KG
11365
295

N 12

Obsns. with E. Equatoreal. Vol. 12.
1868 Jan 17 to Apr 1.
(Original.)

KG 11365.295

Jan 17. 1868 C. S. P. obs.

Nebula 600
VB. candled
elong. sl. sp & nf
7 ✱'s in same
field, of 1st P.
Compar'd with
nearest. Nebula
taken as origin
Star sf
Δδ
46.78
44
28
74
61

---

sid t. 2^h 40^m
Δα
57.09
.02
80
62
58.13
Star sf
Position
55°.8
57.2
55.9
56.8
56.5
Rather grad
brighter in
middle
—
Irresolvable
with 3d P.

Neptunes Satellite
G. M. S. obs.
Sat. n.f.
Power No 3.

3^h $10\frac{1}{2}^m$
90° + 44°.2
51.51

3^h 15^m
90° + 43.5
51.40

3^h 17^m
90 + 43.6
51.47

other side
3^h 17^m 55^s
90 + 43.9
48.38

3^h 18^m 45^s
90 + 45.0
48.46

3^h 20^m 53^s
90 + 43.9
48.21

3^h 28^m 48^s

51.52
3^h 29^m 56^s
51.38
3^h 31^m 28^s
51.39
3^h 32 17
48.19
3 32 50
48.17
3 33 19
Good. seen plainly 48.22
3 33 56
48.26

Coincidence
G. M. S.
49.84
84
82
83
83

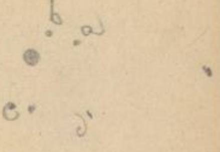
Dist of Nep
Satellite continued.
3^h 34^m 30^s 48.24
35 34 51.51
36 8 51.45

C. S. P. cannot
possibly see
♆'s satellite

Neb. 510
Could not find it

Nebula in θ
Orionis.
Could not see
6th Star.
Confirmed most
of the observations
of last week.

Uranus



Positions
185°.3 } Same
176.2 }
169 ? Whether
the same
Cannot measure
them they elude
me strangely

KG 11365.295

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A nebula v f. r. about 4 or 5^s diam. precedes
W VIII 1057 2^m 46^s.

A small star (10 mag) precedes the nebula about 5^s
7.^{r}50 north of W. VIII 1057. ~~[illegible]~~

The star is perhaps 10" north of the nebula.

This gives for the neb. 1860.0   8^h 38^m 16^s + 13° 7' 42"

according to cat. 1696 [illegible] = III 50.   8 38 44 +13 5 17

None is visible in this place.

The Cluster 1698 appear to consist of a trapezium
of ~~four~~ 10 mag. stars.

star precedes W VIII 1057 2^m 50^s

---

e f neb. precedes W$_2$ VIII 1058 45^s

.95 of field of power no 1 north of it

Query if not several e e f stars.

neb or perhaps e f star precedes 1704 54^S
1/3 of power no 1 south of it.

neb 1704 appears round. There may be
a v f $^{\& s.}$ one following on the same parallel
about 2^s but I cannot be quite sure.

4th sat. of Uranus n. f.

10	25.0	90 + 60.5	45.43	
	28.0	59.2	45.28	
			45.355	
	30.0	60.0	54.30	49.832
	32.8	61.6	54.32	
			54 310	

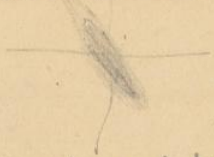
3d sat s. f.

37.8	101.8	46.34	
40.0	100.0	46.51	
		46.425	
41.5	102.3	53.35	49.965
43.5	99.7	53.66	
		53.505	

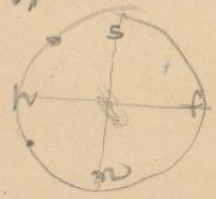
18th Jan 1868 Saturday

Neb. 510
After long search cannot find it. C.S.P.

Neb. 604



It is not gpmbM but quite uniform at least in this light. The above drawing represents it, only it is too ~~marked~~ decided. A star can hardly be brought into same field. Hence I do not measure it

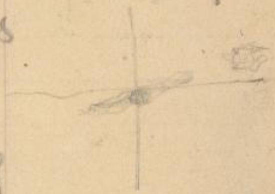


Neb 605

Much fainter than 604 & larger not mbM
Round not at at elongated. It is so large that a measure will mean but little.
Cannot find compasion stars & therefore describe neighbor hood
Gas froze up before measurement could be made.

Neb 731
Found Shutters would not go down so low. Can't see nothing south of −32°

Neb 709



Very correct description by Herschel
Gas going again but not well enough to use

e.H.
Neb. 510
(G. M. S obs)
Neb. n.p. *
* of 9 or 10 mag.

53°.6 Position
59.5
55.0

Distance
~~54.46~~ Approx
~~54.90~~ reject

= Arg Z + 5° no 306

Neb 886
N G. M. S obs.
corresponds with
description but
looks also resolvable.
Sometimes cB. Clouds passing.
$\Delta\delta$

Neb. s of star ϖ Π 715.
89.73
89.37
89.58
~~89.69~~ 56
89.91
89.69

Neb p. star
about 1s

Neb has 9½ mag. star
14s & foll. n of it
~~Coincidence~~

58.60
58.37
58.28

Coincidence
49.83

Diff of time
of two stars

5s

$$\frac{18\frac{1}{2}}{13\frac{1}{2}} \qquad \frac{\begin{matrix}25.0\\38.0\end{matrix}}{13.0}$$

$$\frac{\begin{matrix}32\\44\frac{1}{2}\end{matrix}}{12\frac{1}{2}} \qquad \frac{\begin{matrix}6.3\\13.2\end{matrix}}{12.9}$$

1868 Jan 19 Sunday

Neb 603
−29° 34′
2h 38m
B says
B pL pmE
sbM Oneda

Cant find it.

Neb 752
−19° 01′
3h 34m
(vB L R svmbMN
Herschel

Illumination
wholly wanting

θ Orionis
6 stars visible
whole nebula
exceedingly
fine.
Many fine
stars visible
in ~~least~~ triangle
& the following
is a correction
of my drawing
of last week

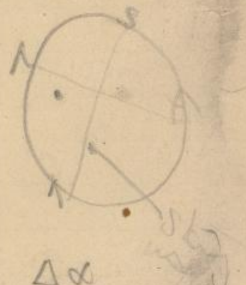
Curl given
by Bond sp
corner of triangle
perhaps seen

Streamers
South of 3 stars
& sp of star
sp of Vertex
not seen.

α Canis Maj.
Companion not
seen

Neb. 759
3h 36m
−22° 59′

fixed wire
is the one
not usually
used.
Star IV
Very difficult
to see
Δδ
~~60.21~~
59.46
59.58
59.50
Next to im-
possible to
see nebula
~~stars~~ wires
at once



Δα
56.48 mere guess
It is too faint
RA Read from
circle 4h 37m

Σ651
Double Star
3rd P.
Star ⊥ eyes

Position
107.3 (e?)
106.6
106.5
106.8
106.7
106.9
106.70

Distance
~~51.40 poor~~
51.28 poor
51.30
36
31
37
51.324

Telescope focus not quite right

Neb 1437
V Bright
Like comet

Star n f Neb

Δδ
63.57 Moveable wire between fixed ∴ Not usual fixed wire
63.32
~~63.10~~
63.49
~~63.70~~
63.71 Good

Never could make these measures with oil illumination

Δα
Other wire
65.67
65.75
65.75
65.81

Note Sept. 14, 1880.
In the copy book N39, p. 78, "not usual fixed wire" and "other wire" are taken as equivalent expressions, which may very likely be the fact. Accordingly, the fixed wire used is considered to be e in both cases.

~~Oeltz. 6886~~
~~Found to be double. G M S.~~
~~Comp. 310° N to E } by estimate~~
~~Dist. 2"~~
~~Mag. about 1 < than that of principal star.~~

Σ 1104

1868 Jan 21 Tuesday

Cleared ~~[illegible]~~. at about midnight:

Nebulae 1791 92 94 all seen; the second fainter than the others.

~~The~~ 1792 supposed to be about 4/10 of the distance from the southern AZ +20 2298 to the northern AZ 2299 of the two stars very slightly following the line ~~perhaps~~ (1^s or even less.)

neb 1743 looked for carefully but not seen; region certainly identified.

Is it not identical with 1730 about 5^m prec.

This was well seen; would be marked pB.

~~[illegible]~~.

Neb. 2319 much the brightest of the 4.

Should consider star foll. to be 10 mag.

~~2320 & 2321 eF seen with great difficulty but as large or larger than 2319 & 2326.~~

There seems to be one neb. 6' due south of 2319 another 7' south 6^s foll. = 2321

but 2320 is not visible.

perhaps also another 9^s foll 30'' north of this one.

2320 & the other two? near it are e or ee F would hardly have been suspected without close attention.

Wed Jan 22 1868

Gas pipe out of order.

C. S. P. obs.
δ −26° 29′
t 3h 16m
h +56

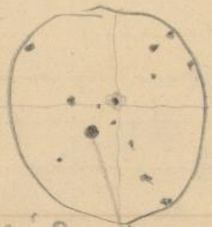
Double star
distance 40″
δ −24° 14′
t 8h 19m
h 1 .0
Best Nr apiece
10″ may 2 pairs

Sat, ψ n. visible of a GMS.

Neb 692
B R cL

Δδ
71.18 } Nearly across to other wire
71.66
72.15
72.14
71.06 { Best except first
71.20
72.46
* sp Neb
Star on fixed wire
58.80
58.15
58.22 Best
58.20
57.76
Position 139°.3

Neb 1005



Field of No 1
Small, v dim N
Δδ
67.83 Star on fixed wire
67.82
.84
.51
.42
.41
Δα
56.79
57.09
56.80
56.96
56.58
Comp star n p
Star always put on one of fixed wires & moveable wire always between fixed when possible
Comp Star α W
Δα
85.58
Δδ
68.67

θ Orionis
Nebula very fine. Some of the finest points in the drawing seen. For example, the 3 faint stripes nearly n & s bending towards p at the p. extremity and the v ft stripe nearly par at S. part. But there is only a doubtful streamer from p of 3 stars & a suspicion of one from f one. None visible from middle one. Whereas I think those streamers are too decided in the drawing.

Many stars visible in triangular part of neb.

Sirius
GMS obs

Position
100°.1
97.4
97.8
95.4
96.5
97.44

190°.8 74.14
189.4 74.07

Coincidence
75.00
75.01
75.02
75.02
74.99
75.008

P

v. S. (~~15 may~~)

Planetary nebula 1574 & 3 stars near.

14 may star north posp	15 may star s p par	15 may star s f par.	
168·1	113·7	56·9	
165·8	114·8	54·8	
165·7	112·0	52·1	
		52·2	
58·20	55·65		
57·98	35	57·98	come
58·69	75	·92	49·83
58·69		98	80
58·92			82
			80
			85
			49·820

Neb 1589

Diam. about 3' star of 9th mag very near ~~a~~ its north ~~a little~~ ~~foll~~. limit, about 1/10 of diam. inside.

3 or 4 small stars visible in it, but the nebula irresolvable.

Cannot say ~~that~~ BAC 3073 is certainly nebulous. It may be so.

Zero of pos. power no 3.

79·6
·6
·5
·3
·4
·4
·3
·4
·3
·4

Neb 2041 & 11 mag. nf.	Neb. 2038 & 2041.	
90.0	98.4	
90.0	.6	
90.0	0	
90.0	.2	
89.7		comic.
59.10	97.29	49.86
19	19	86
31	35	87
35		89
34		87

Neb. 2038 the brighter of the two; both have nuclei, that of 2041 perhaps somewhat elongation in position 50° N to E. or about 20° < than the position of the 11 mag. star.

