

KG
11365
287

N 4.

Observations with East Equatorial
(Original.)

No 4.

1866 Aug 13 to Aug 25.

KG 11365.287

Aug. 13^h / 66 S.P.H.
 "Trifid" Nebula.

Definition excellent just at close of twilight. Saw a minute component of the "quadruple" star before un-noticed. It is too faint to bear illumination.

By estimation Dist β - ϵ 27

by $\frac{1}{8}$ @ $\frac{1}{10}$.

a very minute star also seen abt 20° S. of ϵ

Later. Full darkness —

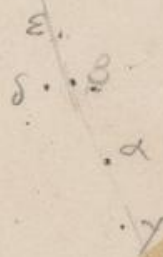
(GM) Measurements of ϵ (the above described 5th component).

Distance. β - ϵ

44 ^{τ} . 12

43. 60

. 52



KG 11365.287



"Trifid" neb-

(k)

50.84

57.63

$x = -6.79$

45.45

54.45

$y = -9^{\circ}.00$

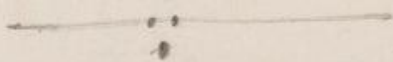
very difficult

to measure with

51 $\frac{3}{4}$ Librae.

A and B cannot be separated or even elongated. J w & G.M.S.

385
J w 534
1349° γ Coronae.

G.M.S.  225° reading, ~~angle 2~~
Appears triple as above but images not steady.

η Coronae

J w

136 }
136 } $\pm 8'$
136 }
136 20

46.88

46.68

0.20

46.75

46.55

0.20

G.M.S.

142° 50'
143° 8'
141 56

dist.

46.77

.11 46.66

46.52

.12 46.64

9 h 30^m

distances

more satisfactory
to observer
than usual. for
small distances

J w 139 45
137 0

ϵ Herculis
 Not separable to J.W.
 Triple to G.M.S. like γ Coronae.

P XV 76

J.W.
~~216 15~~
 " "
 G.M.S.

208 34	53.70	53.61	53.60	53.44
208 56	53.51	53.53	53.47	53.57
211 19				

10^h 15^m

J.W.
 33 30
 33 30

η Draconis.
 G.M.S.

3^h 40^m 206° 17'
 " 200° 10' hardly so good
 211° 35'
 211 45
 212 3

Distance

37.96
 38.57
 38.69
 38.28
 38.76
 38.30
 38.82
 38.29

F

46 Hercules ~~711~~ S M S

192	38		58.65	58.73	58.73	58.56
191	45	11 ^h 15 ^m	58.17	58.07	58.78	58.05
193	13		0.48	0.66	0.55	0.51
192	32		Mean 0.55			

ρ Hercules.

S.P.L	distance	
40° 3'	56.42	56.19
41° 40'	56.87	55.75
41 13	56.22	55.76
256	56.50	56.16
4059	56.03 best	
	43 56.46	

Parthenope and W XXII 543
Reading for $\Delta\delta$ 264° 28'

S M S.

Watch time.

0 46.2	21.79
47.3	21.80
48.6	.79
49.7	.77
51.2	.65
52.4	.60
	21.73

Corno

76.50
.51
.52
.47
.46
.52

Corr. to watch.
+ 1^m 33^s

76.50

- 54.77 = $\Delta\delta$

6 5

Reading for transits 174 28
 VII transits. Illumination defective on first

Σ 2847

50 L

53 17

Power no 3.

50 27

51 2

doubtful.

Power no. 7 12/13 diam.

76.91

.81

0.10

~~76.97~~

considered by observer
 All three rather small.
 A

76.94

.83

0.11

76.92

.81

K Pegasi 53 38

55.49

55.79

56.03

wt. of 3.

G.M.S.

54 38

2 h 0 m

54.22

54.65

54.79

52 0

51 52

56.12

54.86

wt. of 2.

Star for zero transit 264 7 84 5

Star for zero point

Wts	1	264	7	84	5	
	2		26		24	very good
	1		20		18	
	1		26		24	
		~~264~~	~~20~~	~~24~~	~~18~~	
	1		22		21	

Aug 14 Tuesday

U. H 2125 M. 2: 178° 37'.5 reading of vernier.
splendid object.

" H 2128 M 30 156° 15' pretty object may
be well to measure direction of radii

" H 2120 M 15 191° 36' splendid

Aug. 15. ^L Removed micrometer.
The reading of the principal
sliding tube on the scale at
the side is 27.5.

