1	11.05	16
	11.34	1
	11.23	5
	11.45	0
	11.09	13
	11.35	1
	12.10	42
	11.51	0
	11.31	2
	12.04	6
1	11.45 ± 0.064	9.56

Dec.

4	8.0	1
	13.7	24
	1.7	17
	12.4	13
	9.7	
	8.8	9
2		64

12.41 21.59
10.32 22.34

$$\begin{aligned}
 & - 4 \frac{9.4}{8.8 \pm 0.098} \\
 & - 0.1 \\
 & + 0.2 \\
 & \pm 2.41
 \end{aligned}$$

Ref.
Temp. (36°)
Temp ± 0.200

Print 1861. II.

1861 Nov 22.

Star's pha = B. 5997.
 Day 430.

197. 478

17 34 40.46	+ 43" 34' 8.4	17 34 27.00	+ 43 33 50.6
+ 39.65	- 25.6	+ 52.99	- 17.4
- 0.06	- 0.4	- 0.08	- 0.4

1825.00	17 35 20.05	19.98	+ 43 33 42.5	1828.6	
Pr.	+ 1 5.03		- 1 15.9		
L 1800.00	17 34 34.165	+ 1.605	+ 43 34 34.05	- 2.2215	1810.5 (1794.4)
Pr.	+ 1 50.166		- 2 10.55		
G. 1810.00	17 34 52.63	+ 1.804	43 34 12.0	- 2.1945	1810.5
Pr.	+ 1 32.12		- 1 48.5		
R. 1836.00	17 35 39.928	+ 1.804	43 33 23.48	- 2.12	1847.
	+ 45.165		- 52.3		
Port. 1845.00	17 35 56.29	1.806	43 33 0.5	- 2.10	1846.8
	+ 28.91		- 33.3		
Jacob. 1850.00	17 36 4.78	1.807	43 32 46.76	2.09	1851.35
	+ 19.87		- 22.8		

1794.4	24.47	+ 0.14	18	22.6	23.1	1840	1
1810.5	30	- 0.09	0.8	23.5	+ 0.2	17 35 47.2	
1828.6	28.08	- 0.15	1.1	26.6	+ 0.8	43 33.22	
1847.	13	+ 0.02	0.0	31.2	- 0.3		
1843.6	16	- 0.05	0.3	27.2	0.0	9.97806	
1850.4	24.96	+ 0.24	2.2	24.0	0.0	9.99757	
			1.55			0.12615	
1828.6	17 36 24.978			22.6	23.1	0.30224	
Pr	+ 0.0090			23.7	24.2	9.02306	
1831.0				27.4	26.4	0.10178	
				30.9	26.7	+ 1.5063	
				27.2	26.5	- 2.115	
				24.0	25.4	1835.5	1.8062
						1830.5	+ 1.8060
						42	64
						48.5	66
						53	67
						54.5	68
							69
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							99
							100

Paul 1861 II

1861 Nov 22

29 1861.0 ^h 17 ^u 36 ^{5.26} 25.27 +43 ⁰ 32 ¹ 27.7
 Par to app. + 0.49 + 4.6
 Comet-Star 17 1 11.45 -4 8.7
 Comet's α 17 35 14.31 +43 28 23.6
 Par. + 0.19 + 0.9

22 15 19
 fast 48

22 14 31
 16 6 36
 6 7 55
 -1 0
 6 6 55 Lamb. mt.

17 35 4 43 26.1
 C-0 - 16.5 - 0.5

Obey in 25 yrs about
 -100 0
 0 -104
 +3 -102
 -105 +2

a 7.9789 9.9999
 b 8.9613 8.8530
 c 0.2568 0.3170
 d 7.8167 9.9977
 fa 8.9413 0.9623
 fb 0.2126 0.1040
 ca 0.2406 0.4006
 dd 7.7138 9.6928

-0.087 +9.17
 -1.632 -1.27
 +2.191 -2.52
 +0.005 -0.79
 +0.49 +4.6

Encke's Comet

Isler Dec 5.

Star γ 10.11.13 comp: with $\sin a = \text{Heise } \text{XXII} \ 409,$

a 1 35.5 1 52 22.1 26.0

 γ 7 56. 55 23.6 27.6

X preceding

There is a small star $\alpha_{(10.11)}$ preceding γ about $8^{\circ} \ 0'6''$ no.Wires of micrometer at reading $352^{\circ}46'$.

