N 3.

Observations with
East Equatorial
(Original.)
No 3
1866 July 24 to Aug. 11.

July 24 S P & Obs.

(18) Melpomene & Weisse XVIII 1204

Reading for transits 174 15

111 Transits.

Reading for Δδ 84 22

103·70 — 10h 21m

45·58 — true M.T.

58·12

Chron Sid T.

81 58·67 — 18 46 10

11·84 — 19 5 0

71·16

59·32

July 24h G.M.S. { Melpomene & Weisse 18 – 1204 –

M.T. 11h 09 3/4 — 80°·03

20·44

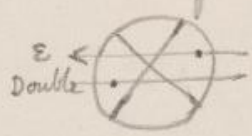
59°·59

II transits. A double star nearly on the same parallel with Melpomene rather poorly observed; in the second one intermediate between the two in R.

Double star n. p. ε Equulei

Double star	20	16	37
		17	43
ε Equulei	20	17	
	21	7	

Transits over wires of both over cross wires of finder.



$\Delta\alpha = 3^m\ 32^s$

$\Delta\delta \sec\delta = 58^s = 14'.5$

Approx. pos. 1850 α $20^h\ 48^m\ 3^s$

δ $+3\ 57.8$

	S P L	Obs.	50.89
70° 25'	50.89	50.83	50.76
64° 52'	50.76	51.14	50.83
65° 3'	0.13	0.31	3/152.48
3/200.20	66.47		50.83
			51.14

r .31

G.M.S.

	50.54	
50.55	50.75	68°.32'
50.55		69°.19
50.52	r .21	67.03
3/151.62		3/204 54
50.54	Mag. 6½ yellow " 8 blue	68°.18

ε Equulei G.M.S. Obs.

AB 67°.42
68°.10
66°.52

3/202.44
67°.34

$\frac{A+B}{2}$ — C 99°.07
97.37
98.54
98.33

4/394.31
98°.33′

53′.05
53.00
52.99
50.86

dist $\frac{A+B}{2}$ — C

48′.75
48.72
48.70
48.71.5
48.72
48.57
Dist. .15

Chart made from the heavens of a circle of about 10′ radius around the computed place of Daphne, but no motion perceived after an hour and a half in any of the stars.

Clouds prevented farther obsns.

July 26. Thursday S P L Obs

μ Herculis

Position 110 53

components of 81° 51'

companion 83°.08 good. 24825 82°.48' mean

83 26

gm.s.

Components of.

Companion. 88°.37' good.

86. 15.

89. 18

3/264 05

88.02 88°.02' mean

SPL

Dist. 44.47

44.36

0.11 (?)

Both observers agreed independently in estimating the ~~magnitude of~~ the component farthest from the principal star as half a ~~star~~ magnitude brighter than the other.

Observations for zero point on W XVIII 1224.

S P L 264 27
84 24 264.25.30

G M S

84.28
264.28 264.27
2/ 52 30

Star ~~zero~~ plunging 264°.26'.15"

Reading for Declination. 84°.26.
" " Transit 174°.26.

S.P.L. observed in Rt. by rattling before each transit.
G M S " " " rattling only before transit of Arturus

rattle	58.70	42.10	16.60
no rattle	.72	.10	16.62

~~rattle~~ on Chron. 58.74 ~~42.10~~
42.10 16.64

" 58.77
42.21 16.56

" " 58.72.
42.25 16.47

" 58.76
42.74 16.52

Melpomene. (G.M.S.) Asteroid No.

rattle 58.71 rattle 58.68

42.31 16.40 42.22 16.46

" 58.73. rattle. 58.67

42.33 16.40 42.30 16.37

6? Transits. G M S.

both stars over 2 wires

1 Transit S P S

both stars over 1 wire.

Long rattle.

Obs no for pers. equation and on Melpomene.

Obsns. for pers. eq

Order		
	S P L	G M S
	G M S	S P L
	S P L	G M S
	S	L
	L	S
	L	L
	L	S
	S	L

Transits of Melp.
& W XVIII 1224
over first wire by SPL
over second " " GMS
then over first " " "
over second " " SPL
&c.

