KG
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.485

1003.pdf.green.proj 1-4298

Polaris —

— Circle Readings

From Feb. 8. 1883 to Feb 27 1884

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj..14:2B

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1883phae.proj.1429B



# Polaris Feb. 8, 1883

| RB | RB | RB | BR | BR | BR |
|---|---|---|---|---|---|
| 35 i 49.3 | 53.6 | 57.9 | 1.3 | 2.1 | 3.6 |
| 53.5 | 58.0 | 1.3 | 4.2 | 5.0 | 5.7 |
| 48.9 | 52.7 | 55.8 | 59.8 | 0.2 | 2.0 |
| 42.5 | 46.9 | 50.8 | 53.7 | 55.3 | 57.8 |
| 1942 | 2112 | 2258 | 2390 | 26 | 81 |
| 36 48.55 | 52.80 | 56.45 | 59.75 | 37 0.65 | 2.02 |

| BR | BR | BR | BR | BR | BR |
|---|---|---|---|---|---|
| 2 28.0 | 29.2 | 30.8 | 30.2 | 32.8 | 32.4 |
| 31.0 | 32.2 | 33.2 | 34.1 | 35.8 | 36.2 |
| 27.2 | 28.0 | 28.8 | 30.0 | 31.2 | 31.9 |
| 22.0 | 22.8 | 23.8 | 24.1 | 26.0 | 26.6 |
| 1082 | 1122 | 1166 | 1184 | 1258 | 1271 |
| 2 27.05 | 28.05 | 29.15 | 29.60 | 31.45 | 31.78 |

New series for δ

Beg 0h 32m

| BR | BR | BR | BR | BR | BR |
|---|---|---|---|---|---|
| 34.3 | 36.0 | 05.4 | 35.2 | 35.0 | 34.7 |
| 38.1 | 39.0 | 39.0 | 38.0 | 38.2 | 37.9 |
| 34.2 | 35.1 | 35.2 | 34.8 | 33.8 | 33.3 |
| 28.4 | 29.0 | 29.1 | 29.1 | 29.0 | 28.0 |
| 1357 | 1491 | 1387 | 1371 | 1360 | 1339 |
| 33.92 | 37.28 | 34.68 | 34.28 | 34.00 | 33.48 |

B. obs $A_{1_0}$ to $3_0$ + $A_{7_0}$ to $9_0$

R. obs. $A_{3_1}$ to $A_{6_2}$

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1883phae.proj.14298



Feb. 12 — C = 17 Aug

| RB | RB | RB | RB | RB | BR | BR | BR | BR | BR |
|---|---|---|---|---|---|---|---|---|---|
| 35 / 35.1 | 466 | 50.0 | 5-24 | 55.3 | 58.2 | 59.8 | 1.2 | 2.2 | 4.0 |
| 37.9 | 489 | 53.8 | 5-61 | 59.0 | 0.8 | 1.7 | 3.7 | 4.8 | 6.7 |
| 31.- | 42.1 | 46.9 | 49.5 | 52.1 | 54.7 | 55.7 | 57.2 | 58.7 | 0.6 |
| 26.5 | 39.0 | 42.6 | 45.9 | 47.9 | 50.8 | 51.2 | 53.7 | 55.0 | 57.0 |
| 1307 | 1766 | 1933 | 2039 | 2143 | 2245 | 2281 | 2358 | 07 | 83 |
| 36 32,68 | 44,15 | 48,32 | 50,98 | 53,58 | 56.12 | 57,02 | 58,95 | 0,18 | 2,08 |

| BR | BR | BR | BR | BR | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|
| 29.5 | 32.0 | 32.7 | 33.9 | 34.9 | 35.5 | 35.1 | 36.4 | 37.7 | 37.4 |
| 32.4 | 35.8 | 36.5 | 36.0 | 37.1 | 37.9 | 38.5 | 39.2 | 40.4 | 40.6 |
| 26.0 | 29.2 | 29.3 | 29.0 | 30.7 | 31.8 | 32.6 | 32.3 | 34.9 | 34.2 |
| 21.8 | 24.3 | 25.7 | 26.2 | 26.8 | 27.8 | 28.4 | 28.9 | 30.0 | 29.9 |
| 1097 | 1213 | 1242 | 1251 | 1295 | 1330 | 1346 | 1368 | 1430 | 1421 |
| 27,42 | 30,32 | 31,05 | 31,28 | 32,38 | 33,25 | 33,65 | 34,20 | 35,75 | 35,52 |

B. obs. $A_1$ to $3_0$ + $7_0$ to $9_0$

R. obs. $A_{3_1}$ to $A_{6_2}$

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1883phae.proj.1429B



Feb. 13, 1883 $\odot$ = 17 85.0

Polaris B. Obs.

BB

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 1 | 52.0 | 58.9 | 2 | 2.9 | 5.7 | 31.0 | 33.9 | 36.8 | 37.7 | 38.3 | 39.9 |
| | | 53.9 | 1.1 | | 5.0 | 9.0 | 33.3 | 37.4 | 39.9 | 40.7 | 42.1 | 42.6 |
| | | 48.6 | 56.0 | | 59.1 | 2.7 | 28.0 | 29.5 | 33.1 | 33.6 | 34.0 | 35.4 |
| | | 42.1 | 49.8 | | 53.1 | 56.4 | 22.3 | 25.0 | 28.5 | 28.7 | 29.5 | 31.1 |
| | | 1966 | 2258 | | 01 | 738 | 1146 | 1258 | 1383 | 1407 | 1439 | 1490 |
| | 36 | 49.15 | 56.45 | | 0.02 | 3.45 | 28.65 | 31.45 | 34.58 | 35.18 | 35.98 | 37.25 |

$A_{1_0}$ to $9_0$ 2 short rattles preceed + follow middle wire.

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1883phae.proj.1429B



F 26. 18 1883 C = 17 84,3

Plain R

| R | R | R | R | R | R |
|---|---|---|---|---|---|
| 35 2 28,3 | 31,4 | 34,9 | 33,8 | 35,5 | 31,8 |
| 29,2 | 34,8 | 37,0 | 36,3 | 38,4 | 39,1 |
| 24,8 | 32,4 | 34,4 | 35,2 | 36,1 | 37,3 |
| 23,9 | 27,7 | 30,5 | 29,8 | 31,1 | 31,8 |
| 109,2 | 126,3 | 137,1 | 135,1 | 141,1 | 144,3 |
| 37 2 7,30 | 31,58 | 34,28 | 33,78 | 35,28 | 36,08 |

$A_5 < C$

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1883phae.proj.1429B



T-56.19 1883

| | RB | RB | RB | RB | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 51 49.4 | 53.0 | 55.0 | 57.1 | 59.2 | 2.8 | 3.5 | 5.1 | 4.8 | 6.8 |
| | 51.4 | 55.5 | 57.9 | 59.9 | 1.7 | 4.9 | 5.8 | 6.5 | 7.2 | 8.3 |
| | 46.0 | 51.1 | 52.6 | 53.8 | 56.2 | 59.7 | 0.2 | 2.1 | 2.6 | 4.0 |
| | 41.6 | 45.7 | 48.0 | 50.2 | 53.0 | 56.1 | 57.4 | 57.6 | 58.7 | 0.2 |
| | 1887 | 2053 | 2135 | 2210 | 2301 | 35 | 69 | 113 | 133 | 193 |
| 36 | 47.18 | 51.32 | 53.38 | 55.25 | 57.52 | 0.88 | 1.72 | 2.82 | 3.32 | 4.82 |

| | BB | BB | BB | BR | BR | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 30.1 | 31.4 | 33.6 | 35.2 | 36.1 | 36.7 | 36.9 | 38.0 | 38.5 | 38.7 |
| | 32.8 | 33.9 | 36.2 | 36.8 | 37.8 | 38.9 | 38.9 | 39.8 | 40.2 | 40.7 |
| | 27.9 | 29.2 | 31.5 | 32.5 | 32.8 | 33.9 | 34.1 | 35.1 | 35.1 | 36.1 |
| | 23.3 | 24.6 | 3'6.6 | 28.2 | 39.0 | 29.7 | 30.1 | 31.4 | 30.9 | 31.5 |
| | 1141 | 1191 | 1379 | 1327 | 1447 | 1392 | 1400 | 1443 | 1447 | 1448 |
| 2 | 28.52 | 29.78 | 34.48 | 33.18 | 36.18 | 34.80 | 35.00 | 36.08 | 36.18 | 36.20 |

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1883phae.proj.1429B



Feb. 21, 1883 $\odot = 17\ 90.3$

Polaris ~~W~~ U. C – B. Obs.

| | | BB | B | B | B | B | B | | B | B | B | B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 1 | 32.0 | 38.9 | 43.7 | 48,9 | 53.3 | 57.8 | 2 | 35,4 | 34.7 | 34.9 | 35.2 |
| | | 35,2 | 43.0 | 47.4 | 52.1 | 58.4 | 1,5 | | 38,5 | 38,2 | 39.4 | 39,5 |
| | | 29.9 | 37.1 | 41.5 | 47,5 | 52.1 | 55,9 | | 33,5 | 33,5 | 33,9 | 34.1 |
| | | 26.7 | 33,7 | 38.1 | 43,9 | 47,9 | 52.1 | | 28,9 | 29.0 | 29.8 | 30,2 |
| | | 1238 | 1527 | 1707 | 1944 | 2117 | 2273 | | 1363 | 1354 | 1380 | 1390 |
| 36 | | 30,95 | 38.18 | 42,68 | 48,60 | 52,92 | 56,82 | | 34,08 | 33,85 | 34,50 | 34,75 |

~~A~~ $_{1_0}$ ~~to~~ $9_0$

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1883phae.proj.1429B



Feb. 23. 1883 C=17 87.2

Polaris u. C. B Clds.

| | BB | B | B | B | B | B | B | B | B | B |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 3,5 | 5.7 | 33.0 | 35.0 | 35.8 | 37.1 | 38.3 | 40.0 | 39.9 | 40,1 |
| | | 7.3 | 10.2 | 37.1 | 39.4 | 40.0 | 42.0 | 43.1 | 45.0 | 44.5 | 44.6 |
| | | 0.2 | 3,5 | 29,3 | 32.0 | 33.0 | 35.0 | 35.8 | 37.2 | 37.0 | 36.9 |
| | | 58.0 | 1.2 | 27.1 | 29.4 | 30.1 | 31.8 | 32.2 | 34.2 | 34.9 | 34.6 |
| | | 90 | 206 | 1265 | 1358 | 1389 | 1459 | 1494 | 1564 | 1563 | 1562 |
| 37 | | 2,25 | 5,15 | 31,62 | 33,95 | 34,72 | 36,48 | 37,35 | 39.10 | 39.08 | 39.05 |

A 9 10 to 9 0

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1883phae.proj.1429B



Feb. 24 1883 C = 17 84.1

Polaris U.C. B. Obs.

| | | BB | | B | B | B | B | B | B | B | B | B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35⁻ | 1 | 37.3 | 2 | 0.8 | 5.0 | 10.0 | 12.8 | 39.1 | 42.2 | 44.0 | 43.8 | 44.6 |
| | | 54.4 | | 3.5 | 8.0 | 12.3 | 15.7 | 41.5 | 45.0 | 46.3 | 46.3 | 47.7 |
| | | 45.9 | | 54.2 | 58.6 | 3.7 | 6.7 | 32.1 | 35.6 | 37.0 | 36.9 | 38.1 |
| | | 42.5⁻ | | 51.1 | 55.8 | 1.0 | 3.9 | 30.0 | 33.3 | 34.4 | 35.0 | 36.0 |
| | | 1941 | | 2296 | 74 | 270 | 391 | 1427 | 1561 | 1617 | 1620 | 1664 |
| | 36 | 48.52 | | 57.40 | 1.85 | 6.75 | 9.78 | 35.68 | 39.02 | 40.42 | 40.50 | 41.60 |

Agt. 10 h 9₀

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1883phae.proj.1429B



Feb. ~~25~~ 26, 1883 C=17 86.6

| | RB ~~BR~~ | RB ~~BR~~ | RB ~~BR~~ | RB ~~BR~~ | RB ~~BR~~ | BR | BR | BR | BR | BR |
|---|---|---|---|---|---|---|---|---|---|---|
| 35-1 | 21.8 | 26.5 | 30.1 | 32.6 | 25.7 | 38.2 | 41.2 | 47.4 | 51.9 | 54.6 |
| | 26.2 | 31.3 | 34.5 | 37.1 | 39.3 | 43.0 | 45.0 | 51.5 | 55.8 | 58.6 |
| | 17.7 | 22.1 | 25.6 | 28.5 | 30.4 | 34.7 | 36.8 | 42.6 | 47.2 | 50.8 |
| | 16.1 | 20.3 | 24.0 | 26.4 | 29.3 | 32.8 | 35.2 | 41.01 | 46.8 | 48.0 |
| | 818 | 1005 | 1142 | 1246 | 1341 | 1487 | 1582 | 1826 | 2017 | 2120 |
| 36 | 20.45 | 25.12 | 28.55 | 31.15 | 33.52 | 37.18 | 39.55 | 45.65 | 50.42 | 53.00 |

R. Obs. $A_{1,\ 1_2\ 2_0\ 2_1\ 4_0\ 5_1}$

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1883phae.proj.1429B



Feb. 27. 1883 $e = 17$ 81.7

| | | BR | BR | BR | BR | BR | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 1 | 51.4 | 54.1 | 55.8 | 57.8 | 59.8 | 1,4 | 3,0 | 5,2 | 7,7 | 10,9 |
| | | 52.2 | 54.0 | 55,9 | 58,7 | 0.2 | 2,8 | 4,2 | 6.1 | 8,1 | 11.4 |
| | | 42.1 | 44.1 | 45.6 | 47.6 | 49.5 | 57,5 | 3,6 | 56,5 | 58,4 | 1.5 |
| | | 39.7 | 42.8 | 44.7 | 47.0 | 48.3 | 50,6 | 57,9 | 53,5 | 56,4 | 59,5 |
| | | 1854 | 1950 | 2020 | 2111 | 2178 | 2258 | 27 | 19 | 106 | 236 |
| | 36 | 46,35 | 48,75 | 50,50 | 52,78 | 54,45 | 56.45 | 0,68 | 0,48 | 2,65 | 5,90 |

| | | RB | RB | RB | RB | RB | BR | BR | BR | BR | BR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 43,0 | 43,0 | 44,4 | 44,1 | 45,3 | 46,2 | 47,1 | 48,0 | 47,7 | 48,8 | |
| | 43,3 | 44,1 | 45,5 | 44,6 | 46,5 | 46,6 | 47,2 | 48,2 | 48,2 | 49,1 | |
| | 34,0 | 34,1 | 35,2 | 35,1 | 36,3 | 36,7 | 37,0 | 38,0 | 37,7 | 38,5 | |
| | 32,0 | 31,7 | 33,2 | 32,7 | 33,9 | 35,1 | 36,1 | 37,1 | 37,0 | 38,7 | |
| | 1523 | 1529 | 1583 | 1567 | 1620 | 1646 | 1674 | 1713 | 1706 | 1751 | |
| 2 | 38,08 | 38,22 | 39,58 | 39,18 | 40,50 | 41,15 | 41,85 | 42,82 | 42,65 | 43,78 | |

R. Cls. $A_{1,0} \pm 3_0 + 7_0 \pm 9_0$

B Cls. $A_{3,1} \pm 6_2$

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1883phae.proj.1429B



Feb. 28. 1883 $\odot$ = 17 86.0

Polaris U.C. B. Clb.

| | | BB | BB | BB | BB | BB | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | ○ | 58.0 [1] | 9.1 | 17.0 | 29.0 | 38.6 | 12.8 [2] | 38.6 | 42.3 | 43.9 | 45.1 |
| | | 1.4 | 11.6 | 19.6 | 31.8 | 41.5 | 14.8 | 41.1 | 45.0 | 46.5 | 47.8 |
| | | 49.8 | 0.6 | 8.9 | 20.8 | 30.4 | 4.6 | 30.2 | 34.2 | 35.3 | 37.2 |
| | | 49.1 | 59.7 | 7.6 | 19.1 | 29.0 | 2.8 | 29.2 | 32.0 | 33.8 | 35.2 |
| | | 2183 | 210 | 531 | 1007 | 1395 | 350 | 1391 | 1535 | 1595 | 1653 |
| 35 | | 54.58 [36] | 5.25 | 13.28 | 25.18 | 34.88 | 8.75 [37] | 34.78 | 38.38 | 39.88 | 41.32 |