Comet	(el)	2	7	9.1	16.7
γ				32.7	40.3

Comet		7	57.9	64.8
γ		8	21.1	28.4

Comet		8	44.6	51.7
γ		9	6.3	15.7

Comet		9	39.3	46.7
γ		10	2.9	10.3

Comet		10	38.3	46.7
γ		11	2.0	9.2

Comet preceding γ and is north of it.

Comet		11	26.5	33.6
γ		11	49.8	57.2

Encke Comet.

1861 Dec 5.

Star v. Wajpa XXII 409. ScSc.

1825.0 22 17 49.34 + 5° 39' 49.6
 + 1 48.46 + 10 52.6

1861.0 22 19 37.80 + 0.14 + 5 50 42.2 + 0.9
 R. to app. + 3.51 + 27.0

g - a (to h. recd.) 5 1.35 + 6 22.5

y app. 22 22 42.70 + 5 57 32.6
 (Res. to 1861.0) (-3.57) (-27.2)
 Comet - y - 23.90 + 1 1.1 16.8

Cond. a. v. 22 22 18.80 + 5 58 33.7
 Parallax + 0.38 + 5.7

2 17 22 El.

1/4 fast

2 16 38 Sid. Time

16 57 41

9 14 47

1 22

9 17 15 Camb. mt

5 38 3 Longit.

-7 49 Aberr.

14 47 29

-32.68 1.5162

1.1547 9.7893

-8.40.6 1.7166

Computed 22 22 16.16 + 6 0 17.3
 Observed 19.16 5 58 34.7
 C - 0 - 3.502 + 97.9

20 22 18 43.5
 20 + 5 45.26

ty 0 9.00334

vis 0 9.63109

1.68244

2.85853

an 0 9.95614

68.1

0.31728

-2.076

G 358 49

L 334 54 335 39

H 15 15

h 9.0108

h (M) 9.6162 9.6345

g 1.4004

a (M) 9.9526 9.9554

best 0.0023

h (M) 9.2108 9.1747

h 1.2075

h (M) 9.9942

h (M) 9.0053 9.0156

f 57.74

g 0 - 1.74 - 1.11

h 0 - 3.32 - 3.05

g 0 + 22.04 + 22.69

h + 2.04 + 2.13

i + 2.39 + 2.39

Encke's Comet

Shows most nebulosity on side opposite to the sun
noticed independently by three observers G.P.B

for Count 1861. II

Star a	At scale = zero			
" x'	2 16	0 44	18.2	24.1
	9 24	46	53.6	59.3

Object z inf. star y

1	4 37	150.6	R
	6 33	150.7	L
	8 3	151.7	R

Encke's Comet

1861 Dec 21

Very Clear

0' 5'

Looked at Encke's Comet Pos 240°

The strong eccentricity of
the brightest part is very
remarkable - And is
quite identical with its
aspect as drawn in
some of its former apparitions



The diffused light also can be traced much further
& brighter on this side than on the other - Only with
great difficulty can any haze be seen on side towards
the Sun.

C.P.B

Comet 11 1861

1861 Dec 28

Comet 236.0 47 58 48° 28' .3'

Per. 6 6 6

Star 0 50 45.5 48° 39.5'

6 4 22
1 45.411 52
18 40 7

Motion decided See the end of book

Comet is still tolerably bright
is visible in finderIn Great Refractor diameter 1'
No stellar nucleus

Star = Gr. 2677	1862.0	18 44 38	48° 36.7
Giordani		18 46 23.5	48 39.5
Giordani		- 1 46.5	- 2.8
Coma		18 41 52	48 28
Comae par. apprens		18 40 6.5	48 25.1
Salvini apprens. det.		18 39 28.5	48 23.5

18 48	} + 38" + 2'
18 30	
6 18	
5 38	
18	
11 30	

Corr. Giordani
Salvini

New Comet Discovered by H. P. Tuttle

1861 Dec 28/29

G. P. B. obs.

at 3 o'clock A.M.

See two pages on.

about 12^m 5^s

Time for Dec signal after 3 Dots

6^h south presently ** 7^{mg} 6 Lebrae (?)

Micr. reading for Dip. Dec

26^r .41= 26^r.41

time on Spr. Gov. sheet

Comet in morning twilight
compared with star of 7th mag
4 1' north of it.

206 12 5-6^m 32^s .5 6 Obsd also on Spr. Gov. sheet
40 .0 6

12 5-7 41 .5 x

12 5-7 49 .0 *

12 5-8 9 0 6

13 5-8 16 0 6

13 5-9 17 .5 *

13 5-9 25 .5 *

14 1 20 .0 Time for dec

14 2 29 .98 r for *

Zero = 33^o .93 (1)

" 33 .87 (2)

33 .89

Difficult to see wisps in daylight

Procyon's Comet

1861 Dec. 28

G. P. B.

{ Tail suspected.