Neb. 2037 not visible; but the sky is not perhaps very clear. has been hazy in parts.

Planetary Neb Lal. 20204

diam.	satellite south ~~[illegible]~~ 13 mag.			
52.98	176.7	34.25	90+87.0	65.42
72	176.2	33.94		38
56	175.8	95	89.0	56
84	175.3	88	88.0	68
98	175.8	94		71
53.18				
26				
25				

1868 Jan 22 Wednesday

star s f 11 mag

56.7	80.47
57.0	46
56.5	76
56.2	64
56.0	.66

perhaps slightly blue but not more so than planetary nebulas usually are.

Has the usual sparkling appearance.

Jan 23 Thursday

Cleared at 10 but owing to high temperature and moisture dew formed so fast as to prevent obsn.

1868 Jan. ~~23 Thursday~~ 24 Friday.

c. c. P. obs.
A film of cloud
Bad for nebulae,

Coincidence
75.00
97
98
99
00
99
99
00
99
00
74.991

49.85
87
87
86
87
49.864

49.868
871
868
863
878
863
861
867
845
873
49.8657

Call it 49.865
or 49.8652

Completely
clouded over
thick.

4h 45m
Has cleared off
within ten minutes as bright
as a bell.
~~60.88~~ (screw turned wrong way
~~62.17~~
61.46
61.31
60.94
61.09
61.05 Best

Δα
~~60.66~~
~~60.66~~
~~61.60~~
60.20 Too close
60.20
60.58 Best
60.36

Cat. Star ??,
Δα Sta Sfp
68.11.
67.85

Δδ Further
44.10 wire
44.24

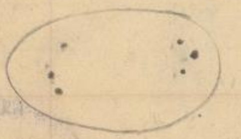
Neb. 932
Neb show well
vB R bM
Star on fixed wire
Star sp not
Δδ

Neb 1202

found easily but
fear a cloud is
rapidly covering
it.

1868 Jan 24 Friday

See nothing near the place of Nebs. 1537 & 1538
but two v. F. triple stars thus;



$\Delta\alpha = 4^s.5$
preceding one a little north.
and precedes A Z 1975
84^s.

Neb. double star 1487.
perp. to eyes.

50.1
47.9
52.0

90 +	143.8	48.50
	141.4	44
	141.1	51.40
	142.0	52

50.5

Comp with W VI 1883
Neb. star s p.
$\Delta\alpha = -2^m\ 33^s$ by chronometer.
(2. obs.)

$\Delta\delta = 60.88$ − corr. = 11.02

W VI 1883 has a companion n. &
a little p. 11 mag.

90 +	88.0	57.54
	89.8	47.06

4th Sat. of Uranus s. p.

chr. 236			
9 24	90 +	67.5	45.39
27		67.1	32
30		69.0	55.25
32		67.6	54.29

perp. to eyes.
Power 3.

3d Sat s. p.

9 35	90 +	31.0	52.98
37		28.7	53.03
39		29.7	46.70
41		29.8	46.58

wind shaking telescope.
perp. to eyes
Power. 3.

Jan 24 Friday

Neb-star · 1532.

Neb. nearly circular; star perhaps a little eccentric, toward prec. side, and a dark space in the neb. following it, giving a somewhat annular appearance, on foll. side

Diam. of neb. about 38" by rough setting of wires or 1/3 of distance to A Z 1610 by estimate.

Neb star = A Z 1609, & A Z 1610.

Pos 345.8
346.5
345.9

Dist. 39.68
39.69
39.58

$\Delta\delta$	$\Delta\alpha \cos\delta$ Neb-star. s.p.	
39.61	49.44	not worth much owing to wind
.65	.42	
.60	42	

Neb 2091 seems to be an 11 mag star with a 14 mag. nebulous companion, north,

No 3d star seen:

no 1 { 160.5
161.0 } perp. to eyes.

no 3 { 157.0
159.2 } power no 1

2 dist
51.45 51.62 51.58
48.12 48.07 47.98

1868 Jan 24. Friday

Neb 2355 not visible. Region identified from Arg. Z.
~~A perhaps somewhat neb. 12 mag star follows~~

15^s s p A Z 2472 is what looks like a somewhat 12 mag. neb. star.

$\Delta\alpha = -14^s$

$\Delta\delta = 27'.95$ − coinc. 2 obs.

Nebs.
2203
2207
2211

1st slightly } elongated s p to n f
2d much }

3d decidedly " p to f a little n to s.

1st and 2d ~~v m BM~~. v B v m B M

3d p B but not m b M. oval.

coinc.
49.83
82
82
80
.79

Jan 25 Saturday

Cleared late.

No special concentration of neb. in the place of Tempel's var. neb. in the Pleiades (there is ~~a~~ 10 mag star, A Z 525 ~~[illegible]~~ near the place.)

~~[illegible]~~

= ~~A Z [illegible]~~ but a little preceding it there is a broad band or fan of faint nebulosity beginning about 1' south of A Z 522 and 3 or 4s preceding, and running ~~south~~ & a little pr. about 12' widening from 1' to 6' or so, better defined on f than p side. Much like the tail of a comet. A Z 522 apparently involved.

522 suspected to have a faint close comp. p. & little sv. but seeing not good enough to be sure.

A Z 569 besides its principal companion has a v F one at about 1/5 the distance. Position estimated 10° > that of princ. comp.

~~79 Tauri = Σ 450 = A Z 532 double about 5"~~

532 & 533 each certainly 1/2 mag > 528

	532	533	528
	9.5	9.5	8.5
I should say	8.5	8.5	9.0

8.0 according to Σ Struve.

Note June 17, 1880. In Tempel's note Astron. Nachrichten No. 1290 (Vol. 54, col. 286), the declination of Merope (23 Tauri, or DM. +23° 522) is given erroneously by a misprint or other accident which occasioned the difficulty about the place noted at the top of this page.
But perhaps Tempel means the δ for that of the middle of the nebula.
The description of the nebula here given agrees with recent accounts. See figure in Guillemin's Le Ciel, Plate XLIII of revised edition, copied from C. Wolf. See also Tempel's figure in the Publications of the Milan Observatory, No. 5. In this last figure Tempel puts the stars DM. +23° 524 and 525 on the boundary of the nebula; Wolf puts 525 outside the nebula as stated on this page. On Nov. 21 1875 (see book ☉ 27, p. 75), both stars seemed outside the nebula. The comparative distinctness of the boundary on the following side, mentioned on this page, is indicated by Wolf, and noticed in book ☉ 27, pp. 75, 76, (as also in some recent notices of the nebula in astronomical periodicals. It is probably not variable, but cannot well be observed with high powers (like the parts of the Andromeda nebula connecting G.C. 116 and 117). The place of Tempel's nebula in the G.C. is also wrong by the same accident both in α and δ.

1868 30th Jan Thursday

Coincidence
on Moon

49.88 44.79
44.835
49.868 44.808
878 799
878 795
877 793
879 796
44.8760 44.7984
7984
.6744
44.8372)

Neb 1185
Found easily (Tail not seen) but gas was long time getting fixed.
Star np
Δδ
Almost exactly dist of fixed wires.
49.50
49.63
49.59
49.65
49.52)
Δα
(Star on fixed wire near 49.837)
67.63
67.83
.58
90
51
Better set 79
70
76
88
69
81
72)

Neb. 1483
No nebula there. Only a brilliant cluster with quite black ground in every part.

Neb 1452
Do not find it with all comparison stars.

Neb 1473
it very wide $\frac{x}{x}$. with ~~very~~ diffused nebulosity about Northern most.

G M S.

Companion of Sirius not well enough seen for measures.

Star tremulous & diffused.

Feb 1873.

12 mag south	12 mag n f
351.8	332.0
353.8	331.8
353.7	332.6
351.8	326.5
353.3	329.4

	90+	
67.81	57.0	71.84
67	56.5	88
76	57.1	72.01
69	55.5	71.98
70	56.4	89

conic

75.00
98
03
05
00

hardly enough light. gas not burning well.

chr 236 4 Sat. Uranus n.f. perp. to eyes

Power 3.

9	36.7	90 + 46.0	54.05
	39.12	46.1	.16
	42.5	44.8	.21
	44.0	46.9	45.49
	45.2	45.5	.58
	47.0	45.5	.63

Sat faint.

3 Sat., n. par. to eyes.

9	49.2	90 + 00.6	96.75
	51.5	98.3	58
	53.0	98.2	53.17
	55.0	97.2	.21

Sat. extremely faint.
obsn. not worth much

conic
49
88
84
84
86
86
85
84
87
85
86
855

Double neb. 1519 -20
1519 the ~~larger~~ brighter & most
90 distinct of the two.

107.9
106.7
106.0
108.1
107.2

Power no 2.

90+	26.8	53.07
	21.1	30
	20.7	23
	21.0	46.44
	19.0	49
	20.0	46

Neb ~~[illegible]~~ 2381 & VI X1 202

Δα by chron	Δδ	Neb. n.p.	
[31.8]	37.47	79.4	corne. e.
31.3	.40	.0	
31.2	.81	.1	Power no 1.
31.3			

Neb ~~[illegible]~~ 2388 not visible.

2381 has an elongation or wisp on both sides in direction about 30 n to f.

Measured 137°.2

2838 = M 99 examined looks resolvable and vgbM but no "3 branched spiral" seen.

Friday 31st Jan 1868 C. S. P

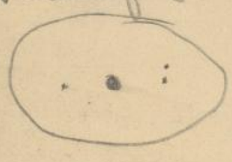
P III 98
2nd P.
Stars blazing
Moon lights up sky
Stars clear & steady
companion n.p.
Position
105.2
106.5
108.3
109.3
106.8
107.42
Dist
50.60
47 Seeing getting worse
49
50
54

Σ 577
Seeing so bad
that can scarcely
separate this star
Stars shivering
Stars comp n ⊥ eyes.
Pos.
156.1
158.8
155.6
156.4
158.9
157.06
Dist.
50.25
23
30
21
24
50.246
These measures
of dist. have
much less wt.
than their agreement
indicates.

Σ 652
Seeing better
Star ∥ eyes
Companion n f
Pos.
119.9
120.6
120.2
120.9
119.7
120.26
51.338 Too close
346 a little too wide
317
391 ! } Both careful & accurate, Images must move
273 !,
Star which
follows decidedly
the smaller
Breadth of
image of star
50.16
50.16
50.18

Sirius
Could see
no companion

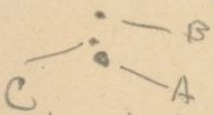
RA 5h 10m
δ − 6° 58′
Star 4th Mag. with 3
little companions
not close, Very
beautiful



Will measure
them.
Northern of following
companion Double
fol.
Other fol. comp
Pos.
108.7
109.8 Prim as 4th Mag Comp 11th Very hard to measure position
107.3 (good)
108.2
108.1 Last measures twice as good as the first 2
Dist
53.67
57
44
51
57

preceding
companion
101.8
100.7
101.3
100.0
100.7
Dist
46.70 Rough
.30 "
45
This companion
is much fainter
than the other
Very hard to see.
The star is
τ Orionis

n. Searle's Triple



Start eyes
Stars moving badly

A & B

Position
112.9 Careful
113.0
115.2
113.7
114.7

113.80

Dist
48.78 Seeing monstrous & vile
74 - too wide
72 " "
73
79

Fear that in above distances A & C were a little mixed together.

