

KG
11365
193

H.39

Equatorial
Jan. 31st to April 8th
1861.

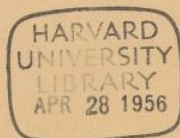
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Orion C' & Orionis

Jan 31. 1861.

G.P.B. obs.

4	* a	8 mag	5.1.0		50.6	38.6	II G III G IV K
5-9	b	11. or 10.11	4.7	13.7	4.8	51.7	13.1
15	c	5.6	9.2	4.1	9.6	56.8	5.1
17	d	6	25.0	? 11.8	26.0	13.0	16.2
	b'	10					II G III G IV K

(a) is 7' north of (c), (b) is 9' north of (c)

(d) is 1' south of (c), (b') is 20" south of (b)

(c) and (d) are the northernmost of the sword —

This region is brightly nebulous, especially about these four stars and in the field preceding (c) and (d),

About (a) the accumulation of nebularity is especially marked. Connection can be traced between this neb-
-ulosity and that about the trapezium.

There is a decided accumulation of nebularity about a star of 9th mag, 11' south of the trapezium and 35 seconds of time preceding it.

All the region for several ^{fields} around ϵ Orionis is
nebulous.

Orion

Jan 31 1861 (cont.)

Definition good. Eye piece & object glass clean

It is remarkable that about each group composing "sword handle") of Orion there is an accumulation of nebulosity. quite evident even in the finder.

See also Feb 21 1863.

There are besides several instances of a similar preference to the neighbourhood of individual stars.

The whirl like arrangement of the drifts of nebulosity about the region of Trapezium is very striking to night & is seen clearly by the Hale.

G.P.B.

Spiral like formation was noticed in Report to Committee written Dec 25 about 1860.

for Lillania

1861 Feb. 1.

At 6^h 45^m Cambridge

$$\begin{array}{r} 0^{\text{h}} 24^{\text{m}} 47.3^{\text{s}} + 1^{\circ} 48' 24'' \\ + 5.5 \quad + 23 \end{array}$$

$$0^{\text{h}} 24^{\text{m}} 51.8^{\text{s}} + 1^{\circ} 48' 47''$$

Star of comp.

9.10

$$0^{\text{h}} 24^{\text{m}} 2^{\text{s}} + 1^{\circ} 50' 9''$$

to be compared with

9.

$$0^{\text{h}} 22^{\text{m}} 2^{\text{s}} + 1^{\circ} 54.7'$$

for Procyon

1561 Feb.

Ephemeris for 12^h Boln = 6^h 37^m Camb. app.
(Hock)

Feb	3	9	10	59	+ 22° 13'.2
	4		10	0	17.4
	5		9	1	21.5
8	6		8	2	25.6
	7		7	4	29.6
	8		6	5	33.4
	9		5	7	37.2
	10	9	4	9	+22 40.8

Stars from B. L. 278. 7 57 - 9 32 . 22°

A. R. 1461.0

1425.0	9 ^h	9 ^h	10. 50	22° 24' 33"	3.44 - 14.78
	8	9	7 49	22 30 31	3.65 14.75
79 Cancri	6	9	0 17	22 42 4	
89 Cancri	5	8	59 17	22 44 48	

Positions for 1861.0

B. L. 278	9 ^h	9	12 54	+ 22° 15'.7	Feb. 4. 5.
"	8 ^h	9	53	22 21.7	Feb. 4. 5. 6
79 Cancri	6	2	21	22 33.4	Feb. 6. 7. 8. 9.
89 Cancri	5	1	22	22 36.4	Feb. 7. 8. 9. 10

Star for Melpomene (Copy)

1861 Feb. 4th
J.H.S. obs.

El.

α Cancri	8	5	15.8	19.9	3 59	
α		6	28.8	29.9	8 31	1 10.00

α Cancri	8	9	15.3	19.1		
α		10	25.0	29.1		1 9.85

α Cancri	8	22	1.9	6.0	3 59	
α		23	11.9	16.0	8 31	1 10.00

α Cancri	8	23	52.4	56.5	5 7	
α		25	2.2	6.0	9 41	1 9.75

 α = Weissc. VIII. 1330.

Mean	+	1	9.88	+	4	33.0
Temp. (16°)						- 1.4
Refr.						+ 0.1

α Cancri (Maid 169)	132	34	10.48	+	12	26	6.73
P.M.			+ 0.32				- 0.22
	+	9	2.48		-	2	29.24
	-		0.09		-		0.21

	+	1	9.88	+	4	31.7
(Bessel)			7.90		4	20.9

132	43	13.19	+	12	23	37.1	
8	50	52.88					
		+ 2.81				- 9.1	
	+	1	9.88		+	4	31.7

Red. to app. (& lat. = 2)

 α app. 2.5

8 52 5.57 + 12 27 59.7

G	338 24
α	132 43 133 1
H	316 15

105	9.342	9.342	f	+ 20.20
116 (105)	9.970	7.969	g	+ 1.94 14
3	0.976		h	+ 20.00
116 (105)	9.557	9.562		
2nd	0.040	0.040	g'	- 3.42 344
116 (105)	0.040		h'	+ 0.07 0.06
h	0.291		i'	- 5.71 - 5.77
6 (105)	8.256	8.102		
116 (105)	9.332			

Robinson	8	49	43.77	12	28	22.61
P.M.			+ 0.06			- 4.15
	1	9.04		-	4	44.95
	8	50	52.87	12	23	37.5

Melpomene (Copy)

1861 Feb. 4.
2 H.S. obs.Estimated
Mag

		E.L.							
Melpomene	8	12	33.6	37.5	8	36			
a		12	46.5	50.5	1	57	-12.95	+6.45"	
Melpomene	8	13	33.9	38.0	9	46			
a		13	46.8	50.8	2	57	-12.85	6.49	
Melpomene	8	17	50.9	54.8	8	22			
a		18	4.1	8.2	1	32	-13.30	6.50	
Melpomene	8	19	8.0	12.1	10	28			
a		19	21.6	25.4	3	37	-13.45	6.51	
Melpomene	8	20	27.8	31.6	8	35			9.4
a		20	31.2	35.4	10	21			9.8
		20	41.2	45.2	1	48	-13.50	6.47	9.0

y-a

 Δa

a - -12.52

- 8' 13"

y = 9.6

The estimates of magnitudes may be supposed in agreement with those in a zone observed the same night.

The average of 9.5 mag. in this zone comparable with Argelander has given $\langle S_{9.5} \rangle = \langle A(9.17) \rangle \pm 0.07$

Magnitude of Melpomene

Five-foot Equatorial

1861phae.proj...193B

1861 Feb. 4.
J.H.S.

A pretty careful comparison between Melpomene,

x and a of the preceding page gives

$$\text{Mag. of Planet} = \text{Mag. of } x + 0,4 (\text{Mag. } a - \text{Mag. } x)$$

Melpomene.

1861 Feb 4.

Reduction of Observations

N.H. - 2.5 + 22.11

Computed from mean

El.	8	12	36	- 12.95	- 13.12	+ 6 45	+ 6 46.5	13.04	6' 46.9
		13	36	12.85	12.98	6 49	6 50.2	13.04	47.2
		17	53	13.30	13.25	6 50	6 49.6	13.26	48.8
		19	10	13.45	13.35	6 51	6 50.1	13.31	49.3
		<u>20</u>	<u>30</u>	<u>13.50</u>	<u>13.34</u>	<u>6 47</u>	<u>6 45.6</u>	<u>13.32</u>	<u>49.8</u>
					- 13.21		+ 6 48.4		

El. 8 16 45 - 13.21

+ 6 48.4

Profr.

+ 0.1

Temp.

- 2.0

			- 13.21	+ 6 46.5	
Obs	a app.	x 28 52 5.37		12 27 54.7	
	N. Dec.	8 51 52.88		+ 12 34 46.8	
	Par.	- 0.05		+ 2.9	
	Computed	50.93		35 53.1	
	C-O.	- 1.34		+ 4.0	
					- 0.067 + 4.25

El. 8 16 45
fact 1 (4)

8 15 41

20 59 18

11 16 23

1 51

11 14 32 M. J. Cambridge

-

- 23 42

- 12 4

10.38 46

3.62789

1.7821 n

8.75138w

2.7266

for Melpomene.

Feb.

$$\begin{array}{r} 8^h 49^m 26^s \quad 12^{\circ} 42.1' 6'' \\ 48 \quad 54 \quad 57.3 \end{array}$$

 Same from Beaul
 "

Feb. 5.

Feb. 6.7.

 Stars for magnitude determinations.
 Arglander.

$$8^h 47^m 47^s \quad 12^{\circ} 38.6'$$

Feb. 5

$$47 \quad 56 \quad 53.1$$

5.6.7

$$50 \quad 29 \quad 38.3$$

5

$$50 \quad 31 \quad 50.3$$

5.6

$$51 \quad 52 \quad 37.3$$

5

$$53 \quad 46 \quad 12 \quad 42.4$$

5.6.

$$8^h 49^m 39^s \quad 12^{\circ} 59.9'$$

6.7

$$50 \quad 3 \quad 59.1$$

6.7

$$50 \quad 25 \quad 13 \quad 1.3$$

6.7

$$50 \quad 50 \quad + 13 \quad 7.5$$

6.7.8

Melpomene Feb. 8.

$$8^h 47^m 56^s + 13^{\circ} 9.18'$$

Companion - Star (Bessel's Jones)

$$9.0 \quad 8^h 51^m 27^s + 13^{\circ} 14.8'$$

In magnitudes

$$\begin{array}{r} (a) \\ 8 \quad 46 \quad 35 \quad 13^{\circ} 10.6' \\ 51 \quad 49 \quad 13 \quad 7.5 \end{array}$$

$$\begin{array}{r} (b) \\ 8 \quad 49 \quad 39 \quad 12^{\circ} 59.9' \\ 50 \quad 24 \quad 13 \quad 1.7 \\ \hline 51 \quad 49 \quad 13 \quad 7.5 \end{array}$$

for Tolania.

1861 Feb. 6.

$$\begin{array}{rcl}
 0^{\circ} 33' 17'' & + 2^{\circ} 39' 17'' & \\
 + 5.5 & + 23 & \\
 \hline
 0^{\circ} 33' 22'' & + 2^{\circ} 39' 40'' &
 \end{array}$$

Star of comp:

$$0^{\circ} 34' 54'' + 2^{\circ} 42' 2'' \quad 9.0$$

to be comp: with

$$0^{\circ} 33' 54'' + 2^{\circ} 48.0 \quad 8.3$$

Orion

1861 Feb. 6th

Clear with tolerably good definition.

is seen by glimpses but is not seen.