Aug 16 Thursday
 Double Image Micrometer
 Equat. diam of Jupiter JW

~~24.2~~

16.70
 33.24
16.54

33.31
 16.76
 16.55

Approx time
 11 h 30 m

Seeing too bad for
 further obsns.

~~16.55) 24.2 (1.48~~
~~16.55~~
~~7658~~
~~6620~~
~~10300~~

2.96

Aug 17 Friday
 Micrometer replaced
 Star for zero point 9 M 5

268	42	88	39
268	45	88	44
268	57	88	53
268	46	88	45 double weight.

44 Bootis S P L. Power no 2.

300 15 21^h 36^m
 299 16
 300 21

Spd. 5.
21.36

Mean 299 57

32.75

32.22

0.53

22.92

22.25

0.67

27.99

27.39

0.60

fully small
 enough

32.35

32.84

0.49

stellar focus adjusted
 J W there being apparently
 some parallax

32.89

32.91

32.49

32.38

0.40

0.53

33.03

32.79

32.56

32.30

0.47

0.49

44 Bootis contin.

260
28

SPs
 32.15
 32.62
 ———
 0.47

Thought Rather small

452 Herculis

~~226~~
~~230~~
If found too close to be separated,
 J W

ε & 5 Lyrae. J W
 stellar focus again adjusted.

5 Lyrae

217 15

216 2

215 30

215 45

215 0

214 0

214 45

 215 38
 ———

 ry. 1st 215 10
22^h 30^m

Power no 4 3.

ϵ Lyrae

$$\begin{array}{r}
 159 \quad 30 \\
 158 \quad 15 \\
 157 \quad 30 \\
 160 \quad 15 \\
 \hline
 158 \quad 52
 \end{array}$$

22^h 45^m

5 Lyrae

$$\begin{array}{r}
 27.34 \\
 27.01 \\
 \hline
 0.33
 \end{array}$$

22 55

27.98

~~27.67~~

0.31

28.13

27.82

0.31

 ϵ Lyrae

28.20

27.83

0.37

23 3

ε Lyrae

$$\begin{array}{r} 28.20 \\ 27.86 \\ \hline 0.34 \end{array}$$

Seeing rather worse than previously.

$$\begin{array}{r} 28.23 \\ 27.88 \\ \hline 0.35 \end{array}$$

Measures all very carefully made.

Σ 2847 ~~50.5~~ γ W of dec. circle

231 45 23^h 50^m Reading $175^{\circ} 57'$

235 0 Better than 1st

233 45

232 15

Distance cannot be measured;
definition too poor.

9 M S

225 30

50 L

233 0

1866phae.proj. 237
Turned for Neptune. Satellite perhaps
visible below to the right about 15" g.w.

Aug. 20th. M. The. filar micrometer having
 been removed, & the double image micrometer
 substituted, the following measurements were taken
 with the latter Mean Time 10^h 40
~~31.885~~

Jupiter. Equatorial Diameter.

$$\begin{array}{r} 31.885 \\ 18.600 \\ \hline 13.285 \end{array}$$

$$\begin{array}{r} 31.900 \\ 31.970 \\ \hline 31.885 \end{array}$$

$$3 \overline{) 2755}$$

$$3 \overline{) 918}$$

$$31.918$$

~~The second reading~~

$$18.07$$

$$18.16$$

$$18.06$$

$$3 \overline{) 54.29}$$

$$18.00$$

$$18.03$$

$$90.32$$

$$18.06$$

$$18.096$$

$$13.822$$

$$31.918$$

$$18.064$$

$$2 \overline{) 13.854}$$

$$6.927$$

Jupiter.

Polar. Diam.

18. 330

18. 260

18. 275

3/54. 865

18. 288

31. 75

31. 69

31. ~~42~~31. 7131. 65~~456~~

336

31. 67

2/13. 382

6. 691

6. 927

. 236

31. 75

31. 69

31. 71

31. 65

31. 56

158. 36

31. 67

12 Aquarii G.M.S.

Position

Vernier reads. ~~120.22~~
 J.W. 110.35.
 G.M.S. 109.25.
 S.P.H. 103.

ϵ Lyrae.