$A_{+1}$ 12 $A_{1_0}$ to $9_0$

lost 2nd & 3rd tap of $3_0$

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1883phae.proj.1429B



Mar. 2, 1883 C = 17 86.0

| | | BB | BB | BB | BB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|
| 35 | 1 | 43.0 | 50.2 | 53.9 | 57.4 | 01 | 17 | 26 | 49 |
| | | 48.3 | 55.8 | 58.9 | 2.7 | 49 | 6.3 | 0.2 | 9.9 |
| | | 43.3 | 49.1 | 53.4 | 56.9 | 55.2 | 00.4 | 18 | 39 |
| | | 39.1 | 46.0 | 50.1 | 53.0 | 56.0 | 57.4 | 59.8 | 0.6 |
| | | 1737 | 2011 | 2163 | 2300 | 02 | 58 | 114 | 193 |
| | 36 | 43.42 | 50.28 | 54.08 | 57.50 | 00.50 | 1.45 | 2.85 | 4.82 |

| | RB | RB | RB | RB | RB | BR | BR | BR | BR | BR |
|---|---|---|---|---|---|---|---|---|---|---|
| | 30.5 | 31.5 | 32.6 | 32.5 | 33.5 | 34.2 | 35.4 | 35.4 | 36.8 | 36.8 |
| | 35.4 | 36.2 | 37.2 | 36.9 | 38.4 | 38.0 | 39.8 | 39.7 | 41.0 | 41.2 |
| | 29.3 | 30.1 | 31.0 | 32.0 | 32.7 | 33.6 | 34.8 | 35.4 | 36.4 | 37.2 |
| | 26.2 | 27.0 | 27.8 | 28.1 | 29.0 | 29.7 | 31.2 | 31.0 | 32.2 | 32.3 |
| | 1214 | 1248 | 1286 | 1295 | 1336 | 1355 | 1412 | 1418 | 1464 | 1475 |
| | 30.35 | 31.20 | 32.15 | 32.38 | 33.40 | 33.88 | 35.30 | 35.45 | 36.60 | 36.88 |

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1883phae.proj.1429B



Mar. 3, 1883 $\odot = 17\ 86.0$ This and mark is a mean from the two with an other axis.

| | | BB | BB | BB | BB | BB | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 2.4 | 4.0 | 9.6 | 12.8 | 40.9 | 42.0 | 41.9 | 43.1 | 43.1 | 44.8 |
| | | 7.8 | 9.4 | 15.0 | 17.8 | 45.5 | 47.6 | 47.7 | 49.0 | 47.9 | 50.5 |
| | | 0.1 | 2.8 | 8.2 | 11.3 | 38.7 | 40.2 | 40.0 | 41.5 | 40.3 | 42.3 |
| | | 58.0 | 59.3 | ~~59.3~~ | 8.2 | 36.2 | 37.6 | 37.5 | 38.9 | 38.4 | 40.1 |
| | | 83 | 155 | | 501 | 1613 | 1674 | 1671 | 1725 | 1697 | 1777 |
| | 37 | 2,08 | 3,88 | | 12,52 | 40,32 | 41,85 | 41,78 | 43.12 | 42,42 | 44,42 |

$A_{12}$ to $8_1$

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1883phae.proj.1429B



Mar 5 1883 Ω = 17 82.8

| | | BR | BR | BR | BR | RB | RR | RR | RR | RR |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 7.0 | 11.9 | 3.8 | 12.9 | 16.9 | 18.3 | 20.3 | 21.2 | 22.4 |
| | | 8.8 | 12.2 | 14.1 | 14.7 | 17.5 | 18.8 | 21.9 | 22.5 | 23.1 |
| | | 57.8 | 1.4 | 2.7 | 13.7 | 7.2 | 8.5 | 11.1 | 11.6 | 12.4 |
| | | 55.8 | 59.2 | 1.5 | 1.8 | 4.2 | 5.2 | 8.8 | 9.2 | 10.2 |
| | | 94 | 247 | 221 | 331 | 458 | 498 | 621 | 645 | 677 |
| | 37 | 2.35 | 6.18 | 5.52 | 8.28 | 11.45 | 12.45 | 15.52 | 16.12 | 16.92 |

| BB | BB | BB | BB | BB |
|---|---|---|---|---|
| 47.8 | 49.5 | 51.0 | 51.9 | 52.3 |
| 49.4 | 51.7 | 53.3 | 54.0 | 55.0 |
| 38.0 | 39.5 | 41.3 | 42.1 | 42.5 |
| 36.0 | 37.5 | 39.2 | 39.9 | 41.1 |
| 1712 | 1782 | 1848 | 1879 | 1909 |
| 42.80 | 44.55 | 46.20 | 46.98 | 47.72 |

R Obs. $A_{1_0}$ to $3_0$ + $7_0$ to $9_0$ One tap for each of first 5 wires. Rej. $7_0$

B Obs. $A_{3_1}$ to $6_2$

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Mar. 7, 1883 C=17 82.8

Polaris

| | | BB | BB | BB | BB | BB | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 25.6 | 41.8 | 43.7 | 45.8 | 47.9 | 47.3 | 49.0 | 48.0 | 47.4 | 47.5 |
| | | 30.0 | 46.2 | 47.8 | 49.7 | 51.0 | 50.0 | 52.0 | 50.9 | 50.2 | 50.1 |
| | | 18.4 | 34.5 | 36.5 | 38.4 | 40.0 | 40.0 | 40.9 | 39.9 | 39.1 | 39.6 |
| | | 17.0 | 32.7 | 34.9 | 36.4 | 38.8 | 37.8 | 39.8 | 38.7 | 38.4 | 38.5 |
| | | 910 | 1552 | 1629 | 1703 | 1777 | 1751 | 1817 | 1775 | 1751 | 1757 |
| | 37 | 22,75 | 38,80 | 40,72 | 42,58 | 44,42 | 43,78 | 45,42 | 44,38 | 43,78 | 43,92 |

A $2_2$ $3_0$ $4_0$ (bad) $4_2$ $5_0$ $5_1$ $5_2$ $6_0$ $6_1$ $6_2$ $7_0$ $7_1$ (?) $9_0$ (bad)

Rej. 2nd. δ

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1883phae.proj.1429B



Mar. 9, 1883 C=17 87.4

| | | BB | BB | B | B | B | B | B | B | B | B |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 45.8 | 48.9 | 50.1 | 50.4 | 51.7 | 52.0 | 53.0 | 52.6 | 54.1 | 52.1 |
| | | 48.0 | 50.9 | 52.5 | 53.3 | 54.3 | 54.8 | 55.4 | 55.5 | 56.0 | 54.6 |
| | | 35.9 | 39.1 | 40.5 | 40.0 | 41.4 | 42.0 | 43.0 | 42.5 | 43.8 | 42.0 |
| | | 34.1 | 37.9 | 39.4 | 39.8 | 40.3 | 41.1 | 42.3 | 42.4 | 43.6 | 41.2 |
| | | 1638 | 1768 | 1825 | 1835 | 1877 | 1899 | 1937 | 1930 | 1975 | 1899 |
| | 37 | 40.95 | 44.20 | 45.62 | 45.88 | 46.92 | 47.48 | 48.42 | 48.25 | 49.38 | 47.48 |

A 1 2 + foll.

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1883phae.proj.1429B



Mar. 12, 1883 C=17 87.4

BB — — — — — — — — — —

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 44.9 | 47.0 | 48.6 | 51.9 | 52.0 | 51.5 | 51.7 | 52.5 | 51.9 | 51.8 |
| | | 47.4 | 50.0 | 52.9 | 55.5 | 55.0 | 54.3 | 54.2 | 54.8 | 54.0 | 54.4 |
| | | 35.9 | 38.6 | 40.4 | 43.1 | 43.1 | 43.1 | 42.7 | 43.4 | 42.9 | 42.5 |
| | | 34.9 | 36.6 | 39.2 | 41.9 | 42.2 | 41.6 | 42.0 | 42.4 | 42.0 | 41.1 |
| | | 1631 | 1722 | 1811 | 1924 | 1923 | 1905 | 1906 | 1931 | 1908 | 1898 |
| | 37 | 40.78 | 43.05 | 45.28 | 48.10 | 48.08 | 47.62 | 47.65 | 48.28 | 47.70 | 47.45 |

$A_{6,}$ to $9_0$ + $A_{-1}$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Mar. 14. 1883 @ = 17 91.3

BB - - - - - - - -

| | | | | | | |
|---|---|---|---|---|---|---|
| 35 | 2 | 13.9 | 42.2 | 43.7 | 45.7 | 47.3 | 50.1 |
| | | 18.0 | 46.0 | 47.1 | 49.7 | 51.7 | 53.6 |
| | | 8.6 | 34.9 | 36.0 | 38.9 | 40.4 | 43.0 |
| | | 6.2 | 33.8 | 35.1 | 38.1 | 39.5 | 41.6 |
| | | 467 | 1569 | 1619 | 1724 | 1789 | 1883 |
| | 37 | 11.68 | 39.22 | 40.47 | 43.10 | 44.72 | 47.08 |

A 1.0 to 9.0 Clouds

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Mar. 15, 1883 C = 1791.3

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | B | B | B | — | — | — | — | — | — |
| 35 | 2 | 34.1 | 36.1 | 36.4 | 37.8 | 38.1 | 39.7 | 40.6 | 42.2 | 41.9 | 41.3 |
| | | 40.2 | 42.6 | 42.4 | 43.9 | 44.4 | 45.8 | 46.2 | 47.6 | 47.0 | 46.6 |
| | | 34.9 | 37.2 | 37.6 | 38.7 | 38.6 | 39.8 | 40.5 | 41.8 | 41.0 | 40.9 |
| | | 31.6 | 34.0 | 34.0 | 35.6 | 36.0 | 37.2 | 38.1 | 39.1 | 39.4 | 39.0 |
| | | 1408 | 1499 | 1504 | 1560 | 1571 | 1625 | 1654 | 1707 | 1693 | 1678 |
| | 37 | 35.20 | 37.48 | 37.60 | 39.00 | 39.28 | 40.62 | 41.35 | 42.68 | 42.32 | 41.95 |

$A_{3_0}$ to $9_0$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Mar. 16, 1883 · C = 17 89.2

BB — — — — — —

| | | | | | | |
|---|---|---|---|---|---|---|
| 35 | 2 | 41.8 | 44.0 | 46.1 | 46.6 | 48.0 | 49.0 |
| | | 46.4 | 48.7 | 51.0 | 51.7 | 52.5 | 54.7 |
| | | 35.8 | 38.0 | 40.3 | 40.8 | 42.2 | 44.4 |
| | | 34.6 | 36.7 | 39.2 | 39.6 | 40.8 | 42.9 |
| | | 1586 | 1674 | 1766 | 1787 | 1835 | 1910 |
| | 37 | 39.65 | 41.85 | 44.15 | 44.68 | 45.88 | 47.75 |

$A_{60}$ to $9_0$

Seeing very bad.
Almost impossible to observe.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Mar. 17, 1883 C=1789.0

BB — — — — —

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 35 | 2 | 43.0 | 44.3 | 45.8 | 47.6 | 49.3 | 50.1 |
| | | 47.3 | 49.4 | 51.1 | 52.9 | 54.0 | 54.5 |
| | | 37.2 | 38.6 | 40.3 | 41.6 | 43.1 | 43.5 |
| | | 34.8 | 36.1 | 38.2 | 40.0 | 41.6 | 42.3 |
| | | 1613 | 1684 | 1754 | 1921 | 1880 | 1904 |
| | 37 | 40.32 | 42.10 | 43.85 | 48.02 | 47.00 | 47.60 |

$A_{7_0}$ to $9_0$ + $A_{-1}$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Mar. 21, 1883 C = 1790.4

BB — — — — — — —

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 13.2 | 16.7 | 19.0 | 2 | 42.4 | 45.3 | 46.5 | 48.2 | 47.0 | 50.1 | 49.0 |
| | | 18.3 | 21.3 | 24.3 | | 47.6 | 51.0 | 51.8 | 53.5 | 52.2 | 55.5 | 54.2 |
| | | 9.4 | 11.9 | 14.0 | | 36.8 | 40.1 | 41.2 | 42.8 | 41.4 | 44.5 | 43.4 |
| | | 7.0 | 10.5 | 12.7 | | 35.9 | 38.9 | 39.6 | 41.2 | 40.3 | 43.8 | 42.8 |
| | | 479 | 604 | 700 | | 1627 | 1753 | 1791 | 1857 | 1809 | 1939 | 1894 |
| | 37 | 11.98 | 15.10 | 17.50 | | 40.68 | 43.82 | 44.78 | 46.42 | 45.22 | 48.48 | 47.35 |

— — —

| | |
|---|---|
| 50.0 | 50.5 |
| 55.1 | 56.1 |
| 44.3 | 45.0 |
| 44.0 | 44.6 |
| 1934 | 1962 |
| 48.35 | 49.05 |

A 1 2 b 9 0 ~~lost 1 rot w~~

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Mar. 22, 1883 C=1787.8

BB - - - - - -

35 2 4.4 9.9 12.9 18.1 21.0 24.0
8.3 12.8 16.7 21.9 24.9 27.7
55.8 0.9 4.8 9.8 12.8 15.4
54.2 59.4 3.0 8.2 11.0 13.9
27 230 374 580 697 810
37 0,68 5,75 9,35 14,50 17,42 20,25

BB - - - - - -

2 47.9 51.4 52.5 53.3 54.4 53.4
51.8 55.3 55.8 56.4 57.9 57.2
39.1 42.6 43.3 44.6 45.9 44.7
37.5 40.6 42.8 44.1 44.8 44.0
1763 1899 1944 1984 2030 1993
2 44,04 47,48 48,60 49,60 50,75 49,82

A, to 9,

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Mar. 23, 1883 C=1790.5

| | | BB | B |
|---|---|---|---|
| 35 | 2 | 50.7 | 51.0 |
| | | 55.6 | 55.0 |
| | | 42.8 | 42.7 |
| | | 42.2 | 42.1 |
| | | 1913 | 1908 |
| | 37 | 47.82 | 47.70 |

A-, 1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Mar. 24, 1883 C=17-88.9

| | | BB | B | B | B | B | B | B | B |
|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 52.6 | 54.2 | 55.0 | 54.3 | 55.0 | 54.5 | 53.0 | 54.0 |
| | | 57.9 | 59.2 | 59.5 | 58.6 | 59.5 | 59.4 | 57.5 | 59.1 |
| | | 45.2 | 46.7 | 46.8 | 45.9 | 46.8 | 46.0 | 44.9 | 45.7 |
| | | 43.5 | 45.3 | 45.7 | 45.1 | 45.9 | 45.8 | 43.7 | 44.8 |
| | | 1992 | 2054 | 2070 | 2039 | 2072 | 2057 | 1991 | 2036 |
| | 37 | 49.80 | 51.35 | 51.75 | 50.98 | 51.80 | 51.42 | 49.78 | 50.90 |

A-1345

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Mu 25 C = 17.835

| | R' | R | R | R | R | R |
|---|---|---|---|---|---|---|
| 35 | 1 078 | 441 | 485 | 525 | 571 | 1,6 |
| | 43,7 | 493 | 541 | 582 | 2,1 | 73 |
| | 32,6 | 380 | 420 | 462 | 507 | 550 |
| | 30,8 | 361 | 412 | 447 | 496 | 5211 |
| | 1449 | 1675 | 1858 | 2016 | 2195 | 2380 |
| 36 | 36,22 | 41,88 | 46,45 | 50,40 | 54,88 | 59,50 |

Rms.

A,0 to 6,0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Mar. 26. 1883 C = 17 90.4

BB — — — — — — — — —

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 1 | 51.8 | 58.4 | 2.4 | 10.2 | 15.8 | 2 | 42.5 | 45.4 | 46.8 | 46.7 | 48.3 |
| | | 58.9 | 6.0 | 9.9 | 17.2 | 23.3 | | 49.1 | 51.6 | 53.3 | 53.3 | 54.4 |
| | | 49.0 | 55.7 | 59.8 | 7.1 | 12.5 | | 38.1 | 40.9 | 42.8 | 42.3 | 43.1 |
| | | 46.8 | 54.5 | 58.3 | 5.8 | 11.2 | | 37.5 | 41.0 | 42.2 | 41.5 | 43.5 |
| | | 2065 | 2346 | 104 | 403 | 628 | | 1672 | 1789 | 1851 | 1838 | 1893 |
| | 36 | 51.62 | 58.65 | 2.60 | 10.08 | 15.70 | | 41.80 | 44.72 | 46.28 | 45.95 | 47.32 |

$A_{+1}$ 45 $A_{10}$ $t_0$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Mean. 28, 1883 C=17 90.3

| | | BB | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 9.7 | 12.8 | 16.0 | 18.5 | 2 | 40.5 | 45.2 | 46.8 | 47.0 |
| | | 16.0 | 19.4 | 23.0 | 25.5 | | 47.4 | 52.2 | 53.7 | 53.1 |
| | | 9.1 | 12.1 | 15.3 | 17.6 | | 38.7 | 43.2 | 45.1 | 44.8 |
| | | 7.1 | 9.6 | 12.5 | 15.4 | | 37.3 | 42.4 | 44.5 | 43.9 |
| | | 419 | 539 | 668 | 770 | | 1639 | 1830 | 1901 | 1888 |
| | 37 | 10,48 | 13,48 | 16.70 | 19,25 | 37 | 40,98 | 45,75 | 47,52 | 47,20 |

| | |
|---|---|
| 49.0 | 49.7 |
| 55.5 | 56.4 |
| 46.6 | 47.7 |
| 45.9 | 46.6 |
| 1970 | 2004 |
| 49.25 | 50,10 |

$A_1$ to $8_2$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Mar. 29, 1883 C=17 93.3

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | RB | RB | RB | RB | RB. | BR | BR |
| 55 | 2 | 29 | 5.5 | 7.2 | 9.0 | 10.5 | 13.7 | 15.6 |
| | | 9.1 | 11.9 | 13.5 | 15.9 | 16.6 | 19.9 | 23.3 |
| | | 58.1 | 11.0 | 2.9 | 5.1 | 5.9 | 10.1 | 12.3 |
| | | 59.0 | 04 | 2.9 | 4.0 | 5.8 | 9.0 | 11.4 |
| | | 71 | 288 | 265 | 340 | 388 | 527 | 726 |
| | 57 | 1.78 | 7.20 | 6.62 | 8.50 | 9.70 | 13.18 | 18.15 |