When the attention is given expressly to the dark striae or furrows. Their continuity becomes much more distinct and the radiation more than ever evident.

Those numbered on next page are clearly recognised as ~~presenting~~ ^{tending to give} the whisp-like striated aspect & which of the brighter streaks of nebulosity

3 is about 12' preceding β Orionis & is 1' north of it - This streak tends a little to the south of β Orionis. Above it is 4 tending to 2 this region about 2.3.4.5 has a twisted-net like aspect. 12 is remarkable reaches half way from apex of nebula towards n.

I propose to draw the dark features of the nebula with as little regard as possible to the brighter regions and vice versa.

There is a field having only one or two stars visible & those of the smallest visible. 15' prec. δ Orionis. While about it are grouped a brilliant assemblage of all grades of brightness

←

E. R. B.

whisp of nebulosity 15' * 1

Orion

reaches half way to n

Orion

1861 Feb 7 & 8 12

7th Very cold -4° & bad definition but clear
all the difficult features of the nebulosity obliterated

8th Very cold -6° & bad definition not free from
haze. One edge of the two dark channels (of the lower
of them) proper at α

12 After warm rain cleared suddenly
not good definition but clear

Object glass covered with moisture.

twice - Dark channels γ & α
distinctly traced or represented.



Dark channel turns upward

White edge

* 10^h

* 11^h

Several v. small stars seen
in the bright with Feb. 13
as though young it is
brilliant



11 *

2 to bright

Feb 12/1861

2.
2*
3)

for Unemosyne

1861 Feb.

Cor. of Dolph's ephemeris in Jan. (A.N. no. 1282.1291)

$$\begin{aligned} \text{in R.} & + 2' 10'' = +8.7 \\ \text{in Dec.} & - 57'' \end{aligned}$$

$$1861 \text{ Feb } 11 \quad 12^h \text{ Polaris} = 6^h 40^m \text{ Cambr.}$$

$$\begin{aligned} \Delta & 94^\circ 25' 55'' = 6^h 17^m 43.7 \\ \text{Cor.} & + 8.7 \\ \delta & + 3^\circ 13' 33.5 \\ & - 57. \end{aligned}$$

$$\alpha. D. \quad 6^h 17^m 52 \quad 3^\circ 12.6$$

$$\text{H.A.} \quad - 5'' = -0.3 \quad + 14''$$

Stars near by

2	a'	6	16	30	+3 ^d	18.9	
2	a''		16	30	3	13.2	B
	a'''		16	49	3	9.2	K
23			17	17	3	21.6	
			17	55	3	4.7	
			18	30	+3	19.2	

Orion

1861 Feb. 13th

See Lima Chart.

Good definition

Slight haze in sky

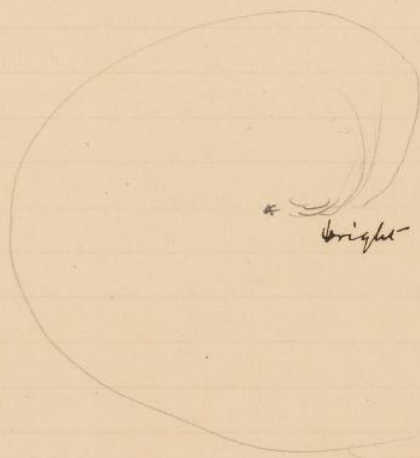
It easily seen - no traces of h.

Examined the dark wreath-like apertures
 & traced a large number on Chart M (Tracing lines)
 Was more than ever convinced of their whirl
 like disposition

The whole bright region n.p. Trape-
 zium shows the tendency strongly & I suspect a
 radiation in the bright regions lying to n.p. side
 of line joining the stars ϵ & θ (10-11) and ρ (10-11)

The region about τ (Corionis) has an
 indication of like tendency.

NB That line from ϵ Orion
 to ρ Orion & to northern most
 stars of sword of Orion is an axis
 of light (& stars.) radiating from
 Trapezium.



G. P. B.

Orion

1861

The examination of spiral structure was begun systematically about Feb. 6 in the Regio Godiniana & proceeded regularly on successive nights round in the p. s p. s. j and j. quadrants.

Magnitude of Melpomene.

1861 Feb. 14th.

J. H. S. Oberver.

5-foot Equatorial.

Compared Melpomene with four stars from Bonner Sternverzeichnis Erste Section.

		Mag. of Planet =	Mag. of	Value
a	Zone + 13. ^o no. 1990.	$a + 0.4$		9.5
b	+ 14. ^o no. 2038	$= b - 0.2$		9.3
c	+ 14. ^o no. 2044	$= c - 0.4$		9.1
d	+ 13. ^o no. 2004.	$= d + 0.8$		9.6
			Mean	9.38 ^m

Mr. W. S. Rogers gave data which give following results

$$\text{Planet} = \frac{a+d}{2} + 0.7 \left(\frac{b+c}{2} - \frac{a+d}{2} \right)$$

$$\text{Now } \frac{a+d}{2} \text{ (Angel) } 8.95$$

$$\frac{b+c}{2} 9.50$$

$$\text{Planet } 9.35^m$$

Mr. R.'s estimate was, that if the quantities of light are

a	3.
b	1.
Planet	1.5
c	1.4
d	2.5

Melpomene

1861phae.proj...193B

1861 Feb. 18.

T.H.S.

Compared with $a =$ Weisse VIII. 985

$b =$ " " 1021

El.

	<u>Long</u>	<u>Mag</u>				
a	4 26	8.5	~~4 26~~	8 43	26.2	30.2
Planet	5 0	9.5	~~5 0~~	43	57.8	61.8
b	10 15	8.8	~~10 25~~	44	46.0	52.0
c	5 2	9.7	~~5 2~~	45	0.5	4.8

a	2 26	8.3	8 46	20.3	21.5
Planet	3 9	9.5	46	51.8	55.9
$b = 9'' \text{ or } 10''$					

a	No. Her	8 48	13.7	17.8
Planet	"	48	45.2	49.3

a	5 54	8 49	19.9	24.0
Planet	6 26	49	51.0	55.3

a	4 42	8 50	44.7	48.8
Planet	5 16	51	16.1	20.3

Melpomene - Magnitude

1864 Feb. 18
J.H.S.

A short one has just been observed.

1. The data of the preceding page give (as $a = 7.8$ $b = 8.6$ $c = 9.5$
 $c = \text{Bonner Sternverzeichnis} + 14^{\circ}$ ¹⁹⁷⁵ ~~1974~~)

	Est.	Arg.	S-Arg
a	8.4	7.8	+ 0.6
b	8.9	8.6	+ 0.3
c	9.85	9.5	+ 0.35
Planet		Mean	+ 0.42

$$\text{Planet} = 9.55 = 9.08 \text{ Arg.}$$

2. Estimated with Gt. Equat.

$$(\delta = \text{Bonner Sternverzeichnis} + 14^{\circ} \text{ no. } 1968 \text{ } 9^m.5)$$

Red. to Arg.

Planet's mag =	Mag. of δ	- 0.2	9.3
"	"	b + 0.5	9.1
"	"	c - 0.2	9.3
	Mean		9.23

3. Estimated with five-foot Equat.

Planet =	δ	- 0.3	9.2
	c	- 0.3	9.2
	b	+ 0.2	8.8
	Mean		9.07

Melpomene.

1861 Feb. 18

Reduction of Obs.

Mars VIII. 985.

1825.00 8 36 29.09 + 14° 41' 37"
 2 0.25 - 7 38.0
 1861.00 8 38 29.34 + 14 33 59.7
 +2.88 - 9.4
 Apparent 8 38 32.22 + 14 33 50.3 $\frac{52.0}{52.0}$
 Final Value 21.94 21.94

This dec. is to be further examined. Jan. 1861.

M.
 El 8 44 0 + 31.60 + 0' 34" (-12 for Dec)
 46 54 31.45 (33)
 48 47 31.50
 49 53 31.35 32
 51 18 31.45 34

8 48 10 + 31.47
 47 49 + 0' 33.25
 + 0.05

Motion

Ref. = 0

Temp:

8 48 10 + 31.47 + 0 33.2

8 48 10
 El fort 41 52
 8 46 10
 21 54 30
 10 51 48

10 50 1 Planet's α (Observed) δ
 8 39 36.6 + 14° 34' 23.5
 + 0.01 + 2.2
 Computed 39 1.97 34 26.8
 - 1.73 + 1.1
 - 1.49 - 4.4

26 8 37 29.2
 010 4 37.83
 4.0° 9.41672
 4.0° 9.88821
 n 1.30223
 0.0° 9.80133

0.60716 4.067
 50.104
 1.10456
 2.66086

339.9
 129° 37'
 301 47'

9.415 21.88
 9.976 + 2.54
 1.018 + 18.79
 9.507 43.18
 3.28
 0.014 - 4.12
 9.977 + 1.54
 1.283 - 6.85
 9.504 - 8.40
 9.401

10 50 1
 - 13 42 1.6734
 - 12 39 8.8683
 10 13 40 2.8806
 8

Hebe - Magnitude.

1861 Feb. 18

Five-foot Equatorial

Stars from Argelander (Bonner Sternverzeichnis 1^{te} Section)

	1861.0		Mag Argel.
β	11 ^h 26 ^m 55 ^s	+13° 30'	9.5
γ	27 27	13 19	9.3
δ	27 56	13 6	9.1
ϵ	28 3	13 27	8.7
ζ	28 5	13 20	9.0

An object, precedes γ by 1^m 0^s } at 12^h m. t.
 south of γ } 4' ±

which is probably Hebe

$$\text{Mag. } x = \text{Mag. } \zeta + 0.^m1$$

$$\text{" } \beta - 0.2$$

$$\text{" } \gamma - 0.4$$

$$\text{" } \delta + 0.3$$

$$\text{" } \epsilon + 0.5$$

Mean

Mag. of
x

9.1	
	9.3
	8.9
9.4	
9.2	

9.^m18 (red. to Argel.)

Computed place of Hebe (Naut. Alm)

$$11^h 26^m 6^s$$

$$+13^\circ 13' 7''$$

$$26.45$$

$$19.$$

C - 0

$$+ 0.^m15$$

$$- 1.^s3$$

Occultation of B.A.C. 2238

Feb. 20. 1861

H.P.T. obs.