A & C
Position
287.7
290.0
287.6
285.4
284.4

287.02

49.62 Wide
61
55

Distances poor

BAC 1188
I think that difference of positions of B & C from A is 10° and would trust to this estimate rather than to the measures

---

GMS

Neb 1191
var. Chacornac

a small star (11 mag) precedes A Z 907 to the south almost exactly in the place of the neb.

90 + 353·3   46·85
·21

353·3   54·71
78

81·1
81·3
81·0

Does not appear nebulous and there is no nebula visible in the field.

Half moon not yet set, but sky clear.

Companion of Sirius not seen well enough for measures,

Uranus

4 Satellite

Mr 236 90 +

9 35.7 72.0 54.36
37.3 71.8 .24
38.8 72.9 40

40.5 71.0 45.50
42.8 74.8 .45
44.7 73.4 .46

~~48.8 149.7 47.67~~

3d Satellite too near a small star to be
– measured.

Double neb 2159 – 2160. 2159 brighter than 2160.

2160 & a star nff

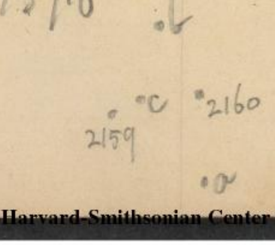
a
90 + 65.0 41.85 90 + 9.0 37.24
65.5 .91 9.8 23

star sf

b
57.5 37.28 90 + 95.7 34.21
58.7 .16 96.2 33.87

c
156.1 43.55 145.0 46.26
157.0 39 Conic, 144.6 22

49.~~92~~ (88 86
power ~~91~~ 89 87
1 ~~91~~ 88 87 } power 3.
rigid ~~92~~ 87 88
~~92~~ 86 89)



Jan 31 Friday

Neb 2161 &
a star s f

90 + 130.0   37.36
130.0   28
.41

40.8
39.6

Neb 2276
& a star pr.

90 + 20.0   40.12.
19.5   10
20.0   01
13

201

289.0
288.5

Nucleus Elongated in direction 282°
by circle; with a brush or wisp. on
on each side also in this direction.

2157 nearly as bright as 2159, brighter than 2160.
2161 also pB. but δ appears to be wrong. It
is at any rate north of 2163, about 1'. The δ's
of 2161 & 2163
seem to have been interchanged.

Feb 1. 1868

Σ 651
8^{10} P

Stars ‖ eyes

Pos.
105.3
105.6
105.5
106.8
105.0
105.64

Dist
51.36
48
45
35
41
51.410

Give these distances ½ the wts

Σ 622

Star ⊥ eyes
3^{10} P
Is this the star?
Stars Moving badly

354.2
353.9 H
354.0
356.5 ½ wt
355.0

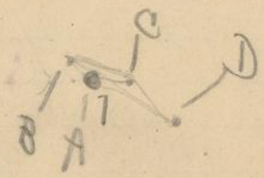
50.18 Better
13
17
16
17

Following one diameter of finder is farther
Roughly measured
Clock not on
Po 120.5
51.30 too wide

Star 1st measured is sp as star of 6th mag.
p by ⅛ diam finder
n " $\frac{1}{16}$ " "

The following one is Lal {9465 / 9469}!

σ Orionis



AB
111°.2
114.0
112.8
113.9
115.0 (Mean 113.38)

AC
85.8
84.66
84.8
86.9
85.5

AD
108.9
107.6
107.8
108.4
107.3

BC
97.7
97.6
97.2
98.5
99.0 Mean 98.00

BD
109.3
108.6
109.1
109.6
109.4 Mean 109.20

σ Orionis (continued)

CD
119°.0
118.0
118.8
120.1
119.3
Mean 119.04

Stars blurring to be moving too

BC
Seeing is so bad that obs. is almost impossible
52.31
38
33
41 ?
37
Mean 52.360

BD
55.27
33
35
41
40
55.342

CD
53.04
52.97
53.00
02
03
53.032

Another double np of σ Orionis dist from σ Orionis

Used wire whose zero is about 50.

Δδ
60.10
60.31
60.25

Δα
65.14
24
28

Following star of double

This double has stars almost exactly p & f. Star p is a little s. 1° from p. & f.

Dist
50.78
84
82

Feb 1 Saturday

A Z. +29 no 1308 & Eurydice. G M S.
4 Tr. over 3 w. Planet follows. extremely faint.

Planet north.

58.00
15
20 } ½ ut
57.82 }
58 34

Pen failed to mark the times of declination measures. Mean probably about 6^m after the last ~~[illegible]~~ transit.

Coinc. Power no 3.

49.87
87
86
85
86
85
86
86
87
86

Monday Feb 3

Immersion
of BAC1526

Q. S. P.

Coincidences

49.902 830
909 831
907 829
916 819
912 823

4546 4132
4132

2)678

5)4339

49.8678 W

49.865
860
863
862
864

49.8628
49.8678

106

Call coinc.

49.865

or

49.8653

Emersion
of same
Star

Worst seeing
I have ever
known — when
there was any
Can scarcely
make out four
Stars in θ Orionis

θ Orionis
Observations
to have about
$\frac{1}{8}$ usual wt,
2nd P

CD
228°.8
230.3
229.7
229.4
230.1

AB
219.1
219.0
~~221.7~~
218.8
220.1
217.1

AC
291.7
293.1
289.2
288.9
289.6
?

290.8

BD
318.7
317.8
317.7
318.5
318.3

Must go & get
warm Seeing
improving
greatly as dome
cools

θ Orionis
Can see the
5th star now
& then

CD
51.95
.86
.74
.92
.92

AB
51.27
.22
23
19
25

AC

G. M. S. Feb 3. Monday

Seeing abominable.

Star near place of Chacornac's nebula.

Dist. measured Jan 31 should be 53.71
78

W 54.71 certainly very much outside.

W VI 1883. Dist. of companion about 16".

W IX 416 & Melpomene. Qr

74.98.	44.81	Conic e. Pl. north.
02	84	
0.0	90	
·00	73	
74.99	64	
	60	
	58	

3. Tr. Pl prec.

A Z + 29° no 1308 & Eurydice.

Pl. prec. 3 tr.	$\Delta\alpha = 8^s \pm$	
49.87	60.88	Planet south conic d. Planet extremely faint.
88	93	
87	61.40	
86	61.36	
89		

A Z + 26° no 1658 & Ausonia

Conic. d. Pl. north	55.65
	40
	29

3 Tr. Pl. foll. 2d wire of comp. on 1st 0ˢ.5 too late
last ~~transit~~ set on planet almost worthless on account of faintness, through clouds.

W_2 × 237 & Danae.

3 Tr. Pl. foll. another star a little preceding observed also in 1st tr. and by itself in a fourth.

38.74		74.97	
38.84	Planet south. Coinc. e.	97	Power
39.01		75.03	3
38.82		02	
38.90		00	
		01	

Tuesday ~~Jan~~ Feb 4

C.J.P

θ Orionis

θ Orionis

Σ 489

Seeing v. bad.

Both stars colour of violet of spectrum

3rd P

Stars ⊥ eyes

151°.3
152.2) Doublent little
153.1
153.0

152.36

~~50.13~~
50.18
20
19
20
20

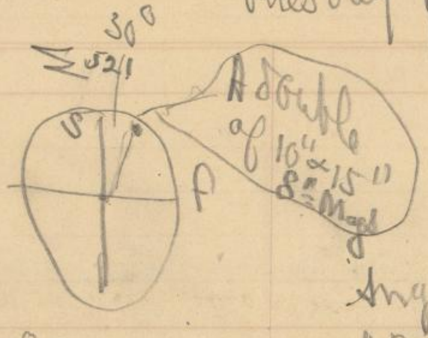
Seeing improved
try 4th Power

50.23
24
30
} 1/4th

5th Power

3rd Powerhest

Σ 521



15°.8
14.7
16.6
15.7
14.9

50.08 Too wide
.06 " " ?
07
03
09
05
06
10
07
05

50.086
49.865

201
4

1.97

Angles

AB
37.8
37.0
39.3

38.0

CD
50.1
50.3
49.0

49.8

AC
~~116.8~~
108.7
108.4
108.2

108.3

BD
137.7
~~139.8~~
137.0
137.0

137.8

AD
6.8
8.7
8.3

7.9

BC
73.2
73.1
73.7

73.3

Distances

AB
51.18
17
21
~~21~~
20
21

51.194
49.865

1.229
.28

12.04

CD
~~51.78~~
51.84
.89
77
78

51.812
49.865

1.947
.39

19.08

AC
51.31
28
26
25
28

51.276

BD
50.77
76
76
80
76

50.770

AD
51.57
55
55
58
55

51.560
49.865

1.695
.34

16.61

BC
52.09
06
12
07
14

52.096
49.865

2.231
.45

21.86

51.276
49.865

1.411
.28

13.83

50.770
49.865

.905
.18

8.87

Finder

Σ1043
for pers. equation.

Coincidence changed at this moment

increasing circle reading

G.M.S. parallel to eyes

by + rot.	by − rot.
100.3	103.5
102.5	104.0
100.0	102.8
100.8	103.7
101.0	102.0
100.92	103.20

~~50.13~~ 4
~~49.64~~

50.13	49.64
14	63
13	63
50.133	49.633

CSP parallel to eyes.

99.9	100.9
101.2	105.0
102.2	103.6
102.8	101.8
104.1	105.6
102.04	103.38

50.14	49.59
17	63
16	63

Comc
CSP
[illegible]
05

coinc.

CSP
49.91
91
91
91
91
91
91
91
91
91
49.910

GMS
49.94
93
91
92
91
92
91
92
91
91
49.9180

wires placed on moon alternately in contact

944	865
951	864
943	872
943	873
943	872
9450	8692

on one side & the other.

49.9071

9450
8692
1142

GMS 9571

931	895
940	873
933	880
931	870
931	872
.9332	.8780

49.9056

8735
9430
155

.49.90775

GMS	CSP
901	.903
902	904
910	903
907	903
911	912
901	900
903	902
903	904
902	907
901	903
49.9041	.9041

A Z + 26 no 1658 & Ausonia

4 Tr. 3 w.

54.00
02
10
04
13
04
04

Pl. north
coinc. d.

Julia & W_2 VII 429 — 30 — 31.

40.12
39.86
40 01
40.12

Planet north.
coinc d.

2 Tr. Planet prec.

W_2 X 237 & Danae

		zero of pos	coinc e
	46.21		
Pl. south.	45.96	79.1	75.01
			00
	46.07	.0	
	46.14	.2	74.99
		.0	99
	45.97	2	75 00
	45.94		01

4 Tr. Pl. prec.

Thursday 1868 Feb 6

Clouded
up before
I got to
work
$3^h 25^m$
Sid. t.

At $4^h 15^m$
no hope of
clearing
off
Returned
home

C. S. P.

Friday 1868 Feb 7

Σ 622
P IV 258
Cannot be
separated

Seeing miser-
able.

Σ 583
Seeing is so very
bad that it is
almost useless
to try to make any
measures
Power 2
Star ⊥ eyes

24°.8
23.8
24.3
24.9
25.1
24.58
~~34.26~~
34.68
50.~~49~~
.6~~5~~
64
71
63
67
50.660
49.905
7.55
15
7".40

Σ 651
RA 5h 3m
δ −7° 14'
Star ⊥ eyes
°
~~103.1~~
~~105.2~~ Do not reject
106.6
106.4
107.0
108.1
108.1
106.1
108.7
107.7
~~108.8~~
103.8

Seeing intolerable
Give ½ wt to this series.