{ Angle of Position (Circle 103°) nearly following.

Principal Diffusion of Nebulosity 30° (Southward)

Diameter about 3'.

Comet is just visible to the naked eye

Brightest center is not above $15''$ distant from
following side of nebulosity while the light
extends bright for $2'30''$ on the opposite side

Sp. silli - quite as in 1848

Tail??

Mr. Comet.

1661 Dec. 28/29

S. G. readings etc.

El.

HN + 2.9 + 4.3

Mohini

12 53. 10.8

26.61 7.49 - 1'13"4 + 0'19"8 - 0 53.6

Mohini

56 56.1 63.8 - 1 9.05 + 0.04 - 1 9.04
 58 5.1 12.9

58 32.5 40.2 - 1 8.60 - 0.04 - 1 8.64
 59 41.0 48.9

13 1 43.8

29.98 3.92 - 34.4 - 16.9 - 0 53.3

9 26.4 32.5 - 1 8.30 - 0.55 - 1 8.85
 10 34.4 38.8

11 23.8 - 1 7.70 - 0.66 - 1 8.36
 12 31.5

12 57 48 El.

$\Delta\alpha = -1\ 4.715$ $\Delta\delta = -54''9$

* of leap. 14 47.8 51.9
 16 21.9 26.0
 17 4.4 9.5

Zero of wire New Comet (Continued)

1861 Dec 28/29

Zero of scale

$82^{\circ} 37'$ Zero of wires $81^{\circ} 15'$ hasty

Aft. break date passage of R repeated
as follows

Emerging north

19 10 11 0 X

19 " 59 .8 X Comet.

19 12 8 .0 X Star.

Star Comp of 9th mag compared with
* of Comp. precedes * of comp

Rec-
on {
Sfr {
Gnd {
5⁰ 46 r 5' 46" = Scale reading Star of Comp. 7th
8- 9 mag 5th 5th 9 2nd X of comp 8/9 mag

13 18 22 .5 7th mag
h E 0 57 28 Star of Comp I was place
Dec. - $5^{\circ} 9'$

14 14 36.

14 14 36

14 15

14 14 36 - $5^{\circ} 9'$

1861 Dec. 28.

M. 14. 232	14	11	57.87	- 5	10	19.0	
Rev. to 1861.0 - 234			+ 0.07			- 0.4	
			57.94	- 5	10	19.4	
			10.13			1.2	
M. 14. 234 from	14	12	8.07	- 5	1	17.4	from 232. (1861.0 &)
By Weiser*			7.21			24.2	
14. 234 - 1861.0	14	12	7.64	- 5	1	20.8	
			1 52.90			3.7	
1861.0	14	14	8.54	- 5	11	24.5	
Rev. to app.			3.69			- 22.1	
Cont. - Har		1	8.72			34.9	

Cont's M and Dec. (Poy) 14 12 55.33 - 5 12 39.4
 Star can be compared with 564.1149 (1861)

Return to 12 57 48. 22.

Vorläufig - 1 " 4.42 28.50
 - 52.9 33.90

26. 12 57 48.
 fast 40

12 57 4
 14 28 32
 14 28 36
 3 2

140 25 34 Lamb. m.s.t

* M. 14 232 and 14.234 were compared 1862 Jan 2. It would seem that one of them must have a sensible P.M.

δ''	- 5° 1.38
α''	14 13 4.0
	213 16.00
η''	8.951142
	9.73921
	1.68244
	2.85853
	9.9227.
	0.37277
	2.359
	110.537
G	359 30 7 61.83
α	213 30 9° + 1.00
η	352 48 1° - 9.08
η''	8.9512.
$\eta''(G.4)$	9.7362
η	1.6200
$\eta(G.4)$	9.9436
η''	0.0018 2' - 22.58
$\eta''(H.4)$	9.6365 1' + 1.65
η	1.3098 2' - 1.10
$\eta(G.4)$	9.9512
η''	8.9512

Comet 146-

(HPS.)

864 Dec. 30
by hand pub.

Comet compared with star x.

Measured

Dec. 6 84. + 6.7 in 1m.