R. Obs A4, 4₂

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Mar. 31, 1883 C=1793,9

BB — — — — — — — —

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 15,3 | 18,1 | 22,7 | 23,3 | 24,8 | 47,2 | 49,5 | 50,8 | 52,1 |
| | | 22,8 | 25,5 | 29,5 | 29,9 | 32,2 | 53,5 | 55,5 | 56,7 | 57,6 |
| | | 12,2 | 14,9 | 18,5 | 19,5 | 21,1 | 41,7 | 43,6 | 45,2 | 46,6 |
| | | 10,0 | 12,7 | 17,0 | 18,0 | 19,5 | 41,5 | 43,4 | 44,8 | 46,6 |
| | | 603 | 712 | 877 | 907 | 976 | 1839 | 1920 | 1975 | 2029 |
| | 37 | 15,08 | 1780 | 2192 | 2268 | 2440 | 45,98 | 48,00 | 49,38 | 50,72 |

—

52,5
58,4
46,8
46,9
2046
51,15

A 2, to 9 0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



April 1880

Procyon

| | R | R | R | R | | R | R |
|---|---|---|---|---|---|---|---|
| 35 | 2 | 13.3 | 14.2 | 19.5 | 20.9 | 2 | 47.8 | 48.6 |
| | | 19.0 | 20.8 | 25.6 | 26.6 | | 53.7 | 54.8 |
| | | 8.9 | 10.2 | 15.6 | 17.0 | | 43.7 | 44.0 |
| | | 7.4 | 8.9 | 13.2 | 15.1 | | 42.5 | 43.0 |
| | | 486 | 541 | 739 | 796 | | 1877 | 1904 |
| | 37 | 12.15 | 13.52 | 18.48 | 19.90 | 37 | 46.92 | 47.60 |

A in RA.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Apr. 2. 1883 C = 1789.7

| | RB | RB | RB | RB | RB | BR | BR | BR | BR | BR |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 49.4 | 55.2 | 59.9 | 4.4 | 8.4 | 12.2 | 15.0 | 17.2 | 19.8 | 20.0 |
| | 56.0 | 1.8 | 6.2 | 10.5 | 13.9 | 18.5 | 20.6 | 22.8 | 25.0 | 26.2 |
| | 45.4 | 50.6 | 55.0 | 59.1 | 0.7 | 8.4 | 10.6 | 11.8 | 14.2 | 15.7 |
| | 43.8 | 49.1 | 53.8 | 58.5 | 1.9 | 5.6 | 7.6 | 9.8 | 12.0 | 13.8 |
| | 1949 | 2167 | 2349 | 128 | 279 | 447 | 538 | 616 | 710 | 757 |
| 36 | 48.72 | 54.18 | 58.72 | 3.20 | 6.98 | 11.18 | 13.45 | 15.40 | 17.75 | 18.92 |

| | BB | BR | BR | BR | BR | RB | RB |
|---|---|---|---|---|---|---|---|
| | 49.5 | 51.5 | 52.8 | 52.8 | 53.8 | 55.1 | 55.3 |
| | 55.3 | 57.4 | 59.2 | 58.8 | 59.7 | 1.3 | 1.4 |
| | 44.7 | 46.4 | 48.2 | 48.8 | 49.3 | 50.5 | 50.3 |
| | 43.5 | 44.2 | 46.2 | 46.2 | 47.1 | 48.2 | 48.6 |
| | 1930 | 1995 | 2064 | 2066 | 2099 | 2151 | 2156 |
| | 48.25 | 49.88 | 51.60 | 51.65 | 52.48 | 53.78 | 53.90 |

W.A.R. obs. to $A_{50}$
W.V.B. " $52$ to end.

Lost $A_{12}$ 51, 88, 290

Seeing ~~pretty~~ very bad — Haze — star faint

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1883phae.proj.1429B



Apr. 3/4 1883 C = 17 91.6

| | RB | RB | RB | RB | RB | BR | BR | BR |
|---|---|---|---|---|---|---|---|---|
| 35 | 1 48.0 | 52.3 | 56.8 | 58.3 | 3.3 | 5.1 | 9.5 | 11.7 |
| | 54.9 | 59.4 | 3.4 | 5.1 | 10.2 | 12.0 | 16.2 | |
| | 44.8 | 49.2 | 53.7 | 55.3 | 59.8 | 1.9 | 6.5 | |
| | 43.0 | 48.7 | 51.6 | 53.1 | 57.9 | 59.4 | 2.8 | |
| | 1907 | 2086 | 2255 | 2318 | 112 | 184 | 350 | |
| 36 | 47.68 | 52.15 | 56.38 | 57.95 | 2.80 | 4.60 | 8.75 | |

ch

| | RB new Series | RB | RB | RB | RB | RB | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 17.3 | 17.9 | 20.1 | 22.4 | 24.0 | 48.7 | 49.4 | 51.1 | 52.1 | 56.0 | 56.2 |
| | 24.4 | 24.7 | 26.8 | 28.9 | 53.3 | 54.9 | 45.6 | 57.5 | 58.5 | 2.2 | 2.8 |
| | 8.8 | 14.5 | 16.3 | 19.9 | 42.4 | 43.5 | 44.6 | 47.3 | 48.1 | 51.5 | 52.8 |
| | 12.1 | 12.4 | 14.7 | 17.1 | 41.8 | 43.4 | 45.1 | 46.5 | 47.0 | 50.5 | 51.4 |
| | 676 | 695 | 779 | 886 | 1845 | 1900 | 1847 | 2024 | 2057 | 2202 | 2232 |
| 37 | 16.90 | 17.38 | 19.48 | 22.15 | 37/46.12 | 47.50 | 46.18 | 50.60 | 51.42 | 55.05 | 55.80 |

R. Ascs. $A_{1_0}$ to $2_0$ + 6, to $9_0$

B. Ascs. $A_{2_1}$ to $6_2$

Last $A_{6_0}$ Seeing very bad.

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1883phae.proj.1429B



Apr. 4, 1883 $\quad$ C = 1793.1

| RB | RB | RB | RB | RB | BR | BR | BR | BR | BR |
|---|---|---|---|---|---|---|---|---|---|
| 35 1 | 54,0 | 58,0 | 0.8 | 3.5 | 5,9 | 8.6 | 11.4 | 12.7 | 14,2 | 14.9 |
| | 1,3 | 5.3 | 7.6 | 10,8 | 13,3 | 16.8 | 18.2 | 19.7 | 21.8 | 22.7 |
| | 54,2 | 56,7 | 59.9 | 2,9 | 6,6 | 9.0 | 10.7 | 12,8 | 15.4 | 16.1 |
| | 50,6 | 53.6 | 56.5 | 0,8 | 3,2 | 5.0 | 6.9 | 9.3 | 10.9 | 11.6 |
| | 2201 | 2339 | 48 | 180 | 290 | 394 | 472 | 545 | 623 | 653 |
| 36 | 55,02 | 58,48 | 1,20 | 4,50 | 7,25 | 9,85 | 11,80 | 13,62 | 15,58 | 16,32 |

| BR | BR | BR | BR | BR | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|
| 45.0 | 48.5 | 48.6 | 49.0 | 48.4 | 49.2 | 49.7 | 50.3 | 50.7 | 51.2 |
| 52.8 | 56.1 | 56.0 | 56.2 | 56.8 | 55.7 | 56.8 | 57.8 | 57.9 | 58.0 |
| 45.6 | 48.2 | 48.2 | 49.1 | 49.3 | 47.8 | 49.5 | 49.6 | 50.1 | 50.1 |
| 40,8 | 44.5 | 44.6 | 44.5 | 44.7 | 45.1 | 45.8 | 47.1 | 47.2 | 47.4 |
| | 1973 | 1974 | 1988 | 1992 | 1978 | 2018 | 2048 | 2059 | 2067 |
| | 49,32 | 49,35 | 49,70 | 49,80 | 49,45 | 50,45 | 51,20 | 51,48 | 51,68 |

B Obs. ~~$A_{2_0}$ $t_{1_0}$~~ $A_{1_0}$ $t_{3_0}$ + $7_0$ $t_{9_0}$

R " $A_{3_1}$ $t_{6_2}$.

Lewis Boss

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1883phae.proj.1429B



Atm. 5/6 Q = 1793.1

| | | RB | RB | RB | BR | BR | BR | BR | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 4.4 | 9.6 | 10.3 | 13.6 | 14.7 | 40.8 | 41.1 | 42.4 | 43.3 | 45.0 |
| | | 11.9 | 13.5 | 10.3 | 21.8 | 22.5 | 47.8 | 48.3 | 49.5 | 49.9 | 51.9 |
| | | 9.4 | 13.6 | 13.7 | 18.4 | 19.7 | 44.7 | 45.1 | 45.4 | 45.0 | 47.4 |
| | 3 | 2 8.5 | 9.5 | | 12.3 | 13.3 | 39.0 | 38.8 | 40.9 | 41.5 | 43.2 |
| | | 26.9 | 49.2 | 51.8 | 66.1 | 70.2 | 172.3 | 173.3 | 178.2 | 179.7 | 187.5 |
| | 37 | 67.2 | 123.0 | 129.5 | 165.2 | 175.5 | 430.8 | 433.2 | 445.5 | 449.2 | 468.8 |

R Obs.

$A_1$ B 4 and $3_1$ $3_2$ $4_1$ $4_2$ $5_0$ $5_1$ $5_2$ $6_0$ $6_1$ $6_2$

B Obs. $A_1$ to $3_0$ ~~Lost~~

Lost $^1A_{2_2}$ + 1st half of $3_0$ Lost - $A_{1_0}$ to $9_0$

R.

B.

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1883phae.proj.1429B



Alm. 8/9

C = 17 92,3

| RB | RB | RB | RB | RB | BR | BR | BR | BR | BR |
|---|---|---|---|---|---|---|---|---|---|
| 35 / 56,1 | 55,7 | 54 | 7,8 | 10,9 | 11.5 | 14.4 | 14.6 | 17.1 | 19.8 |
| 3,9 | 7,5 | 13,2 | 15,3 | 16,5 | 18,8 | 21.2 | 22,1 | 24,3 | 26,8 |
| 57,5 | 1,8 | 7,7 | 9,7 | 12,0 | 13.9 | 17.5 | 17.3 | 20,2 | 21,3 |
| 52,6 | 58,2 | 3,8 | 6,0 | 8,2 | 8,4 | 10,8 | 11.4 | 14.6 | 16.4 |
| 2321 | 72 | 301 | 388 | 467 | 526 | 639 | 654 | 762 | 823 |
| 36 58,02 | 37 1,80 | 7,52 | 9,70 | 11,68 | 13,15 | 15,98 | 16,35 | 19,05 | 20,58 |

| BR | BR | BR | BR | BR | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|
| 44.5 | 46.2 | 46.7 | 47.1 | 46,3 | 46,0 | 47,9 | 49,0 | 49,2 | 49,3 |
| 51,1 | 53.4 | 52.8 | 54.0 | 54.0 | 52,1 | 54,9 | 56,0 | 56,5 | 56,2 |
| 47.6 | 48,7 | 49.5 | 50.0 | 48,6 | 47,2 | 49,8 | 51,3 | 50,8 | 51,2 |
| 41,7 | 43,7 | 43,2 | 44,6 | 43,3 | 44,4 | 46,2 | 47,2 | 47,0 | 47,8 |
| 1849 | 1920 | 1922 | 1957 | 1922 | 1903 | 1988 | 2035 | 2035 | 2045 |
| 46,22 | 48,00 | 48,05 | 48,92 | 48,05 | 47,58 | 49,70 | 50,88 | 50,88 | 51,12 |

R. Obs. $1_0$ to $1_2$ and $4_2$ to $6_0$

B. Obs. 6, 6 $9_0$

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1883phae.proj.1429B



Apr. $\frac{9}{10}$. 1883 $\odot = 17\ 92.3$

| | | BB | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 1 | 49.5 | 53.2 | 59.3 | 5.0 | 7.9 | 2 | 41.0 | 47.6 | 48.7 | 48.3 |
| | | 57.4 | 1.1 | 6.8 | 12.6 | 15.5 | | 48.8 | 54.8 | 55.5 | 55.0 |
| | | 53.0 | 56.9 | 3.3 | 9.3 | 11.5 | | 47.0 | 52.9 | 53.1 | 52.8 |
| | | 51.0 | 55.4 | 1.2 | 6.9 | 9.2 | | 44.0 | 48.7 | 50.2 | 50.0 |
| | | 2109 | 2266 | 106 | 338 | 441 | | 1808 | 2040 | 2075 | 2061 |
| | 36 | 52,72 | 56,65 | 2,65 | 8,45 | 11,02 | | 45,20 | 51,00 | 51,88 | 51,52 |

B. Obs. $A_{+1}$ & $A_{1_0}$ to $3_1$ $A_{9_0}$

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1883phae.proj.1429B



Apr. 11/12 C=17 93.4

| | RB | RB | RB | RB | RB | RB | BR | BR | BR | BR | BR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 1 | 45.8 | 49.9 | 53.6 | 57.6 | 05 | 4.0 | 7.4 | 10.2 | 11.7 | 14.9 |
| | | 53.7 | 57.8 | 1.7 | 5.7 | 8.7 | 11.5 | 14.8 | 17.4 | 19.8 | 22.2 |
| 50.4 | | 30.4 | 54.1 | 58.3 | 2.6 | 5.6 | 8.7 | 11.8 | 14.8 | 17.1 | 20.3 |
| | | 46.4 | 51.1 | 54.4 | 58.5 | 2.1 | 5.5 | 8.0 | 11.0 | 12.8 | 15.8 |
| | | 1963 | 2129 | 2280 | 4.4 | 171 | 297 | 420 | 534 | 614 | 732 |
| 36 | | 49.08 | 53.22 | 57.00 | 1.10 | 4.28 | 7.42 | 10.50 | 13.35 | 15.35 | 18.30 |

Rem. $A_{+1}$ 1 2 3 and $A_{3_2}$ $4_1 4_2 5_0 5_1 5_2 6_0 6_1$

B Obs. $A_{+1}$ 4 5 and $A_{1_0}$ to $2_2$
lost last tap of $A2_2$

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1883phae.proj.1429B



Aper. $\frac{13}{14}$. 1883 e=17 97,8

BB — — — — — — — — —

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 1 | 59.9 | 2 9.1 | 12.5 | 16.7 | 18.5 | 47.5 | 49,2 | 53.8 | 52,2 | 52,7 |
| | | 7.2 | 16.5 | 19.8 | 24.7 | 26.0 | 55.5 | 57.1 | 2.3 | 1.0 | 0,6 |
| | | 5.0 | 14.4 | 17.1 | 21.7 | 23,2 | 51.9 | 53.2 | 59.5 | 57.4 | 57.6 |
| | | 0,8 | 9.1 | 12.8 | 17.0 | 19.3 | 48.6 | 50.1 | 55.0 | 54,2 | 53.4 |
| | | 129 | 491 | 622 | 801 | 870 | 2035 | 2096 | 2306 | 2248 | 2243 |
| | 37 | 3,22 | 12,28 | 15,55 | 20,02 | 21,75 | 50,88 | 52,40 | 57,65 | 56.20 | 56.08 |

$A_1$ to $9_0$

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1883phae.proj.1429B



Thu. 4/5 1883 C = 17.8 3,4

| | R | R | R | R | R | R |
|---|---|---|---|---|---|---|
| 25 | 2 | 0.4 | 10.9 | 13.9 | 47.8 | 49.0 | 50.8 |
| | | 8.8 | 14.2 | 21.7 | 56.0 | 56.7 | 58.2 |
| | | 6.8 | 16.0 | 19.8 | 58.5 | 52.7 | 56.1 |
| | | 1.7 | 11.6 | 13.9 | 46.8 | 49.2 | 50.8 |
| | | 177 | 567 | 693 | 2051 | 2296 | 2159 |
| | 27 | 4.42 | 14.18 | 17.32 | 51.28 | 57.40 | 53.98 |

A. 2 C

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Mm. N/16 / HR3

| | RB | RB | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|
| 2 | 3.2 | 6.0 | 9.0 | 11.1 | 14.0 | 16.4 | 17.8 | 19.1 |
| | 11.2 | 13.5 | 16.9 | 19.0 | 22.3 | 24.2 | 25.8 | 27.0 |
| | 9.6 | 11.9 | 15.2 | 16.6 | 20.0 | 22.0 | 23.6 | 24.3 |
| | 5.1 | 8.8 | 10.7 | 13.0 | 16.3 | 18.5 | 19.9 | 20.7 |
| | 291 | 392 | 518 | 597 | 726 | 811 | 871 | 911 |
| 37 | 7.28 | 9.80 | 12.95 | 14.92 | 18.15 | 20.28 | 21.78 | 22.78 |

| | RB | RB | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|
| 2 | 43.6 | 45.9 | 46.1 | 47.2 | 47.8 | 48.4 | 49.4 | 50.5 |
| | 51.7 | 53.1 | 53.5 | 54.6 | 55.6 | 55.9 | 57.2 | 58.2 |
| | 49.3 | 50.5 | 51.1 | 52.1 | 52.6 | 53.5 | 54.2 | 55.4 |
| | 45.5 | 47.2 | 47.9 | 48.8 | 49.2 | 50.2 | 51.1 | 52.1 |
| | 1901 | 1967 | 1986 | 2027 | 2052 | 2080 | 2119 | 2162 |
| 2 | 47.52 | 49.18 | 49.65 | 50.68 | 51.30 | 52.00 | 52.98 | 54.05 |