Imm. at E.C. = $11^h 0^m 48.55$

Magnitudes.

The discussion of ¹⁰~~g~~ zones from those observed by T.H.S. to complete Mr. Loeb's set ($0^{\circ}40' - 1^{\circ}0'$) gives the following comparison between the magnitudes estimated in these zones and those in Argelander's "Bonner Sternverzeichnis". The numbers expressing the zone magnitudes being denoted by S , those expressing Argelander's magnitudes by A , we find

	$S - A$	
1860 Nov. 6	$-0^m.17$	20 comp.
8	$+0.35$	59
14	$+0.22$	46
16	$+0.41$	170
22	$+0.47$	100
20		Not yet discussed
24		
Dec 2	-0.35	44
14	0.44	57
12	0.22	55
13		Not yet discussed
Jan 12 Feb 6 18		
Jan 30	0.23	20
Feb 4	0.56	20

Mean of ¹⁰~~g~~ Zones $+0^m.29 \pm 0^m.04$

Prob. Error of 1 Zone $\pm 0^m.13$

These comparisons refer to the average of Argelander's stars, which is $9^m.11$ by 170 stars taken at random between $+0^{\circ}$ and $+1^{\circ}$ Dec.

That is $9^m.11 A = 9^m.40 S$

Magnitudes of Asteroids

361 Feb. 21

H.S.

Five-foot Equatorial

Melpomene

	Places of Stars				Mags. Angel	Melpomene - Star	Planet Mag.
α	8	36	0	+15 1	9.5	-0.15	9.35
β		36	1	+15 4	9.4	+0.15	9.55
γ		36	32	+14 57	9.5	-0.10	9.40
δ		37	38	+15 6	9.4	+0.18	9.58
ϵ		35	48	+15 10	9.3	+0.20	9.50

Mean $9^m.48$ (red. to Angel.)

Hebe.

	Places of Stars				Mags. Angel	Hebe - Star	Planet Mag.
α	11	22	15	+13 45	9.0	+0.2	9.2
β		22	57	13 47	9.3	-0.1	9.2
γ		23	55	13 48	9.4	-0.05	9.35
δ		25	17	13 44	9.3	-0.1	9.2

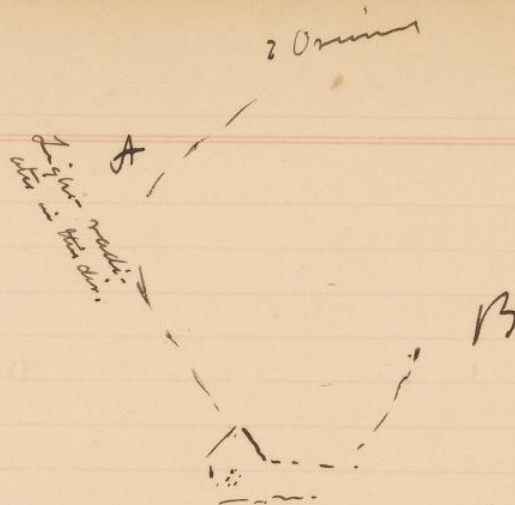
Mean $9^m.26$ (red. to Angel.)

Bright Moonlight. Seeing pretty good.

Orion

861 Feb. 25

Quite hazy.

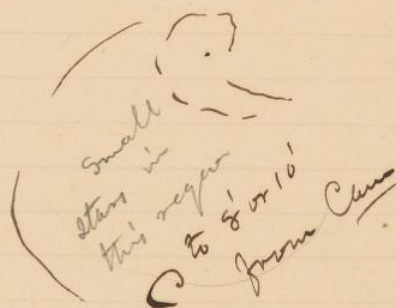


D

In finder

The general direction
of radiation of light from
Nebula is towards

A B C & D. noticeable in Finder



Mnemosyne?

1861 Feb. 25

T.H. S. obs.

x in the planet.

Star δ x = planet ϵ	9 17 6 34		6	23	53.2	57.3	2.65
δ	7 46		26		2.11	5.8	
x	5 4	R. lat of x	25	54.9		58.7	
δ	8 21		27	16.9	21.0	8.75	
x	5 36			25.7	29.7		
δ	7 42.5	N. lat of x	28	8.6	12.7		
x	5 1						
δ	8 8		29	27.3	31.3	8.7	
x	5 26?	1 st w. lat			40.0		

B. B.

δ	8 43		30	59.3	63.2	8.7	
x	6 0		31	8.0	11.9		

Star δ com. with a $\frac{1}{2}$ c.

a	9 0		33	20.0	23.9		
$\frac{1}{2}$ c	2 39		34	11.5	15.6		
δ	5 25		34	58.1	62.1	1 38.15	
a	8 17		35	42.3	46.2		
$\frac{1}{2}$ c	1 55.5		36	33.7	37.6		
δ	4 41.5		37	20.4	24.4	1 38.15	

B. D.

Monoceros.

1861 Feb 25

The foll. Differences of declination were taken,
Before the above.

$$M(\text{Chro. 236} = \text{El} - 1^m 45^s)$$

$5^h 53^m$	$x - \delta$	$- 2' 50''$	Chro. time in mean.	$5^h 56^m 22^s$	$- 2' 49.8''$
				$\frac{1.45}{5^h 56^m 8^s}$	
54.0		2 50	In 6 27 49		+ 7.6
54.7		2 50			- 2 42.2
					- 0.4
5 55.8		2 49			

The planet is pretty faint. Stage and moonlight prevent a satisfactory estimate of magnitude.

A star of the 9th follows δ , (see Angel), which is preceded so by two other stars, thus



These stars are distant from δ about $2'$; and z is = $\text{Pl.} - 0^m 2^s$
(y, z are also designated by these letters Feb. 26) y = $\text{Pl.} + 0.1$

Star a = δ Monocerotis; double; preceding.

Mnemosyne Reduction.

1861 Feb. 25.

8 Monocerotis

Hadley 1850 93° 57' 18".12 + 4° 39' 52".64
 p.m. + 0.30 + 0.23
 + 8 44.60 - 15.22
 + 0.01 - 0.28

1861.0 94 6 3.03 + 4 39 37.37
 + 32.49 - 3.20
 94 6 35.52 4 39 34.2
 6 16 26.37

Plane of a. a. a.

a - 2 R.

- 0.50

+ a. 1

+ 1 34.15

- 3 35.25

- 0.09

Ref.

Aug.

1861.0

+ 1 34.14

- 3 34.5

L 339 31
 a 94 6 94.31
 H 294 23

190 8.912
 a(G+2) 9.982 9.983
 g 0.021
 a(G+2) 9.450 9.439

Jc d 0.001
 Jc(H+2) 9.678 9.686
 h 1.270
 a(H+2) 9.944 9.942
 Jc d 8.910

f + 22.63
 g⁰ + 0.82
 h⁰ + 9.04 32.45

g' + 2.96 2.0
 h' + 1.36 1.
 i' - 7.52

1861 Feb. 25.

Mnemosyne Reduction

Planet - Star $\pm$ dH.C. + 14.38 Mean

$$\begin{array}{r}
 \text{El. } 6 \quad 27 \quad 48 \\
 \quad \quad 27 \quad 25 \quad - 2' 42.8 \\
 \hline
 2-a \quad - 3 \quad 35.2 \quad 138.15
 \end{array}$$

+8.70

Refr.
Temp: (36°?)

$$\begin{array}{r}
 -6 \quad 18.0 \quad +1 \quad 46.85 \\
 + \quad 0.2 \\
 - \quad 1.2 \\
 \hline
 \end{array}$$

Star Feb 6 27 48

El. 5 56 7

$$\begin{array}{r}
 -6 \quad 19.0 \quad +1 \quad 46.85 \\
 + \quad 0.1 \\
 -6 \quad 25.0
 \end{array}$$

M.H. 6 27

$$\begin{array}{r}
 \text{El } 6 \quad 27 \quad 48 \\
 \text{first } \quad \quad 2 \quad 1 \\
 \hline
 6 \quad 25 \quad 47 \\
 22 \quad 22 \quad 6 \\
 \hline
 8 \quad 3 \quad 41 \\
 \hline
 1 \quad 19 \\
 8 \quad 2 \quad 22
 \end{array}$$

$$\begin{array}{r}
 8 \quad 3 \quad 41 \\
 \hline
 1 \quad 19 \\
 8 \quad 2 \quad 22
 \end{array}$$

$$\begin{array}{r}
 8 \quad 2 \quad 22
 \end{array}$$

Camber. m. f.

Planet R.
Decl.

$$\begin{array}{r}
 6 \quad 18 \quad 13.22 \\
 + \quad \quad \quad 16.9 \\
 4^{\circ} 33' \quad 21.2
 \end{array}$$

Computed.

$$94 \quad 30 \quad 58 \quad 4 \quad 34 \quad 4$$

$$6 \quad 18 \quad 3.9$$

Conv. to Eph.

$$+ 9.3 \quad - 26.1$$

$$\begin{array}{r}
 \text{Reduce to El. } 6 \quad 27 \quad 48 \quad \text{Result.} \\
 \text{El. } 6 \quad 24 \quad 4 \quad - 12.5 \quad - 2' 42.8 \quad + 0.9 \\
 26 \quad 6 \quad - 12 \quad - 2' 42.8 \quad + 0.4 \\
 47 \quad 28 \quad - 12 \quad - 2' 42.8 \quad + 0.1 \\
 28 \quad 20 \quad - 12 \quad - 2' 42.8 \quad + 0.1
 \end{array}$$

+ 42.1

41.6

44.9

41.6

- 2 42.65

+ 0.10

- 0.54

- 2 43.1

- 2 42.6

- 2 42.85

Mean
Refr.
Temp.

Time asked by El.

" " by El. (see previous page)

(See preceding page)

$$6 \quad 27 \quad 48 \quad + 8.70 \quad - 2' 42.7$$

$$\text{Refr.} \quad + 0.1$$

$$\text{Temp.} \quad - 0.5$$

$$- 2 \quad 43.1$$

$$\begin{array}{r}
 \text{H.C. } 1861.0 \quad 6 \quad 18 \quad 2.33 \quad + \quad 4 \quad 36 \quad 2.9 \\
 \text{Red. to app.} \quad + 2.14 \quad - 3.26 \\
 \text{Planet - Star} \quad + 8.20 \quad - 2 \quad 42.85
 \end{array}$$

$$6 \quad 18 \quad 12.21 \quad 4 \quad 33 \quad 16.8$$

Oscar

1861

Orion

1861 Feb. 26

A fine clear night with good definition. The best opportunity for viewing the nebula that has offered this winter.