14m. + 3.56 + 5.23

Return to Dec. 12 51 26

Comet	12	48	21.6	26.0
Star			36.8	41.0

1	11	?
2	11	720

-15.10 + 0.18 -14.92

Comet	50	33	7.8
Star		18.8	22.9

4	58
2	38

-15.30 + 0.08

-15.22

Measured 3'

+ 7.0

+ 6.6

21.6
3' 27"0

Comet	52	15.5	19.7
Star		31.1	35.0

6	57
3	17

-15.45 - 0.03 -15.48

- 7.5

Right 13.8

29.5

Comet	54	57.5	61.6
Star		12.6	16.8

4	55
1	14

-15.15 - 0.24 -14.94

-15.4

-16.7

23.2

102 Virg	56	17.4	21.3
x 102 Virg	59	35.4	39.6

0	11
9	13

+ 3 14.15

102 Virg	0	18.2	22.2
x	3	36.4	40.2

0	33
9	26

+ 3 18.10

+ 4.00 (8 54 sure)

B = 103 Virgin

B	13	8	6.9	9.1
Comet		8	42.4	46.8

8	43
6	12

+ 37.60

Right

B	10	12.3	16.4
Comet		50.3	54.9

7	24
5	45

+ 38.25

1 37

to 14 51 26 3

-15.25 + 3 24.0

+ 3 18.00 8 53.0

3 2.88 + 12 20.0

+ 0.6

- 3.6

12 16.6

+ 2 35

- 0.7

Ref.
Temp. (15)

Met 106- RPT

1861 Jan. 31.

102 Virgin

Mader 212° 57' 15" 90 - 9" 6 - 1 34 10.67 - 8.2

Pr. 1800 46.293 - 16.954 16.339
 1850 46.358 - 16.829 ✓
 16.5

Pr. 11y + 8 30.02 - 3 4.97
 - 1.06 - 0.90

1860 II 213 5 44.86 - 1 37 16.54

Robinson 14 11 18.22 - 1 31 20.52 1831.4 1852.35
 Pr. - 9y - 27 803 + 13y. Pr. - 0.35 + 0.13

1831.0 14 10 50.418 - 0.026 - 3 38.89
 1755.0 6 58.413 - 1 34 59.4

3 52.004 - 0.026 - 1 7 12.7 1755

Meanly. 1793.0 + 3 .0790 - 0.0002.5 - 27 46.7 1804
 1846.0 + .0845 + 10.131 1857

3.0835 - 16.246

92.505 - 0.070 - 2 15.01

1861.0 14 12 22.922 - 1 37 14.4
 22.666

Corr.

Corr.

Mader 14 12 22.991 - 0.005 - 1 37 16.5 + 0.40
 Bradley - Robinson 22.922 + 0.063 14.4 - 0.8

Adopted 14 12 22.99 - 1 37 15.8

(M2 R1)

2.52 4' 40"
 4"

Comet 186- (HPY)

102 Vir

14^h 12^m 22.99 - 1^o 37' 15.8"
+ 3.62 - 23.7

+ 6 - 8
+ 16 + 34
+ 1 - 6
+ 35 + 16

103 Virgin

Per. 1800 + 46."246¹²⁶ - 16."839¹⁵⁴
1850 46.310 16.710¹⁶⁹⁰

a 8.7472n 9.6212n
b 8.5615n 8.3651n
c 0.4701 1.2253n
d 7.1893 9.7374

Märker 213 33 44.72 - 7.4 - 1 18 0.43 - 3.9
Per. 8 29.49 - 3 3.56
p.m. - 0.41 - 0.43

9.2544 0.1288n
9.8656n 9.6692
0.6202 1.3554n
0.5519n 9.1010n

1861.0 213 42 13.40 - 1 21 4.52

Robinson 1836.33 1846.6

14 13 44.02 - 1 15 11.19

+ 0.180 - 1.35
- 0.733 + 0.47
+ 4.17 + 22.7
0.000 - 0.13

Per. - 12.34 - 1 40.35

1836.00 13 31.68 1846.0 - 1 16 57.54

9 22.57 - 0 51 17.40

8/25 4 9.11 9/25 - 25 34.14

8/25 + 3.0750 - 16.8587

+ 74.050 + 20.136

+ 74.050 16.722

1861.0 14 14 44.730 - 1 21 2.37

G 359 30
a 213 42
H 350 56

+ 3.62 - 23.7

Mol. 14 14 44.893 - 0.005 - 1 21 4.52 + 0.40

Rob. 18.730 + 0.063 2.37 - 0.92

Sh. 14 14 44.86 - 1 21 3.9

+ 3.60 - 23.6

40 8.3722n f + 62.7
1/2 (40) 9.7384n 90 + 0.35
g 1.4324 10 - 8.57
n (40) 9.9276n 54.02