G.M.S. 269°. 16

1 st read	37. 65.	
2 nd	12. 10	~~25. 55~~
sum	49 75	
mean	24. 97.	
3 rd read	24. 88	

a b
 a' b'

18. 28. 6.60
 26.40

1st reading. { 25.
 25.04
 24.99.
 24.99.
 25.11.
 125.13
 25.03.

ε Lyrae.

^r
18.33

18.30.

18.28.

18.30 - 25.03 = 6.73^r

^r
31.79

31.69.

31.67

215

72

287

73

360

^r
31.72 - 25.03 = 6.69

Position 269°. 43'

JW. 269. 21

JW. 268. 48.

807. 52

268. 07.

1075. 54

268. 58.

Double image

Micrometer removed
after these measures.
Position of focus 12.6

Si

2

Filar micrometer put on.

g.m.s. 1 Lyrae
 direction

20° 44'
~~20~~ 0'
 21 8'
 21 5'
 ———
 21° 0'

mean

dist. ~~53.67~~
~~53.70~~
 .75
 .77
 .76
 ———
 53.74

conc 49.22
 .17
 .22
 .23
 .23
 ———
 1.07
 49.31
 ———
 4.53

less of position

260° 10'
 260° 12'
 ———
~~260° 11'~~

night 1/2 260° 22'

61 Cygni Jw

sub t.	239 15	53.81	Coincidence
	238 5	.84	51.91
23 ^h 30 ^m	237 50	.83	.92
	239 5	—	.92
	239 40	53.83	.92
	239 15		—
Mean	238 52		51.92



Aug. 22 Wednesday

π Aquilae

J. W.

Sid t

18^h 43^m

$$\begin{array}{r} 227 \quad 0 \\ 227 \quad 50 \\ \hline 225 \quad 50 \\ \hline \text{mean } 226 \quad 53 \end{array}$$

$$53.22$$

$$\begin{array}{r} 52.99 \\ \hline 0.23 \end{array}$$

$$52.92$$

$$\begin{array}{r} 52.70 \\ \hline 0.22 \end{array}$$

18^h 50^m

$$\left[\begin{array}{r} 52.635 \\ 52.515 \\ \hline 0.12 \end{array} \right]$$

$$52.54$$

$$\begin{array}{r} 52.30 \\ \hline 0.24 \end{array}$$

S.P.L.

$$52.22$$

$$\begin{array}{r} 52.32 \\ \hline 0.10 \end{array}$$

certainly ~~small enough~~
cannot be less.

52.16

52.34

0.18

Think this is
~~certainly cannot be greater~~

52.52

52.35

0.17

supposed to be right;
but not as good a measure as the
others.

JW. π Aquilae.

52.325

52.14

.18.5

52.365

52.975

2/ 390

19.5

G.M.S. 51.89

52.16

.27

Observer: Confident this is too large

52.32

52.12

20

Equally " " " " small

π Aquilae.
g.m.s.

51.61 not very well satisfied with this
51.81 meant to be just right

0.20

51.55 Think this is a little too small

0.37
0.18

51.55 Think this is about right.

51.36
0.19

52.24

52.80

2/144

5.22

Double Distance.

S.P.L 51.63

51.86

0.23

52.02

51.62

2) 0.40

0.20

~~Don't list~~

⊙

19^h 27^m

Double distance

20

σ Coronae JW

337 4

335 10

335 30

336 50

336 30

335 45

Mean 336 8

19^h 47^m

50.785

50.485

0.30

19^h 55^m

50.74

50.42

0.32

50.68

50.37

0.31

Coronae. Aug. 22. 1866. Wednesday
 Observer. G. M. S.

distance .70
 .31 .39
.70
 .31 .39
.70
 .33 .38
.71
 mean .317

20^h 10^m

Position 3 35-35'
 337 6'
 -337 26
 6 0
 7 24
 6 11
336° 49'
 mean 37

η Coronae
 seeing not good enough to observe it well

210 Herculis f w

84 50

82 20

81 45

82 50

83 45

Mean 83 6

210 Herculis 9MS

~~88 45~~ 52.61
 .65
 .62
 .66
 .70
 .63

 52.65

Come.

52.23

.24

.26

.26

.25

52.25

20^h 30^m

Clouds prevented further work.