~~SPL~~
Time by S.P.L.'s Watch. 10.49 67.12
51.99 15.13

Melp. & W XVIII 1224

10.54 67.10
52.26 14.84

$\Delta\delta$.

10 56 67.17
52.23 14.94

10.58 67.20
52.41 14.79

11.01 67.86
53.16 14.70

~~S P L G M S~~

Driving Clock going during previous obns of transit; now off.

Long rattle

S P L	G M S
S	L
L	S
S	L
L	S
S	L
L	S
S	L

Rattle.

---

23 Aquilae S P L

Position. 343 52

345 8

Good

51		
~~46~~ 10	51·43	51·53
51·43	51·13	51·19
33	30	34

mean .323

23 Aquilae. G.M.S.

51".50 51.58

51.20 51.23

.30 .35 mean .325

341°.22'

339.50

2/681 12 mean = 340°.36'

Σ 2346

S P L

65° 40'

65° 57'

55.26

53.37

1.89

55.28

53.35

1.93

Σ 2346 G.M.S.

55r.41
57.54 2r.13

55r.47
57.54 2r.07
2/4.20
Mean distance. 2r.10

66°.45′
65°.49
2/132.34
66°.17′
Mean

---

20 Pegasi SPL

Position 37° 34′
40° 0′ 2/77 34
38°.47

59r.54
59.36
0.18

20 Pegasi G.M.S.

58r.13
58.35 r.22

58r.31
58.17 r.14
8

58r.17
58.03 14
3 40

38°.30 not very good
40.19
78 49
39°24

Σ 2833 G.M.S.

19°.08′
21°.22′
19°.22′
19°.10′

4 / 79.02

mean 19°.45′

59.39 r
60.36 .97

59.37 r
60.34 .97

59.39 r
60.36 .97

July 29 Sunday

Melpomene.

5 transits of W XVIII 1174 and a star about 3^s following in α.

3 transits of star preceding W XVIII 1174 about 40^s and the other two.

Reading for transits 174 16

" " $\Delta\delta$ 84 19

			watch time
	78·49		10 57·0
W XVIII 1174	62·66	15·83	
and star near it.	78·48		59·2
~~fainter~~	62·78	15·70	
Brighter star			11 0·7
supposed to be	78·55		
W XVIII 1174	62·83	15·72	
n of the other.			

southern star about $0^M.8$ less than W XVIII 1174. Melp. about $0^M.5$ < W XVIII 1174.

Star 40^s prec. (supposed to be Melpomene) and fainter of these two.

	46.84	6	
	63.01	11	6.7
	46.82		8.9
	63.12		
	46.82		11.2
	63.20		
	46.48		14.6
Melp. 8	78.58		
brighter of two.			
	46.54		17.4
	78.86		

Corr. to watch $-2^m.1$

FV transits of Melp. & other two stars last three over two wires.

α^2 Capricorni

205 15
205 40 First two better than others.
204 45
206 17

components of companion
271.°

82.11 Good
82.93
principal star
82.21 "
and companion
83.05

82.24
83.05

---

12 Aquarii 48.11 48.12
162 30 48.42 48.52
163 26
163 42 48.15 47.08
48.49 47.46

ζ Aquarii

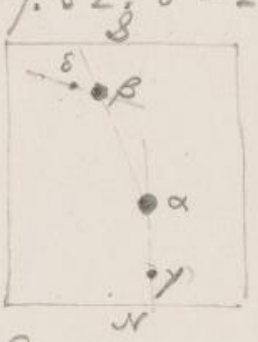
195	36	50·62	50·68	51·12
195	35	51·04	51·12	50·70
196	33			
197	26	45·29		
		45·70		

Seeing very fine.

Searched for Daphne but found nothing. Was it within 40′ of the Berlin Jahrbuch place.

July. 31st 66. ~~S.R.~~ 10.30 (seeing very good)

Observed that the most ~~south~~ southern component of the "triple" star in the "trifid" nebula {Rt 17h.52, δ −23°} was double. The stars in order of magnitude are α β γ δ. "δ" being the new one..