Per. 0.0001 g1 - 2.65
1/2 (40) 9.6199n h1 + 0.44
h 1.3096 i1 - 1.39
n (40) 9.7585
H 8.3721n

Comet 186- (187)

1861 Dec 30

102 Virgin
Rev to app:

$$\begin{array}{r} 14 \quad 12 \quad 22.99 \quad -1 \quad 37 \quad 15.8 \\ + 3 \quad 2.88 \quad + 12 \quad 16.8 \\ + 3.62 \quad - 23.7 \\ \hline 14 \end{array}$$

$$\begin{array}{r} 14 \quad 15 \quad 41.10 \quad -1 \quad 29 \quad 25.1 \\ + 3.60 \quad - 23.7 \\ - 15.14 \quad + 3 \quad 26.2 \\ \hline 14 \quad 15 \quad 29.56 \quad -1 \quad 25 \quad 22.6 \end{array}$$

Comet app.

$$14 \quad 15 \quad 29.49 \quad -1 \quad 25 \quad 22.7$$

$$\begin{array}{r} 12 \quad 51 \quad 26 \\ 37 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \quad 50 \quad 49 \\ 18 \quad 36 \quad 25 \\ \hline 18 \quad 14 \quad 24 \\ - 2 \quad 59 \\ \hline 18 \quad 11 \quad 25 \end{array}$$

$$\begin{array}{r} 103 \text{ Virgin} \quad 14 \quad 14 \quad 48.86^5 \quad -1 \quad 21 \quad 3.9 \\ \text{Rev} \quad + 3.60 \quad - 23.6 \\ \text{H} - * \quad + 37.92 \quad + 2 \quad 36.3 \\ \hline 14 \quad 15 \quad 30.38^7 \quad -1 \quad 24 \quad 1.8 \end{array}$$

$$\begin{array}{r} 13 \quad 9 \quad 11 \\ 37 \\ \hline \end{array}$$

$$\begin{array}{r} 13 \quad 8 \quad 34 \\ 18 \quad 36 \quad 25 \\ \hline 18 \quad 32 \quad 7 \\ - 3 \quad 2 \\ \hline 18 \quad 29 \quad 7 \end{array}$$

Eclipse of the Sun.

861 Dec 30.th

G.P.B. 15 47 4.0

El. finder of Gt. Equat.

37.6

Cambr. Sidereal Time 15 46 26.4

16 36 24.7

21 10 1.7

3 28.1

21 6 33.6

J.H.S. ^{4.24}₂₃₆ finder of 5-foot

End 15 46 36.1 not very certain

slow of El. 29.8

El. 15 47 5.9

El. fast. 37.6

15 46 28.3

16 36 24.7

21 10 36

3 28.1

21 6 35.5

15 46 29

+ 22 92

21 9 11

A.H. U. Fraunhofer 4ft. ^{Chro.} 236

Chro. 736 15 47 31.5

37.2

El. 15 46 54.3

37.6

fast 15 46 16.7

16 36 24.7

21 9 52.

3 28.0

21 6 24.0

Eclipse of the Sun.

1861 Dec. 30.

End by 157 - RTR State Equatorial

157 f. of M.C.	9	11	23.2	
will		4	39.3	
find	9	6	43.9	
			23.9	
	9	6	20.0	Civil Time
	12			
	21	6	20.0	

HPJ with Comet-taker Power 12.
~~21 28 4~~

Bowditch	21	5	4	
Bowditch		1	43	slow of M.C.
M.C.	21	6	47	
find			23.9	
	21	6	23.1	Mean Time

G.P.B.	21	6	33.6
R.T.P.			20.0
A.A.			24.0
H.P.J.			23.9
T.H.S.			35.5

Zero of Position for Wires

1861 Sept. 7	260° 54'	1 ^h W Equator
16	261 3	1.25 ^h W "
24	260 58	2.30 ^h W "
Oct 1	261 8	Mean meridian

Reduction from 1800.0 to 1861.0

$$187^{\circ} 282 + (1.91150) \sin \alpha^{\circ} \tan \delta^{\circ} \quad (\text{for } 1830.5)$$

$$(3.08759) \text{ in } \alpha^{\circ}$$

Reduction from 1825.0 to 1861.0

$$\Delta \alpha \quad 110^{\circ} 537 + (1.6244) \sin \alpha^{\circ} \tan \delta^{\circ} \quad (\text{for } 1843.0)$$