R. Obs. $A_{10}$ to $3_0$ and $7_0$ to $9_0$

B. Obs. $A_{3_1}$ to $6_2$

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1883phae.proj.1429B



Aug. 16/17

C=1793.8

| | RB | RB | RB | RB | RB | BR | BR | BR | BR | BR |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 2 | 58.6 | 1.1 | 8.3 | 6.1 | 9.7 | 11.4 | 13.5 | 15.4 | 17.6 | 18.1 |
| | 6.0 | 8.5 | 10.3 | 13.4 | 16.8 | 18.9 | 21.3 | 23.6 | 25.7 | 25.6 |
| | 8.5 | 10.6 | 12.7 | 16.0 | 17.8 | 20.8 | 23.5 | 25.8 | 26.7 | 28.2 |
| | 1.8 | 4.2 | 6.7 | 9.3 | 12.1 | 14.7 | 17.8 | 19.8 | 21.2 | 21.3 |
| | 149 | 244 | 330 | 448 | 568 | 658 | 761 | 846 | 912 | 932 |
| 37 | 3.72 | 6.10 | 8.25 | 11.20 | 14.20 | 16.45 | 19.02 | 21.15 | 22.80 | 23.30 |

| BR | BR | BR | BR | BR | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|
| 43.0 | 44.8 | 45.0 | 45.8 | 48.0 | 47.0 | | | | |
| 50.7 | 51.5 | 52.9 | 53.0 | 55.3 | 53.7 | | | | |
| 52.2 | 54.1 | 56.1 | 55.0 | 58.2 | 55.7 | | | | |
| 47.4 | 48.2 | 49.1 | 49.1 | 51.2 | 50.0 | | | | |
| 1933 | 1986 | 2031 | 2029 | 2127 | 2164 | | | | |
| 48.32 | 49.65 | 50.78 | 50.72 | 53.18 | 54.10 | | | | |

B. Obs. $A_0$ to $3_0$ and $7_0$ to $9_0$
lost some of the first wires

R. Obs. $A_3$ to $6_2$.

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1883phae.proj.1429B



Mar. 17/18, 1883 C=17 95,5

| | RB | RB | RB | RB | RB. | BB | BB | BB | BB |
|---|---|---|---|---|---|---|---|---|---|
| 35-1 | 48,5 | 53,1 | 57.4 | 0.4 | 1.4 | 6.2 | 10.1 | 13.7 | 15.7 |
| | 56.8 | 1.5 | 6.0 | 8.5 | 9.3 | 14.3 | 17.8 | 21.4 | 23.2 |
| | 58.7 | 3.2 | 8.7 | 11.5 | 12.9 | 17.2 | 21.9 | 24.2 | 25.9 |
| | 53.9 | 57.6 | 2.0 | 5.1 | 6.7 | 11.2 | 14.3 | 18.2 | 20.5 |
| | 2179 | 2354 | 131 | 255 | 303 | 489 | 641 | 775 | 853 |
| 36 | 54,48 | 58,85 | 3,28 | 6,38 | 7,58 | 12,22 | 16,02 | 19,38 | 21,32 |

| BB | BB | BB | BB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|
| 41.2 | 42,5 | 44.0 | 45.0 | 46.0 | 48.5 | 47.6 | 48.2 | 48.5 |
| 49.6 | 50,6 | 51.3 | 52.2 | 54.0 | 56.0 | 55,5 | 56.1 | 56.2 |
| 52.1 | 52.5 | 54.4 | 55.7 | 56.5 | 58.4 | 57.4 | 58.3 | 58.4 |
| 44.9 | 47.1 | 48.3 | 49.6 | 50.4 | 52.8 | 52.0 | 52.8 | 53.0 |
| 1878 | 1927 | 1980 | 2025 | 2069 | 2157 | 2125 | 2154 | 2161 |
| 46,95 | 48,18 | 49,50 | 50,62 | 51,72 | 53,92 | 53,12 | 53,85 | 54,02 |

B. Obs. $A_{10}$ to $3_0$ and $7_0$ to $9_0$

R. Obs. $A_{3_1}$ to $6_2$

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1883phae.proj.1429B



Apr. 18.1883 C=1799.6

| | | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|---|
| 35 | 2 | 30.5 | 34.2 | 39.1 | 44.6 | 49.1 |
| | | 38.7 | 42.8 | 48.5 | 53.5 | 57.5 |
| | | 37.8 | 43.9 | 48.8 | 53.6 | 58.3 |
| | | 35.7 | 40.2 | 45.5 | 50.3 | 54.6 |
| | | 1447 | 1611 | 1819 | 20*20 | 2195 |
| | 37 | 36,18 | 40,28 | 45,48 | 50,50 | 54,88 |

$3_0$ $3_1$ $3_2$ $4_0$ $4_2$ $5_0$ $5_1$ $7_0$ $7_1$ $7_2$

* Rej. 2 taps which follow 5

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1883phae.proj.1429B



Aper. 20, 1883 C = 17 96.6

BB — — — — — — — — —

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 0.1 | 4.0 | 9.5 | 12.4 | 17.6 | 45.9 ~~38.2~~ | 49.0 | 49.9 | 50.0 | 53.0 |
| | | 8.8 | 13.1 | 18.3 | 20.9 | 25.8 | 54.5 | 58.1 | 58.2 | 58.4 | 1.5 |
| | | 4.2 | 8.0 | 13.9 | 16.1 | 22.0 | 50.0 | 53.0 | 53.4 | 53.8 | 56.2 |
| | | 3.6 | 7.0 | 12.1 | 15.0 | 20.1 | 48.3 | 52.0 | 52.4 | 52.4 | 55.1 |
| | | 167 | 321 | 538 | 644 | 855 | 1987 | 2121 | 2139 | 2146 | 2258 |
| | 37 | 4,18 | 8,02 | 13,45 | 16,10 | 21,38 | 49,68 | 53,02 | 53,48 | 53,65 | 56,45 |

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1883phae.proj.1429B



Apr. 24, 1883 ☉ = 17 93.6

| | | RB | RB² | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 36.2 | 57.1 | 55.3 | 54.9 | 54.0 | 53.5 | 53.2 | 51.5 |
| | | 44.6 | 5.8 | 2.6 | 3.5 | 22 | 19 | 1.7 | 6.0 |
| | | 37.1 | 57.5 | 54.5 | 55.5 | 53.9 | 54.1 | 53.4 | 52.0 |
| | | 35.5 | 57.2 | 53.6 | 54.9 | 53.0 | 53.0 | 53.0 | 51.0 |
| | ? | 1534 | 2376 | 2260 | 2288 | 2231 | 2231 | 2213 | 2145 |
| | 37 | 38.35 | 59.40 | 56.50 | 57.20 | 55.78 | 55.78 | 55.32 | 53.62 |

$A_{1_2}\ 2_0\ 2_1\quad A_{-1}\ 5$

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1883phae.proj.1429B



Apr 25 1883 C=17 92.4

| | | RB | RB | RB | RB | RB | BR | BR | BR |
|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 13,0 | 16,8 | 18,8 | 20,1 | 21,3 | 25.2 | 29.6 | 28.8 |
| | | 20,9 | 24,8 | 26,9 | 28,1 | 29,8 | 33.7 | 38,8 | 36.6 |
| | | 14.5 | 17.9 | 19,8 | 21,1 | 23,0 | 26.1 | 30.7 | 30.0 |
| | | 11.8 | 16.0 | 17.6 | 19,1 | 21,0 | 24.7 | 28,8 | 27.7 |
| | | 602 | 755 | 831 | 884 | 951 | 1097 | 1259 | 1231 |
| | 37 | 15,05 | 18,88 | 20,78 | 22,10 | 23,78 | 27,42 | 31,48 | 30,75 |

| | | BB | BB |
|---|---|---|---|
| | 2 | 54.1 | 55.1 |
| | | 2,2 | 3,2 |
| | | 54.5 | 55.7 |
| | | 54,3 | 55.0 |
| | | 2251 | 2290 |
| | 2 | 56,28 | 57,25 |

Rob $A_{+1}^{1}$

B. Ob. $A_{1,1}$ $2_0$ $2_1$ $3_0$ $3_2$ $4_1$ $4_2$ $5_0^{(?)}$ $5_1$ $6_0$ $6_1$ $6_2$ $7_0$ $7_1$ $7_2$ $8_0$ $8_1$ $8_2$ $9_0$

Rej $A_{1_2}$

Lost 1ms+ top of $7_2$

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1883phae.proj.1429B



Apr. 26, 1883 C=17 92.4

| | | Br | BB | BB | RB | RB |
|---|---|---|---|---|---|---|
| 35 | 1 | 56.0 | 0.2 | 18.8 | 22.3 | 26.2 |
| | | 4.4 | 8.6 | 27.4 | 30.5 | 34.2 |
| | | 57.7 | 2.7 | 21.4 | 24.2 | 27.7 |
| | | 57.0 | 1.4 | 18.8 | 28.1 | 29.1 |
| | | 2351 | 129 | 874 | 1001 | 1152 |
| | 36 | 58.78 | 3.22 | 21.85 | 25.02 | 28.80 |

B. Obs. ~~A~~ first tap $A_{+,4}$, and all $A_{+,5}$

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1883phae.proj.1429B



Afas. 29.1883 C=#717 93.5

| | BR | BR | BR | BR | BR | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 1 | 56.1 | 0.8 | 3.6 | 4.8 | 6.1 | 9.2 | 13.4 | 16.9 | 18.4 | 20.5 |
| | 4.9 | 8.9 | 11.7 | 12.4 | 14.7 | 17.1 | 21.4 | 24.6 | 26.1 | 28.4 |
| | 7.2 | 2.7 | 5.0 | 5.8 | 9.0 | 11.0 | 14.9 | 18.9 | 20.0 | 22.2 |
| | 55.7 | 0.0 | 3.7 | 5.0 | 7.0 | 8.7 | 12.9 | 16.3 | 17.9 | 19.6 |
| | 39 | 124 | 240 | 280 | 368 | 460 | 626 | 767 | 827 | 907 |
| 36 | 0,98 | 3,10 | 6,00 | 7,00 | 9,20 | 11,50 | 15,65 | 19,18 | 20,68 | 22,68 |

B Obs. $A_1$ to $3_0$ and $7_1$ to $9_0$
R Obs. $A_3$, to $6_2$

| | RB | RB | RB | RB | RB | BR | BR | BR | BR | BR |
|---|---|---|---|---|---|---|---|---|---|---|
| | 52.4 | 52.4 | 54.1 | 55.5 | 55.6 | 56.7 | 57.7 | 58.6 | 58.9 | 58.5 |
| | 1.1 | 0.4 | 2.0 | 3.0 | 4.2 | 5.0 | 5.2 | 5.7 | 7.0 | 6.3 |
| | 54.9 | 55.5 | 55.5 | 57.0 | 57.9 | 58.8 | 0.0 | 0.4 | 1.0 | 1.4 |
| | 52.9 | 52.4 | 54.2 | 54.9 | 55.5 | 56.8 | 57.3 | 57.7 | 58.8 | 58.2 |
| | 22 13 | 21 87 | 22 58 | 23 04 | 23 32 | 23 73 | 0 2 | 2 4 | 5 7 | 4 4 |
| | 55,32 | 54,68 | 56,45 | 57,60 | 58,30 | 59,32 | 0,05 | 0,60 | 1,42 | 1,10 |

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1883phae.proj.1429B



Apr. 30, 1883 C = 17 94.8

| | RB | RB | RB | RB | RB | BB | BB |
|---|---|---|---|---|---|---|---|
| 35 2 | 7.5 | 9.7 | 14.8 | 16.4 | 19.1 | 21.6 | 25.4 |
| | 15.9 | 18.1 | 22.5 | 24.0 | 27.5 | 30.0 | 34.0 |
| | 11.3 | 13.5 | 18.2 | 19.5 | 22.2 | 25.1 | 29.5 |
| | 8.5 | 10.8 | 16.7 | 17.0 | 20.2 | 23.2 | 27.0 |
| | 4.32 | 5.21 | 7.12 | 7.69 | 8.90 | 9.99 | 11.59 |
| 37 | 10,80 | 13,02 | 17,80 | 19,22 | 22,25 | 24,98 | 28,98 |

| | BB | BB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|
| 35 2 | 51.4 | 53,6 | 54.2 | 55.5 | 56.6 | 55.9 | 56.5 |
| | 0.4 | 2.2 | 2.8 | 4.5 | 5.3 | 5.0 | 5.4 |
| | 54.5 | 56.4 | 57.0 | 57.1 | 59.3 | 57.6 | 59.3 |
| | 53.3 | 54.9 | 55.2 | 56.3 | 57.6 | 56.2 | 57.3 |
| | 2196 | 2271 | 2292 | 2334 | 2388 | 2347 | 2385 |
| 37 | 54,90 | 56,78 | 57,30 | 58,35 | 59,70 | 58,68 | 59,62 |

B. Obs. $A_{1_0}$ to $3_0$ and $7_0$ to $9_0$

R. Obs. $A_{3_1}$ to $6_2$

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1883phae.proj.1429B



May 6 1883 C = 1795.0

| | | BB | BB | BB | BB | BB | — | — | — | — |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 14.6 | 18.6 | 22.8 | 25.1 | 51.9 | 52.9 | 54.5 | 55.2 | 54.9 |
| | | 24.2 | 27.4 | 31.1 | 33.1 | 0.4 | 0.9 | 2.6 | 3.3 | 3.4 |
| | | 24.2 | 27.4 | 31.2 | 33.2 | 1.4 | 2.0 | 3.4 | 3.8 | 2.5 |
| | | 18.2 | 21.5 | 25.9 | 28.2 | 55.2 | 56.9 | 57.4 | 58.0 | 57.2 |
| | | 812 | 949 | 1110 | 1196 | 2289 | 2327 | 2379 | 03 | 2380 |
| | 37 | 20.30 | 23.72 | 27.75 | 29.90 | 57.22 | 58.18 | 59.48 | 00.75 | 59.50 |

B. Obs. $A_{1_0}$ to $3_0$ and $7_0$ to $9_2$

R. Obs. $A_{3_1}$ to $6_2$

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1883phae.proj.1429B



May 7, 1883 C=18 0.9

| | | RB | RB | RB | RB | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 1 | 57.6 | 26 | 32 | 7.4 | 10.8 | 12.0 | 14.5 | 17.7 | 19.5 | 22.1 |
| | | 6.5 | 10.9 | 11.5 | 15.5 | 20.1 | 21.3 | 22.5 | 26.7 | 28.2 | 31.2 |
| | | 10.6 | 14.5 | 15.9 | 19.3 | 23.1 | 25.0 | 26.3 | 29.0 | 31.2 | 34.2 |
| | | 8.5 | 8.1 | 8.9 | 12.5 | 16.4 | 17.1 | 20.2 | 23.0 | 24.3 | 27.5 |
| | | 182 | 361 | 395 | 547 | 704 | 754 | 845 | 964 | 1032 | 1150 |
| | 37 | 4.55 | 9.02 | 9.88 | 13.68 | 17.60 | 18.85 | 21.12 | 24.10 | 25.80 | 28.75 |

| | | RB | RB | RB | RB | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 45.0 | 47.6 | 47.7 | 48.8 | 50.0 | 50.0 | 52.5 | 51.4 | 67.8 | 53.6 |
| | | 54.9 | 57.0 | 57.2 | 59.0 | 58.8 | 58.5 | 0.0 | 0.2 | 0.8 | 2.2 |
| | | 56.5 | 58.5 | 58.8 | 0.7 | 0.3 | 0.6 | 1.5 | 2.7 | 3.0 | 4.0 |
| | | 50.4 | 52.8 | 52.9 | 55.0 | 55.9 | 54.6 | 56.0 | 56.9 | 57.3 | 58.0 |
| | | 2068 | 2159 | 2166 | 2245 | 2250 | 2237 | 2280 | 2312 | 2329 | 2378 |
| | 1 | 51.70 | 53.98 | 54.15 | 56.12 | 56.25 | 55.92 | 57.00 | 57.80 | 58.22 | 59.45 |

R. Cls. $A_{10}$ to $2_2$ and $7_1$ to $9_0$

B. Cls. $A_{30}$ to $7_0$

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1883phae.proj.1429B



May 9, 1883 c-1808

BB - -

| | | | | |
|---|---|---|---|---|
| 35 | 2 | 12.9 | 17.5 | 19.1 |
| | | 22.7 | 27.2 | 28.6 |
| | | 23.5 | 27.6 | 29.6 |
| | | 18.9 | 23.1 | 24.9 |
| | | 780 | 954 | 1022 |
| | 37 | 19.50 | 23.85 | 25.55 |

B. Cls. $A_{12}$

Star exceedingly faint. Star too faint to observe.