Position. β − δ.	Distance β − δ
254°. 15	61".18
250. 50	60.99 .19
252. 30	61".18
3 / 757 30 = 252°.31	60.99 .19

Est. mag. α = 7
β = 8½
γ = 12½
δ = 13 Colour of δ is blue.

J.W. (~~Observed~~ suspected that the Southern star appeared double. Independently) — — using the lower power only. L. W.

Position.	
79.45 + 180 =	259.45
78	258.
76.50	256.50
75.15	255.15
76.	256.
	5 / 1285° 50
	257.10

S.H. continuation of measurements of. —
seeing not nearly as good. —

Position α – β	Dist α – β	
140.45	57.97	
140.30	59.09	1.12
140.53		
	58.05	
	59.17	1.12
	59.34	
	58.15	1.19

Position α – γ	Dist. α – γ
145°.48′	"γ" has grown so faint
148.15	that no reliable measures of distance
149.	can be taken

Star runs along curve at 264°.34

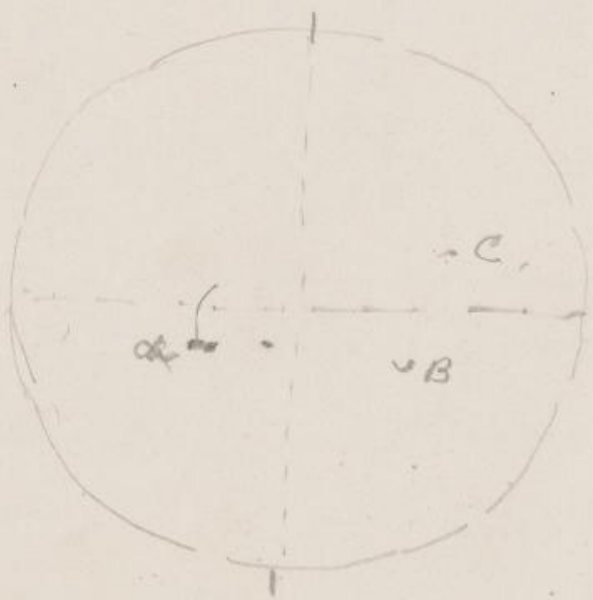
S.P.L.

Measurement of position of stars in "Trifid" Nebula.— "α" the principal ~~component~~ of the quadruple star being at the Origin

~~x=~~ 36.20	34.95	33.27	62.20
43.16	44.36	45.43	37.92
y = −6.96	x = +9.41	x = +12.16	y = −24.28

α

12.20 Seeing very poor, the Nebula being near the horizon, which renders the above values of x & y so unreliable.—



Jupiter. "α" a conspicuous spot in the lower margin of the (apparent) lower belt.— Just to the left of α is a diffuse bright spot: α seems elongated in the direction of the equatorial diameter. B & C more diffuse & less conspicuous

t

ζ Aquarii S P L

19	30	52.62	52.65	52.73
16	38	52.22	52.26	52.33
17	35	0.40	0.39	0.40

not so good as preceding ones

37 Pegasi if found not well seen as double.

λ Equulei estimated mag: 7 or 7½ of both components.

309	8	57.24	56.90
311	2	.23	.89
311	4	.20	.89
310	25	57.22	56.90

P XX 178 g.m.b.

Position A–C

Stars between two lines: 249°, 248°, 249°.30′

Distance A–C.

57″.53 57.99
55.12 55.57
2″.41 2″.42

Position A–B

97°.05
97°.15
97°.28

57.85 57.57 57.53
56.22 56.07 55.94

Duplicity of B not apparent.

Star runs above very 84° 30′ – 24′½ wt.

Aug. 2nd 9.15. GMS.

Quadruple star in "Dreyer" nebula { Approx Rt 17h.52 " Dec −23°.

β − δ (see this book July 31 for diagram) −

259°. 10′

259. 23 Hardly as good as the first.

258. 33. Worse than either of the preceding.

258. 53

4 / 1035.59

mean 259°.00.

Distance.

67″.80	61.75	62.33
61.49	61.48	62.05
−.31	.27	28..