51.53
55
46
54
30

½ their normal weight.

ζ Orionis
Cannot be
separated
though com-
panion to
the north
dist. 30" is
plain.
Horrid
Horrid
Seeing

7h 59m
Obs passage
of Hebe
& Arg. 1491
supposed =
W 1453
Over 3
wires
middle
wire read
59.05

ΔS
Hebe
70.42
Comp Star
89.46

A Z +28° no 1363 & Julia

68.57
51
49
52
35

Planet north , coinc. d.

3 Tr. Pl. foll.

No 1363 has a 10.5 comp. 340° n to f. [illegible] dist 15''

W₂ IX 1143 & Flora.

3 Tr. Planet foll.

	coinc.
90.48	49.92
39	92
45	91
47	90
[74]	93
56	

Saturday 1868 Feb 8 C.S.P. obs.

Venus
~~go~~
Mr. Auston
~~Aff~~ Dis 10
N & S

48.80 ~~11~~
37 ~~15.3~~

Prince
51.19
51.27
51.28
51.16 } C.S. ∞

~~E.W.~~ after Drawing
f&p { 50.92
50.92
51.04 } C.S. ∞

Auston
51.40 ~~15.0~~
51.29 ~~13.9~~

~~12.9~~
~~13.7~~
~~13.8~~
~~12.6~~

~~10.2~~
~~10.2~~
~~11.4~~

Cephei 49 H
Cannot separate it. Any elongation doubtful.

α Urs. Min
Comp to right
31st P
8 Skull eyes

316.03
313.0
313.6
315.2
317.0

Dif. to measure so hard to because more in RA & also in Dec.

51.885
81
67
80
70.

RA 17h
Dec 82° 18′
Star about ~~3~~ or 4th mag. ~~[illegible]~~
Suspected to be double

Searched for Mr. Dawes's double of Dec 10
Found the following
h = 4h 5m
at ~~5~~ 46
S equal nearly 66 Ceti

Pos. 71°
Without illum

Cannot find Mr. D's high nor low.

1 41

79
166
125
44

79.3
3.
75.6

Observed for personal equation.

Σ 1045
GMS Power no 3.
Comp S p,
Star || eyes

~~120.8~~ 123.3
123.9 125.8
124.0 125.5
124.5 126.2
124.0 125.2
123.5

90°+
32°.0 50.49 32.2 49.25
~~32.2 49.25~~
30.0 50.54 30.5 49.26
30.8 50.53 33.5 49.26
50.520 49.257

C. S. P mem 49.888
~~parallel to Is.~~

121.3 120.8
122.2 121.0
122.2 121.5
120.0 120.7
120.7 121.0

50.50 49.17
49 34
51 30
55 22
43 23

Σ 982
Star ⊥ eyes
Comp. S
C, S, P

P60
2°.4
3.5
3.0
5.0
4.5
33.68
50.52
55
57
61
58
50.566

G. M. S

178°.1
179.0
179.1
179.4
179.6

50.54
49
52
48
55
50.516

Σ 1109
Perp to eyes
~~Comp~~ Nearly equal.
CSP

[153.8]
155.0
156.8
155.0
156.8
155.8
155.88

	Arm
50.27	49.88
26	88
26	87
22	875
27	875
50.256	

GMS
Arm

Star v. ⊥. 50.21 49.86
19 86
Obs. uncertain 24 87
23 88
24 88
50.227

150.8
149.4
152.1
152.8
153.1
152.0

1868 Feb 8

		coinc.
A Z +28° no 1363 and Julia.	63.78	unchanged.
	61	
4 Tr. Planet foll.	57	
	56	
Planet south on d.	66	

1868 Feb 10

~~Cond~~
Σ536
Inseparably

Σ622
Stars looking very bad!

Gas frozen up.

Very red star 7th Mag. 4m foll. and 30' South.

Great Neb. in Orion
~~Looking to cloudy~~
Stars very bad
Nebula not dim but very ill-defined in all its parts.

Neb 1227
There are three stars of about the same mag & within the same degree of Declin but quite remote in RA which have all a very similar nebulosity about them Do not resolve it but see in 1227 say 20 stars,

Gas now begins to come.

Neb 1573
I find a star say of 7th Mag with very large bright Neb. all about it. Similar to 1227.

See all several double stars 5" to 10" But no other nebula. But seeing is so bad ~~that~~ a neb. might easily be mistaken for a star

Σ880
In the place I find double star which I measure, though it hardly answers the Description mags. 8.5 & 9 Comp s.p.

1st P.

112°.0
113.3
113.0
113.0 Comp only seen in momentary glimpses
111.5

51.80
~~53~~ 2.21
.96
.76
.88

Index of R.A circle had slipped about 10m out which caused my difficulty

A Z +28° no 1361 & Julia,
2 Tr. A Z 1362 also observed in 1st
51.16 and in two preceding ones.
[50 69] Planet north on e.
51.35 comic.
.47 75.04
.28 03
04
03
2 Tr. 03

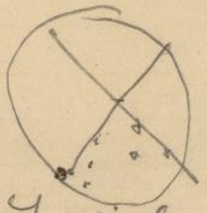
Set for Melpomene and Flora, but haze and moonlight prevented finding them.

78°

1868 Feb 11

A film of clouds over the sky, from which fall flakes of snow
Stars all have nebs round them but otherwise not very bad,

Looked for Mr Davis's & mine of a few evenings ago, I found a beautiful triple & a new (?) Double



Finder on triple

Triple

a . . c
b .

ab Pos 126°
without illum

Double 76°
Double follows triple 1½ fields of Power 3,

Star which I take for 66 Ceti Reads about 130°

Real 66 Ceti 121.

~~FD~~

5/2 finder following triple is False 66 Ceti (130)

Four fields following that is true 66 Ceti

ab of triple with ill 126°
bc 0°

Double just following 78°

False 66 121°.3
True 120.0

~~Δ~~

Δ 8.

66 Ceti

66.43
90.25 False 66
53.25 Double
49.59 b of Triple

13.83 N
13.18 S
~~40.67~~
16.84 S

135.5	2' 15".5
129 2	2 9.2
165.0	2 45.0

I WI 888.
893
891
902

−3 12 59
2 15

−3 10 44
2 9

−3° 15' 8"
2 45

−3 15 44

(705) −3 13 11
1 37 39

Mr Searle identified this region = Σ 160

CSP
Searched
for star near
Σ 880.

Find star of
Pos 112°
that is Σ 880

One of last
night is
10^m prec.
& 10' north
of Σ 880
$1\frac{1}{2}^m$ foll'g
are two bright
stars 20' N
& 20' S.

Δδ
45.48 Σ 880
97.86
52.38
$6^h\ 44^m\ 43^s.5$
46 10
5
0 28.0
5 52.0
$5^m\ 24^s$

C.S.P.
Immersion
of 48 Virginis
Moon had just
risen & edge
was all flowing
Gave three taps
middle one was
probably a little
early for I
thought I saw
the star after-
wards. Star
~~difficult~~ hard
to see.

Emersion
beautiful!

CSP
Melpomene
(18)
W IX 221

R
87.69
66

ast
68
43
50
45.42

Passages
over 3 wires
More at le wire
read 58.38

Comp star
on Wire e
[32.47] Reject
(first rattle
nothing)
32.96
.83 Best
77

GMS.
Flora (8)
W_2 IX 1073

Plan. north	comp
4.68	49.89
[58]	92
69	89
65	91
53	92
61	

Tr. Planet prec

Search for doubles. G M S

Found a faint companion (11 mag.) ~~preceding~~ n. f Oeltz. 11442
measured.

Power no 3. Stars perp. to eyes.

317.5	2 dist
319.0	48.95.
[313.2]	50.95
316.5	
319.0	

1868 Feb 12)

C.S.P.
32 Orionis
Cannot be
separated
to-night

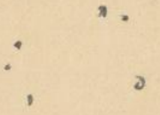
C.S.P.
Neb about
θ Orionis

Nebula about the middle one of the three stars & streaming from now seen for the first time). The streams from all 3 now quite plain Much more so than other points (such as the transverse stripe from the great southern wisp) which I see almost every time,

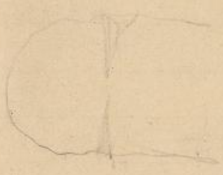
Another thing seen for first time is the black streak running of towards sp from the apex of great triangle to star. But this is more doubtful The bright streak beyond the star, I still cannot see.

The wispy character of neb. on both sides of triangle that on f side having convexity sf & that on s side having convexity f or nf is marked.

I also notice very plainly what is not on Bond's drawing, ~~to~~ ~~wit, that~~ There is a large black cave on the nf corner of triangle wh. is on all the drawings. There is also a bar across it. Now I notice first

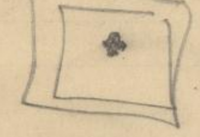


that this
bar is broken
or almost
so in the mid-
dle



And second
That from the
inner cave
Thus for me the
blackness
extends (in
a mitigated
way) clear
up through
the triangle
to the p
side of the
most p
of those
3 stars &
2nd That a
less marked
blackness
extends ~~up-~~ south-
~~wards~~ wards a little
way on the
f side of
the same bar
4th These
black bars
also extend
northerly
so as to be
continuous
with the
great np
Wisp giving
the whole
nebula
an entirely
new aspect
so much so
that it seems
to me that
I have just
got a good
idea of it.
I certainly
never seen
it look so
finely.

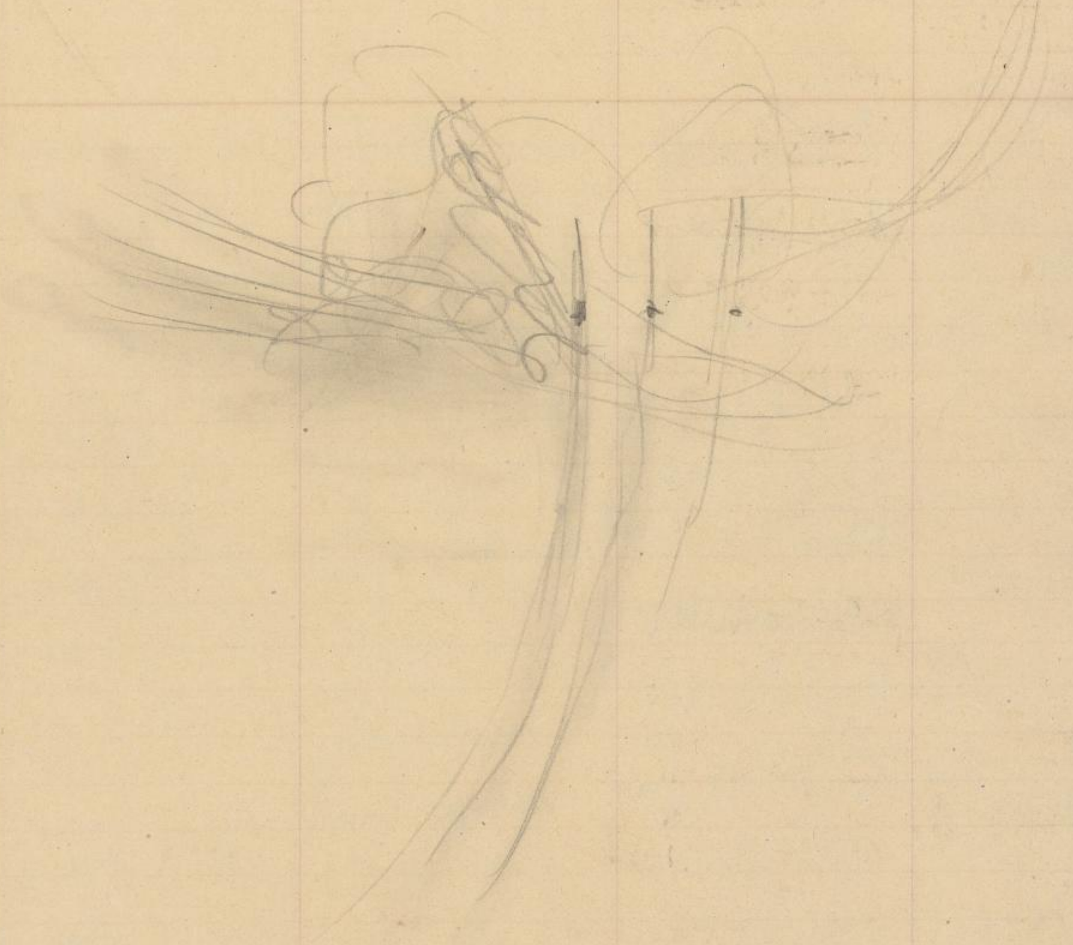
The Trapezium
has always appeared
to me to have
a sort of glittering
look as though
there were other
minute stars
there. It seems
so now
& in par-
ticular the
star a
looks thus



as though
it were com-
posed of several

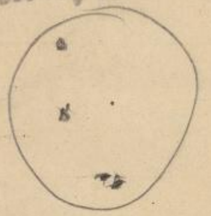
Will mark
on G Bond's
drawing the
continuous
lines I
notice.