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1883phae.proj.1429B



May 10. 1883 C = 18 0.8

| | | BB | BB |
|---|---|---|---|
| 35 | 2 | 51.4 | 52.2 |
| | | 1.5 | 2.0 |
| | | 1.5 | 2.1 |
| | | 56.9 | 57.9 |
| | | 2313 | 2362 |
| | 37 | 57.82 | 59.05 |

B. Cls. $A_{60}$ and $A_{-1,2}$

Star too faint. Heavy clouds also

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1883phae.proj.1429B



May 11, 1883 C=18 0.8

BB — — — — — — — — —

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 11.9 | 15.5 | 19.9 | 20.8 | 49.5 | 52.0 | 52.3 | 54.6 | 55.4 | 57.1 |
| | | 20.5 | 25.2 | 29.0 | 30.2 | 59.4 | 1.5 | 2.3 | 4.5 | 5.2 | 6.5 |
| | | 22.3 | 25.9 | 29.9 | 30.9 | 58.7 | 1.2 | 2.1 | 5.0 | 5.0 | 7.0 |
| | | 18.0 | 21.2 | 25.3 | 26.2 | 55.5 | 57.4 | 57.9 | 0.5 | 1.2 | 3.0 |
| | | 727 | 878 | 1041 | 1081 | 2331 | 2321 | 2346 | 46 | 68 | 136 |
| | 37 | 18.18 | 21.95 | 26.02 | 27.02 | 58.28 | 58.02 | 58.65 | 1.15 | 1.70 | 3.40 |

B. Obs. A, to 9 Seeing good. For most of the time the seeing was very fine.

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1883phae.proj.1429B



May 12

| | RR | RR | RR | RR | RR | RR | RR |
|---|---|---|---|---|---|---|---|
| 35 | 49.8 | 52.0 | 53.3 | 53.3 | 53.8 | 56.2 | 56.7 |
| | 50.0 | 1.7 | 2.6 | 3.4 | 3.4 | 4.7 | 5.8 |
| | 50.6 | 2.4 | 3.7 | 6.7 | 6.5 | 6.0 | 5.2 |
| | 53.9 | 57.7 | 59.4 | 2.4 | 2.7 | 2.3 | 2.7 |
| | 2183 | 2338 | 2390 | 108 | 104 | 92 | 54 |
| 37 | 54.58 | 58.45 | 59.75 | 2.70 | 2.60 | 2.30 | 1.35 |

A6, A-1

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



May 13. 1883 C=17 97.4

BB - - - - - - - - -

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 6.5 | 11.0 | 15.2 | 19.4 | 22.0 | 50.8 | 53.3 | 54.4 | 54.9 | 57.3 |
| | | 16.2 | 21.3 | 24.8 | 29.4 | 31.5 | 1.4 | 4.0 | 4.5 | 5.0 | 7.5 |
| | | 14.5 | 19.9 | 22.5 | 27.0 | 29.3 | 58.1 | 0.5 | 2.0 | 1.7 | 4.2 |
| | | 11.1 | 16.4 | 19.8 | 24.9 | 27.0 | 55.6 | 58.8 | 59.6 | 59.8 | 2.3 |
| | | 483 | 686 | 823 | 1007 | 1098 | 2259 | 2366 | 05 | 14 | 113 |
| | 37 | 12.08 | 17.15 | 20.58 | 25.18 | 27.45 | 56.48 | 59.15 | 0.12 | 0.35 | 2.82 |

B. Obs. $A_{10}$ $\delta_{90}$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



May 15, 1883 C = 17 97.5

BB – – – – – – – – –

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 8.2 | 12.1 | 15.1 | 19.5 | 23.8 | 25.8 | 51.3 | 53.4 | 55.2 | 54.7 |
| | | 18.0 | 21.5 | 24.8 | 29.5 | 33.1 | 36.0 | 1.3 | 3.5 | 5.2 | 5.0 |
| | | 16.5 | 20.0 | 22.7 | 27.0 | 31.1 | 33.8 | 59.0 | 1.1 | 2.5 | 2.4 |
| | | 12.7 | 16.2 | 19.1 | 23.9 | 27.3 | 30.4 | 55.8 | 57.9 | 59.5 | 58.8 |
| | | 554 | 698 | 817 | 999 | 1153 | 1260 | 1674 | 2359 | 24 | 09 |
| 37 | | 13.85 | 17.45 | 20.42 | 24.98 | 28.82 | 31.50 | 41.85 | 58.98 | 0.60 | 0.22 |

B. Obs. $A_0$ $\delta_0$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



May 16, 1883 C=1791.9

Polaris L.C.

| | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|
| 0 0 | 31.7 | 28.6 | 24.9 | 21.9 | 18.2 | 18.5 |
| | 41.3 | 36.5 | 33.6 | 30.5 | 27.5 | 22.4 |
| | 41.4 | 36.6 | 34.7 | 31.1 | 26.8 | 22.3 |
| | 36.7 | 32.4 | 28.8 | 26.2 | 23.0 | 17.9 |
| | 151.1 | 133.1 | 123.0 | 109.7 | 95.5 | 76.1 |
| 0 | 37.78 | 33.28 | 30.75 | 27.42 | 23.88 | 19.02 |

A-1 R. Obs.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1892phae.proj.1429B



May 16, 1883 C = 17 98.0

Polaris. U.C.

| | | BB | — | — | — | — |
|---|---|---|---|---|---|---|
| 35 | 2 | 1.8 | 8.4 | 12.5 | 18.0 | 24.5 |
| | | 12.0 | 18.0 | 23.0 | 28.3 | 35.0 |
| | | 10.0 | 16.1 | 19.7 | 25.5 | 32.4 |
| | | 6.4 | 12.7 | 16.9 | 22.6 | 29.9 |
| | | 302 | 552 | 721 | 944 | 1218 |
| | 37 | 7.55 | 13.80 | 18.02 | 23.60 | 30.45 |

| | | BB | — | — | — | — |
|---|---|---|---|---|---|---|
| 38 | 2 | 51.5 | 52.6 | 53.9 | 55.2 | 56.4 |
| | | 1.4 | 2.7 | 4.1 | 5.8 | 6.5 |
| | | 58.6 | 59.3 | 1.6 | 2.5 | 3.3 |
| | | 56.0 | 57.2 | 58.1 | 0.0 | 1.0 |
| | | 2275 | 2318 | 2377 | 35 | 72 |
| | 37 | 56.88 | 57.95 | 59.42 | 0.88 | 1.80 |

B. Obs. $A_{10}$ to $3_0$ and $7_0$ to $9_0$

R. Obs. $A_{3,1}$ to $6_2$

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1883phae.proj.1429B



May 17, 1883 e=1798.0

Polaris L.C. · B. Obs.

| | | BB | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 25,3 | 18,6 | 16.1 | 11.4 | 8.9 | 4 | 39,5 | 38.0 | 36,5 | 34,5 | 33,6 |
| | | 34.4 | 27.4 | 25.4 | 20.0 | 17.5 | | 48,4 | 47,6 | 46,0 | 44.6 | 43,5 |
| | | 38.7 | 32,5 | 29.7 | 24.6 | 21.7 | | 52,7 | 51,0 | 49.1 | 46,3 | 46,2 |
| | | 32,5 | 25,2 | 23.1 | 17.9 | 15,2 | | 47,6 | 46.0 | 44.1 | 42.1 | 41.3 |
| | | 1309 | 1037 | 943 | 739. | 633 | | 1882 | 1826 | 1757 | 1675 | 1646 |
| | 0 | 32.72 | 25.92 | 23.58 | 18.48 | 15.82 | | 47.05 | 45.65 | 43.92 | 41.88 | 41.15 |

B. Obs. $A_{9_0}$ to $5_0$ and $2_0$ to $1_0$

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1883phae.proj.1429B



May 17

C = 1798.0

Polaris U. C.

| | RB | RB | RB | RB | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|---|
| 35-2 | 17 | 35 | 53 | 85 | 119 | 138 | 155 | 190 | 205 | 221 |
| | 130 | 169 | 194 | 204 | 235 | 256 | 271 | 300 | 318 | 338 |
| | 134 | 171 | 197 | 205 | 237 | 265 | 280 | 307 | 324 | 340 |
| | 82 | 111 | 148 | 158 | 197 | 215 | 230 | 258 | 270 | 299 |
| | 348 | 486 | 612 | 652 | 788 | 874 | 936 | 1055 | 1127 | 1198 |
| 37 | 8.70 | 12.15 | 15.30 | 16.30 | 19.70 | 21.85 | 23.40 | 26.38 | 28.18 | 29.95 |

R Mo. $A_{+1}$

B Mo from $A_{10}$ to $4_2$ ~~$A_0$~~ and $9_0$

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1883phae.proj.1429B



May 18, 1883 C = 180.2

Polaris L.C.

| | | BB | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 22.5 | 16.0 | 11.9 | 9.4 | 5.0 | 3.1 | 4* | 37.6 | 34.8 | 32.7 | 31.6 |
| | | 32.4 | 25.1 | 20.9 | 18.5 | 14.5 | 12.6 | | 48.0 | 44.9 | 42.9 | 42.4 |
| | | 40.7 | 34.3 | 29.5 | 26.3 | 21.8 | 19.5 | | 54.0 | 51.6 | 48.9 | 48.0 |
| | | 31.9 | 25.1 | 21.3 | 17.6 | 13.8 | 11.3 | | 47.1 | 42.9 | 41.5 | 40.6 |
| | | 1275 | 1005 | 836 | 718 | 551 | 465 | | 1867 | 1742 | 1660 | 1626 |
| | 0 | 31.88 | 25.12 | 20.90 | 17.95 | 13.78 | 11.62 | | 46.68 | 43.55 | 41.50 | 40.65 |

* 2nd rattle

B. Obs. $A_9$ to $5_0$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



May 18, 1883 C = 18 0.2

Polaris U.C.

BB – – – – – – – – – –

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 0.5 | 6.5 | 12.4 | 15.0 | 19.5 | 23.5 | 2 | 50.4 | 51.7 | 53.7 | 55.0 | 55.4 |
| | | 11.5 | 17.6 | 22.9 | 25.5 | 30.0 | 34.2 | | 1.41 | 2.8 | 4.6 | 6.0 | 6.5 |
| | | 14.4 | 20.6 | 25.1 | 27.5 | 32.2 | 36.1 | | 3.0 | 5.1 | 6.5 | 7.7 | 8.5 |
| | | 8.5 | 14.5 | 20.0 | 23.3 | 27.2 | 31.4 | | 58.0 | 59.4 | 1.0 | 3.2 | 3.5 |
| | | 349 | 592 | 804 | 913 | 1089 | 1252 | | 2325 | 2390 | 58 | 119 | 139 |
| | 37 | 8.72 | 14.80 | 20.10 | 22.82 | 27.22 | 31.30 | | 58.12 | 59.75 | 1.45 | 2.98 | 3.48 |

B. Obs. $A_{+1}$ $A_{1_0}$ $t_{5_0}$ $A_{-1}$



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1883phae.proj.1429B



May 24 1883 C = 18 4.2

| | RB | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|
| 35 | 2 5.7 | 14,4 | 16.4 | 18,9 | 21,6 | 24,1 | 26.5 |
| | 21.0 | 25.0 | 27,6 | 30,2 | 32,5 | 34,9 | 37.5 |
| | 22,9 | 27.4 | 29,6 | 32,6 | 34,4 | 37,2 | 40.0 |
| | 17,5 | 22.0 | 24,2 | 26,6 | 29,4 | 31,5 | 34.3 |
| | 711 | 888 | 978 | 1083 | 1179 | 1277 | 1383 |
| 37 | 17,78 | 22,20 | 24,45 | 27,08 | 29,48 | 31.92 | 34,58 |

R. Ascs. $A_{10}$ to $5_1$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



May 25, 1883 C=184.2

# Polaris L.C.

| | | BB | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 14.9 | 5.0 | 1.3 | 4 ~~59.4~~ 59.9 | 30.5 | 28.9 | 27.9 | 25.1 |
| | | 26.0 | 15.9 | 12.0 | 7.5 | 41.5 | 40.4 | 39.1 | 36.4 |
| | | 38.0 | 28.1 | 24.0 | 17.4 | 50.8 | 50.7 | 48.1 | 46.1 |
| | | 25.5 | 16.0 | 11.3 | 7.4 | 40.8 | 39.2 | 37.8 | 34.9 |
| | | 1044 | 650 | 486 | 272 | 1636 | 1592 | 1529 | 1425 |
| | 0 | 26.10 | 16.25 | 12.15 | 5 6.80 | 40.90 | 39.80 | 38.22 | 35.62 |

$A_{9_0}$ $b_{5_0}$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



May 25, 1883 $\Delta = 18^{d}.4.2$

Polaris N.C. B. Obs.

| | | BB | BB | — | — | | — | — | — | — | — | — |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 5.9 | 13.9 | 16.5 | 20.1 | 2 | 44.9 | 48.3 | 49.6 | 50.4 | 52.1 | 52.2 |
| | | 17.3 | 24.7 | 27.6 | 30.5 | | 55.8 | 59.1 | 0.5 | 1.9 | 2.8 | 3.4 |
| | | 24.6 | 31.4 | 34.1 | 37.7 | | 2.5 | 5.1 | 7.1 | 7.6 | 9.7 | 9.7 |
| | | 15.1 | 23.2 | 25.7 | 28.9 | | 51.0 | 57.0 | 58.4 | 59.9 | 1.2 | 0.6 |
| | | 629 | 932 | 1039 | 1172 | | 2172 | 2295 | 2356 | 2398 | 58 | 59 |
| | 37 | 15,72 | 23,30 | 25,98 | 29,30 | 37 | 54,30 | 57,38 | 58,90 | 59,95 | 1,45 | 1,48 |

B. Obs. $A_{10}$ to $5_0$ and $7_2$ to $9_0$

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1883phae.proj.1429B



Aug 27 1883 C=18 1.7

| | RB | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|
| 35 | 42.6 | 46.2 | 48.4 | 50.8 | 17.9 | 20.8 | 22.1 |
| | 52.5 | 58.1 | 03 | 2.7 | 2.8 | 32.5 | 33.7 |
| | 0.5 | 4.2 | 7.0 | 9.2 | 36.7 | 37.8 | 39.5 |
| | 51.9 | 55.1 | 57.8 | 0.8 | 28.0 | 29.9 | 31.4 |
| | 209.5 | 223.6 | 233.5 | 3.5 | 84.4 | 121.0 | 126.7 |
| 36 | 5.238 | 5.590 | 5.838 | 0.088 | 2.110 | 3.025 | 3.168 |

| | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|
| 1 | 44.4 | 46.5 | 47.3 | 48.5 | 49.2 |
| | 57.1 | 58.5 | 59.8 | 1.0 | 2.0 |
| | 2.8 | 3.4 | 5.0 | 6.8 | 7.9 |
| | 54.2 | 55.9 | 57.0 | 57.9 | 58.6 |
| | 218.5 | 224.3 | 229.1 | 234.2 | 237.7 |
| 1 | 5.462 | 5.608 | 5.728 | 5.855 | 5.942 |

R. Abs. $A_{+1}$ 3 3 long strokes followed at an interval by a rattle.

$A_{+1}$ 45 $A_{10}$ $b_{30}$ 72 to 90

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1883phae.proj.1429B



June, 2, 1883 C=50 26.7

Polaris L.C.

| | | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|---|
| 0 | 2 | 0.5 | 52.9 | 50.4 | 17.4 | 17.1 |
| | | 10.5 | 5.0 | 1.2 | 27.0 | 26.5 |
| | | 20.9 | 15.6 | 10.5 | 36.4 | 36.5 |
| | | 9.8 | 3.4 | 59.0 | 25.4 | 25.4 |
| | | 41.7 | 18.9 | 11 | 106.2 | 105.5 |
| | 2 | 10.42 | 4.72 | 0.28 | 26.55 | 26.38 |

B. Obs. $A_{6_2}$ to $3_2$

Ref. $A_{6_2}$

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1883phae.proj.1429B



June 4. 1883 $\odot$ = 50 31.1

Polaris L.C.

| | | BB | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 55.0 | 47.5 | 43.4 | 1 24.0 | 18.9 | 16.7 |
| | | 6.3 | 58.3 | 54.0 | 33.8 | 28.4 | 26.4 |
| | | 19.0 | 11.0 | 6.1 | 46.4 | 39.8 | 39.4 |
| | | 5.0 | 57.6 | 52.9 | 33.5 | 28.3 | 25.8 |
| | | 253 | 2344 | 2164 | 1377 | 1154 | 1083 |
| | 1 | 6.32 | 58.60 | 54.10 | 34.42 | 28.85 | 27.08 |

B. Obs. $A_{62}$, $A_{03_2}$

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1883phae.proj.1429B



June 5, 1883 C = 50 32.5

Polaris L.C.

| | | BB | BB | BB | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2 | 16.0 | 9.7 | 6.9 | 47.0 | 20.3 | 19.6 | 15.5 | 14.2 |
| | | 25.7 | 19.8 | 17.0 | 56.1 | 29.7 | 28.7 | 24.2 | 23.1 |
| | | 45.3 | 37.7 | 32.6 | 14.7 | 46.7 | 45.1 | 42.7 | 40.9 |
| | | 26.9 | 20.5 | 17.5 | 57.3 | 31.0 | 30.0 | 26.5 | 25.1 |
| | | 1139 | 877 | 740 | 2351 | 1277 | 1234 | 1089 | 1033 |
| | 2 | 28.48 | 21.92 | 18.50 | 58.78 | 31.92 | 30.85 | 27.22 | 25.82 |

B. Obs. $A_{6,}$ $b\,3_2$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



June 5. 1883 C=50 32.3

Polaris U.C.

| | BB | BB | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|---|---|
| 35 4 | 36.6 | 39.0 | 40.5 | 41.5 | 42.5 | 43.9 | 44.4 |
| | 49.8 | 51.8 | 54.0 | 55.0 | 54.6 | 56.7 | 56.9 |
| | 1.7 | 3.0 | 4.9 | 5.5 | 6.4 | 7.6 | 8.5 |
| | 48.9 | 50.8 | 52.5 | 52.8 | 53.4 | 55.0 | 55.5 |
| | 1970 | 2046 | 2119 | 2148 | 2169 | 2232 | 2253 |
| 39 | 49.25 | 51.15 | 52.98 | 53.70 | 54.22 | 55.80 | 56.32 |

B. Obs. $\Delta_{52}$ 90

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1883phae.proj.1429B



June 12, 1883 $\phi = 39\ 58.5$

Polaris U.C. B.Clb.

| | | BB | | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 4.5 | / | 43.3 | 37.1 | 31.4 | 16.7 | 7.4 |
| | | 18.1 | | 57.1 | 50.5 | 44.9 | 30.8 | 20.8 |
| | | 27.5 | | 5.7 | 59.1 | 53.2 | 38.1 | 28.6 |
| | | 17.0 | | 55.5 | 48.9 | 43.2 | 28.5 | 19.5 |
| | | 671 | | 2216 | 1956 | 1727 | 1141 | 763 |
| | 37 | 16.78 | 36 | 55.40 | 48.90 | 43.18 | 28.52 | 19.08 |

$A_5$, to 9.