SPL Aug. 23rd Obs. for value of micrometer revolutions.

Coincidence of Fixed wire N^o 2 and moveable wire at 20.

Coincidence of Fixed wire N^o 3 & moveable wire at 44.988

Coincidence of Fixed wire N^o 3 & Moveable wire at 69.993.

Fixed wire N^o 1 20
 " " N^o 2 45.024 25.024

Fixed wire N^o 1.
 moved to coincidence. — 45.024
 Then moveable wire
 advanced again to N^o 2. 70.051 25.027

S. P. L. Aug. 24th obs. on. Micrometer Screw

The. Moveable wire. is placed at 00.00
 " 1st Fixed wire is brought to coincid^{ence}.
 " moveable wire is then made to
 coincide with fixed wire N^o 2. 25.068. 25.068
 Then wire N^o 1 brought forward to coincid^{ence}
 " moveable w. made to coincide with N^o 2. 50.089. 25.021
 Wire 1 brought forward to moveable wire
 coincidence of moveable wire & N^o 2 75.109 25.020

moveable wire coincides with N^o 1 at. 00.000.
 " " " " N^o 2 " 25.062 25.062
 Wire N^o 1 Brought to coincidence 25.062
 moveable wire coincides with N^o 2. 50.086 25.024
 Wire N^o 1 Brought. to coincidence. 50.086
 moveable wire coincidence. 75.079 24.993

S.P.L. Aug. 24. Obs. on Micrometer. screw

The moveable wire reads 0 0 . 0 0 0

" " " " 25.055 - 25.055

" " " " 50.082 25.027

" " " " 75.089 25.007

25.068

25.062

25.055

185

25.062 25.062

50.089

50.086

50.082

50.086 25.024 - 038

75.109

75.079

75.089

75.277

75.092 25.006 - 018

The

For. back lark

moveable wire at 75.

r	
.028	.97.8
.017	.97.
.034	.98.
.001	.97.7
.016	.97.8
<u>51096</u>	<u>514883</u>
1.019	97.6
<u>.976</u>	
.043	

The Moveable Wire ~~is advanced~~ brought to coincidence with fixed wire ^{several times} successively from opposite sides. and the difference of the means taken at the back lark ~~at~~ the back lark in this part part of the screw

2 2173 g.m.s. Aug. 24^h Friday.

219°.5 Too unsteady to measure well.
217 18^h 45^m

Observations for 0. point.

80°.32
80°.18 (w.2)
80°.17 (w)2
mean 80°.20'

σ Coronae SP 6 Power of 401

Definition not very good, but stars steady.

341 26 } quite satisfactory
338 34 } no illumination
339 4 }

19^h 35^m

43.81 44.93
43.49 44.52
0.32 0.41

44.91 44.95
44.51 44.54
0.40 0.41

6 Coronae. g.m.s.

$$\begin{array}{r} 44.88. \\ .53 \\ \hline 35 \end{array}$$

$$\begin{array}{r} 44.82. \\ .48 \\ \hline .34 \end{array}$$

$$\begin{array}{r} 44.88 \\ .48 \\ \hline .40 \end{array}$$

$$44.82.$$

$$\begin{array}{r} 49 \\ \hline \end{array}$$

33 well satisfied with this.

$$340^{\circ}.16$$

$$339^{\circ}.02$$

$$\begin{array}{r} 339.08 \\ \hline \end{array}$$

$$339.29$$

$$\begin{array}{r} h \\ m \\ 19.45 \end{array}$$

$$\frac{A.B - C}{2}$$

$$83^{\circ}.58.$$

$$83^{\circ}.58.$$

$$\begin{array}{r} 83^{\circ}.58. \\ \hline \end{array}$$

$$51.93$$

$$51.93$$

$$52.08$$

$$51.92$$

$$\begin{array}{r} 51.92 \\ \hline 155.95 \\ \hline \end{array}$$

$$51.99$$

$$51.98$$

$$311.83$$

$$51.97$$

Coincidence

$$46.60$$

$$.62$$

$$\begin{array}{r} 60 \\ \hline \end{array}$$

$$46.61$$

$$\begin{array}{r} 5.36 \\ \hline \end{array}$$

257 350
390 257

350
275
75
93

η Coronae. S.P.L.