Note Oct. 29, 1880. This page probably is a continuation of the opposite page.

Continuation.

The region marked X6 devoid of stars is ~~considerably~~ perhaps the brightest part of the nebula. The dark Channel over a appearing relatively well defined.

The bright star m is near the extreme N. ~~Easterly~~ northerly confines of the nebula which fades away to the East of it.

The whole of the nebula is very faint the brightest portion of it being quite invisible in moonshine.

There is no approach to real definition in its boundary any where. and the expressions which used above might infer any such precision are to be understood as relatively to the still more confusing indistinctness of the general surface which has no real margin but every where teases the eight with real or fancied extinction. Just N of this nebula is another. The whole heavens in the vicinity are

SPL Aug 2 "Trifid" nebula

Note Oct. 29, 1880. By east is here meant preceding, and by west following.

The nebula is brightest at a. It passes ~~S.easterly~~ N.westerly through b & f which are if anything a little outside of its confines. The prolongation below i is very faint. It diminishes from a very slightly & uniformly toward d. The prolongation in the region marked W is extremely faint. It runs up to a point about as far S.S.East of b as from a to e and from its apex down to i again is better defined. "a" is involved in a faint nebulosity which bridges the dark channel. The region about a, k, j is somewhat brighter than that in △ d, e, l. j & g are a little within the nebulosity which is lost near c

	Watch time	
Aug 3.	$4^h\ 22^m\ 2^s$	Transit of Polaris
Friday	4 25	Set to declination of Polaris Reading for middle of field 51.75 not very good owing to clouds. (not more than 0.10 out)

GMS Comp. of watch with Sid Clock

Clock			Watch		
13	18	0	4	29	52
		10		30	2
		30		30	22
	19	0		30	51

Readings of Verniers of Dec. circle

I	91	23	54
IV	181	23	36
III	271	24	28
II	1	24	32

Readings of hour circle.

11	59	40
0	0	0

G M S.

Transits of Groomb. 784 for value of screw revolution

Wires set for coincidence at $54^{r}.00$ mid. wire moved to $49^{r}.00$

Chron. time 16 25 32.3 13.1
45.4

backlash avoided by driving screw in same direction at both readings

Obsns. by eye & ear.

28 1.5 13.0
14.5

(set to 174°28')

31 7.5 13.0
20.5

Therm. 76

Telescope moved forward by tangent screw of hour circle after each obs.

32 39.4 13.1
52.5

33 42.7 13.6
56.3

34 52.4 13.1
35 5.5

35 52.3 13.2
36 5.5

40	28·4	13·1
	41·5	
43	40·2	13·4
	53·6	
44	2·3	13·2
	15·5	
		13·18 mean

Aug. 3rd/Feb. Alvan Clark Observer. –
μ Herculis components of companion

Position. Distance. 40.
~~30~~
2/10.
r .8

88°. 19'
91°. 51'
89. 37
3/269°.47'
mean. 89°. 55'

50.2
2
48
.24

Set so far apart as to be certain that the rises were outside of the stars

---

G.W. Observer.

W 1 } 82°. 40'
W. 2 } 84°. 36' with Power. No.
" 2 } 89. 53. " best
3/257.09
mean 85°. 43.

Distance. –
r
.11

89. 33
257. 09
4/346 42
mean of 4, 86°. 40' W 2

S.P.L. μ Herculis Aug. 3rd

90°.34 W 2
87°.27 " 2

2/178 01 178 01
89.00 82.48
248 26 3/260 49
178.01 86°.49
5/426 26
85°.17

Results. JW. mean of 3. 86.40
ac " " 3 89°.55
GMS " " 3 88.02
S.P.L. " " 3 86.49
4/351.26
87°.51

Aug. 3rd.

The telescope having been turned upon 99 Herculis (an extremely delicate object) Mr. Clark remarked that the object glass was in perfect adjustment, and the instrument performing as well as he ever knew it.

He thought that the slight noise heard in passing the zenith reversing, could not come from a shifting of the position of the object glass in its cell; which he remarked was unlikely to occur exept when the telescope was directed toward the horizon.

He observed that the instrument had always worked hard in declination.