Clouds.

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1883phae.proj.1429B



June 13, 1883 C=39 63,4

Polaris U.C. B. Obs.

| | | BB | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 39.4 | 39,0 | 38.5 | 38.0 | 35.4 | 33,1 | 2 | 2,5 | 55,0 | 52,8 | 43,1 |
| | | 54,3 | 53.8 | 52.2 | 52,5 | 49.6 | 47.9 | | 16.6 | 9,2 | 6,2 | 58,0 |
| | | 0,9 | 1,1 | 0.0 | 59.7 | 57.0 | 54,8 | | 24,5 | 17,0 | 14,5 | 5,3 |
| | | 52,2 | 51,9 | 51,0 | 51,2 | 49,8 | 45,9 | | 15,0 | 7,8 | 5,1 | 55,7 |
| | | 2068 | 2058 | 2017 | 2014 | 1918 | 1817 | | 586 | 290 | 186 | 2221 |
| | 37 | 51,70 | 51,45 | 50,42 | 50,35 | 47,95 | 45,42 | | 14,65 | 7,25 | 4,65 | 55,52 |

B Obs. A to $5^0$ and 7, to $9^0$
Lost $1^{st}_{11}$ tap of 7,.

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1883phae.proj.1429B



June 14, 1883 C=39 63.4

Polaris L.C. B. Obs.

| | | BB | BB | BB | BB | BB | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 4 | 4.5 | 8.0 | 8.5 | 34.3 | 39.2 | 42.3 | 47.7 | 50.4 | 57.0 | 0 3.3 |
| | | 19.8 | 22.6 | 22.9 | 47.8 | 52.1 | 53.7 | 0.0 | 3.5 | 9.0 | 16.0 |
| | | 30.0 | 32.5 | 33.4 | 58.4 | 2.1 | 5.8 | 11.1 | 14.0 | 20.0 | 25.0 |
| | | 19.2 | 22.5 | 23.0 | 46.2 | 53.0 | 55.3 | 1.1 | 4.2 | 10.7 | 15.5 |
| | | 735 | 856 | 878 | 1887 | 2064 | 2171 | 2399 | 123 | 367 | 598 |
| | 59 | 18.38 | 21.40 | 21.95 | 47.18 | 51.60 | 54.28 | 59.98 | 3.08 | 9.18 | 14.95 |

B. Obs. $A_{9^0}$ to $5_0$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



June 14, 1883 C=3.9 64.4

Polaris N.C, B. Obs.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | BB | — | — | — | — | — | — | — | — | — | — |
| 35 | 2 | 40.0 | 40.2 | 40.4 | 38.6 | 38.6 | 37.6 | 35.1 | 2 8,8 | 59.0 | 56.0 |
| | | 54.2 | 55.2 | 55.0 | 52.8 | 53.3 | 52.4 | 49.5 | 22.8 | 12.8 | 10.0 |
| | | 59.0 | 0.5 | 0.5 | 58.4 | 58.0 | 57.2 | 54.0 | 28.5 | 18.4 | 16.1 |
| | | 52.8 | 53.9 | 53.6 | 53.0 | 52.0 | 50.9 | 48.5 | 22.2 | 12.4 | 9.4 |
| | | 2060 | 2098 | 2095 | 2028 | 2019 | 1981 | 1871 | 823 | 426 | 315 |
| | 37 | 51.50 | 52.45 | 52.38 | 50.70 | 50.48 | 49.52 | 46.78 | 37 20.58 | 10.65 | 7.88 |

B. Obs. $A_1$ to $5_0$ and $8_0$ to $9_0$

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1883phae.proj.1429B



~~July~~ June 15, 1883 e=3964.4

Polaris L.C.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 4 | ~~lost~~ | 9,5 | 36.0 | 39.9 | 45.0 | 55,2 | 5;0 | 11.6 | 20.5 | 33,9 |
| | | 22,3 | 23.6 | 49,8 | 52.9 | 58.4 | 7.1 | 16.8 | 23.0 | 31.8 | 45.9 |
| | | 32.1 | 33.9 | 59.5 | 3,3 | 7.5 | 17.6 | 26.9 | 33.0 | 41.9 | 55.8 |
| | | 21.7 | 23.8 | 49.5 | 53.4 | 58.1 | 8.2 | 16.7 | 23.5 | 32.5 | 46.1 |
| | | | .908 | 1948 | 2095 | 2290 | 281 | 654 | 911 | 1267 | 1817 |
| | 59 | | 22.70 | 48.70 | 52.38 | 57.25 | 7.02 | 16.35 | 22.78 | 31.68 | 45.42 |

B. Obs. $A_{8_2}$ to $1_2$ and $1_2$ and $1_0$

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1883phae.proj.1429B



June 15, 1883 C = 39 65.0

Polaris N. C.

BB — — — — — — — — —

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 41.7 | 40.2 | 40.5 | 39.0 | 37.9 | 35.9 | 34.5 | 7.9 | 3.0 | 1 56.9 |
| | | 55.0 | 54.2 | 54.7 | 53.4 | 51.8 | 50.1 | 48.7 | 21.8 | 16.3 | 10.7 |
| | | 0.2 | 59.3 | 59.4 | 58.5 | 57.0 | 55.3 | 53.3 | 26.6 | 22.0 | 16.2 |
| | | 54.3 | 52.8 | 53.0 | 52.0 | 49.9 | 49.0 | 47.2 | 20.6 | 15.1 | 9.9 |
| | | 2112 | 2065 | 2076 | 2029 | 1966 | 1903 | 1837 | 769 | 564 | 337 |
| | 37 | 52.80 | 51.62 | 51.90 | 50.72 | 49.15 | 47.58 | 45.92 | 19.22 | 14.10 | 8.42 |

B. Obs. $A_{10}$ $A_{50}$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



June 16, 1883 C = 39 65.0

Polaris L.C.

BB — — — — — — —

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 55 | 4 | 5.0 | 7.8 | 9.0 | 39.3 | 44.9 | 47.6 | 51.3 | 0 1.3 |
| | | 18.8 | 21.9 | 23.6 | 53.0 | 57.6 | 0.3 | 4.5 | 14.8 |
| | | 27.6 | 31.2 | 33.2 | 1.2 | 7.2 | 10.2 | 14.0 | 22.8 |
| | | 18.6 | 22.2 | 23.8 | 53.1 | 58.5 | 1.8 | 5.0 | 18.7 |
| | | 700 | 831 | 896 | 2166 | 2282 | 2399 | 148 | 526 |
| | 59 | 17.50 | 20.78 | 22.40 | 54.15 | 57.05 | 59.98 | 3.70 | 13.15 |

B. Obs. $A_{8_2}$ $b_{4_2}$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.14298



June 17, 1883 C = 39 65.1

Polaris U. C.

| | | BB | — | — | — | — | — |
|---|---|---|---|---|---|---|---|
| 35 | 2 | 40.2 | 41.2 | 41.3 | 40.0 | 38.4 | 34.2 |
| | | 54.9 | 56.0 | 55.8 | 54.2 | 52.4 | 48.8 |
| | | 58.5 | 59.6 | 59.5 | 58.5 | 56.5 | 52.7 |
| | | 53.0 | 54.0 | 53.6 | 52.9 | 51.2 | 47.0 |
| | | 2066 | 2108 | 2102 | 2056 | 1985 | 1827 |
| | 37 | 51.65 | 52.70 | 52.55 | 51.40 | 49.62 | 45.68 |

B. Obs. $A_{+1}$ $A_{1_0}$ to $2_2$ Clouds

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1883phae.proj.1429B



June 20, 1883 C = 3966.5

Polaris L.C.

| | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|
| 5 5 4 | 1.0 | 2.0 | 3.5 | 5.4 | 7.4 |
| | 17.0 | 18.0 | 19.0 | 20.5 | 22.1 |
| | 24.5 | 25.5 | 26.8 | 28.8 | 30.0 |
| | 14.2 | 14.8 | 16.5 | 18.2 | 19.9 |
| | 567 | 603 | 658 | 729 | 794 |
| 59 | 14.18 | 15.08 | 16.45 | 18.22 | 19.85 |

B. Obs. $A_{-1}$ 2 $A_{9_0}$ $A_{5_0}$ Sat $6_0$

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1883phae.proj:1429B



June 21, 1883 C=39 65.0

Polaris U.C. B. Obs.

| | | BB | BB | BB |
|---|---|---|---|---|
| 35 | 1 | 44.5 | 1 4.0 | 0 58.6 |
| | | 58.5 | 18.4 | 13.8 |
| | | 2.9 | 21.4 | 17.0 |
| | | 56.4 | 16.1 | 10.9 |
| | | 2223 | 599 | 403 |
| | 36 | 5558 | 1498 | 1008 |

B. Obs. A-, 5 Star very much obscured so that wire is scarcely trustworthy - Heavy Clouds-

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1883phae.proj.1429B



June 22. 1883 c=39 64.4

Polaris L. C.

| | | BB | — | — | — | — |
|---|---|---|---|---|---|---|
| 55 | 4 | 31.4 | 38.8 | 42.5 | 46.2 | 53.8 |
| | | 46.5 | 53.6 | 55.7 | 59.7 | 6.4 |
| | | 56.1 | 3.5 | 7.2 | 9.5 | 17.7 |
| | | 44.4 | 52.2 | 55.4 | 58.4 | 6.0 |
| | | 1784 | 2081 | 2208 | 2338 | 239 |
| | 59 | 44.60 | 52.02 | 55.20 | 58.45 | 5.98 |

B. Obs. $A_{5_1}$ to $1_0$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.14298



June 22, 1883 C=39 64.4

Polaris U. C.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 39.0 | 38.0 | 38.4 | 37.2 | 36.6 | 35.4 | 33.9 | 7.0 | 1.8 | 58.8 |
| | | 53.4 | 52.0 | 52.5 | 51.7 | 50.8 | 50.2 | 47.8 | 21.1 | 15.1 | 12.0 |
| | | 58.5 | 57.4 | 58.4 | 57.5 | 56.4 | 56.0 | 53.3 | 26.4 | 21.1 | 18.2 |
| | | 51.2 | 50.3½ | 50.1 | 49.2 | 49.0 | 47.3 | 45.7 | 19.8 | 13.8 | 10.6 |
| | | 2021 | 1977 | 1994 | 1956 | 1928 | 1889 | 1807 | 743 | 518 | 396 |
| | 37 | 50.52 | 49.42 | 49.85 | 48.90 | 48.20 | 47.22 | 45.18 | 18.58 | 12.95 | 9.90 |

B. Obs. $A_1$ to $5_0$ 2nd $8_1$ to $9_0$

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1883phae.proj.1429B



June 23. 1883 C=39 69.5

Polaris L.C.

BB — — — — — — — — —

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 4 | 2.2 | 4.1 | 5.9 | 30.8 | 35.4 | 40.0 | 44.0 | 48.0 | 58.1 | 0 2.6 |
| | | 17.1 | 18.8 | 19.4 | 44.5 | 47.9 | 53.3 | 56.5 | 1.2 | 12.5 | 13.9 |
| | | 30.0 | 32.2 | 33.3 | 55.9 | 1.6 | 4.7 | 8.4 | 13.6 | 22.9 | 26.3 |
| | | 16.1 | 17.8 | 19.3 | 42.8 | 48.0 | 52.6 | 55.6 | 0.2 | 10.5 | 13.2 |
| | | 654 | 729 | 779 | 1740 | 1929 | 2106 | 2245 | 30 | 440 | 560 |
| | 59 | 16.35 | 18.22 | 19.48 | 43.50 | 48.22 | 52.65 | 56.12 | 0.75 | 11.00 | 0 14.00 |

B. Obs. $A_{9_0}$ to $5_0$ and $1_2$ to $1_0$

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1883phae.proj.1429B



June 24, 1883 C=39 69.4

Polaris U. C.

BB - - - - - - -

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 39.5 | 39.6 | 35.8 | 33.8 | 8.3 | 4.4 | 0.0 | 56.5 |
| | | 53.1 | 53.6 | 49.7 | 47.3 | 21.9 | 18.0 | 13.4 | 10.2 |
| | | 1.4 | 0.3 | 56.7 | 55.0 | 29.7 | 25.4 | 22.0 | 17.5 |
| | | 51.8 | 51.8 | 48.1 | 45.6 | 20.2 | 16.7 | 12.0 | 8.9 |
| | | 2058 | 2053 | 1903 | 1817 | 801 | 645 | 474 | 331 |
| | 37 | 51.45 | 51.32 | 47.58 | 45.42 | 20.02 | 16.12 | 11.85 | 8.28 |

$A_{+1}$ 125 $A_{10}$ 50 $A_{8129_0}$

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1883phae.proj.1429B



June 25, 1883 $e = 39\ 71.7$

Polaris L. C.

| | | BB | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 55 | 4 | 31,2 | 35,2 | 41.0 | 46,3 | 52,1 | 0 5,2 | 15,4 |
| | | 46.0 | 50,0 | 55.4 | 1,2 | 6,1 | 18,0 | 27.4 |
| | | 58.0 | 2,2 | 8,3 | 13,4 | 17,5 | 30,5 | 39,1 |
| | | 44.6 | 49,1 | 54.6 | 59.9 | 4.7 | 17.3 | 26.9 |
| | | 1798 | 1965 | 2193 | 08 | 204 | 71.0 | 1088 |
| | 59 | 44,95 | 49.12 | 54.82 | 0,20 | 5,10 | 17,75 | 27,20 |

B. Obs. $A_{2_0}$ $A_{1_0}$ and $A_{+1}$

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1883phae.proj.1429B



June 28, 1883 $C = 50\ 53.7$

Polaris L. C.

| | BB | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|---|
| 0 0 | 7.3 | 11.5 | 26.0 | 31.5 | 37.4 | 44.9 |
| | 24.2 | 28.1 | 41.9 | 47.4 | 53.8 | 1.0 |
| | 36.0 | 39.4 | 53.2 | 58.1 | 4.5 | 10.6 |
| | ~~44.7~~ | 25.9 | 39.7 | 45.0 | 51.0 | 57.7 |
| | ·675 | 1049 | 1608 | 1820 | 2067 | 2342 |
| 0 | 16,88 | 26,22 | 40,20 | 45,50 | 51,68 | 58,55 |

A+, 321

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1883phae.proj.1429B



June 30, 1883 $c = 50\ 54.2$

Polaris L. C.

BB → — . — →

| | | | | | | |
|---|---|---|---|---|---|---|
| 55 | 4 | 23.4 | 26.0 | 26.6 | 27.4 | 29.5 |
| | | 40.2 | 41.8 | 42.4 | 43.5 | 45.7 |
| | | 49.1 | 52.0 | 51.9 | 53.6 | 55.2 |
| | | 38.3 | 40.1 | 41.0 | 41.9 | 43.8 |
| | | 1510 | 1599 | 1619 | 1664 | 1742 |
| | 59 | 37.75 | 39.98 | 40.48 | 41.60 | 43.55 |

B. Obs. A-1

Seeing poor.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



June 30 1880 C = 5 T.

| | RR | RR | RR | RR | RR |
|---|---|---|---|---|---|
| 30 – 2 | 32.4 | 24.3 | 21.0 | 15.7 | 12.8 |
| | 48.4 | 40.8 | 38.0 | 32.8 | 28.9 |
| | 53.9 | 46.3 | 43.5 | 27.8 | 24.7 |
| | 47.3 | 35.7 | 37.3 | 32.0 | 27.7 |
| | 182.0 | 151.1 | 139.8 | 108.3 | 94.1 |
| 37 | 45.50 | 37.78 | 34.95 | 27.08 | 23.52 |

A 30 to 9.0

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



July 1 1883

| RR | RR |
|---|---|
| 55 4 53,3 | 0 18 |
| 9,7 | 17,4 |
| 22,3 | 24,4 |
| 10,9 | 18,7 |
| 362 | 663 |
| 0 9.05 | 16,58 |

Adj unable Allegheny
on Polaris Collimation wires

A 43 and A 2

A 2-1 Glauconia Grant

| RR | |
|---|---|
| 0 19,0 | |
| 25,8 | |
| 41,9 | |
| 35,4 | |
| 136 5 | |
| 0 34.12 | |

A 1210 A +543

| RR | RR |
|---|---|
| 27,3 | 31,5 |
| 42,2 | 46,2 |
| 53,8 | 56,8 |
| 43,3 | 46,8 |
| 166 6 | 181 3 |
| 41.65 | 45,32 |

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



July 1

C = 50 54.2

Plaingle

| | RB | RB | RB | RB | RB | RB | BR | BR | BR | |
|---|---|---|---|---|---|---|---|---|---|---|
| 353 | 2.6 | 2.5 | 1.8 | 0.3 | 0.2 | 59.0 | 58.1 | 56.8 | 54.6 | ~~55.2~~ |
| | 18.0 | 17.4 | 16.4 | 15.1 | 14.8 | 14.3 | 13.0 | 12.0 | 10.8 | |
| | 23.0 | 22.6 | 21.7 | 20.5 | 20.3 | 19.5 | 19.0 | 17.6 | 16.1 | |
| | 17.3 | 16.1 | 15.5 | 14.0 | 13.6 | 12.9 | 12.0 | 10.7 | 9.6 | |
| | 609 | 586 | 554 | 499 | 489 | 457 | 421 | 371 | 311 | |
| 38 | 15.22 | 14.65 | 13.85 | 12.48 | 12.22 | 11.42 | 10.52 | 9.28 | 7.78 | |

R Obs.