The whole
texture of
the nebula
seems
different I
fancy. It
almost spar-
kles. It is
all but re-
solvable I
believe. It
looks more
like the
elder Bond's
drawing



C 18

About 1° N
of middle of
3 stars is
a double
star 5"
about.
Perhaps a
little f of
that.



Field of No 7.
7th May.

This star is
W. V. 706.
= Σ 750

~~Qu: Is this
Σ 743, which
is
5h 26 15.9
− 4° 32 4.6
Pos 278.0
Dist 1.8~~

C 58

Σ 850
Cant resolve
it.

Σ 838
Barely re-
solvable.
Cannot mea-
sure it;
" Monoceros

Cloud there

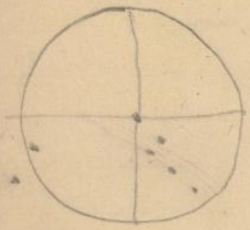
Operations
suspended
on account
of clouds

Friday 1868 Feb 14.

C. S. P.

Found a double

Unless it is 80 Tauri



Finder

It is 80 Tauri

Clouded up almost immediately so that it could no longer be seen

C. S. P.

6h 15m

Cleared off but seeing very poor

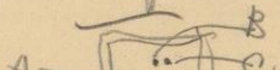
β Orionis

Miserable

C. S. P.

11 Monocerotis Bright triple star with large vB Neb. about it.

~~Components all equal~~



A is considerably the largest B & C Equal.

A is perhaps itself double but seeing is very bad

BC

66°.2)

Star has utterly disappeared in an instant, Cloud very thick.

β Orionis

~~do~~ Continuation, n α s of 2 dark bands V. distinct & indubitable

6th Star in place

16th Feb

Note July 3, 1880. The indications above are supposed to mean that this observation of the Orion nebula belongs to Feb. 16, 1868.

Sunday 1868 Feb 16

G.S.B

Was not aware
till after 8
~~that~~ it had
cleared off

80 Tauri
Companion v.
Seeing v. fine
4th P

Star ⊥ eyes

344.3
341.4
347.3
341.7
347.8

49.99
50.00
50.03
.02
03

Preceding
80 Tauri
nearly 1 finder ~~p.~~ of 2
On same
parallel
is a very fine
double.
Large star
Much ~~fainter~~ closer
than 80 Tauri
5th Power. Bare-
ly separates it.
Suspected it
on Friday
Pos. about 70

32 Orionis

Power 6
Stars ‖ eyes
Seeing not near
as good as higher
up.
Seems to me
3 stars. (?)

67.0
63.8
63.2
62.9
63.2

Cant measure
distance

= 71 Tauri

C.S.P

Sirius
Star ‖ eyes
Companion
v. distinct
3rd Power
97.6 Good
94.3 Poor
95.8
94.9 Star less dist

Cant see it
any more
Eye tired, I
think

51 .037 } CSP
06
.00 Austin
.065
.11 C.S.P
08
.04
07
2 Comp vis
.08

.62 2d *

Position
97.0 CSP

G.M.S
Star ‖ eyes

96.0
99.0
98.2
99.0
99.0

~~51.26~~

Σ 1216
Cannot sep.
Perhaps a
little elonga-
ted p & f
Cloud

1580 10 30 53
948
1096

925
555
647.5

Neb. 2008
Direction of elongation
par. to eyes.
Power no 1.

304.0
5.6
6.7
4.5
3.2

Power no 3. 2
small star
in. neb. n. f.

132.0
130.2

51.79
86

small star s. p.
perp. to eyes.

90 + 73.7 41.66
72.8 41.83

coinc

49.96

71.8 58.34
71.4 58.30

92
94
94
93
91
95
94
94
94

161.0
160.9
161.5
160.3

larger star
more distant. s.p.

163.0
163.0
163.1

a remarkable
object.

69.91
91
70 16
03
09

2170

10 32 +10 0
chron 236
10 38 33.5 W X 547
40 46.5 Neb.

41 24.7
43 37.5

1860
W X 547
10 30 53
+ 9 55 39

10 33 6

zero of pos
79.4
.4 44.96 neb south
.0 45.24
.0
.1

star s f perp. to eyes.
26.2
25.8 No neb vis.
25.0 except this
42.51 near the
27 place of 2170.
35
this corresponds with description of 2170

2184 = A Z 2249
10 37 +12 23

B vm E
mb M
does not
look
specially
resolvable.

No small
star
near
enough to
measure.

2194 =

10 40 + 12 32

Nucleus appears elongated in direction 350° n to f. the southern end being the brighter.

star preceding. 33.19 33.21
2170 31.14 31.01
2194 e e

11 56 40.3 . star ~~11 1 47 0~~ = A Z 2248
57 8.8 2184 ~~2 15~~5 = A Z 2249
59 53.5 2194 = A Z 2253

11 3 13.2
3 39.5
6 27.5

General elongation of 2194 in direction about 315°

3092

~~12 28 − 3 2~~

3

3146

~~12 34 + 8 35~~

3147

12 34 + 8 30

not visible. Region of course certain being near 3158 & 3157

3157

elongated in direction n & s. looks almost double or bi. N.

p. B.

~~3075~~

~~12 26 + 8 28~~

3148

12 34 + 8 5

and a star f.

A Z 2629

79.5
77.4
79.4
79.5
78.7.

56.76
54
65
56
69

Comm. d.

~~3060?~~

~~12 25 + 5~~ 13

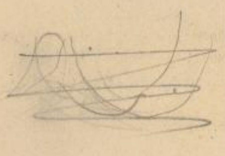
Chron 236°

2s slow of clock.

Tuesday Feb 15.

C. S. P.
Put on low eye piece & observed Neb θ Orionis

My black bands very distinct.



S.

Neb. 1225
Very plain

Neb 1400
Cannot be seen

Sirius
Comp. not vis. with this power

Neb 1439
Sky too bright
Invisible.

Line of Position

78°.2
78.2
78.2
C. S. P.

Neb 1673

star s perp. to eye
353.8
353.1
351.1
352.0
352.4

dist. lost from clouds.

star n f perp.

325.5	53.42
325.4	.10
327.2	.23
324.2	23
324.0	

coinc
50.10
09
11
11
11

Neb 1904
9 mag. s p.
113.6
113.4
112.0

obsns. poor cloudy.

46.15
45.89
45.85

Neb 2310
8 W X 1105
Neb South
Star on e

16.33
25
45

Neb Precedes $12^s.5$
by chron. beat.

does not appear
vS or r.

Neb 2626 of nucleus
elongation 140° Power 3
very doubtful.
direction seems to change from time to time.
direction of brush on both sides.
115° Power no 1.
114°

also very doubtful.

no small star near enough to measure.

Neb 2776
12 6 13
× 2 1 12
nucleus very sharp
elongation of neb.
21.0
24.0

9.5 star n f.

125.0
125.0
125.0
124.3

61.93
.88
62.05

comic d.

Nebulae 2844 et seq.

chron 236

56 26.0 2844
50 2862 ? B.-
53 5070
57 0 2852 = 2865 prob
26 2857 = 2869 "
double star 29 dist 10" components 11 mag
58 45 2876
17 v irg 59 37

			ΔS	
F	9	13	44.31	43.65
small star close nf				
pB		39	9.58	8.77
B		41	e	e
B		48	32.15	30.75
nova vF		foll 2852 7^s	a little south	say 20"
vB	10	13	47.78	46.41
double star		1.6		13.38
pB	11	33	46.64	45.75
17 v irg	12	25	18.10	17.27

comc d
28.44
28.97
neb south

a neb. 2892 B.
foll 33^s two comp
17 virg

1868 Feb 19 Wednesday

(95) Arethusa & W_2 III 1281-2.

Transits, of 3 stars. n. p. the comp. star.
no rattle.

1	e	e	e	e	e	
2	64.23	63.87	63.81	63.79	64.07.	63.88
W 3	58.78	58.95	66.23 58.82	58.80	58.93	58.80

Transits

2	e	e	e	e	Coinc e.
3	77.55	77.80	77.93	77.74	75.22
	69.99	70.11	70.28	69.97	18
					19
					20
					21

Transits.

Pen failed to mark almost all the time.

Sirius. Companion well seen, but star rather too much past meridian.

8^h 30^m	2 dist		coinc
100.0	73.67	76.00	74.78
98.1	62	75.90	78
96.9	62	76.04	76
98.8	73.637	75.980	74
97.1			75
			76
			74.762

Search for doubles.

Oeltz. 10163 very red. about as deep a colored star as I ever have seen
marked red in notes to catalogue.

Oeltz. 10285 has a companion n.f. Mags. 8 & 10.

perp to eye 159°
159° Dist. about 14"

The α of this star is apparently too ~~great~~ small in catalogue by 1^m. (by comparison with 10290 & 10334 ~~10334 10378~~.

A star about 30' north of Oeltz. 10543 is also double.
mags. ~~9 [illegible]~~ 8.5 & 9.5 Precedes 10567 50^s 14' north of it.

85° par. to eye. Distance about 9"
The α's 85° Companion prec.
of 10567 & 10572 are 1^m too large apparently.

Feb 20 Thursday

ω Leonis. GMS.

9h 45m Cannot separate or elongate with powers 3 4 5 or 6

Seeing very fair through clouds.

γ Leonis parallel to eyes. Power no 3.

			como
	58.2	50.46	50.12
	59.0	49.76	11
10 15	59.0	50.48	11
	57.2 ½ wt	49.72	13
	57.4	50.47	10
		49.80	

ι Leonis Clouds too thick to see the companion.

11 15 ξ Ursae Majoris Parallel to eyes. Power no 3

88.8 Comp. foll.	50.28	49.91
86.0 ½ wt	29	92
87.5	29	95
87.5		
87.6 ½ wt.		

Distance estimated.
wires not on stars.

ι Leonis Comp. foll. very faint probably clouds.
Parallel to eyes.