Aug 3 GMS. Smiv 2173.

Position

225.° poor

SPL 213°
fw 255°
245°
240°

Σ 2234. fw

Position		Distance		
155	15	55.83	54.10	
155	15	.90	.12	$11^h\ 0^m$
155	0	.84	.09	
		55.86	54.10	Power 3.

Σ 2253

Position				
276	0	47.87	49.55	
275	50	.87	.54	11 25
275	15	.75	.60	
			.58	Power 3.

L.W 44 Boötis

L.W		GMS	S.P.L.
294	45	294° 0′	296° 30′
300	15	293° 10′	296 9
300	30	292° 50	296 30
300	0		
298	50		
298	30		

JW 44 Bootis. SP 6

47.37		46.72	
46.83	.54	47.28	.56
47.44		47.07	
47.02	.42	47.50	.43
47.44		47.00	
46.93	.51	47.52	.52

small as possible ~~certainly~~ within. probably

~~thought~~ to be larger

$11^h\ 45^m$ Power 3.

μ^2 Bootis = P XV 74?

SP 6

295

too close to measure.

not sure of duplicity. JW.

δ Herculis Power no 1.

353 30	52.08	52.34	52.34	
351 45	50.18	50.11	50.18	~~50.06~~
354 40	~~1.97~~	~~2.23~~	~~2.16~~	
	50.16	50.12	50.11	50.16
	50.18	50.15		

37 Pegasi not separable,
Seeing not very good.

J W. Obs Aug. 5 Sunday
β 8 of "trifid" nebula

		Dist.
251 43	−28	
252 35	+24	0·29
252 15	+ 4	0·30
252 11		0·30

β P

251 55	−39
251 28	−66
254 20	+106
252 34	

G M S

258 54	49·12	49·20	49·22
255 7	49·40	49·41	49·42
256 10	0·28	0·21	0·20

α β

140 38	51·58	51·67	51·70
140 15	50·46	50·66	50·63
140 3	1·12	1·01	1·07

α γ

150 25			
152 14	52·95	52·96	52·90
150 45	52·31	52·30	52·30
	0·64	0·66	0·60

J W P XX 178

Components of B

29°.10'

G M S

44 15

AC

70 12	47.83	44.73
68 22	50.35	47.15
69 8	2.52	2.42

AB

98 20	44.10	45.39
98 47	45.69	43.88
	1.59	1.59

4 Aquarii

G M S

59 15

59 10

60 28

duplicity uncertain; perhaps not the star

J W

210°

λ Equulei fw.

+43	310 30	very careful measure
−92	308 15	Seeing bad.
+33	310 20	
+16	310 3	
	309 47	might be possibly 309 15

9 μs

309 22	−29		54.62	54.53	54.56
308 15	−96		54.30	54.26	54.25
310 30	+39				
311 17	+86				
309 51					

fw

0.34

fw Σ 2847

		9 μs
	(213 30) rej.	49 36
better	43 5	53 20
	44 20	49 44
	224 0	~~48 33~~

	Dist.	
	0.25	0.11
better	0.22	0.09
		0.21
		0.14

Σ 2455 f w.

~~Greater~~ More than 1 mag. diff. between the components

about $1\frac{1}{2}$.

All ~~[illegible]~~ measures taken with power

This evening

no 3. Small star pea green Large star light yellow

236	40
238	20
239	45
239	10
238	29

all very careful.

237	57
239	34
240	38
239	18
239	32

More than two mag. diff. between components.

49.70	49.75	49.75
49.39	49.39	49.40
0.31	0.36	0.35

distances quite satisfactory

f w

0.41

0.46

P XX 376

g.w.

252	40	51.26.5
250	50	50.65
254	50	0.61.5
		0.31

One wire set as far other side of principal star as companion on one side, on which other wire was set

~~One w~~

51.10.5
50.73.
0.37

51.07
50.79
0.28

Turned on Neptune.
Satellite not visible.

Aug. 6th 66. G.P.L.

Provisional measurements of stars in "Trifid" nebula. Rectangular Coordinates.