$$\Delta \delta \quad (2.85853) \text{ in } \alpha^{\circ}$$

Reduction from 1846.0 to 1861.0

$$\Delta \alpha \quad 76^{\circ} 764 + (1.52407) \sin \alpha^{\circ} \tan \delta^{\circ} \quad \text{for } 1848.5$$

$$\Delta \delta \quad (2.7006) \text{ in } \alpha^{\circ}$$

327

Stewarts' Corrections

Adm. parts. 1300

	$\Delta\alpha$	$\Delta\delta$
Argelander 1860	+ 0.040	- 0.65 + 0.0428 δ°
Bessel	+ 0.065	+ 0.89 - 0.0022 δ°
Struve	$\emptyset$	- 0.48 + 0.0093 δ°
Lalande	+ 0.024 + 0.128 δ°	see below
Piazzi	+ 0.187 + 0.144 δ°	see below
Groombridge	+ 0.020 + 0.142 δ°	- 1.98 + 0.050 δ°
Taylor	- 0.04	- 0.14 + 0.012 δ°
Antini I	$\left\{ \begin{array}{l} +0.6 + 10^\circ + 0.506 - 0.20 \text{ \delta^\circ } \\ +0.6 - 10^\circ + 0.508 + 0.25 \text{ \delta^\circ } \end{array} \right\} + 1.6$	
II		
Runkel	+ 0.075 - 0.0397 δ°	+ 0.59 - 0.021 δ°
Airy	+ 0.065 - 0.0442 δ°	+ 0.48 - 0.007 δ°
Challis	- 0.02	- 0.59
Johnson	- 0.04	- 4.27 + 0.0647 δ° (in volumes of observations)
Robinson	+ 0.045	see below

	~~Antini~~			Stadler		Johnson Reduced	
	R.	Lat.	Rob.	$\Delta\alpha$	$\Delta\delta$		
+ 60	+ 0.3	+ 0.7	0.0	+ 0.56	+ 0.006	~~1.5~~	
50	+ 0.4	0.0	- 0.1	+ 0.65	12	~~1.4~~	
40	- 1.3	- 1.5	+ 0.1	+ 0.01	16	- 1.5	- 0.04
30	- 0.7	- 1.3	+ 0.6	- 0.24	15	- 1.4	+ 0.13
20	- 2.3	- 2.2	+ 0.3	- 0.13	12	- 1.3	+ 0.25
+ 10	- 2.3	- 2.5	- 0.2	0.00	+ 0.05	- 1.5	+ 0.07
0	- 2.0	- 2.7	- 0.8	+ 0.19	- 0.03	- 1.1	+ 0.40
- 10	- 2.4	- 3.4	- 0.8	+ 0.93	010	- 0.4	+ 1.00
20	- 2.0	- 2.9	- 0.4	+ 0.58	017	- 0.9	+ 0.24
- 30	- 0.4			- 0.08	- 0.28	- 0.7	+ 0.15

14 mag. Star is 20".5

1861 Comet II 1861
Dec 28

37 7
55 21

40 6.2
41 12.4
40 24 41 33.7
42.8

9.1

147
5.6

10.9

116 176
20 11.4

40 30.9

42 12.3
43 20.2

9.9

43 23.7
34.2

10.5

2.3 70.0

12.3

10.08

Dec 31

Dec 18.

Dec 19

Dec 18

Dec 13

Dec 18! 19

16 31.0
42.5

17 19.5
41.3

17 57.2
87

16!

16!

Ephemeris of Comet 1861. II.

(Safford)

12 ^h Washington	a.		S.		2 ^h . Δ
Oct. 10	246°	36'	4".4	+ 41° 24'	21.7 0.86940
11	246	58	15.5	34	6.1
12	247	20	32.9	33	58.7
13	247	42	56.6	33	59.6 0.37768
14	248	5	26.4	34	8.6
15	248	28	2.4	34	15.9
16	248	50	44.5	34	51.4 0.38562
17	249	13	32.8	35	25.2
18	249	36	27.2	36	7.3
19	249	59	27.7	36	57.5 0.39324
20	250	22	34.0	37	56.1
21	250	45	16.2	39	2.9
22	251	9	4.5	40	18.0 0.40055
23	251	32	28.6	41	41.4
24	251	55	58.6	43	13.2
25	252	19	34.5	44	53.4 0.40758
26	252	43	16.4	46	41.9
27	253	7	4.1	48	38.8
28	253	30	27.6	50	44.2 0.41435
29	253	54	56.8	52	58.2
30	254	19	1.6	55	20.7
31	254	43	12.0	+ 41 37	51.9 0.42087