	92.7	49.79
11 45	95.1	50.39
	94.5	50.42
	94.0 ½ wt.	49.82

zero of pos.
78.2
78.1
78.3

γ Virginis   Perp. to eyes.

12 15   184.4
184.5
183.9

90 +   92.0   49.63
94.2   50.56
95.5   49.61
96.0   50.58

186.0 ½ wt.
183.0 "   Clouds.

All the obsns. with power no 3.

Saturday Feb 22. 1868

C S P

Arethusa
α W₂ III
1281–2.
Comp were ∂.
Δ8
78.08
77.70 Bad
77.23 good
77.30
Zero of pos.
taken at 78.3
3 Transits,
Ast. very faint.

Planet n.f.

Sirius

Doubtful whether Companion is seen at all. Certainly not fit to be measured. 2nd Power Can not be used Seeing will not bear it.

Σ 1104

No use to try for double stars of any sort to-night. Very large & blurred.

Wind rising ~~very high~~ & external thermometer falling. Temp outside 5°
" inside 25
But too much wind to open windows.

Webs 1537
α 1538

Not found

W 8 Melpomene. GMS.

3 Transits. Planet prec.

Δδ Planet north

50·65	Planet on e	coinc d .3d Power.
25·59	" " d	50·11
46		10
31		08
35		07
		06
		07
		08
		07
		07
		08

A Z + 20° no 2377 and Flora

Δδ		
71·71	Planet north.	coinc e
71		
71·69	Star on d.	75·19
72·04		18
71·99		19
98		18
88		18

Last sattle about 1m too late.

4 Transits. Planet foll.

1868 Feb 23 Sunday

Arethusa & BAC 1281 . 9 M.S.

4 Tr. over 3 w. Planet prec.

61.92	Planet south on d.	50.06
61.87		06
62 10		10
62.08		08
61.81		07

Melpomene and A Z + 14° no 2034

50.91	planet north.	50.06
51.05		12
16		13
01		12
26		10
20		
12		

4 Tr. over 3 w.

Neb 2229 Direction of elongation estimated 140°
not definite enough for measures.

An e.F star nearly north

171.7
170.0

90 + 83.2	59.52
82.0	59.23

Neb 2347 elongation 87° very doubtful & changeable.
83°

No small star near enough to measure.

Neb 2419 and a 10 mag n f.

Δδ	Δα cos δ
58.92	66.30
93	08
65	22
67	

Neb 2422 and a 10 mag n.f.

67.36	57.12
42	56.92
48	57.08

Neb. 2423 and a 10 mag n p.

	175.0	66.55
Perp. to eye	177.0	[65.40]
	175.1	66.35
		66.34
		corne
		50.06
		11
		10
		10
		10

Neb. at least 1' in diam.

2396 & a star n f.
par. to eye.

100.3
101.7
101.3
65.07
19
06

2427 F about 3/4' diam. R. not v.

1868 Feb 25 Tuesday

GMS

Σ1104

Star ‖ eyes
Comp. p.
P. 3.
Seeing fair
occasionally
Generally pretty
bad ~~Doubtful~~
~~image~~ Multiple
image

~~227.8~~
~~224.0~~
~~224.3~~
~~225.0~~
~~225.1~~
~~224.24~~
~~78.20~~
236.04

217.2
216.0
215.7
215.0
214.9
215.66
368.20
Pos. 382.54
No use trying
for dist.

ε Hydrae
Seeing also
too bad
on this
Star for
measures.

268
18
88

C S P
pair to eyes.
Seeing very bad
[32.7]
36.5
36.1
37.1
35.2
37.0
36.38
348.20
311.82

Neb 1975
W IX 1096
$-38.\overset{5}{7}$
38.7
39.2
38.8
} chron 236

86.51
40
27
Neb south on d.

Nebula F. r.

Nebula 2411
cL pB lBM
direction of elongation
about 5° n / to f.

2499
pB L fading
away very gradually
at edges. r
No small star near
enough to measure.
elong 45°?

2626
elongation estimated
~~45~~ 50° otherwise
corresponds well with
description in catal.

2805
No star 11 mag.
in M.
perhaps 14 mag.
Whole nebula
does not exceed
a star of 11 mag.
in light.
Elong. 350 n to f?
a 10.5 mag n p.
63.55
Δδ [90]
50
60
57
62

61.86
96
Δα
as δ 69
69
75

~~2812~~ 2829

pB bMN
np W XII 144

51.62 Δαwsδ.
27
33

82.11
48 Δδ
81.78
82.33

~~2813~~ 2821
elongation 45° decided
star nf

151.°0
151.1 elongation
149.5 116
~~[illegible]~~

61.03 121
61.27 115
61.11

come

50.09
08
10
07
07
07
10

Two nebulae
following ~~2813~~ 2821

none in the place of 2833 relatively to 2821.

I. 47^s on same parallel L vF R = 2833

II. 45^s 6′ north. S F " bM.

Another precedes on same parallel. S pB. bMN

13 26 42.5
13 30 2.5

R. sfa
10 mag star.

= 2785.

2813. Appears bM. as usual.
Is 7′ north $6^s.5$ foll. W XII 130

1868 Feb 29 Saturday ~~Oeltz.~~ 7033

Sirius Seeing not good enough for measures. Dome just opened.

Σ 1045 comp. s/p. Perp. to eyes. Power 3.

			coinc.
118.7	49.59	50.83	50.20
117.7	51	88	21
116.4	61	87	20
118.7			
117.8			

Oeltz. 7033 of 4 mag. as in catal. or at any rate brighter than n¹ & n² Puppis combined, in finder

n¹ & n² Puppis Stars equal. Par. to eyes.

61.8	51.18	49.30
60.5	23	27
60.8	20	30
60.5		
60.5		

Neb 1780

Apparent faint elongation 60± n to f.

has a star of 10 mag 0'.5. south foll 15^s

follows Oeltz. 9854 nib south

Neb 1876 v. f. S. resolvable.

s		
33.0	41.74	star on d.
32.5	42.87	
32.8	42.18	

° of star sf.	
36.0	43.63
37.0	43.70
36.9	43.20

Neb 2008

elongation

parallel	124.3	B	v m E
	123.0		
	123.0		

a faint star south

perp.	160.5	41.98	58.32
	160.0	41.67	.31
	161.0	41.63	.60

an 11 mag farther south

	342.5	70.38
perp.	342.2	30
	341.5	05
	342.0	30
		20

90 +
73.1
73.5
73.5

W XI 290 and Asia.
4 Transits: Planet foll.

	73.26
	" 61
Planet	" 61
north.	" 50
	" 61
comic d	" 80

A Z −1° no 2591 &
Circe
Planet north . comic d.

52.95	comic
52.82	50.21
53.14	23
52.93	21
53.28	

3 Transits . Plan foll.

1868 Mar 4 Wednesday

Setting				±0ˢ.2
252°.1	5	26	51.3	Imm ζ Gemin. Three taps; last the right one.
259°.9		31	21.9	Em. perhaps a few seconds two late.

Comp of Sirius very distinct seeing very fine

277.9 Power no 3.
7.9
7.5 51.16 49.10
7.5 22 49.06
[6.5] poor. 22 07
9.4 16 19
20 13 seeing worse, star fainter.
90 + 190.2

Σ 1074

	GMS	WMD
Power no 3	205°	210
4	212	215

Higher powers tried did not work so well.

Σ 1216

	GMS	WMD
Power no 4	217 very doubtful	180 pretty sure

Both stars identified from Arg. Zones.

ε Hydrae GMS Power no 4
135.0 Seeing poor
132.0
132.7
90 + 220.2 49.77
219.0 50.67
222.1 50.66
221.4 78
Comp. sp

Procyon. Two faint companions one about 7" north the other about as far f. thought to be seen by GMS with Power 4. The first especially appeared to remain though the star was shifted about in the field. But nothing was visible with power 3.

Σ 1178

parallel to eyes. Stars equal Power 4
conse.

200.5	~~49.28~~	50.23
201.3	49.72	.27
202.7	50.48 ?	.27
202.5	50.47 ?	.25
203.0	49.68	~~49.37~~
	49.77	
	50.38 ?	
	50.80	
	.80	
	85	

Enormous backlash of screw makes obsns. very uncertain.

WMD

49.75
66

50.77

Oeltz. 10008 has a v. f. comp. nf.
P 102° rough setting without illum. Dist about 4".

Asia & $\overline{\text{W XI}}$ 238

[63.48] Planet north.
72 Star on d.
76
80
72
84

4 Transits Pl. pr.

Circe & $\overline{\text{W XI}}$ 810
4 Transits. Pl. pr.

101.57 Planet south.
61 ~~F~~ pr.
42
54
34

comd
power 4
50.20
18
17
19
18

Mar 5 Thursday

GMS

Sirius $7^h\ 0^m$ Seeing magnificent. Companion brilliant & steady.

Power no 3. Parallel to. eyes.
coinc (changed)

39.77	40.95	38.63
77	91	65
77	94	61
77	[41.00]	63
77	93	63
	94	

90° + 190°.8	277.0
188.8	276.5
188.2	279.0
	278.4
	281.0 } ½ wt
	282.0 }
	280.8
	278.0
	280.0

Same two companions to Procyon as last night. Power no 5. Cannot be sure however of them.

71 Tauri $8^h\ 20^m$ Cannot see any companion
Perhaps in setting (190°) south.
or elongation. Power no 4. Image very good.
Companion of 80 Tauri very dim however. Bright

moon and region rather low. Seeing very good.

Oeltz. 9667-8 has a 10 mag. comp. nearly north.

90 + 75.8	40.37		coinc
74.0	36		39.91
74.0		39.50	90
72.7		43	91

New double of 7-8 mag n. p. Oeltz. 10411

Double north on e.

8.44 precedes $2^m\ 39^s.5$
8.34

2 dist	coinc e		
65.22	65.05	72°.0	Components equal.
64.88	.07	72.0	
	.04	72.3	
		72.7	
		72.0	

Oeltz. 11425-6 ~~h 4456~~ comp n f. 9 mag.

Power 4.
6

88.7
90.0
89.9
89.5
90.5

2 dist.

65.89	64.19
90	16
84	20

perhaps a close comp. s.f. but hardly think so.

h 4456
= Oeltz. 11513
This also examined and found to agree with Herschel.

Zero of pos.

No 4	No 2.
78.7	78.1
.7	3
.3	0
.2	8
.1.	3
	1

Mar 9 Monday

Sirius power no 3. 8h 30m

97·9 parallel to eyes 90+
96·9
99·0
100·0
99·6

90+ 6·8 63·89 Perp: to eyes come
7·8 66·15 64·98
8·2 86 98
10·1 19 00
00
98

ε Hydrae companion unusually bright must be variable
bright moonlight.

307·4 Perp: to eyes power 3.
8·1
6·4
5·2 64·61 Seeing not very good
6·0 65·32
31 ~~star~~ multiple image sometimes.
64
64
31

116 Hydrae par. to eyes power 4 Stars equal.

9 45 22·3 65·19 90 + 108·7
22·0 18 110·3
21·7 64·85 108·7
21·7 83 109·6
22·6 84 111·0
16

Σ 1457 par eyes Power no 4

Comp. n.p.

33.5
32.6
35.0
33.9

Dist est wires not on stars
65.10 64.89
08 91

Anon n p Oeltz 10411 par to eyes Power no 4.

69.5
70.1
69.1

65.17
16

64.89
88

65.02
03
03
04
03

Oeltz 11425-6 Par to eyes power 2.