α (brightest star of quadruple) is at the origin

Letters need refer to Sketch of Aug 2 (this book)

(b) 27.37
48.78
y = − 21.41

58.58
47.89
x = − 10.69

(c) 24.47
48.78
y = − 24 31

36.29
48.40
x = + 12.11

(i) 37.25
48.78
y = − 11.53

31.13
48.40
x = + 17.27

(f) 41.78
48.55
y = − 6.77

38.28
48.38
x = + 10 10

(g) ~~34.33~~
~~48.55~~
~~y = − 14.22 (?)~~

34.33
46.39
y = − 12.06 (?)

43.23
48.38
x = + 5 15 (?)

(h) 30.53
48.55
y = − 18 02 (?)

47.28
48.40
x = + 1.12 (?)

(j)

46.17
48.83

x = + 2.66

51.23
58.84

y = − 7.61

(l)

40.52
49.10

x = + 8.58

54.97
58.84

y = − 3.87

(e)

42.35
49.34

x = + 6.99

62.46
58.60

y = + 3.86

(d)

33.03
49.35

x = + 16.32

66.35
58.59

y = + 7.76

The (?) appended to a measurement indicates an indeterminateness due to the faintness of the star.

2 Ophiuchi

Power no 3.

f w	
151	40
148	20
148	45

Too close to measure distance seeing not being good.

---

49 Serpentis

29	10
29	45
30	30
30	20
29	56

very careful measure

Star very unsteady

All these distances measured with illum. only on one side.

49.70	
49.32	
	0.38
49.65	
49.24	
	0.41
49.63	
49.19	
	0.44

Definition much poorer than at first

49.44	9 M S
49.07	0.37
49.36	
48.95	0.41
49.33	
48.95	0.38

210 Herculis

f w "small star green
large " yellow

G.M.S.

265°.02'
265°.47 hardly so good.
265°.48
265 32

38".99
39.35 0".36

38".95
39.30 0".35

38.94
39.32 0".38

S P L

		Pos.
28.61		
28.13	0.48	85° 23'
		84° 18'
28.53		85 38
28.12	0.41	85 6
28.55		
28.13	0.42	

ζ Herculis

G M S 32° but extremely uncertain
may be merely optical.

SPL δ Herculis

173	2	47.82		
174	5	45.83	1.99	
173	44	47.74		
mean 173	37	45.69	2.05	~~two very~~ 2
		47.79		
		45.67		
		2.12		

J W P XXII 33

11 10

Further obsns. prevented by clouds.

Aug 7 Tuesday

Immersion λ Gemin. 0 22 48 Chron. time.
observed with comet seeker

Corr. to Chron — 32

GMS

0h 30m Chron fast of clock 20s.7

Emersion 1 13 56 Chron time
observed with G M S's Telescope.

Aug. 8. "Trifid" nebula star –

~~Sec~~ Only principal star visible

4 Aquarii JW.

Power of 401

Angle suspected 210; } 9h 30m
GMS
" " 214 } not at all certain.

Star certainly identified by comparison with 5 Aquarii.

W XIX 1273. ~~J.W.~~ estimated 200°

G.M.S		J.W.
210°		199
208		201
203	$9^h\ 55^m$	203
201		204
205		
205.4		201.8

	G	M	S	
Star for zero point.	264	22	84	19
	264	26	84	24

Reapp. of Jupiter's 1st satellite observed on chronograph by G.M.S.

Aug. 10 Friday. J. W.

γ Coronae

Too close to measure. elongation even not certain.

η Coronae Power 401

SP to

144 45 Illumination

146 30 Only on one side.

145 40

56.56

56.71 "

0.15

56.15

56.02 "

0.13

56.87

56.72 "

0.15

Aug. 10. 2/66 G.M.S.

η Coronae.

Position	Distance	
142°.19′	55.96	
139°.05′	55.82	0″.14
139°.00	55.96	
	55.83	0″.13

η Herculis. too close to measure. Jw. & GMS.
not sure of elongation.

---

46 Herculis Jw. 9° 0'
8° 40'

8 15

8 40

9° 30

51·07
50·67
0·40

51·03
50·46
0·57

star very much blurred on this measure

51·06
50·55
0·51

stars very indistinct

50·89
50·43
0·46

ρ Herculis J.W. Power no. 2.