Set upon the nebula in strong twilight and prepared for examining the quarters s.p. the trapezium with reference to the disposition of the wisps or streaks of nebulosity.

On previous evenings I have examined the n., n.p. p. and s.p. portions in succession.

From the star R" (10.11) a narrow brush or ray extended towards L" (8) as indicated on the chart M in yellow.

From E"E" (10.11) there is a broad-diffused mass of nebulosity extending towards F"F" not regularly curved from E"E".

From A"A" towards trapezium the radiations seem to cross each other - forming a network as it were. reticulated

Orion

1861 Feb. 26 (Continued.)

Indeed elsewhere in many instances the weather like smoke from wet weeds - grass or hay thrown on coals - seem to intertwine in a way quite difficult to draw.

On turning to the regions bounded by the following stars viz: -

$h''h''$ (13-14) $K''K''$ (12-13) $g''g''$ (11) $g''g''$ (13) ~~$K''K''$ 12~~

W' (10-11) U' (12) and the trapezium

it was with great interest that I was able to trace under a fine sky a very evident narrow weather - especially wrapping the line $g''g''$ (11) to W' (10-11) - All of them could not be accurately located in the sketch on Chart M but the general aspect of long narrow wisp like bright streaks "Streifen" some of them 10' or 15' long - alternating and intertwined darker channels was very plainly seen & could not be overlooked after the

Orion

attention had once been arrested upon the
features

Between ^{H" H"} K" K" and W', are as many
as four dark streaks & three or four - if not
more - bright wisps. The latter
are rather more readily distinguished than the darker
tracings.

The evidence afforded by the fine wires
of this evening leaves no doubt whatever of
the structure of the nebula - It is impossible
now to see it in

any other aspect

than as a mass

of radiating spiral-like

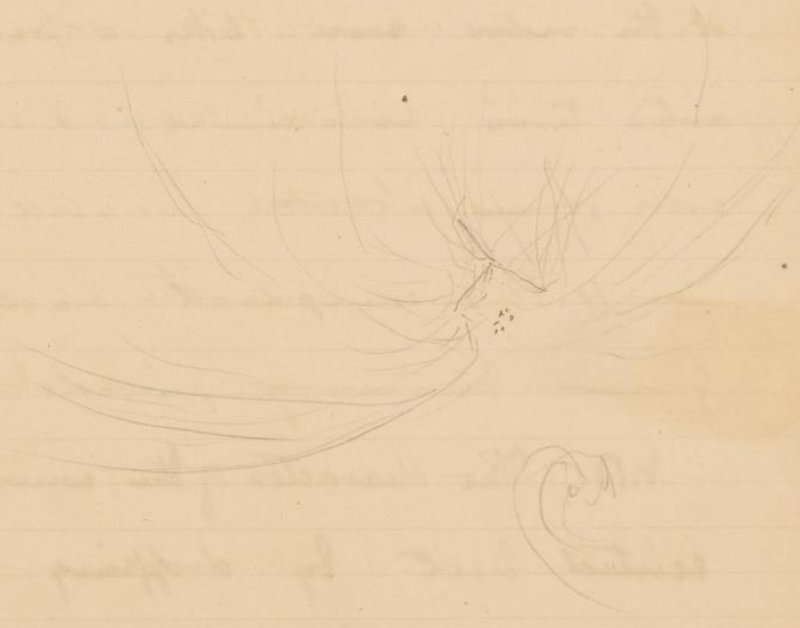
wreaths of nebulosity

or filaments

tendrils.

The centre of the vortex

being about the trapezium



Orion

861 Feb. 26th (continued)

I think that the brightest region of all - that surrounding the trapezium - looked at in the light of afforded by this disposition of the more distant nebula - shows itself to be nothing else than an intricate convolution of similar weather.

T.H. S who looked at the nebula compared it to an appearance of ~~curved~~ rays streaming up & out from the trapezium in an ascending spiral - the trapezium at the vertex ~~seen~~ like a watch spring - with its outer turn horizontal & centre drawn down. ~~seen from above~~

H. P. T compared radiations to smoke from burning weeds when wet.

N.B. The character of the convolutions can be represented best by dropping a little ink in a tumbler of water after the ink has diffused itself for eight or

Orion

1861 Feb. 26 Continued.

ten minutes the resemblance is exact. as to the aspect of the filaments - earlier they are too well defined & too narrow & threadlike.

N.B. in Engraving Mr. Water can use ink to advantage.

White water color shows the appearance perhaps better than ink.

Note that the star R" (10-11) is to be added to those having brushes of nebulosity appended on their southern sides.

In the ~~yellow~~ drawing in yellow the streak is made too decidedly through the star to the op. side.

C.P.B.

Mnemosyne;

1861 Feb. 26.

(Copy)

Compared by chronometer⁽²³⁶⁾ with the companion (2060 B.C.)

of 8 Monoceros

Planet - Star

At	7 52 32	$\Delta x +$	1 59.35	Δd	-0' 21"
	8 0 36		1 58.85		0 22
	3 33		1 59.00		0 21.5

Chro.

Magnitude.

Star α prec. pl. 21.⁵ 55" 50. Mag. of pl. Mag. of $\alpha + 0.2$ γ foll. " 2.⁵ 8 5' 50. $\gamma + 0.1$ δ " " 5.6 5' 5" $\delta + 0.3$ α is estimated 11.12 = 11.5 Planet 11.3 γ " 11.7 11.2 11.3 δ " 11. 11.0 11.3
Mean 11.3Chr. Time
7 58 54236 7 58 54
part. 14

+ 1861.0
Final H₀ Reduction 6 16 24.54 4 39 49.1
Jan. 1862. Red. to app. + 2.16 - 3.2
1 59.07 - 21.5

7 58.40
22 26 2
7 32 38
- 1 34
7 31 4

Magnitude of Hebe.

461 Feb. 26.

Orion

1861 Feb. 28th

A few glimpses between clouds

Noticed an interesting feature in parallel pre-
ceding Trapezium. The bright stria from H'' (12)
can be traced as indicated on Chart M. to the star
under M as in

margin

in which towards

Trapezium



Occultation of Antares

1861 Mar. 2nd

H.P.T.

R.D. Paine's computed time

Ad
 Jan. March $\frac{1}{3}$ 3^h 51^m 39^s 9' 32" 5
 Em. 3 4 57 53 8 22

State Equatorial (Parkinson and Fredsham)

Immersion E.C. 14 38 18.4

Time of disappearance by E.C. = $\begin{matrix} h & m & s \\ 14 & 38 & 18.40 \end{matrix}$
 E.C. fast = $\begin{matrix} 2 & 10 & 35 \end{matrix}$
 True sidereal time of Dis. = $\begin{matrix} 14 & 36 & 8.05 \end{matrix}$
 Camb. sidereal time m.n. = $\begin{matrix} 22 & 41 & 48.40 \end{matrix}$
 Interval from m.n. = $\begin{matrix} 15 & 54 & 19.65 \end{matrix}$
 Sidereal into mean solar = $\begin{matrix} 2 & 39 & 97 \end{matrix}$
 Cambridge mean time of Disap. $\begin{matrix} 15 & 51 & 39.68 \end{matrix}$

March 2nd ant.

Orion

1861 March 4th

Definition good - sky not
always free from clouds.

The strill between $\beta''\beta''$ $\gamma''\gamma''$

η' and η' well seen

Traced connection of light from
 d_2 as it passes between F' and G' across the
sweep of the curve. (from G' to below F_i) in con-
tinuation with a large bright-mass direc-
ted from Trapezium towards E'

I also trace more alternating
bands from C towards T'

Sketched upon Chart M.

Students

1861 March 4th

My appointment with Presb. Felton.

first fourth of Senior class came up at 8^h 30^m

Fine night.

The Seniors are to come up
in following order

1st Fourth of Class- Monday March 4th

or if that ev'g is cloudy on following Monday

2nd Fourth Tuesday March 5

if cloudy on Sat. Tuesday

3rd Fourth Wed. March 6

or Sat. Wed-

4th Fourth Ths. March 7

or Sat. Ths.

Students

Senior class

The 1st 2nd and 4th divisions had fine clear
nights on 1st days of appointment. Looked at
Orion - Jupiter - Saturn - & Venus.

3rd Division cloudy - will come on
Wed night March 6th

Mnemalysne

1861phae.proj...193B

861 March 4th
#5.

Stars x ($11''$) and y ($11.12''$) compared with Baily 12354. = a
 x precedes a , south

Chro. 236. Scale (reversed)

x . $6^h 13^m$ - 5 51.5 } Error of $10''$ probably
 a . 12.5 - 3 30.

x . $6^h 14.5$ - 7 4
 a . 4 54

E. C. (Scale)

x 6 16 22.3 26.4
 a 23.5 27.4

x 16 40.9
 a 42.0

x 16 58.8
 a 60.0

x 17 19.1 23.1
 a 20.5 24.4

y precedes a , south

y 6 18 7.0 —
 a 18 — 11.5

y 6 18 — 32.1
 a 18 35.5 —

y 6 18 49.9 53.0
 a 18 49.6 53.5

Reduce to $EC = 6^h 18^m 28^s$

Continued on next page.

Memoranda

1861 March 4th
J.H.S.

Star γ (11.12^m) compared with α : Bailey 12354. — continued.

γ precedes α , south.

Chro. 236				
γ	6 17 15	- 7 25	6 19 2	
α		4 54		
γ	6 18 20	- 6 18	6 20 7	- 2 10.5
α		3 50		- 1.2

γ is probably the planet. ?

Magnitude — see next page.

$\alpha - \alpha$	6 13.	+ 2 41.5	correcting
	6 14.5	2 10.0	
	6 13.75		
El.	6 16		

Ex part 2 14 147
236 part 27
M.U. + 0.9 + 14."

$\gamma - \alpha$ Res. to 6 18 28 El.			El. 6 18 28	
Red.		Motion	2 14	
6 14 7	- 0.50	0.00	6 16 14	
18 26	- 0.60	0.00	22 49 41.5	
14 50 (wt. 2)	- 0.60	0.00	7 26 32.5	
19 2 8		- 2' 31"	- 1 13.2	
20 7		- 2 28	7 25 19.	
	- 0.58	- 2' 29.8		

* 6 20 3 91 + 5 15 22.3
Res. to app. + 2.09 - 3.4
- 0.58 - 2 29.8

The observation was quite a hurried one, as the student came shortly after.