87.2
87.1
87.9
88.4
87.0

64.17
65.82
84
64.16

Large star looks elongated p & a little n specially with this power.

Σ 1593 12^h 35^m perp. to eyes. Stars equal.

146.7
150.0 } Power 4 too faint.

150.3
146.1
145.8 } Power 3

65.09
64.90
.88
11
09
87

γ Virg. perp. power 3

very near moon

measured by moonlight without gas.

181.2			
182.7			
182.0			
183.0			coinc.
183.7	65.42		64.98
	46	64.50	99
	45	52	98
	43	53	98
	47	54	98
		53	

P XIII 127 parallel Power 3 comp foll.

Seeing fair but multiple image frequently

105.0			
106.5			
104.8	65.28	64.77	65 04
105.0	28	79	[98]
105.5	26	80	02
			06
	64		04
			03

Σ 1819 par to eyes Power 3 Comps equal

dist est.

134.0			coinc
133.5	65.08	90	02
133.5	08	90	01
135.0			98
134.8			00
			01

1868 Mar 11 Wednesday

Uranus.

Chron 236	3 Sat s.f. par. to eyes		Power 4.
8 36	90 + 339.0	68.28	Seeing pretty good.
41	339.0	67.[illegible]	Satellites tolerably bright.
43	337.9	68.19	
46	340.8	61.82	
48	338.5	61.92	Chron 236
49	338.1	61.75	1m 7s fast of clock.
	4 Sat. n.f. perp. to eyes		
56	57.5	69.22	
58	57.5	69.24	
9 1	58.9	60.68	
2	58.7	60.50	

Σ 1037   9h 30m Par eyes. Power 4

Seeing not very good.

	Dist est.	wires not on stars
27.6		
25.5		
24.2	65.10	65.03
28.0	64.91	04
26.0	65.11	02
	64.94	05
		04
		02
		03

Σ 1177

357.4 Par eyes comp n p.

3[illegible]	355.0 perp eyes	64.62	65.40
	356.1	65	40
	355.0	67	40
358.3			
357.0			

5.690

Σ 1186

Comp very faint prec. perp. to eyes

300.8	[65.50]
306.2	38
304.5	38
	40
306.7	64.62
302.5	64
	66

σ^4 Cancri Σ 1298

comp s f par to eyes

30.0
30.8 Seeing execrable.
31.8

29.7 Power no 3. Little confidence
31.1 in measures notwithstanding
their accordance.

65.54
49 Seeing much better
44
49
50

64.55
53
52
45
51

Σ 1333 Seeing too poor to measure it.
Can just see ~~that~~ it is double.

54 Leonis par. eyes Power 3. comp s f

			comic.
64.0	65.67	64.31	64.99
63.0	67	33	98
64.0	68	35	99
63.2	68	38	97
62.5	66	30	98

zero of pos

78.4
·0
·0
77.9
78.2

Σ 147.8

177.0	Comp north	65.92	64.04
177.0		89	10
177.0		96	08
177.8		93	05
178.7		95	01

1868 Mar 14 Saturday

Σ 1074	γ Leonis	54 Leonis
Separated but clouds came in region before a measure could be taken.	10^{h} 0^{m} comp foll power 3 Seeing good perr. to eyes 57·0 54·8 56·6 54·5 54·3 64·74 [65·50] 72 43 75 40 73 39 39 65·08 10 06 07 08 65·078	10 20 comp foll very faint through clouds Power 4 par to eyes. 63·0 62·0 61·7 Disappeared in cloud.

Wednesday Mar 18

Σ1074	Σ1104	Σ1109	Σ1216	ε Hydrae
Not separated C. S. P.	Stars large Could not separate it C S P	Star v. fnt. & ill defined 4th P Star ⊥ eyes Components equal	Cannot resolve it with cer- tainty.	Comp s p Not seen v well P. S Stars ⊥ eyes
		347.8 346.0 346.7 346.9 346.5 346.78 680 333.22 Circle read wrong Subtract each from 680°		136.9 134.6 137.5 136.7 16[illegible].3
		65.38 64.75 .63		40.26 39.61 .65
		65.41 64.75 .68		40.24 39.64 .60

ω Leonis
Cannot resolve it.

Σ 1281
~~Stars equal~~
3 P.
Stars ‖ eyes
Fainter star n.p.

24.3
24.0
24.7
24.4
24.6
24.40

Stars ‖ eyes

43.03 Stars ⊥ eyes
08
15
08
43.0825

Coinc
8th P
39.95
98
99
99
98

6th P.
39.948
933
936
940
937
938
947
948
949
939
950

Hydrae 116
Barely recognized as
a double star
Not capable
of being measured tonight

Σ 1457
Inseparable

Hydrae 134
4th P
Stars ⊥ eyes
Comp sf

187.7
188.2
187.7
186.8
187.9

40.33
.35
33
34
33

Σ 1404
4th P
Stars ∥ eyes
Stars equal

53.6
55.3
56.0
53.3
54.2

Neb 2301
8
W X 1065 ~~[illegible]~~
neb preceded
— 40^{s}.8
.5 chron 236
.3 eye & ear

neb. north on e
38.14
37.91
37.84
38.25
38.00

elongation
0°
3°
3.5

coinc
65.09
.07
.10

M 49 = Neb 3020
star foll.
90 + 167.8 59.82
169.4 60.06

169.0 70.41
168.7 70.37

78.7
79.5
79.0
79.0

New neb? or one
of Lord R's.? v F
8^{s} prec 7' south of 3020
elong. slightly 100 ±
perhaps several v F stars.
but hardly seems so.

No star good to
compare with 3020

Neb 3018
and a star.
Neb south
70.15
69.97
69.99
85
83

Neb foll
74.74
75
75.10
74.81
80

Neb 3040
and two stars

a, nf	b sf	a & b
Δα		
66.82	72.92	70.93
58	83	77
47	71	83
Δδ		
	4.00 5 10	
69.00	70.17	74.62
b 88.88	16	53
69.15	33	64

3018 S F R
3021 vB L mbM not N
3020 pS F elong 0°? not bM
3040 F R bM

3032
~~taken for 3060~~

taken for 3060
and a star np.
neb. elong 0° ±
pF ~~pB~~ pL
not bM.

Δδ
73.95
74.00
23

Δα
74.48
09
04

The "~~scarlet~~"
star is W XII 378
(which however is slightly red)
The neb. is 11'
south of it and
follows it 5s.

3902 and a star | preceding 3904

B R Ð¾ 6M

Neb foll.

14·2

14·3

14·3

vF ~~vS~~ S

neb north	neb south
74·85	62·07
75·42	61·89
75·50	61·76

Angle 3902 – 3904

357.0

356·3

355.4

This neb. looks perfectly simple. No appearance of a companion other than 3902

coinc.

65.09

10

06

378

red)

Thursday. March 19. 1868.

Experiments with Spectroscope by J.W.

Σ 1457

C. S. P.

Σ 1457 4th power; Stars 11 eyes.
Stars well separated

38.2
39.3
40.5
39.2
38.2
39.1-

40.07
39.81 -
40.05
39.81 -
40.06
39.81 -
40.06 - 39.81 = .25

6th power
Stars moderately steady.
& well defined
40.05
39.82 -
.23

5 ~~4~~th power.

37.8
38.8
37.4

W.M.D.

ω Leonis C.S.P.
Fortasse oblonga.

Has grown hazy & is still elongated so. Com

6th P

Pos. 6ª P.
153.5 Approx.

~~38.96~~
39.937
935
937
932

After long looking, feel pretty sure of its being seen double.

Neb 3009
and W XII 380
= Σ 1648

Neb precedes
96^s.2 } chron 236
.2 }

Neb north on e
42.41
.40
.15

B pS R mbMN.
Σ 1648
Perp to eyes.
Power no 1.
Comp. nf

130.0
128.1
129.5
130.1
.129.1

39.12	40.80
13	77
15	75

Neb 3311

● elong. decided
elong
42.5

considered $\boxed{F}$
but clouds
shortly afterward
came on.

Sun Day 1868 Mar 22.

Sirius Star large & tremulous Comp. faint 3rd P. Stars ‖ eyes	Zero of Position	e Hydrae Seeing bad Stars unsteady 3rd P. stars ⊥ eyes	Coincidence	Hydrae 116 6th P Stars ⊥ eyes
	~~79.6~~	133.3	39.960	19.4
97.8	79.3	134.1	959	21.3
99.1	78.9	133.5	959	20.2
93.8	78.9	[137.5 Careful as the rest]	978	~~23.4~~
95.1	78.9	132.9	952	20.4
	78.9	134.1	958	20.3
		133.58	960	
			948	40.09
		40.30	956	39.77
	Again	40.30	965	
	nearer me-	40.29		40.08
	ridian	40.31		39.76
	79.2	40.30		
		40.300		40.10
				39.77

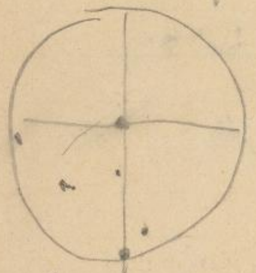
Eyes tired by the glare so that cannot go on with this star.

Seeing v. bad stars melting apart & dancing

Double

R A 9h 59m
δ = -1° 00'

Pos. 54.3
Dist 40.69



Finder

Mag 8 & 9

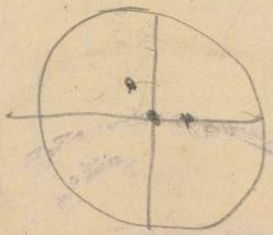
= Σ 1404

Double

RA 10h 01m
δ - 1° 8' approx.

Very close
within 1''
nearly n & s.

Not in Struve



About 40' following Σ1404
a little s of
the latter

Dec. = -1° 2'

= ~~Arg 2297~~(?)

= W.IX.127(2)

NB 78°.2 used as zero
in these comps.

Double neb 11 25 12 +1 35
D'Arrest

& $\overline{W}$ XI 420 | $\overline{W}$ XI 420

The two nebulae. | and foll. neb

Δα	Δα
27.33	26.41
27.79	40
28.08	44
28.09	
28.14	

neb n f

Δδ
9.33
09
08

Δδ
foll neb is south
35.06
35.27
34.92

The foll neb is decidedly the brighter and ~~has a pretty sharp nucleus. Also seems the smaller~~. is rather bM.

~~Follow~~ Preceding one has a more equable light.

Zero of pos
79.0
.0
.2
.1

coinc
39.97
96
93
95
95

Neb
D'Arrest 11 24 36 +4° 15'
& W XI 442

neb n p

Δδ neb on e.
~~18.05~~
19.44
19.12

neb prec
98s.2 }
.4 } chr. 236

neb vF
R pS 16M.

Neb 3045 413
and ~~W~~ XII [illegible]

Neb n p
precedes
24.0 }
24.5 } chr 236
23.8 }

Δδ neb on d.
23.06
21.14
22.04

Neb large and faint 90" n to s
45 p to f

ill defined but perhaps broader at northern end than at southern. Looks sometimes triangular.

One or two small stars ~~[illegible]~~ indistinctly seen in it, pretty one certainly toward southern end with a brighter one sp just outside the neb. but they hardly look like nuclei having no condensation about them.

3125
~~[illegible]~~

pB. ~~[illegible]~~
elong 44.5
47.0

follows W XII 502
36.2 }
.2 } chr 236
star south on d
51.03
50.60
51.56
51.20

3311

Brighter than
3125

elong. very decided
more than
3125

37·1
40·7
35·5

bM, lens shaped.