Stewarts' Corrections

Stk. Marks. 1300 $\Delta\delta$

Argelander 1860 + 0.0

Bessel + 0.0

Struve $\ominus$

Lalande + 0.0

Piazzi + 0.15

Groombridge + 0.0

Layton - 0.0

 $I \left\{ \begin{array}{l} 0^{\circ} 10' + 10^{\circ} \end{array} \right\} + 0.5$
 $II \left\{ \begin{array}{l} 0^{\circ} 15' - 10^{\circ} \end{array} \right\} + 0.5$

Runkner + 0.075 - 0.039

Ary + 0.065 - 0.044

Challis - 0.02

Johnson - 0.04

Robinson + 0.045

12th Washington.

d.

S.

log. Δ

Nov. 1	255 ⁰ 7' 28.0	+ 42 ⁰ 0' 31.7	
2	255 ⁰ 31 49.4	3 20.1	
3	255 ⁰ 56 16.3	6 17.2	0.427.6
4	256 ⁰ 20 48.3	9 23.2	
5	256 ⁰ 45 25.6	12 37.8	
6	257 ⁰ 10 7.9	16 1.2	0.43023
7	257 ⁰ 34 58.2	19 33.3	32.1
8	257 ⁰ 59 58.4	23 14.1	340.8
9	258 ⁰ 24 44.4	27 3.6	0.43910
10	258 ⁰ 49 46.2	31 2.0	35.4
11	259 ⁰ 14 52.7	35 9.2	42 39
12	259 ⁰ 40 3.8	39 25.0	0.44477
13	260 ⁰ 5 19.4	43 49.5	
14	260 ⁰ 30 39.5	48 22.6	
15	260 ⁰ 55 4.1	+ 42 53 4.3	0.45027

~~Stk. Marks~~

	Pl.	Lat.	Rob.	Stk.
+60°	+0.3	+0.7	0.0	+0.56
50	+0.4	0.0	-0.1	+0.65
40	-1.3	-1.5	+0.1	+0.01
30	-0.7	-1.3	+0.6	-0.24
20	-2.3	-2.2	+0.3	-0.13
+10	-2.3	-2.5	-0.3	0.00
0	-2.0	-2.7	-0.8	+0.19
-10	-2.4	-3.4	-0.8	+0.93
20	-2.0	-2.9	-0.4	+0.58
-30	-0.4		-0.08	-0.28

Stars for Meja from the Harvard Zones.

1855.0

b.	11 50 13.34	+0 37 42.0
c.	11 50 57.81	36 10.1

14 mag. Star is 20" S

1861 Comet II 1861
Dec 28

37 7
55 21

40 24 41 33.7
40 6.2
41 12.4
42.8

9.1

18 2 41.8 D = +42°

7. 16^N 26^m 20.63 41° 26' 58.5
9 29 36.40 41 36 11.6

Reduction to 1925.0

	K.	K1.	D.	D1
15.00	-54.154 + 124	+0.177	+18.32	-7.91
16.0	54.026 + 97	0.149	10.41	8.31
30	53.929	0.198	2.10	1.64

18.2. 426.. D = +42°

7.2 16^N 36^m 24.20 +41° 31' 57.2 Oct. 17
8 43 41.60 41 58 16.3 26
9 46 10.49 41 34 56.9 27

8 47 57.30 41 55 36.7 Oct. 26
9 50 33.50 42 9 36.4 30
9 52 57.58 42 13 40.8 31

9 53 5.50 42 7 59.2 30
8.9 54 33.20 41 52 24.9 31
8 57 41.60 42 9 2.0 31

9 57 41.57 42 15 18.3
9 17 5 27.00 41 57 55.8
7 6 15.48 41 56 53.4

8.9 7 11.99 41 58 20.4
9 7 21.20 42 23 11.5
8 7 59.78 42 19 3.3

7.4 9 13.10 42 24 45.3
8.9 10 24.48 42 28 4.7
8 11 58.43 42 40 31.7

11.6 17.6
12.6 14.4

14.7
15.6

10.9

42. 12.3
43 2.2

9.9

43 23.7
34.2

10.5

2.3 10.0

12.3

10.08

Dec 30, 31

Dec 18.

Dec 29

42.558 Dec. 19

Dec. 15

Dec 18! 19

16 31.0
42.5

17 19.5
41.3

17 57.2
87

16!