$A_{+1}$ 12345 $A_{1_2}$ to $3_2$ $A_{-1}$ 12345

B Obs.

$A_4$ to $6_0$

| RB | RB | RB | RB | RB | RB | RB | RB | RB | BB | BB | BB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 31.1 | 29.4 | 26.8 | 24.5 | 22.4 | 19.1 | 15.3 | 12.5 | 9.2 | 6.3 | 57.4 | 52.0 |
| 46.5 | 44.4 | 42.0 | 37.9 | 37.2 | 34.0 | 30.2 | 28.3 | 24.0 | 19.8 | 12.5 | 7.1 |
| 51.2 | 49.2 | 46.9 | 44.0 | 42.3 | 39.1 | 35.9 | 32.9 | 29.8 | 26.0 | 17.9 | 13.0 |
| ~~R. 48.0~~ | 43.2 | 40.5 | 37.5 | 35.9 | 32.9 | 29.6 | 26.5 | 23.5 | 19.5 | 11.5 | 6.5 |
| 1741 | 1662 | 1562 | 1442 | 1378 | 1249 | 1110 | 992 | 865 | 716 | 393 | 186 |
| 43.52 | 41.55 | 39.05 | 36.05 | 34.45 | 31.22 | 27.75 | 24.80 | 21.62 | 17.90 | 9.82 | 4.65 |

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1883phae.proj.1429B



July 2 1883

Alexin N.C.

C = 50 50.8

| | BB | | | | | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 3 | 1.0 | 0.6 1.0 | 0.0 | 57.1 | 55.5 | 29.9 | 24.5 | 23.5 | 21.7 | 18.9 | 15.1 |
| | 17.0 | 15.8 | 15.3 | 12.0 | 11.5 | 45.2 | 41.8 | 38.5 | 36.5 | 33.3 | 30.9 |
| | 22.2 | 20.5 | 20.6 | 16.9 | 16.1 | 50.0 | 46.9 | 43.8 | 41.4 | 35.2 | 35.8 |
| | 14.2 | 13.4 | 12.5 | 10.1 | 8.8 | 43.2 | 40.2 | 36.9 | 34.5 | 31.3 | 28.2 |
| | 544 | 503 | 484 | 361 | 319 | 1683 | 1554 | 1427 | 1341 | 1227 | 1091 |
| 38 | 13.60 | 12.58 | 12.10 | 9.02 | 7.98 | 42.08 | 38.85 | 35.68 | 33.52 | 30.68 | 27.28 |

| RB | RB | BR | BR | BR | BR | BR |
|---|---|---|---|---|---|---|
| 10.5 | 8.0 | 3.8 | 3.1 | 59.7 | 58.2 | 56.7 |
| 25.2 | 22.6 | 20.1 | 18.5 | 16.0 | 14.0 | 12.6 |
| 30.0 | 28.0 | 26.1 | 24.0 | 21.3 | 19.0 | 18.7 |
| 23.1 | 20.4 | 17.9 | 15.8 | 13.3 | 11.1 | 9.7 |
| 888 | 793 | 679 | 614 | 503 | 423 | 377 |
| 22.20 | 19.82 | 16.98 | 15.35 | 12.58 | 10.58 | 9.42 |

Rob $A_{11}$ 1234

B. Cls $A_{10}$ $b_{05}$ $\frac{3}{8}$ $\frac{1}{8}$ $t_0$ $9_0$

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1883phae.proj.1429B



July 8 1883

Polaris

C = 50 46.0

| | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|
| 352 | 229 | 215 | 194 | 14.5 | 12.6 | 10.4 |
| | 37.4 | 35.1 | 34.0 | 29.0 | 29.0 | 24.4 |
| | 45.9 | 43.2 | 41.0 | 36.9 | 25.1 | 33.0 |
| | 36.9 | 34.0 | 32.1 | 27.6 | 26.1 | 23.0 |
| | 143.1 | 133.8 | 126.5 | 108.0 | 100.8 | 91.1 |
| 37 | 35.78 | 33.45 | 31.62 | 27.00 | 25.20 | 22.78 |

Rob A 1234 Mt

+1

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1883phae.proj.1429B



July 4 1883 U.C. C = 50 54.4

| | RB | RB | RB | RB | RB | BR | BR | BR |
|---|---|---|---|---|---|---|---|---|
| 35 | 58.2 | 57.5 | 56.6 | 55.1 | 54.1 | 54.2 | 53.0 | 52.8 |
| | 12.9 | 12.4 | 10.8 | 10.1 | 9.5 | 10.0 | 9.8 | 8.4 |
| | 21.3 | 20.2 | 19.2 | 18.0 | 18.1 | 17.9 | 17.6 | 17.2 |
| | 10.2 | 9.8 | 8.0 | 6.9 | 6.9 | 6.1 | 6.1 | 5.4 |
| | 426 | 402 | 346 | 304 | 296 | 282 | 268 | 238 |
| 37 | 10.65 | 10.05 | 8.65 | 7.60 | 7.40 | 7.05 | 6.70 | 5.95 |

RB

| RB | RB | RB | RB | RB | BR | BR | BR |
|---|---|---|---|---|---|---|---|
| 3.8 | 0.6 | 58.4 | 55.0 | 52.2 | 48.8 | 45.1 | 43.6 |
| 17.9 | 14.6 | 12.2 | 8.8 | 5.8 | 3.5 | 1.3 | 58.6 |
| 27.0 | 23.2 | 21.1 | 18.5 | 15.0 | 11.8 | 9.9 | 7.3 |
| 15.8 | 12.1 | 10.2 | 6.9 | 4.2 | 1.3 | 58.2 | 55.6 |
| 645 | 505 | 419 | 282 | 172 | 54 | 2345 | 2251 |
| 16.12 | 12.62 | 10.48 | 7.05 | 4.30 | 1.35 | 58.62 | 56.28 |

R

B. Obs. $A_{+0}$ to $A_{+2}$ $A_{+5}$ = T

R Obs. and $A_{-1}$ 5

$A_{+1}$ 3

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1883phae.proj.1429B



July 5 W.L. C = 50, 57.4

| RB | RB | RB | RB | RB | BR | BR | BR | BR | |
|---|---|---|---|---|---|---|---|---|---|
| 35 | 25,95 | 59,0 | 58,1 | 57,0 | 57,2 | 53,9 | 53,6 | 53,2 | 53,1 | |
| | 13,5 | 13,1 | 12,5 | 11,5 | 11,1 | 10,3 | 9,2 | 9,9 | 9,8 | Rej last δ |
| | 24,2 | 22,1 | 22,5 | 22,0 | 20,9 | 19,1 | 19,1 | 19,0 | 18,2 | |
| | 11,2 | 10,5 | 9,8 | 9,0 | 8,6 | 7.1 | 6.1 | 5.7 | 5,5 | |
| | 484 | 447 | 429 | 395 | 378 | 304 | 280 | 278 | 266 | |
| 38 | 12,10 | 11,18 | 10,72 | 9,88 | 9,45 | 7,60 | 7,00 | 6,95 | 6,65 | |

| BR | BR | BR | BR | BR | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|
| 250 | 23,5 | 19,9 | 17,0 | 14,7 | 12,6 | ~~17,0~~ | 80 | 5,5 | 2,8 |
| 44,2 | 40,0 | 36,0 | 33,1 | 30,3 | 27,3 | 3,5 | 22,1 | 20 | 17,2 |
| 53,2 | ~~20,8~~ | 44,8 | 42,4 | 40,3 | 37,5 | 4,4 | 32,6 | 30,7 | 28,2 |
| 40,1 | 36,1 | 32,2 | 29,0 | 27,2 | 24,7 | 3,2 | 20,7 | 17,3 | 15,1 |
| 1655 | 1284 | 1329 | 1215 | 1125 | 1021 | Rej | 727 | 770 | 633 |
| 4138 | 3210 | 33.22 | 3038 | 28,12 | 2552 | | 1818 | 19,25 | 1582 |

Robs. $A_{t_1}$ 2 34,5 — $A_{1_0}$ to 3,0 $A_{-1}$ 4,5

Bobs. $A_3$ to 5, & from 7, to 9,0 $A_{1_0}$ to 3,0
$_{-1}$

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1883phae.proj.1429B



July 6. 1883 C = 50 57.4

Polaris L.C.

| | | BB | BB | BB | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|---|---|---|---|
| 55 | 4 | 18.1 | 19.0 | 20.4 | 21.2 | 23.1 | 50.1 | 54.1 | 57.9 |
| | | 35.2 | 35.7 | 37.2 | 38.1 | 39.8 | 6.8 | 9.7 | 15.2 |
| | | 52.3 | 53.0 | 54.3 | 55.1 | 55.7 | 21.9 | 26.2 | 29.5 |
| | | 32.2 | 33.1 | 34.2 | 35.5 | 37.0 | 4.1 | 8.0 | 11.5 |
| | | 1378 | 1408 | 1461 | 1499 | 1556 | 229 | 380 | 541 |
| | 59 | 3445 | 3520 | 3652 | 3748 | 3890 | 5.72 | 9.50 | 13.52 |

B. Obs. $A_0$ to $4_1$ and $1_2$ to $1_0$

Seeing extremely good.

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1883phae.prdj.1429B



July 6, 1883 C = 50 57.4

Polaris U.C.

| | | BB | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | 2 | 57.0 | 56.4 | 55.9 | 55.8 | 51.1 | 26.2 | 19.4 | 14.0 | 10.1 | 5.3 |
| | | 12.2 | 11.5 | 10.6 | 10.9 | 6.2 | 41.7 | 34.4 | 29.2 | 25.3 | 20.0 |
| | | 23.7 | 23.1 | 21.8 | 22.1 | 17.6 | 52.8 | 45.5 | 41.4 | 36.6 | 31.4 |
| | | 10.0 | 8.5 | 8.2 | 8.7 | 4.2 | 39.1 | 32.5 | 27.6 | 23.6 | 18.0 |
| | | 429 | 395 | 365 | 375 | 191 | 1598 | 1318 | 1122 | 956 | 747 |
| | 38 | 10.72 | 9.88 | 9.12 | 9.38 | 4.78 | 39.95 | 32.95 | 28.05 | 23.90 | 18.68 |

B. Obs. $A_1$ to 50 and $8_2$ 90

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1883phae.proj.1429B



July 7, 1883 C=50 63.4

Polaris L.C.

| | | BB | — | — | — | — |
|---|---|---|---|---|---|---|
| 55 | 4 | 18.4 | 20.0 | 20.5 | 22.6 | 24.8 |
| | | 34.6 | 36.3 | 37.2 | 39.6 | 41.4 |
| | | 49.0 | 50.9 | 52.7 | 54.1 | 55.5 |
| | | 31.6 | 33.3 | 34.6 | 36.2 | 38.0 |
| | | 1336 | 1405 | 1450 | 1525 | 1597 |
| | 59 | 33,40 | 35,12 | 36.25 | 38.12 | 39.92 |

B. Obs. $A_{-1}$ 5321 and 9$_0$ to 7$_0$

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1883phae.proj.1429B



July 9. 1883 C = 50 63.$2

Polaris L.C.

| | | BB | BB | — | — | — | — | — | — | — |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 4 | 25.2 | 26.9 | 29.0 | 30.1 | 55.1 | 58.9 | 0 | 4.0 | 8.9 | 13.1 |
| | | 42.1 | 43.9 | 46.1 | 46.5 | 12.6 | 15.9 | | 18.8 | 23.5 | 27.2 |
| | | 49.9 | 51.4 | 53.5 | 57.2 | 19.8 | 23.8 | | 27.5 | 33.2 | 36.2 |
| | | 39.9 | 41.8 | 43.5 | 45.0 | 10.0 | 13.9 | | 18.0 | 22.9 | 26.5 |
| | | 1571 | 1640 | 1721 | 1758 | 375 | 525 | | 683 | 885 | 1030 |
| | 59 | 39.28 | 41.00 | 43.02 | 43.95 | 9.38 | 13.12 | | 17.08 | 22.12 | 25.75 |

| | | RR | RR | RR | RR | RR |
|---|---|---|---|---|---|---|
| 8 | 0 | 21,0 | 29,0 | 35,2 | 41,7 | 46,9 |
| | | 36,0 | 45,9 | 35,2 | 55,8 | 1,6 |
| | | 45,6 | 54,0 | 58,4 | 5,9 | 11,8 |
| | | 35,9 | 43,6 | 49,7 | 55,9 | 2,0 |
| | | 1385 | 1725 | 1829 | 2186 | 22 |
| | 0 | 34,62 | 43,12 | 45,72 | 54,65 | 0,55 |

B. Obs. $A_9$ to $4_2$

Take mean of 2 taps for 1½ taps of $A_9$

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1883phae.proj.1429B



Aug 10 · Lc. C = 50 46.3

Polaris L.C.

| RB | RB | RB | RB | RB | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 4 21.3 | 22.0 | 23.3 | 23.4 | 24.0 | 25.1 | 26.2 | 27.2 | 27.5 | 28.3 | 30.3 |
| 37.5 | 38.3 | 39.8 | 40.0 | 40.2 | 41.5 | 42.0 | 43.1 | 44.1 | 44.4 | 45.9 |
| 46.5 | 47.3 | 48.7 | 48.5 | 49.2 | 50.6 | 51.3 | 52.2 | 53.4 | 53.2 | 54.9 |
| 36.4 | 37.2 | 38.2 | 38.5 | 38.6 | 40.4 | 41.1 | 41.9 | 42.5 | 43.0 | 44.7 |
| 1417 | 1450 | 1500 | 1504 | 1490 | 1576 | 1606 | 1644 | 1678 | 1689 | 1758 |
| 59 35.42 | 36.25 | 37.50 | 37.60 | 37.25 | 39.40 | 40.15 | 41.10 | 41.95 | 42.22 | 43.95 |

Adopt $t_{-1}$ 12345 $A_{11}$ to 40 $\angle_{0}$ to 10

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1883phae.proj.1429B



July 10, 1883 C=50 66.3

Polaris U.C.

| | | BB | BB. | BB | BB | BB |
|---|---|---|---|---|---|---|
| 35 | 2 | 27.5 | 24.3 | 1 56.4 | 45.6 | 35.8 |
| | | 43.2 | 39.8 | 12.3 | 1.1 | 51.4 |
| | | 48.0 | 44.8 | 16.5 | 5.5 | 55.2 |
| | | 40.9 | 37.2 | 9.7 | 58.6 | 48.8 |
| | | 1596 | 1461 | 349 | 2308 | 1912 |
| | 37 | 39.90 | 36.52 | 8.72 | 57.70 | 47.80 |

Cloudy.

B. Obs. $A_{-1}$ 1 & 2

$A_{-1}$ 1 was taken wholly by guess-work.