D'Arrest
13 10 16 +6 47
7 [illegible] bM perhaps
a little elongated pos.
about 70° n to f.

D Neb 3456
~~about as bright as~~ rather fainter
than D'Arrect. ~~perhaps~~
a looks R but
cannot be sure.

3615

elong. 140° est.
n to f

suddenly v m b M N
r ?

Large; 3' by 1'·0

New neb eF (through cloud ?)
s p AZ
+8° no 2822
about 4' s } from memory
10s p }
conic e
clouds prevented
a measure.

65·09
08
05
08
06

~~Tuesday~~ 1868 Mar 23 Monday

Obs with Spectroscope by T. W.

Zero of Position

~~78°~~
77.8
77.7
77.8

Coinc.

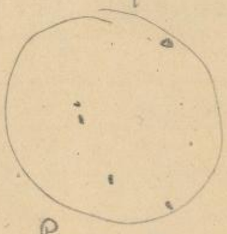
39.993.
39.988
40.003
40.000
39.998

Double

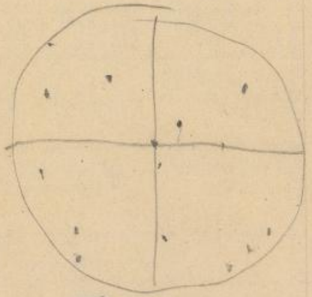
δ 0° 0th

RA 8h 48m

Pos 70° (+90°)
Dist 39.26



Power 3



Finder

3.2 13.2
4.2 4.2
6 4 26.4
128 528
13.4 55.4
2m 9'

1825
8h 46m
+0° 9'

3.2 13.2
9 6 35 6
42s 172
8h 47m 3'
0° 3'
= Arg. -0° (2086)
W VIII 1221

W VIII 1221

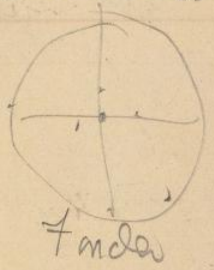
Star ⊥ eyes
3.2 p
Stars fr blue. faint

338.4
338.8
340.1
338.6
340.3

40.62
40.72 } bad
~~40.82~~
40.61
40.66
40.70

Double
Dist 12" about

RA 10h 7m
Dec - 15° 24'



Finder

17 2.9 17.5
55 4.5 4.3 35
8.7 52.5 35
11.6 70.0 31.5
12.5 75.2
2m 13'
10h 5m 15° 11'

Comp with Oeltzen 10442
1850
10h 6m -15° 19'

~~This poor double was discovered by Mr. Searle.~~

Swept region
from
−10° to
−15° about
meridian
$9^h 30^m$ & 10^h
for doubles.
10442(?)
was the
only one found

Complete
identification
and measures
prevented
by clouds.

1868 March 24

43
3
129

18.6
43
558
744
800

1 :
−12° 23'
$10^h 34\frac{1}{2}^m$

Spectroscope
Obs. J. W.
α Orionis Betelgeux
full of lines
in every part.
Great Nebula
3 or 4 lines
Perhaps more
None in red.

δ Orionis
(left of 3 in
belt) No lines
β Orionis (Rigel)
Lines in blue
but not elsewhere
α Tauri. Aldebaran
Full of lines
Best yet.
Sodium line
double. Many
bright lines
Zodiacal light
To the naked
eye not v. bright

Zodiacal
Light
in Spectroscope
Fancy can
see light oc-
casionally. That
is all. Try again
another night.

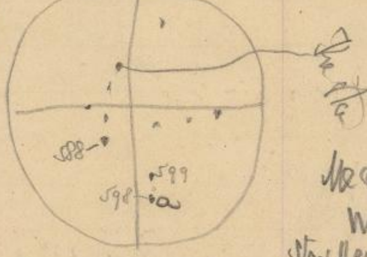
Little 4th Mag
Star in foot
of Auriga
red. Plenty
of lines.
Sodium line
v. plain.

Procyon
no better
than on previous
evenings. No
lines in the
red.

Regulus
No lines
Pretty encouraging
prospect in blue

α Hydrae
Sodium line
conspicuous,
& plenty of other
lines but not
distinctly & steadily
seen. Obvious
that there are
plenty of lines
in the star

Double
10th Mag
equal comp
E & W Dist 5''
δ −12° 41'
RA $10^h 36^m$



Preceding 5^m
is a bright star
10' n
following 2^m
& 20' S is a
less bright one.

Field δ 1° p

2.9
4.3
8.7
11.6
12.5

18.6
45
558
744
6)8.0.0
13'

2^m
10 41
$10^h 34^m$ − 10° 28'

Not in Weiss.

The star
marked a
is also double.
This a is
W. X. 598.

Measures of
W. X. 598
Struve's Comp. p.
94.6
92.0
93.0
94.4
92.8
93.36 .8

40.47
.44
.46

Other double
is too ft. to mea-
sure.

Note Aug. 20, 1881.
Components of
W. X 598 estimated
9 and 11 magn.
1869 April 22; see
book N15, p. 96.

New neb.
preceding
Lal. 22686

53s }
54s }

1/4 of field of no 3 south

field of no 3 = 28s.5
by transit.

neb v F p S R? bM.

Neb 3009
n p Σ 1648
B S R mb MN

Neb 3138
elong 60° n to f ?
agrees otherwise
with Herschel

Neb 3197
B pL elong
n & s. mbM.

zero of pos.
78.3
.5
.2

coinc. power no 3
40.00
02
02
02
02

1868 March 25 Wednesday.

JW

8 –

α Orionis
α Tauri
α Hydrae
in Spectroscope

Planetary Neb
No 2102

Line λ1500

28th =

Venus
Diam nas
41.77
.72
e α w
41.16
27
~~Longest~~
Shortest
6.5 41.01
4.8 40.98
4.9 40.96
Longest
281.5 41.45
276.8 41.56
276.2 41.78

Occult.
Imm θ^1 Tauri
$9^h\ 59^m\ 38^s.0$

Em θ^2 Tauri
9 51 11.2

Em θ^2
Lost. Setting
miscalculated

Em θ^1
10 35 32

Im 1391
1394
On Chronograph
36^s (?) for second
Calculation
does not agree.
First star
a little one
to apparent
right of the
second.

E. 1210
10 51 23

E 1391
$10^h\ 31^m\ 58^s$ (poor)
Em. of 1394
10 33 ~~28~~.5
23.5
The above
with Chronometer No 236
Mr. Austin
with W Equatorial & Frodsham
3242) obtained
the following
Immersions
$8^h\ 23^m\ 44^s$ (with Comet-Seeker)
9 8 23.5
12 57.5

Bond 236
$25\frac{1}{2}^s$ faster
than Sidereal
Clock)

Note Dec. 11, 1880. The emersion of Rümker 1210 must have been at $9^h\ 51^m\ 23^s$. Compare the emersions of the following stars, B.A.C. 1391 and 1394. The predicted sidereal times for the emersions at Washington are

Rümker 1210 $9^h\ 31^m$
B.A.C. 1391 10 13
B.A.C. 1394 10 18

In the copy, book N 40, p. 72, the observations of θ^1 and θ^2 Tauri are given as made with B.236; but from this record it might be supposed that the chronograph was used up to the immersion of B.A.C. 1394 inclusive. The copy was made by the observer, but perhaps several days later.

The observations of θ^1 and θ^2 Tauri are recorded an hour too late. The record should have been $8^h\ 39^m\ 38^s.0$
8 51 11.2
~~8~~ 9 35 32

The Washington predictions are
mean time $7^h\ 55^m$ sid time $8^h\ 21^m$.
8 19 (for conj.) 8 46 (for conj.)
8 40 9 7

For Greenwich mean time 13^h the moon's α is $4^h\ 23^m$; for 14^h, $4^h\ 25^m$; the α of θ Tauri $4^h\ 21^m$; so that it seems most likely, without computation, that there is no mistake in the almanac, as the parallax will not exceed 4^m; and the immersion will occur before conjunction. It is not practicable without computation or examination of the chronograph sheet, to decide whether the clock or the chronometer time is given for θ Tauri; hence Prof. Pickering decides to omit ~~all~~ these occultations

March 9

Spectrum of Moon

D	b
843	1287
4	5
5	5
5	4
3	4
844	1285

CSP

D

~~837~~
843
44
45
43
41
844

Dif 441

F	E
1570	1022
1	2
0	5
0	3
0	4
1570	1023
844	844
726	379

441	708
726	1200
379	600

Polaris
Few lines &
ill defined
J.W

ditto

Line at 1558
1571 58
CSP

Another 1217
C.

Spectrum
of Kochab
(β Ursae Min)
Good many
lines well

Spectr
γ Urs. Min
v. few lines

$10^h 9^m$
Meteor
Star down
Passed very
near to
γ Ursae Mi-
noris down
towards
about
~~β~~ ω Cassiopeae
Much brighter
than star of
1st Mag. obs.
by J.W.

Arcturus
full of lines
Spect

1310
852
~~8~~458

An A No1
Star for
working

b 1294
CSP

Mirach
ε Boötis
Promising
Several lines
in red with
lower power
Abundance in
gr. & bl with
low power
(Li line (?))
CSP

1868 March 30th
Solar Spectrum

Spica Virginis

Not sure that see any lines
JW

D
856.5
860
55
57.5
57
857.2

C
578
80
79
80
79.5
579.3

E
1229
8
8
9
8
30
1228.8

b
~~1295~~
~~93~~
1290
90
90
91
91
1290.4

1227
854
373

1784
854
930

H
2637
854
1783

F
1577.5
5
6
8
7
1576.7

G
2284
1
2
77
82
2281.2

D
852
4
5
4
5
854.0

C
581
0
1
0
0½
580.3

b
1290
0
0
0
0
1290.0

F
1576
5
5
5
6
1575.4

G
2290
88
86
89
88
2288.2

852.5
3
4
5
6
854.1

E
1227
6
6
5
5
1225.8

h
1785
3
5
4
2
1783.8

g
2165
7
8
4
8
2166.4

Calculation

854
580
C 274

1229
854
E 375

b 1290
854
b 436

1576
854
F 722

2288
854
G 1434

Ratios DG	
C	1.50
E	1.64
b	1.62
F	1.66
G	1.82
H	2.40

2.6133
2.4378
C 0.1755
~~2.2038~~

2.7774
2.5717
E 0.2057

b 2.8500
2.6395
0.2105

3.0792
2.8585
F 0.2207

3.4145
3.1585
G 0.2560

3.6311
3.2511
H 0.3800

Spectrum
of Telescope

[illegible] Apr 1.

Between
E & b
1234
5
6
5
5

E
1200
0
9
9.5
9
1199.5

b
1268.5
8
8.5
8
8
1268.2

D
~~832~~ 4
824

F
1555
6
5.5
6
4.5
1555.4

Last line
2733.5

Still another
2963
52
56

Still another
3042
33
41
36
44
40
52

B
459
9
60
9½
7

27/2

A
4 382
70
74
80
83

C
558
8½
9
9
8

F
1554
3
2
1½
3
1552.7

G
2270
0½
0
0
0½
2270.2

H
2963.5
53
65
58
60

1552.7

$$\begin{array}{r} 1553 \\ 824 \\ \hline 728 \end{array}$$

$$\begin{array}{r} 2270 \\ 824 \\ \hline 1446 \end{array}$$

$$\begin{array}{r} 1576.7 \\ 857.2 \\ \hline 719.3 \end{array}$$

$$\begin{array}{r} 2281.2 \\ 857.2 \\ \hline 1424.0 \end{array}$$