α is probably Neumagnum, but its declination is open to doubt.

Uranus - Magnitude

by March 4th
H.S.

Es lebe der Riegel-spalter!

Star γ is fainter than star α by $0^m.2$

The air was not entirely free from haze or occasional cloud.

Neither α nor γ could be seen distinctly with the Five-foot.
Something in their place was seen though not steadily; and it
is doubtful whether the power used (52) would separate them.

Star for Mnemosyne.

1861 Dec 4th

Daily 12354. This star must be redetermined.

1400.0	6 16 49.09	84 42 59.4
	3 14.78	+ 1 38.3
1461.0*	6 20 3.87	84 44 37.7
Dec.	+ 2.19	5 15 22.3
S. C.	0.00	+ 4.2
	+ 2.09	- 3.4
App. pl. of *	6 20 5.96	5 15 14.7
	- 0.58	- 2 29.8
	6 20 5.38	5 15 44.9
	4.76	

$$\alpha^0 6^h 18^m 26.5$$

$$\delta^0 + 5^{\circ} 16' 19''$$

$$\log \delta^0 8.96490$$

$$\sin \delta^0 9.99859$$

$$1.30226$$

$$8.90515_n$$

$$0.26575$$

$$\sin \delta^0 1.844$$

$$m^0 46.053$$

$$47.897$$

$$\log 1/5 0.50421$$

$$b. 1.78533$$

$$\log \sin \delta^0 0.20741_n$$

$$G 339 57$$

$$d 95 1$$

$$H 286 53$$

$$\log \delta 8.963$$

$$\sin (b+d) 9.985$$

$$g 1.033$$

$$\sin (b+d) 9.414$$

$$\sec \delta 0.002$$

$$\sin (H+d) 9.572$$

$$h 1.276$$

$$\sin (H+d) 9.967$$

$$\sin \delta 8.961$$

$$\text{Camber. } 7 \ 25 \ 19$$

$$+ 5 \ 36 \ 4$$

$$- 20 \ 17$$

$$12 \ 42 \ 56$$

$$C. \ 96^{\circ} 58' 53.2'' + 5^{\circ} 13' 57.3''$$

$$76.19.58.55$$

* These reductions are correct. J.H.

$$f 23.62$$

$$g^0 + 0.96$$

$$h^0 + 7.08$$

$$g' + 2.80$$

$$h' + 1.60$$

$$i' - 2.79$$

$$\begin{array}{rcl}
 x-8 & + 1 \ 13.15 & - 0 \ 49.5 \quad 11 \ 712 \\
 & + 12.80 & - 0 \ 50. \quad 10 \ 16 \\
 & + 13.10 & - 0 \ 47.5 \quad 16 \ 3 \\
 & \underline{+ 13.00} & - 0 \ 46.5 \quad \underline{17 \ 24}
 \end{array}$$

$$\begin{array}{rcl}
 +1 \ 13.01 & - 0 \ 48.4 & 11 \ 12 \ 44 \\
 \text{Temp.} & + 0.1 &
 \end{array}$$

$$\begin{array}{rcl}
 b-c & F \ 19.40 & + 5 \ 39.5 \\
 & 19.15 & 5 \ 41 \\
 & 19.35 & 5 \ 41 \\
 & \underline{19.35} & \underline{5 \ 40}
 \end{array}$$

Ref. Temp.

$$\begin{array}{rcl}
 - 19.01 & + 5 \ 40.4 & \\
 & - 0.2 &
 \end{array}$$

$$\begin{array}{rcl}
 - 19.31 & + 5 \ 39.7 &
 \end{array}$$

Rev. to 1861.0

$$\begin{array}{rcl}
 0.00 & 0.0 &
 \end{array}$$

$$\begin{array}{rcl}
 \text{Nov 1861.0} & 13 \ 21 \ 47.87 & - 0 \ 32 \ 50.3 \\
 \text{Rel. to app.} & + 2.55 & - 0 \ 18.5 \\
 & \underline{+ 1 \ 13.01} & - 0 \ 48.3 \\
 & 13 \ 23 \ 3.15 & - 0 \ 33 \ 57.1
 \end{array}$$

M. T. on 3 page knew, correct.

Lactica

1864 March 4.
T.H.S.

	Scale	
b	8 46.5	b = Missa XIII 339
c	3 7	c = Missa 344
x	7 57	x = Lactica

	Scale	
11	5 58.5	60.4
	6 16.0	19.7
	7 9.6	13.6

b	8 0
c	2 19
x	7 10

11	9 1.5	5.4
	9 20.7	24.6
	10 14.3	18.2

b	10 26
c	4 47
x	9 39

11	11 12.0	16.0*
		34.8
	12 24.6	28.6

b	8 57
c	3 10
x	8 3.5

11	13 46.5	50.5
	14 5.8	9.9
	15 59.6	63.6

b	8 5
c	2 25
x	7 18.5

11	16 8.6	12.5
	16 27.9	31.9
	17 21.5	25.6

The declinations were estimated on both scales, and the mean of the two readings (subtracting 1" from 2^d scale) was taken mentally.

+ This comparison ^{with 3} was rendered useless, because the wind shook the telescope violently about the time that ^{a passed} the 1st star (which was) in consequence lost.

Clouds prevented a satisfactory determination of magnitude.

The planet is 0.^m3 fainter than ^{1855.0} 13 21 9.8 - 0° 35' 1" Argelander
0.2 brighter $x = x + 36.5 \quad x - 2.1$
About 9.^m8. Argel

Laetitia¹1861 March 4thZ = Weisse xiii 339 probably +10.^s wrong in B. Z.

C = " xiii 344

Reduction to 1861.0 of W. xiii 344.

W.	13	20	16.55	- 0° 27' 14".0
Corr.		+1	- 0.41	
			50.70	-11 17.4

(132.74)
Ann. Obs. H. Loh. I. 2. lvii.

	13	22	6.84	- 0 38 31.4
--	----	----	------	-------------

 α'' 13 21 11.8 δ'' -0 32.9

Star app.	13	22	+ 2.55	- 18.5
			9.39	- 0 38 49.6

 $\lg \delta''$ 7.981 ~ $\sin \alpha''$ 9.54023 ~ $\cos \alpha''$ 1.30223 $\tan \alpha''$ 9.97215 ~ $\frac{dx''}{dt}$ 8.823
46.123

92.246

18.469

1.27438 ~

2.83068 ~

$\frac{1}{2}(C+Z)$	α	339 57
	δ	200 29
	H	286 53

$\lg \delta$	8.077 ~	$\lg \delta$	8.077 ~
$\sin \alpha$	9.540 ~	$\sin \alpha$	9.540 ~
$\cos \alpha$	1.302 ~	$\cos \alpha$	1.302 ~
$\tan \alpha$	9.972 ~	$\tan \alpha$	9.972 ~

$\lg \delta$	8.077 ~	$\lg \delta$	8.077 ~
$\sin \alpha$	9.540 ~	$\sin \alpha$	9.540 ~
$\cos \alpha$	1.302 ~	$\cos \alpha$	1.302 ~
$\tan \alpha$	9.972 ~	$\tan \alpha$	9.972 ~

Lactika

1861 Nov. 4th

Comparison with c reduced.

H. h. - 1.0 + 15.8

			Pl - x		
11	2	12	+53.75	+4' 50"	- 0.09
	10	16	53.60	4 51	- 0.04
	12	29	53.80 (w)	4 52	- 0.10
	16	2	53.75	4 53.5	+ 0.16
	17	24	53.65	4 53.5	+ 0.08
11	12	42	+53.70	+ 4 52.0	
Refr.			0.00	+ 0.2	
Temp: (32°)				- 0.9	
cl. error	+ 2	14			

56. 2 14 found

Solar time 11 10 28 Δx + 53.70 Δx + 4 51.3
 13 22 4.39 - 0 38 49.6

(39) L. 13 23 3.098. - 0 33 58.3
 B.T.

11 10 28
 22 49 42
 12 20 46
 - 2 1

12 18 45 Amb. mean solar time

Corr. to B.T. - 0.1 - 1.1

There is some error in the B.T. dec. for Febr. 19.

See also Nov. 28.

Orion

1861 March 5

A very clear night - ~~but~~ the definition is not better than usual though good.

Draw on the black cloth chart $\vee$ the dark & light strice n. and n.p. E' and F'

Also the region bounded by $C' D' E' F' M' L'' P''$
 $L'' G'' D''$

A dark channel passes from ~~the~~ F'
between D' and H'' & can be traced $12'$ beyond
 $C' D'$ & is quite distinct

The dark channel directed towards the small star nearest n.f. F' nearly in line of C Orion's has well defined straight parallel edges. clean cut.

I draw only the bright & dark strice which are to be superimposed on the general shading of the nebula.

G.P.B.

The sudden sweep of the strice in the region n.p. E' is well & certainly recognised.

Laetitia - Magnitude

1861 March 5th

714.5

Laetitia was examined with the 5-foot Eq. and found
considerably fainter than the star. ^{1655.0} $13^{\circ}21'53''.1 - 0^{\circ}19'8''$
Argelande. (9.5 mag)

Evidently ~~it is~~ ^{it is} about 9.7 Argelande.

Hebe. magnitude

1861. Nov 5.
J.H.S.
Mr. W.A. Rogers } Obs.

Orion

1861 March 7

Very cold but vision quite good considering the low temperature.

One of the clearest of winter nights.

Noticed another instance of nebulosity radiating to southward from star of ($6^{\frac{1}{2}}?$) mag. located on map. M. near stars γ , γ_2 , γ_3 and $12'$ south of apex of light.



This is perhaps a continuation of nebulosity from $H^{\alpha} H^{\beta} H_2 H$ but the star is too bright to trace the connection. Dark channels of irregular width & tortuous run up on eastern side of the nebulosity trending from this star a little to left of ϵ Orionis.

The dark canal was traced from ϵ_2 past W' to almost as far beyond W' as W' is from Trapezium.

Orion

1861 March 11th

Night perfectly clear. definition very fine

Traced the terminus of bright nebulosity on following side of Trapezium towards K"K"

The brightness ~~from 9"9" to 77'~~ continues without much diminution to line from 98" to 77'

It is plain that the termination of the bright nebulosity on the n p side of the nebula is the bright map indicated on Chart M which sweeps around E' to D'

The opening south of E' 7' to D' H" K" is not at all dark ~~by~~ it is rather indicated by its outlines than by deficiency of light - whereas beyond the sweep proceeding D'E' the falling off is abrupt & decided.