320 50 Not well divided
 314 5
 311 27

g.m.s. 3 3 4⁰ . 0 0
 3 3 1⁰ . 3 5.
 3 2 3⁰ . 2 8
 3 2 3 . 5 5.

Σ 2318 S.P.L. Power no 2.

275 16
 276 6
 275 5

20^h 30^m

52.71
 50.56

 2.15

52.62
 50.55

 2.07

52.70
 50.57

 2.13

315 Herculis.

g.m.s.

~~93° 46'~~
~~93° 47'~~
~~96° 02'~~
~~3283.35~~
~~94.32~~

96° 21'
 93° 46'
 93° 47'
 96° 02'
 94° 36'
95° 15'
 569.47,
 94° 58'

^h
 20.48

^r
 63.62:

62.52

^r
 1.10

63.63

62.54

^r
 1.09

63.59

62.46

^r
 1.13

63.56

62.43

^r
 1.13

η Draconis. SP. L.

Power no 2.

205 0

209 7

210 15

209 7

210 30

Power of 401

21^h 5^m

67

66.17

66.78

0.61

66.85

66.23

0.62

66.57

67.07

0.50

66.42

66.92

0.50

66.35

66.95

0.60

η Draconis g.m.s.

66.63

67.19 .56

66.59

67.17 .58

66.58

67.17 .59

204°. 21

204°. 37

206. 36

μ Draconis

G.M.S.

350°. 50

351.00

351.14

349.16

350.39

571752.59

350.36

49.93

49.61 .32

50.05

49.64 .41

49.94

49.69 .25

49.95

49.68 .27

probly
the
best

μ Draconis G.M.S.

49.96

49.68 .28

49.95

49.69 .26

h
21.40

P XXII 33. ~~80.6~~ GMS

185.50

52.79

186.15

.76

185.38

.74

~~18~~

.75

4/304 76 52.76

Coincidence

51.84

79

81

83

.83

5/410 51.82

S P L.

52.05

.04

.14

mem 52.11

~~53.21~~

~~53.17~~

Position

7° 10'

7 16

7 43

mem

Coma

53.17

.16

.18

53.17

41 Aquarii P XXII 22 1866

S P L.

22^h 6^m 9^s - 21° 44.5'

231 48

232 32

235 16

232 49

mem 233 6

Seeing very bad.

Dist.

46.75

46.23

52

46.74

46.22

52

46.76

46.24

52

gms.

42.00

41.47

53

41.92

41.36

56

41.93. poor. 55.

41.38

P XXII 275 SP L

Est. Angle. 31°
 52°
 $\underline{39^{\circ}}$
 $122.40.40$

} no separation

Gms.

 $9.30.$ Diameter of $182.22.$

dep. circle. 22.55 nearly. -
 AK

K Pegasus SP L

46 57

satisfactory measure.

48 46

 $23^h 20^m$

Coma.

46 25

33.48

32.05~~~~~~~30~~ 29

mean 47 23

31

mean 33 36

Σ 2847. g.m.s.

47° 52.

47° 45

47° 44.

3/143.21

47.47

50.85

50.96 .11

51.11

50.95 .16

h m
23.40

Time 23^h 45^m Star near by 6^{May} & 9^{May}
9 M S 9^{May} is south.

164 52

48.27

Coinc.

165 45

.22

49.36

166 12

.21

.35

165 52

.23

.32

165 29

.37

Vernier of dec. circle 176° 10'
Approx α 21^h 47^m

Result Considered rather small

0.37

55.43

55.80

0.38

55.38

55.00

0.42

55.41

55.83

mean 236 42

237 5

236 59

236 3

Σ 2455 506

P XXIII 63, 98 Aquarii 9.M.S

Tried power of 688 but could not be
sure of duplicity. Stars however very unsteady.
0^h 10^m

η Cassiope 9.M.S

226 56

0^h 50^m

226 25

225 38

225 43

227 32 less satisfactory than previous ones; half
weight.