Bridge

Nov 7
Nov 8
Nov 8 - pu pg

/over

0.00
0.00

12	17	12	59.10	+42	18	2.6	
7	8	21	43.83	52	22	19.0	
31	9	21	52.25	42	53	9.1	+420
58	6.9	22	46.00	43	0	55.8	
20	9	24	14.10	42	52	5.1	
48			Reduction to 1828.0				
10			$\frac{N}{K'}$		$\frac{D}{K'}$		$\frac{D}{K'}$
34	16	30	+1.160 - 24	+0.210	-2.05	-8.60	+1.50
59	12	0	1.126 31	216	10.65	8.66	1.55
24	30	1.045	129	215	19.01	8.57	1.61
	16	0	+0.916	0.212	-27.58		+1.67

12	17	12	59.10	+42	18	2.6	
7	8	21	43.83	52	22	19.0	
31	9	21	52.25	42	53	9.1	+420
58	6.9	22	46.00	43	0	55.8	
20	9	24	14.10	42	52	5.1	
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58	6.9	22	46.00	43	0	55.8	
20	9	24	14.10	42	52	5.1	
48			Reduction to 1828.0				
10			$\frac{N}{K'}$		$\frac{D}{K'}$		$\frac{D}{K'}$
34	16	30	+1.160 - 24	+0.210	-2.05	-8.60	+1.50
59	12	0	1.126 31	216	10.65	8.66	1.55
24	30	1.045	129	215	19.01	8.57	1.61
	16	0	+0.916	0.212	-27.58		+1.67

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7	8	21	43.83	52	22	19.0	
31	9	21	52.25	42	53	9.1	+420
58	6.9	22	46.00	43	0	55.8	
20	9	24	14.10	42	52	5.1	
48			Reduction to 1828.0				
10			$\frac{N}{K'}$		$\frac{D}{K'}$		$\frac{D}{K'}$
34	16	30	+1.160 - 24	+0.210	-2.05	-8.60	+1.50
59	12	0	1.126 31	216	10.65	8.66	1.55
24	30	1.045	129	215	19.01	8.57	1.61
	16	0	+0.916	0.212	-27.58		+1.67

12	17	12	59.10	+42	18	2.6	
7	8	21	43.83	52	22	19.0	
31	9	21	52.25	42	53	9.1	+420
58	6.9	22	46.00	43	0	55.8	
20	9	24	14.10	42	52	5.1	
48			Reduction to 1828.0				
10			$\frac{N}{K'}$		$\frac{D}{K'}$		$\frac{D}{K'}$
34	16	30	+1.160 - 24	+0.210	-2.05	-8.60	+1.50
59	12	0	1.126 31	216	10.65	8.66	1.55
24	30	1.045	129	215	19.01	8.57	1.61
	16	0	+0.916	0.212	-27.58		+1.67

14 mag. Star is 20" S

Count 1861 II.

Dec.	10	18	6	58	+45	34.1
	14	14	2	46	8.2	
	28	21	15	46	44.5	
	32	28	33	47	22.8	
	26	35	53	48	3.0	
	30	43	14	48	45.0	
Jan	3	18	58	38	+49	28.9

2	35124	18	43	31	+48	54.0	67	1828.0	Dec. 31
40.	12257	14	22	3	46	43.0	8.	1828.0	Dec. 18.
"	14656	14	44	6	-	48	35.3	7.	1828.0
Feb. 2027	14	14	34	46	16.8	7.	24088	1828.0	Dec. 19
G.L. 40 19104	14	13	53	46	20.8	7.			Dec. 19
" 19232	14	20	56	46	47.8	(8.7)	comp. 1828.0		Dec. 18. 19
" 19372	14	28	28	47	17.9	9.10			Dec. 21
" 19377	28	43		19.3	8.9				Dec. 22.
" 19417	30	57		18.5	9				Dec. 22.
" 19433	44	41		49	2.8	9			Jan 1
" 19584	57	33		49	38.7	8			Jan. 3! 4!
" 19155	18	16	47	46	28.0				Dec. 16!

Europe. Amsterdam.

Europe
Amsterdam

Europe. Amsterdam.

Europe. Amsterdam.

Europe. Amsterdam.

1861
Dec 28

37 7
55 21

60 6.2
41 12.4
40 24
41 33.7
42.8
9.1
10.9

60 20.9
42. 12.3
43 2.2
43 23.7
34.2
2.3
12.3
10.0

16 31.0
42.5
17 29.5
41.3
17 57.2
8.7