There is however a distinct continuation of the nebulosity of the region s. of E to just 2 fields (24') preceding S where it sweeps up

The long wreaths from the region P"2" to 11' particularly well seen & delineated on

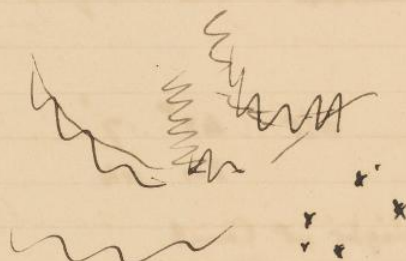
Orion.

Chart M. There is plainly a long stria apparently made up of several filaments having a general origin near the ~~prec~~ brighter map close preceding M' which extends almost to the parallel of L''

||| The most interesting observation of the evening was the

aspect in which the whole bright region close about the trapezium presented itself

as a mass of wisps curling out towards the eye and to the left in short tufts curving back.



See next page

I associate plainly into one group of wisps all the bright regions on the prec. side of the trapezium - even the abrupt vertical ray B is



clearly connected as a whirl from the ray shooting out more faintly towards P''

Orion. Rel. advantages Camb & Poulkova

1861 March

For extinction of light at Cambridge
Maff. and at Poulkova

Camb. Lat	$42^{\circ} 23'$	Merid alt	$42^{\circ} 7'$
Poul ..	$59^{\circ} 46'$	"	$24^{\circ} 44'$

From Zeidel. see Maff. curve in computation
for Memoir on Light of Jupiter & Moon.

alt $42^{\circ} 7'$	Cor.	
$24^{\circ} 44'$	log. ext.	0.038
	" "	0.139
Light at Camb.		0.101
Light at Poul.		$= 1.262$
		0.101
		0.0505
		0.1761
Equivalent aperture		13.35
		$= 0.1256$

But taking into account atmospheric disturbances
this would be considerably too large. Moreover
if we use alt at 1^h E or W of merid. then Poul-
kova loses still more.

Orion

1861 - March 11.



The above indicates the character of the
wisps or sheets of nebulosity rolling outwards.

Orion

1861 March 12

Exhibited at Am. Academy
 drawing of Orion-nebula on black Cambric
 enlarged showing whirl structure.

Note the general
 aspect the ~~inner~~
 darker gulf.

A B C D E

A

B

C

D

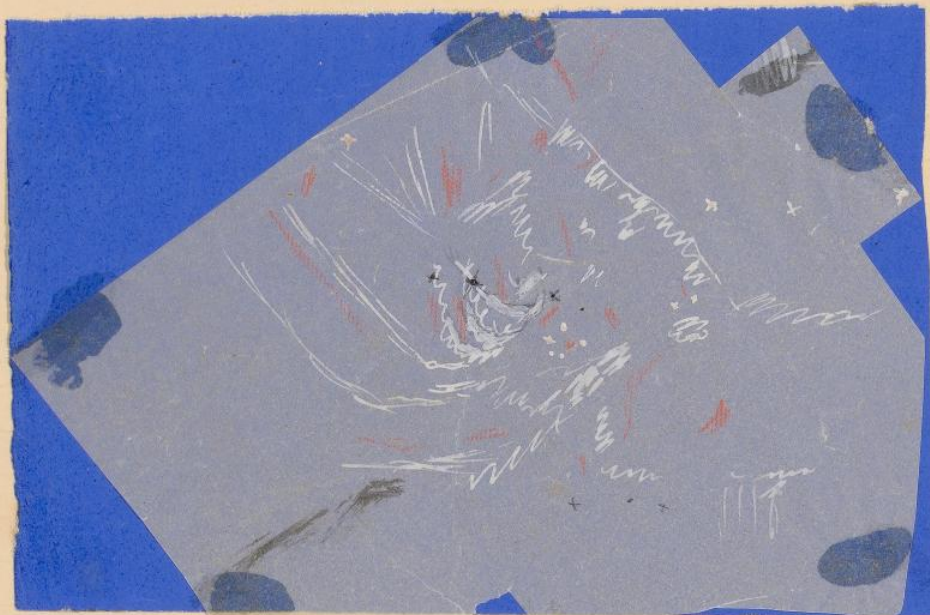
E

Orion

Occultation

1861 March 20

Half Moon - good definition
 but somewhat hazy - corrected the drawing
 below. Was satisfied of the whine character
 of bright mapes i.p. ~~Trapezium~~ ^{to be used for future}



No sign of k though k and many
 small stars were seen.

March 16 Occultation of γ Tauri

Time of disappearance by EC = $7^h 34^m 13.2^s$

obs. by H.P. J. with G.E.L. Spry governor

for Pycke

1861 March 26thPlanet's place at 7^h 5 Cambridge $4^{\text{h}} 33^{\text{m}} 5^{\text{s}} + 19^{\circ} 27'$

Stars

6.5	4 27.32	+19° 36.6	K
7.6	28 44	19 28.9	K
9.5	31 17	19 30.4	
9.5	31 18	19 28.0	
9.5	32 5	19 28.3	
9.5	33 23	19 29.4	
9.5	33 25	+19 35.2	B

Oscillation of δ Gemmae

1861 Mar. 20th

J.H. obs. Disappearance observed while the Senior class were present.

El. 9 27 32.0
 first 2 43.11

9 24 48.89
 23 52 46.18

Solar Time

9 32 2.71
 1 33.71

9 30 29.00

Mean Solar Time

Occultation of δ Geminorum.

1861, March 20

Time of Disappearance by 236 = $9^h 25^m 33^s.0$

236 fact = 44.6

True sid. time = $9 \quad 24 \quad 48.4$ Sid. Time m.n. = $23 \quad 52 \quad 46.28$ Int from m.n. $9 \quad 32 \quad 2.12$ C. M. G. T. of Dis $9 \quad 33 \quad 7.74$

H. P. T.

Flora.

1861 Nov. 28.

M 12^h 12^m 12^s
 $+14.5 - 46.0$
 $2\ 10 + 3.2$
 $2\ 24\ 2\ 16 +$
5^h 4^m 7^s + 22° 15.4

Stink Nether.

 $2552\ 5\ 2\ 11 + 22^{\circ} 17.0\ A.R. + 3.56 + 5.06$

B7. 734 A.

2 59

22 11.1

7 7

22 7.4 d.

7th

	Stars	
	Scale	(234)
9.100	6' 14	8 18 58.0
10	5 28	12 33 (bad obs)
10	7 39	13 11.2
10.10	10 10	15 20.9
10.7	2 30	19 34.
10.00	4 28	59.8
10	7 9	20 11.8

B3

9	5 11	21 8.2
---	------	--------

9	5 11	23 11.8
---	------	---------

7	1 23	27 20.0
---	------	---------

B.D.

Occultation of δ Geminorum.

1861, March 20

Time of Disappearance by 236 = $9^h 25^m 33^s.0$

236 fast = 44.6

True sid. time = $9 \quad 24 \quad 48.4$ Sid. Time m.n. = $23 \quad 52 \quad 46.28$ Int from m.n. $9 \quad 32 \quad 2.12$ C. M. G. T. of Dis $9 \quad 33 \quad 74$
 $9 \quad 30 \quad 28.74$

H. P. T.

Flora

1861 Nov. 28.

M 12^h 12^m 12^s

+14.5 -46.0
2 10 +3.2
2 24 2 16 +

5^h 4^m 7^s + 22° 15.4

Stink Nether.

2552 5^h 2^m 11^s + 22° 17.0 A.R. + 3.6 + 5.06

B7. 734 A.

2 59 22 11.1
7 7 22 7.4 L.

7^m

	Stars	
	Scale	(234)
9.100	6' 14	8 18 58.0
10	5 28	12 33 (bad obs)
10	7 39	13 11.2
10.10	10 10	19 20.9
10.7	2 30	19 34.
10.00	4 28	59.8
10	7 9	20 11.8

B

9 5 11 21 8.2

9 5 11 23 11.8

7 1 23 27 20.0

B.D

Flora

March 28

J. H. S obs

AH. rec.

Scale			236	El.	R. Doubtful in some cases	
a	9	5 ¹ 12	8 29 10.8	8 31 12.2	16.2	
	10.11	9 14	52.6		53.6	57.8
		9 —	30 17.2	32 18.2	22.4	
	10 B	9 17	30 25.6		26.2	30.9
	9.10	9 52	53.7		54.4	58.0
	10	1 18	18.2	33 19.2	23.4	
			B. D.			
	10.11	6 4	31 52.4	33 53.6	58.0	
	7	1 —	33 19.1	35 20.0	24.5	

= Flora

Σ				B. D. B						
9 9	1	14	8	35	59.3	8	38	0.3	4.7	
11	5	14		36	40.7		38	41.6	46.0	
10	4	12			5.2		39	6.4	10.7	
10 B	5	28			13.8		39	14.7	19.0	
9.10	5	52		37	42.2		39	43.3	47.7	Flora
10 D	2	19			6.7		40	7.2	11.9	
	2	6		38	41.0		40	42.0	46.3	

		D							
a 9.	1	15	40	23.9	8	42	24.0	28.2	
11	5	17		5.0		43	5.6	10.0	
	4	18		29.0			30.1	34.5	
10 D	5	29	41	37.7			38.4	42.8	
9.10	5	58	42	6.2		44	7.2	11.5	Thra
10	2	23	43	30.0			31.0	35.3	
10.	10	58	43	2.		44	58.8	63.0	Star oc

Flora 8. Calo.
9.10 10.05

Reduce Flora to 80 8 39 10

Orion & Antennae for Magnitudes

March 28

D.B.B

(Magnitudes by THS scale)

J.H.S. obs

A.H. rec.