44.96

45.71

45.11

45.83

45.12

45.85

45.04

45.68

45.11

45.81

$$\begin{array}{r} 46.70 \\ 2.13 \\ \hline \end{array}$$

$$\begin{array}{r} 46.70 \\ 46.70 \\ 46.69 \\ 46.70 \\ \hline 46.70 \end{array}$$

Coincidence

$$\begin{array}{r} 48.83 \\ 48.83 \\ \hline \end{array}$$

$$\begin{array}{r} 48.83 \\ 48.84 \\ \hline \end{array}$$

$$48.80$$

$$48.85$$

$$\begin{array}{r} 21.40 \\ h \\ m \end{array}$$

$$274.44$$

$$4.13$$

$$275.43$$

$$274.80$$

$$274.00$$

$$\Sigma 2318$$

Mays. 10 8 10.5
smaller one north,

$$\begin{array}{r} 20.15' \\ 0.59' \\ 2.31 \end{array}$$

$$\begin{array}{r} 56.84 \\ 21h 3m \end{array}$$

$$.84$$

$$56.84$$

Coincidence

$$\begin{array}{r} 21 \\ 2 \\ 56 \\ 40 \end{array}$$

$$\begin{array}{r} 21 \\ 13 \\ 30 \end{array}$$

SP2

$$56.42$$

$$.46$$

$$.42$$

$$.36$$

$$56.46$$

Aug 25 Saturday

Σ 2173 Seeing not good enough to measure.

Σ 2303 S P L

307° 56'

309 33

311 44

53.79

.69

.73

221

~~54.07~~

53.74

Coincidence

54.07

54.07

.33

.07

.07

g.m.s.

305° 35'

302° 27'

304° 56'

303° 43'

^r
53.51

.49

.50

53.50

Coincidence

82
53.84

.85

81

85

53.83.33

{ α by chronometer 18 16 50
 { δ by chronometer 20 5 29
 Reading of watch 20 5 34

2. 25
 1. 42
 0. 10
 1. 24
 5. 41
 1. 25

best.

Ed. magnitude 9.5 a. 1000

56.57
 56.62
 56.63
 56.58
 240
 56.60
 57.02

42

57.02

Aug. 25. Saturday
 2. 20. 50
 2. 20. 50

Σ 2503. G.M.S.

68°. 00

67. 20

67. 43.

3/ 203 03

67°. 41

19^h.

53°. 00

52. 99

52. 96

158 .93

52. 98

Coincidence

53. 24

. 22.

. 19

. 21

. 21

107

53. 21

. 23

~~ask.~~ (a at Origin) Rectangular Coordinates

b

c

d.

$$x = +0.24 \quad x = +1.49$$

$$\begin{array}{r} 28.18 \\ 25.34 \\ \hline x = +2.84 \end{array}$$

$$\begin{array}{r} 15.54 \\ 38.13 \\ \hline \end{array}$$

$$\begin{array}{r} 59.48 \\ 38.62 \\ \hline \end{array}$$

$$\begin{array}{r} 37.99 \\ 38.41 \\ \hline \end{array}$$

$$y = +22.59$$

$$y = -20.86$$

$$y = +.42$$

e

f.

g

$$32.33$$

$$25.44$$

$$x = +6.89$$

$$32.66$$

$$25.44$$

$$x = +7.22$$

$$31.23$$

$$25.33$$

$$x = 5.90$$

$$18.00$$

$$38.13$$

$$y = +20.13$$

$$32.13$$

$$38.13$$

$$y = +6.00$$

$$16.62$$

$$38.13$$

$$y = +21.51$$

The star c. has a ~~delicate~~ close
faint companion in the w.p. quadrant.
~~ask?~~ S.P.L.

Aug. 25. ^h 26 S.P.H.
 Chart of Stars in Nebula. ^h 2008
 (Full moon, & nebula wholly invisible).
 Power No. 1



Sid. ^h 20. ^l J

Notes Oct. 29, 1880.

These stars cannot readily be identified with any of those observed in ^h 2008 (G. C. 4403) by Lassell (Mem. R. A. S., Vol. XXXVI, p. 49 & Plates VII & VIII). As the nebula was not seen, it is not certain that the telescope was actually set on G. C. 4403; and the region was not afterwards identified.

204 40 m

1.12
42.43

41.31

1.09
42.42
41.33

1.08
42.43
41.35

274 27 m

273 47

275 20

274 14

315 Hercules S.P.L.

Aug 25 Saturday

G.M.S. Aug 25

Measurements of double star
"c" in nebula n 2008

(see chart. preceding page.)

50°. 17'

50. 40'

50. 26

1.51 .23

50°. 28'

2
51.94.

51.47 .47

51.85

46 .39