225 45	G.W.S.	224 43	
228 45		225 17	
227 45		226 0	
		222 52	

Time 21h 30m

distance G.W.S.	51.07	50.66	46 06
	50 61	51.10	45 63
	.46	.44	.43
	45.94	46.02	
	45.56	45 56	
	38	.46	

ε₁ & ε₂ Lyrae. G.W.S.

ε₁ to ε₂	181° 45'	distance	
	181° 55'	23.60	Coincidence 55.24
	181° 44'	23.72	.25
		23.80	.25
		23.79	23
		2379	
	mean	2374	
	Coinc.	55.24	Time 21 55
	distance of pairs	31.50	

Southern pair.	209° 0'	distance	49.19	definition poor
	206 12	0.40	48.79	
Time 22h	205 46		49.22	
	210 40	.38	48.84	
			49 35	
		.42	48.93	

Southern pair

		distance	52.74		52.72	Seeing
	160° 23'		.29 53 03	.38	53.10	bad
Time	155 23'		52.79		52.63	
$22^h 8^m$	156 52		.29 53.08	.44	53 07	
	156 43					
	+					

. Transits of Parthenope and W XXII 607, J W obs.

		Chron. sid. time.
	64.56	$23^h 27^m$
	.57	29.5
	.56	31.0
	64.56	
47.60	~~47.72~~	coincidence
.60	~~.78~~	
.50	~~.79~~	defective illumination
.62	~~.74~~	
.57	~~.60~~	best of all.
	~~.70~~	equally good
	~~.75~~	
	60	

Parthenope G.M.S.

47.56.
61
56
58
54
55
47.58.

coincidence

Transits of Parthenope & W XXII 607.

	Chron.	Chron. sid. time
63.73	47.53	23 53.5
.60	49.48	53.8
.62	.52	54.2
.73	51	54.5
.74	49	54.7
	54	
G.M.S. .62		
.60		
65		

Corr. to chronometer -40^s

Aug. 11.h 8P.M.

Measurement of Stars in Trifid nebula 8. P.M. Late twilight. Can see all. the stars measured by Mason. Definition bad

b	c	i	f
40.66	62.89	67.67	60.45
51.01	50.87	50.42	49.95
x = −10.35	x = +12.02	x = +17.15*	x = +10.50
~~62.89~~	62.79		
	50.41		
	x = +12.38		
63.32	65.77	53.50	48.86
41.71	41.71	41.71	41.71
y = −21.61	y = −24.06	y = −11.79	y = −7.15

* Note Oct. 26, 1880. Should be 17.25

Trifid Nebula

n	o	m
84.47	91.31	20.11
49.23	49.23	49.20
x = +35.24	x = +42.08	x = −29.09
44.42	41.13	68.22
42.07	42.07	42.38
y = −2.35	y = +.94	y = −25.84

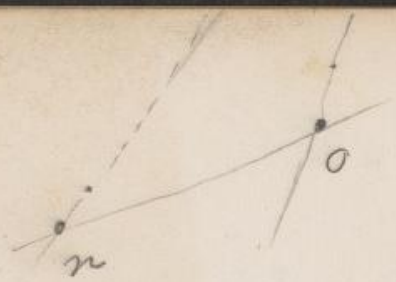
Bright star North of c

63.41
17.58
y = −45.83

60.25
47.56
x = +12.69

Observed just South of line joining a, e, d. a faint straight narrow channel nearly filled up with nebulous matter. Was less confident tonight that the neb surrounded quadruple star. which seemed to be in channel with blackness on each side. less in the preceding than following

The star



o. has a faint
but distinct companion in the south.
following quadrant. Prof.r Winlock observed
a. similar but much fainter companion
to "n". only to be seen well by
indirect vision and not quite as
distant.

Fine aurora, best from 10 to 11 about.

Unsuccessful search for (87) Thisbe.
Much more than ½ mag. diff. nearer 11½ between
Oltzen 20070 & 20096 which were
selected as comparison stars.