107	2	28	A"	8	50	23.9	28.3
9.10	6	35	F"		50	57.7	61.5
10	2	21	E"		51	6.2	10.3
10	2	8	J"		51	17.0	21.2
10 B	5	12	K"		51	26.4	30.4
10 B	4	20	P"		57	46.6	51.0

Bright * in Trap.	6	20	First wire/doublet only	V"	52	3.0	—
Repetal	B						
8 (repet)	8	57	Pr. A'	8	54	38.6	42.6
10	1	9	A'-1		54	53.5	57.6
107	2	31	B"		55	9.0	13.3
9.10	6	38	C"		55	42.9	46.8
10	2	24 B for sig	E"		55	51.2	55.3
10	2	12	J"		56	2.2	6.4
107	5	15	K"		56	11.6	15.7
9.10.7	4	23	P"		56	32.0	36.0
Bright * in Trap.	6	20	V"	8	56	47.9	51.9
10.11	1	24	H" H"		57	13.7	17.9
10	1	18	J" J"		57	22.1	26.4
9.70	7	22 not sure that it is bright	V'		57	30.0	34.1
9.10	5	28 B for sig	L" L"		57	58.9	62.7

Moved Telescope North

	B.B.B						
107	5	51	3 Pr. A'	9	1	40.8	44.5
9.10 B	0	45	1 Pr. A'	9	1	59.1	63.0
11 B	4	47	B'		2	45.1	49.3
9.10	9	42			3	6.6	10.5
10	3	5 Su wire loss	E'		3	35.5	
10	2	47 " " "	J'		3	41.8	
107	6	46	H'		3	56.8	60.8
	B.B.						
10.11	6	25	R'		4	17.9	22.1
7 or 8	5	36 star	J'		4	22.0	27.0
9.107	2	8			5	31.2	35.1

Orion and Flora

Mar 28

a, 9	1	16	9	46.7	11	49.0	53.5	The AR's by -236 are very rough
11	5	17	10	29.7	12	30.7	35.1	owing to wind and noise,
107	4	14		54.0		55.4	59.5	
10	5	29	11	2.6	13	3.6	8.0	
9.10 #	6	5		34.0		35.0	39.3	Flora.
			11	55.6		56.3	60.6	
	2	7		30.0	14	30.8	35.3	

These observations of Orion and Flora have been made
for magnitude, and are not very reliable as to position.
None of Flora may perhaps give a place.

Magnitudes about Flora rather too bright.

Orion and Psyche

Mar 28

J.H.P. obs.

Dots
 α 107 4.6
 β 10 8.8
 γ 10.11 6.5
 α 7.4
 δ 11.12 7.2
 ϵ 107 7.5
 5 fine (12.8) 0.9 South of α and prec. it
 12.6

 γ prec. α 1.8

B.D

γ and α comp. in AR on Spr. Gen.
 two transits obs.

			1w.	2w.	1w.	2w.
γ	9	53	7.4	11.5	29.8	34.0
α			8.7	13.0	31.4	35.7

 β prec α 18.5 β and α comp in AR

B

 β and α again

β	9	56	10.9	14.9
α			28.5	32.7

β	9	57	10.0	14.2
α			27.7	32.1

one transit of α and γ on two wires

D.D

 α and ϵ comp. in AR on two wires γ is α 10.11 α and γ comp in AR on two wires α and β comp in AR several comps.

β	10	10	1.9	6.2
α			19.1	23.4

Dots after

 γ and α comp

B

β	11	3.7	7.9
α		20.9	25.0

β	12	11.2	15.3
α		28.1	32.3

Psyche.

March. 28
S. Various obs

A.H. rec.

Dots, Break
a and β comp in AR ε and α comp in AR

10	19	26.4	30.7
		42.8	47.2

 β is Psyche.

$\beta - \alpha$	H.M.	+3.45	Red. to $10^h 8^m$
9 57	-17.75	2	+ 0.63 -17.12
10 11	17 10	3	- 0.17 16.93
10 19.5	16.45	1	- 0.66 <u>17.11</u>

 Δx -17.02 Δd (Red to $10^h 8^m$) + 1.15from Argel
a 1855.0

Proc.

Red. to app.

* app.

9^h 39^m (Ambr.)

4	44	2.6	+19° 52' 2"	B.2
		+21.2	+ 0.85	
		+1.3	+ 0.08	
4	44	25.1	+19 52.9	
		-17.0	✓ 1.5	

4	44	8	+19 52.4
---	----	---	----------

Nautical Almanac ^{wt} 28.6

4	44	30	<u>19 53.8</u>
---	----	----	----------------

O-C

-22^s + 0.16

$$\begin{array}{rclcl}
 11.4. -1.33 + 18.8 & & & & \\
 11^h 23^m 30^s & -4^m 0.80 & + 1' 40'' & -4 1.05 & + 1' 42.7 \\
 28 37 & 0.80 & 1 42 & -4 0.90 & 43.0 \\
 33 56 & 0.95 & 1 45 & + 4 0.82 & 44.3 \\
 40 56 & 1.15 & 1 45 & -4 0.87 & 42.1 \\
 \text{Chand - Star} & & & -4 0.92 & +1 43.0
 \end{array}$$

$$\begin{array}{r}
 \text{Eq.} \\
 \text{fact.} \\
 \text{to T.} \\
 11 31 45 \\
 \quad 2 58 \\
 \hline
 11 28 47 \\
 \quad 0 26 18.6 \\
 \hline
 11 4 28.4 \\
 \quad -1 47 \\
 \hline
 11 2 27
 \end{array}$$

$$\begin{array}{rcl}
 \text{Star's place 1860.00} & 13^h 12^m 57.94 & + 2^h 20' 15.9 \\
 \text{Red. to app.} & + 2.96 & - 19.6 \\
 \hline
 & -4 0.92 & +1 43.0 \\
 \hline
 13 8 59.96 & 2 21 39.3
 \end{array}$$

Laetitia 1861

1867 March 28th

El.

$\Delta\alpha$

$\Delta\delta$

Nk. -1.84 + 18.8

Laetitia 3' 35" 11 23 27.9 31.9 -4 0.80 + 140.0

Star 1 55 27 28.7 32.7

Laetitia 6 42 11 28 35.3 39.3 -4 0.90 142.0

Star 5 0 32 36.1 40.1

Laetitia 7 36 11 33 53.7 57.8 -4 0.95 145.0

Star 5 57 37 54.7 58.7

Laetitia 7 39 11 40 54.0 58.0 -4 1.15 145.0

Star 5 54 44 55.2 59.1

Angle of Pos. set at $353^{\circ} 31'$

The star is Weisse XIII. 203

Schjellerup's ephemeris (B.J. 1863) is very close to the truth

Magnitude on the Foxe-Scab about 9.8

7.107 a (1855.0) 13 8 32.6 + 2° 24.5

9.107 b (1855.0) 8 35.5 2 27.8

10. c Pl. + 38° + 3.3 not in Argel

a 1.5 Pl
b 0.5 Pl
Pl 20.

Star for Lactitia

1861 Nov. 28.

Weisse XIII. 293.

$$\begin{array}{rcl}
 13 & 11 & 8.16 \\
 + 1 & & 49.90 \\
 & & + 2^{\circ} 31' 41".2 \\
 & & - 7.37.7 \\
 & & - 11.26.6
 \end{array}$$

$$\begin{array}{rcl}
 1861.0 & 13 & 12 \quad 58.06 \\
 & & ~~9.16.26~~ \\
 & & + 2.95 \\
 & & + 2 \quad 20 \quad 14.6 \\
 & & - 19.7
 \end{array}$$

Red. to app.

$$\begin{array}{rcl}
 \alpha^0 & 13 & 12 \quad 3.1 \\
 \delta^0 & + 2 & 25.97
 \end{array}$$

$$\begin{array}{rcl}
 \lg \delta^0 & 8.62825 \\
 \sin \alpha^0 & 9.49028_n \\
 \cos \alpha^0 & 9.97818_n
 \end{array}$$

$$\begin{array}{rcl}
 & 9.42076 \\
 & - 0.264 \\
 & 46.057 \\
 & 48.793 \\
 & 91.586 \\
 & 18.517
 \end{array}$$

$$\begin{array}{rcl}
 & 1.28041_n \\
 & 283671_n
 \end{array}$$

$$\begin{array}{rcl}
 G & 342 & 12 \\
 x & 193 & 15 \\
 \sqrt{H} & 260 & 58
 \end{array}$$

$$\begin{array}{rcl}
 \lg \delta & & 8.610 \\
 \sin(G+x) & & 8.829 \\
 \sin & & 1.066 \\
 \sin(G+x) & & 9.999_n
 \end{array}$$

$$\begin{array}{rcl}
 \sin \delta & & 0.000 \\
 \sin(H+x) & & 9.999 \\
 \lg & & 1.274 \\
 \cos(H+x) & & 8.866_n \\
 \sin \delta & & 8.670
 \end{array}$$

$$\begin{array}{rcl}
 f & + 25.54 & g^{\circ} - 11.63 \\
 q^0 & + 0.06 & R^{\circ} - 0.06 \\
 L^0 & + 18.74 & i^{\circ} - 8.06
 \end{array}$$

Asteroids

1861 Nov. 29.

for Flora

$$\text{Star } a \quad 5^{\text{h}} 3^{\text{m}} + 22^{\circ} 11'$$

$$\text{Star } x (\text{La Nov. 28}) = a + 2^{\text{m}} 35^{\text{s}} + 9' 43''$$

$$\text{Flora} = x + 1^{\text{m}} 2^{\text{s}} - 0' 20'' \text{ about}$$

for Psyche,

$$\text{Psyche} - a + 1^{\text{m}} 0^{\text{s}} + 4' 50'' \text{ about (a of Nov. 28)}$$

$$\text{Place of } a \quad 4^{\text{h}} 44^{\text{m}} 25^{\text{s}} + 19^{\circ} 53'$$

for Egeria

Planet's place at $10^{\text{h}} 36^{\text{m}}$ Cambr. m. t

$$12^{\text{h}} 42^{\text{m}} - 26^{\text{s}} + 3^{\circ} 7' 4''$$

Probable correction* not more than $-20'' + 1' 5''$ and about
in that direction *

$$\text{Stars. } a \quad 12^{\text{h}} 39^{\text{m}} 19^{\text{s}} + 3^{\circ} 5' 8'' \quad K$$

$$" \quad 8 \quad 44 \quad 13 \quad + 2^{\circ} 59' 2''$$

* P. Loewy found on Nov. 10th $-21' + 2' 2''$

for Asteroid

1861 Apr. 3⁸

$$\begin{array}{r} 75244 + 53^{\circ} 8' 5'' \\ 75239 \quad 53^{\circ} 0' \end{array}$$

Lutitia at 10^h 30^m 16^s = 16^h Berlin

$$\begin{array}{r} h \quad m \quad s \\ 13 \quad 4 \quad 32 + 3^{\circ} 5' 8'' \end{array}$$

*	13	6	0	3	0.5	Bessel. 8.7 }
*	13	5	39	3	0.1	
*	13	4	44	3	6.7	

Eugenia at 10^h 30^m 16^s = 16^h Berlin

$$\begin{array}{r} 12 \quad 38 \quad 32 + 3^{\circ} 44' 3'' \\ -20 \quad +1.5'' \end{array}$$

*	12.36	56	3	48.9	K	8.5	} = Bailey 23742
	39	31		55.2	K	8.7	

for Eugenia

1861 Apr. 3.

(a)

Two stars compared with ~~Weissen~~ Baily 23742.

18.

$$\begin{array}{rcl}
 23742. & 12 & 33 & 47.6 & + 4'' & 9.96 \\
 Dec. & & +3 & 6.4 & & - 20.17 \\
 & & & 0.0 & & - 0.03
 \end{array}$$

$$\begin{array}{rcl}
 1861.0 & 12 & 36 & 54.0 & & 49.76 \\
 & & & + 3.0 & & - 0.30
 \end{array}$$

$$a. \quad 12^h 36^m 57^s + 3^s 49.5$$

~~Two stars~~

$$\begin{array}{rcl}
 \alpha - a & + & 1 & 2.3 & - & 1.9 \\
 \gamma - a & & 1 & 7.3? & - & 4.3
 \end{array}$$

At $9^h 47^m (236)$

$$\begin{array}{rcl}
 \gamma & 12 & 38 & 4 & + 3 & 45.2 \\
 & & 38 & 36. & & 45.9
 \end{array}$$

This star is pretty near the predicted place of Eugenia.

A fine little nebula is about

$$\begin{array}{rcl}
 12^h 38^m 4^s & + & 3^s 48.7 \\
 \hline
 12 & 37 & 57
 \end{array}$$

$$H. I. 142 = h. 1419.$$

 γ is probably Eugenia (see Paris Met. Bulletin 10 April)

for Pycke.

186 Apr. 4th

$$A.A. - 4 \begin{matrix} 53.9 \\ -0.4 \end{matrix} + 20^{\circ} 16.13 -$$

5.6 mag.

$$106 \text{ Tauri } 4 \text{ } 59 \text{ } 34 + 69^{\circ} 46.1$$

5.6 46.2 15.8 11.5 little group of 3 stars.

5.2 35.5 10.11

6.0 (37) 15.5 11.12

5.5 (48) 12.5 10.113

5.6 48 56.2 10.

5.1 54 60.8 10.65

5.6 56 35 11.12

57 52

Orion for Magnitudes

Apr 4. 1860

J. H. S. obs

El.

Mag Scale

10.11 1' 5" ~~a line~~

11 2 44

0 30 sec wire but

10.11 6 28 fine wire but

10.11 6 12

(9.11) 0 (9.11)

10.11 a little brighter than the plane

11 03

11

11 03

on the other side of Mid.

10.11 7' 4" B for sig, see wire but

10.11 7 3 36

11 4 55

10.11 9 3 24 32.5 by 236

10.11 7 9 50 about

10.11 7 4 36

9.10 1 43 mag doubt

D.B

A 8 44 n s

10.11 3 38

9 20 11.6 15.6

20 25.2 29.2

20 40.0 46.2

25 47.7

25 50.0 54.1

26 16.8 20.7

26 16.8 20.7

9 28 36.6 19.6

29 52.5 56.7

30 18.2 12.2

30 41.6 45.6

30 55.5 59.3

31 0.9 4.9

31 26.2 30.1

31 40.6 50.6

32 21.2 25.1

A"-1

A"

B.

C.

D.

E.

F.

G.

H.

I.

J.

K.

L.

M.

N.

O.

P.

Q.

R.

S.

T.

U.

V.

W.

X.

Y.

Z.

Psyche.

1860 Apr 4

5' 33"	9	21.	226
5 14	13.4	47.6	9 - 0.40.2
5 57	4	0.7	
5 33	6	45.3	49.5
11.13. 5 14	2	5.0	9.5
11.12 5 57	8	2.3	6.5
11.7 6 4	8	25.8	30.2
11. 5 37	8	42.2	46.6
10.11 5 58	9	26.6	30.9
10.11 6 10	10	28.2	32.7
3 16	15	9.9	14.3
			106 Janu

Psyche

Star y. 9 18 32.0 36.1
 Psyche 19 16.9 21.5

Star y 9 20 22.1 27.4
 Psyche 41 8.3 13.1

Hany

Star y 9 34 30.0
 H.B. Psyche 35 16.6

10.5 Psyche

10.8

10.65

11.1

+ 0.65 av. of Hany.

for Payote.

Apr. 8.

At 12^h Grah

4 ^h 59.6	20 ^a 28.5
-0.4	+0.6
4 59.2	20 29.1
_{0.1}	_{0.2}

106 Jawh	4 59.6	+20 13.9
----------	--------	----------

a *	5 0.7	20 20.0
-----	-------	---------

Scale	236
11 9' 3"	9 34 33.1
10 B 8' 6"	9 36 31.6 (* B)
1 6	38 18.2 (* a)

B	4 58.9	+20 27.0
	59.3	29.3

4' 8"	9 42 36.2 (* B)
11.12 5 22	9 43 4.7
11.12 5 20	a star one wire, (see wire) } diff by circ 6.3

The two low stars comp. in AR on Apr. Sec.

4' 36"	9 48 27.0 (* B)
11 B 7 28	Fin wire #2
11 B 6 16	See wire
4 39	50 18.0 (* B)
11 B 7 29	
11 B 6 17	

One of these stars (11 B.)
is Payote.

		22.3	* B
10	0	42.8	
	0	49.0	

Orion for Magnitudes

Apr. 8. 1861

M.S. obs

	Scale	from below
10.11	3' 5"	(10.11)

11.12	5' 18	11.12 B
-------	-------	---------

117	2' 2	11.12
-----	------	-------

117	7' 17	11
-----	-------	----

10.11	5' 46	10.11 B
-------	-------	---------

117	1' 32	117
-----	-------	-----

1103	1' 21	11 B
------	-------	------

B

10.11	3' 28	10.11
-------	-------	-------

11	5' 28	The bright star in the depression
----	-------	-----------------------------------

11	8' 43	11
----	-------	----

1103	5' 24	11
------	-------	----

D, D, D

Rep of May

10.11

11.12 B

11.12

11

10.11 B

117

11 B

10.11

11

11

A New Zone

Rep of May

11.12	2' 4"	11.12
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11.127	7' 7	11.127
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B

11	5' 18	11
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11.12	6' 40	11.127
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11	0' 53	11 B
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D

12	5' 19	11.127
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1103	6' 17	1103 ✓
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11.12	9' 20	11.12 B
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Bright Star	10' 31	✓
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B, B

-4	50.3	54.4
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-3	20.0	24.2
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-3	46.3	50.3
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-2	8.2	12.0
----	-----	------

-2	55.0	58.8
----	------	------

-1	3.6	7.6
----	-----	-----

-1	14.6	18.6
----	------	------

-1 ^m	44.2	48.2
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0.3	42	
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25.0	29.0	21
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+1	15.6	19.9
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		X ¹ = m ¹ m ¹
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Orion

Apr. 8, 1861

J.H.S. obs

			Rep
11 B	7'	38"	11 B right
11	5-	45-	117 air
10.11	5-	26	11 B doubtful map

O 12.6 16.6

C¹¹ C¹¹

26.3 30.3

14" 14"

24.9 32.0

9" 9"

Iron

Reduction of Magnitudes

1861 Nov 28	1861 Apr. 4.	1861 Apr. 8
Flora comp. 10.0		
" obs 9.5		
Psyche comp. 11.05	11.1	11.1
" obs 10.0	10.65	10.9
Mr. from Flora + 0.5		
" Psyche 1.05		
+ 0.78	+ 0.45	+ 0.3

	(B)	<u>5 reduced</u>	
A'-3	11.5	11.0	1
A'-1	10.0	9.4	2
A'	12.0	11.4	2
B'	12.0	11.6	1
C'	11.0	10.9	1
D'	12.0	11.2	1
E'	11.5	10.8	1
F'	11.5	10.8	1
H'	12.0	11.0	1
R'	13.0	11.3	1
W	12.0	11.3	2
W'	10.5	10.3	1

	<u>5 reduced</u>	
A"-1	11.0 11.1	4
A"	12.0 11.5	4
B"	11.5 11.0	3
C"	11.0 10.4	4
D"	13.0 12.0	2
E"	12.0 11.1	4
F"	11.5 11.0	4
K"	12.0 11.2	4
N"	10.5 10.0	1
O"	10.5 10.7	4
JH" JH"	12.5 11.3	1
I" I"	11.0 10.9	2
L" L"	10.0 11.0	3

Hence on the average

$\frac{1}{2}(B' - 5 \text{ reduced}) = + 0.^m 416$ This value is most certain for
the average of the stars compared is about the same magnitude
as Psyche which had the greatest influence upon
the magnitudes

Magnitudes Orion (continued) Results

(Equatorial Books vol. V. pp. 402-403)

On comparing Mr. Bond's 11th, 11 1/2th and 12th with the reduced magnitudes given before I find

B - 5 =

~~0.474~~ 0.5^m nearly ± 0.05

Probable error of 1 comp. of a reduced magnitude ± 0.020

To reduce Mr. Bond's 11th, 11 1/2th and 12th magnitudes to Argelander, subtract 0.5^m from the estimate. This has been determined by comparing the stars near the nebula of Orion with Psyche (on 3 nights) and Flora (on 1 night)

82 29

D B

Gr. 9^h
Hebe

1861 Feb. 10 11 32.5 + 11^h 43.9
 Feb. 20 25.6 13 27.1
 March 2 17.3 15 10.0
 12 11 8.6 16 43.9

Flora

Feb. 10 3 44.7 + 16 56.9
 20 59.3 18 18.2
 March 2 4 15.6 19 33.9
 12 32.2 20 42.4

Remissa

4 44.7 + 9 35.7
 50.9 10 40.5
 4 59.5 11 45.0
 5 10.2 12 46.4

17.2

<u>1861</u>	Planet 59	
<u>h^m m^s</u>	α	δ
Mar. 5	2 ^h 10 ^m 15 ^s	+ 6° 43.0
6	11 55	6 51.9
7	13 36	7 0.4
8	15 14	7 9.7
9	16 55	7 18.6
10	18 36	7 27.4
11	20 16	7 36.2
12	21 57	7 45.0
13	2 23 39	7 53.8

Safford.

1861pba: prof.: 1928