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1883phae.proj.1429B



July 11 1883

C = 50 69.6

Polaris L.C.

| | RB | RB | RB | RB | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 4 | 21.2 | 22.5 | 22.8 | 23.0 | 23.9 | 24.6 | 25.2 | 26.4 | 27.8 | 28.4 |
| | 38.2 | 38.9 | 39.2 | 35.2 | 40.3 | 40.7 | 41.5 | 42.5 | 44.2 | 45.0 |
| | 46.9 | 47.0 | 47.6 | 48.1 | 48.9 | 49.6 | 50.2 | 52.0 | 52.9 | 53.6 |
| | 34.7 | 35.5 | 36.0 | 36.4 | 37.5 | 38.0 | 38.9 | 40.4 | 41.6 | 42.5 |
| | 1410 | 1439 | 1456 | 1467 | 1506 | 1529 | 1558 | 1613 | 1665 | 1698 |
| 59 | 35.25 | 35.98 | 36.40 | 36.68 | 37.65 | 38.22 | 38.95 | 4032 | 41.62 | 42.45 |

| | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|
| 55 4 | 52.9 | 57.0 | 0 2.4 | 6.2 | 10.1 |
| | 6.5 | 11.5 | 16.5 | 20.5 | 23.4 |
| | 18.0 | 23.2 | 26.3 | 31.4 | 34.0 |
| | 7.1 | 11.7 | 14.6 | 18.3 | 22.3 |
| | 245 | 434 | 598 | 764 | 898 |
| 0 | 6.12 | 10.85 | 14.95 | 19.10 | 22.45 |

Rossi

$A_{+1}$ 12-4 5 $A_{90}$ 5 40 $A_{21}$ 5 10

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1883phae.proj.1429B



July 11, 1883 C = 50 69.6

Polaris M. C.

| | BB | BB | — | — | — |
|---|---|---|---|---|---|
| 35 2 | 53.3 | 2 28.8 | 22.8 | 18.2 | 11.3 |
| | 9.0 | 43.9 | 37.6 | 33.2 | 27.7 |
| | 15.8 | 51.5 | 45.0 | 40.5 | 34.2 |
| | 6.9 | 42.5 | 36.0 | 31.4 | 24.4 |
| | 250 | 1667 | 1414 | 1233 | 976 |
| 37 | 6.25 | 41.68 | 35.35 | 30.82 | 24.40 |

B. Obs. $A_{10}$ to 5° and $A_{\frac{1}{2}}$ to 9°

Clouds –

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1883phae.proj.1429B



July 12, 1883 C = 50 66.9

Polaris L.C.

| | | BB | BB | BB | BB | BB | BB | BB | BB | BB | BB | BB* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 4 | 19.8 | 21.6 | 23.1 | 24.0 | 25.5 | 50.8 | 57.5 | 0 | 3.5 | 8.4 | 16.4 |
| | | 36.5 | 39.0 | 40.1 | 41.1 | 42.3 | 6.5 | 14.8 | | 16.9 | 21.8 | 30.2 |
| | | 48.8 | 51.4 | 52.0 | 52.8 | 53.8 | 17.9 | 25.1 | | 29.2 | 33.9 | 42.6 |
| | | 34.4 | 36.4 | 37.6 | 48.4 | 39.6 | 4.3 | 11.9 | | 16.5 | 21.5 | 29.0 |
| | | 1395 | 1474 | 1528 | 1663 | 1612 | 195 | 493 | | 661 | 856 | 1182 |
| | 59 | 34,88 | 36.85 | 38.20 | 41,58 | 40,30 | 4,88 | 12,32 | | 16,52 | 21,40 | 29,55 |

B. Obs. $A_{9_0}$ to $4_1$ and $2_1$ to $1_0$

Lost 1st tap $A_{2_1}$ * last of 2 rattles.

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1883phae.proj.1429B



July 14, 1883 C = 50 66.8

Polaris L.C.

| | BB | BB | BB | BB | BB |
|---|---|---|---|---|---|
| 0 0 | 5.4 | 14.0 | 21,0 | 25.6 | 30.4 |
| | 20.5 | 29.0 | 35.9 | 40.6 | 45.0 |
| | 35.6 | 42.8 | 49.9 | 54.7 | 59.0 |
| | 18.8 | 27.6 | 34.1 | 38.5 | 43.1 |
| | 803 | 1134 | 1409 | 1594 | 1775 |
| 0 | 20,08 | 28,35 | 35,22 | 39,85 | 44,38 |

B. Obs. $A_{+1}$ 321

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1883phae.proj.1429B



Aug 26

Pleiades

Alc. Ple.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 55 4 | 22,9 | 21,8 | 21,7 | 21,6 | 22,2 | 23,9 | 25,1 | 57,8 | 58,6 |
| | 41,8 | 39,1 | 39,1 | 39,1 | 39,2 | 41,2 | 41,2 | 5.0 | 8,0 |
| | 55,2 | 53,9 | 54,8 | 54,0 | 53,5 | 53,6 | 53,9 | 193 | 216 |
| | 40,2 | 39,0 | 39,1 | 39,3 | 39,8 | 40,7 | 41,0 | 6,1 | 8,7 |
| | 1601 | 1538 | 1547 | 1540 | 1547 | 1594 | 1632 | 222 | 319 |
| 59 | 40,02 | 38,45 | 38,68 | 38,50 | 38,68 | 39,85 | 40,80 | 55,50 | 7,98 |

$A_1$ 2 3 4 $A$ 7 6 5 4 3 2 1 0

Singlestime

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1883phae.proj.1429B



Aug 21 C=50 46.3
1883
L6

| | | | | | | |
|---|---|---|---|---|---|---|
| 50 | 4 | 24.7 | 25.8 | 27.1 | 27.8 | 30.0 |
| | | 44.1 | 45.3 | 47.7 | 46.3 | 48.8 |
| | | 53.8 | 53.6 | 53.8 | 56.6 | 58.2 |
| | | 45.6 | 46.0 | 47.6 | 48.6 | 50.0 |
| | | 1702 | 1727 | 1792 | 1793 | 1870 |
| | 59 | 42.55 | 43.18 | 44.80 | 44.82 | 46.75 |

| | | | | |
|---|---|---|---|---|
| 52.2 | 0.8 | 2.0 | 5.0 | 8.4 |
| 14.5 | 19.1 | 20.8 | 23.2 | 24.8 |
| 23.3 | 29.2 | 30.8 | 34.2 | 37.6 |
| 13.9 | 19.8 | 21.1 | 24.9 | 27.8 |
| 459 | 689 | 747 | 873 | 1016 |
| 11.48 | 17.22 | 18.68 | 21.82 | 25.40 |

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1883phae.proj.1429B



Aug 8 / 1883 C = 50 − 80.1

| | | | | | |
|---|---|---|---|---|---|
| 55 4 29.4 | 36.0 | 59.3 | 00 6.4 | 10.7 |
| 46.8 | 51.9 | 15,1 | 21.6 | 25.2 |
| 56.4 | 00.4 | 24.9 | 29.9 | 33.6 |
| 46.1 | 51.4 | 14.9 | 21.7 | 25.1 |
| 1787 | 1987 | 542 | 796 | 946 |
| 59 44.68 | 49.68 | 13,55 | 19.90 | 23.65 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 14.1 | 17.6 | 21.0 | 24.2 | 29.2 | 29.6 | 37.9 | 42.4 |
| 28.6 | 32.0 | 35.8 | 39.1 | 42.4 | 43.8 | 52.5 | 56.7 |
| 37.0 | 40.8 | 44.0 | 46.9 | 50.7 | 52.3 | 0.7 | 4.2 |
| 29.0 | 32.4 | 35.8 | 38.8 | 43.0 | 44.0 | 52,3 | 56.1 |
| 1087 | 1228 | 1366 | 1490 | 1653 | 1697 | 2034 | 2194 |
| 27,18 | 30,70 | 34,15 | 37.25 | 41,32 | 42.42 | 50,85 | 54.85 |

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1000phae.proj.1429B



Sept-3 1888 C=50 78.6

55 4 28.1
44.2
53.8 27.4 29.3 28.3 29.6 28.8 32.0
44.7 45.1 45.6 45.6 45.6 45.9 47.8
53.8 55.6 53.7 54.7 55.4 57.3
44.7 45.1 44.7 46.3 45.9 48.3

1708 1710 1756 1723 1762 1760 1854
59 42.70 42.75 43.90 43.08 44.05 44.00 46.35

new series

33.3 33.7 34.6 55 3 37.0 59.0 0 0 3.0 5.4
49.1 49.7 50.1 53.9 15.0 19.2 19.1
57.8 58.3 59.2 1.5 24.7 28.3 28.8
49.7 49.7 50.8 52.7 15.4 18.4 20.9

1899 1914 1947 2051 541 669 742
47.48 47.85 48.68 58 51.28 13.52 0 16.72 18.55

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Sept-4 1883 C= 50 82,2

35.4 30,7 31,3 29.7 32,6
47,0 48.9 47,8 49.8
54.6 54.6 53,0 55.9
46.8 47,7 46,6 48.4
1790 1825 1761 1867
39 44.75 45,62 44,02 46.68

2 3 4 5 6 7 8

0 0 3.8 9,6 13.6 16.4 19,1 21,5 25,0 28.8 33.5 38.4
19.3 23.2 27,5 31,0 34,0 36,1 39,4 43.2 47,0 52,3
23,9 29,0 34,0 36,4 39,0 40,8 44,1 48,6 53,8 58,8
18,8 23,2 27.8 31,6 34,5 35,4 39,8 43,8 47,8 52,3
658 850 1029 1154 1266 1338 1483 1644 1821 2018
0 16,45 21,25 25,72 28,85 31,65 33,45 37,08 41,10 45,52 50,45

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Sept 6½, 1883 C = 50 82.

| | | | | | | |
|---|---|---|---|---|---|---|
| 40 | | | | | | |
| 35.1 | 17.2 | 19.6 | 21.0 | 22.0 | 22.6 | |
| | 16.1 | 17.1 | 19.0 | 18.2 | 20.7 | |
| | 19.6 | 20.7 | 21.9 | 22.7 | 23.7 | |
| | 20.7 | 22.2 | 24.0 | 25.1 | 25.8 | |
| | 736 | 796 | 859 | 880 | 928 | |
| 46? | 18.40 | 19.90 | 21.48 | 22.00 | 23.20 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 45.1 | 47.3 | 51.6 | 53.0 | 57.0 | 58.8 | 2.3 |
| | 45.3 | 48.0 | 51.3 | 53.8 | 58.8 | 58.8. |
| | 47.0 | 50.3 | 53.6 | 56.1 | 58.1 | 1.0 |
| | 50.6 | 53.9 | 58.2 | 59.7 | 1.7 | 50 |
| | 1902 | 2038 | 2181 | 2266 | 2344 | 71 |
| 46 | 47.55 | 50.95 | 54.52 | 56.65 | 58.60 | 1.78 |

A ½ C. TC.

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1883phae.proj.1429B



Sept. 7 1883 C = 50.-90.1

Fault of Chronograph

| | | | | |
|---|---|---|---|---|
| 451 | ~~19.0~~ | 20.4 | ~~22.0~~ | 25.4 |
| | 17.6 | 17.3 | 19.2 | 22.3 |
| | ~~20.9~~ | ~~21.5~~ | ~~22.8~~ | 25.1 |
| | ~~21.7~~ | 22.8 | ~~24.3~~ | 27.1 |

999
46 24.98

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 45.1 | 49.6 | 54.7 | 57.1 | 58.0 | 1.8 | 4.8 | 19.0 | 22.8 | 27.0 | 31.4 |
| | 46.4 | 50.4 | 53.0 | 53.4 | 57.9 | 0.5 | 15.3 | 18.7 | 22.6 | 27.0 |
| | 49.0 | 52.7 | 55.3 | 56.9 | 0.2 | 2.4 | 17.4 | 21.3 | 24.9 | 29.5 |
| | 52.8 | 56.0 | 59.3 | 0.1 | 3.4 | 5.7 | 21.0 | 24.2 | 28.7 | 33.3 |
| | 1978 | 2138 | 2247 | 2284 | 33 | 134 | 727 | 870 | 1032 | 1212 |
| 46 | 49.45 | 53.45 | 56.18 | 57.10 | 0.82 | 3.35 | 13.18 | 21.75 | 25.80 | 30.30 |

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1883phae.proj.1429B



Sept-9 1883 G = 52, 84,7

| | R | | | |
|---|---|---|---|---|
| 45-1 | 210 | 214 | 223 | 238 |
| | 19,2 | 19,2 | 17,8 | 22,0 |
| | 22,2 | 22,4 | 23,5 | 25,2 |
| | 24,2 | 23,7 | 24,2 | 26,1 |
| | 866 | 870 | 878 | 971 |
| 46 | 21,65 | 21,75 | 21,95 | 24,28 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 52 | U | 51,0 | 54,7 | 59,8 | 3,0 | 7,0 |
| ~~52~~ | 2 | 47,1 | 51,8 | 56,0 | 5,90 | 3,8 |
| | | 49,0 | 53,8 | 58,3 | 1,3 | 5,1 |
| | | 47,8 | 54,1 | 1,1 | 4,4 | 5,7 |
| | | 1989 | 2174 | 2352 | 80 | 256 |
| | 53 | 49,72 | 54,35 | 58,80 | 2,00 | 6,40 |

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1883phae.proj.1429B



Sept. 10. 1883

$A_{8,8_0}\ 6_2\ 4_2$

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1883phae.proj.1429B



Sept 11. 1883 C = 60 82.4

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 46+1 | -43.2 | 48.7 | 53.3 | 54.7 | 59.7 | 4.5 | 6.0 | 1.8 | 20.8 | 23.1 |
| | 39.2 | 43.8 | 49.2 | 52.1 | 63.8 | 59.6 | 1.3 | 6.6 | 16.9 | 18.6 |
| | 39.3 | 43.7 | 49.1 | 50.3 | 55.4 | 0.8 | 2.1 | 6.7 | 17.1 | 20.0 |
| | 44.1 | 47.7 | 53.2 | 54.0 | 59.4 | 4.2 | 6.0 | 11.6 | 20.7 | 23.7 |
| | 1658 | 1839 | 2048 | 2111 | 2283 | 91 | 154 | 267 | 745 | 854 |
| 46 | 41.45 | 45.98 | 51.20 | 52.78 | 57.08 | 2.28 | 3.85 | 6.68 | 18.62 | 21.35 |

27.8
22.8
23.2
27.0

1008

2520

Long Stroke

$A_5$ $4_2$ $4_1$ $4_0$ $A_{+1}$ $5_4$ $A_{+1}$ $3$ $A_{+1}$ $_1$

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1883phae.proj.1429B



Sept. 26 1883 C = 50 86.6

RR

451 27.2 28.7 28.8 28.5 28.6 30.0 31.6 32.6 33.6 35.0
21.8 24.4 23.3 24.2 24.9 25.4 26.7 27.1 28.7 30.2
24.9 26.3 25.3 26.2 26.3 27.2 28.0 29.0 30.3 31.4
26.8 28.1 27.7 28.6 28.6 29.7 31.2 31.4 32.7 33.7
1007 1075 1051 1075 1084 1123 1175 1201 1253 1303
46 25,18 26,88 26,28 26,88 27,10 28,08 29,38 30,02 31,32 32,58

59.2 1.3 3.4 7.2 8.4
53.6 57.3 58.2 1.8 4.1
54.4 58.4 0.2 3.4 5.0
58.0 1.6 2.7 6.8 8.2
2252 2386 45 192 257
56,30 59,65 1,12 4,80 6,42

One stroke for first wire

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1883phae.proj.1429B



Sept-27 1883 C = 12 No. 6

| RP | RP | RP | RP | RP | RP | RR | RR | tc | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 45-1 | 27.2 | 27.6 | 27.0 | 26.1 | 26.8 | 28.2 | 27.6 | 30.3 | 29.9 | 31.9 | 32.8 |
| 23.6 | 23.4 | 24.0 | ~~25.5~~ | 22.3 | 22.3 | 23.5 | 24.2 | 25.8 | 25.9 | 26.7 | 26.4 |
| 26.2 | 25.0 | 26.1 | ~~26.1~~ | 24.0 | 24.8 | 25.1 | 25.7 | 26.8 | 26.1 | 27.3 | 28.6 |
| 27.8 | 27.4 | 27.9 | 27.6 | 26.2 | 27.5 | 28.2 | 29.0 | 30.2 | 29.8 | 31.2 | 32.3 |
| 1056 | 1030 | 1056 | 1041 | 986 | 1014 | 1040 | 1065 | 1131 | 1117 | 1171 | 1201 |
| 46 26.40 | 25.75 | 26.40 | 26.02 | 24.65 | 25.35 | 26.00 | 26.62 | 28.28 | 27.92 | 29.28 | 30.02 |

RR

34.6 35.4
29.3 31.2
30.5 31.6
34.1 34.7
1285 1329
32.12 33.22

Long break before 40

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1883phae.proj.1429B



001-1 / HR C = 50 64.7

RP RP RP RP RP RP RP RP RP RP RP RP RP

45 1 304 33.5 32.2 32.6 32.0 32.0 32.2 32.4 31.9 32.1 33.4 34.0 33.9
25.4 29.1 27.5 27.4 27.7 27.9 27.8 27.8 25.6 24.5 29.1 29.0 28.2
27.5 30.4 28.8 ~~28.0~~ ~~28.5~~ 28.9 29.1 28.8 28.0 30.0 30.4 30.0 30.5
29.8 32.4 30.8 30.2 30.4 31.0 30.9 31.1 30.0 31.2 31.9 32.1 32.0
1131 1254 1193 1182 1186 1198 1200 1201 1155 1208 1248 1251 1246

46 28.28 31.35 29.82 29.55 29.65 29.95 30.00 30.02 28.88 30.20 31.20 31.28 31.15

RP RP RP RP

2 4.0 28.8 30.7 34.8
59.3 23.9 25.7 24.5
59.8 25.2 27.4 30.6
21 26.8 29.6 33.2
52 1047 1134 1281

2 1.30 26.18 28.35 32.02

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-1

A
1,1

3.5 to Cote

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1883phae.proj.1429B



Oct 3 C = JD 648

| | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45 | 1 | 31.2 | 32.9 | 31.9 | 31.6 | 33.0 | 32.5 | 32.8 | 31.8 | 32.1 | 35.0 | 35.1 | 35.6 | 36.5 | 38.2 | 39.8 |
| | | 28.4 | 28.7 | 27.3 | 26.0 | 27.4 | 27.5 | 27.4 | 27.9 | 26.9 | 29.1 | 28.8 | 29.9 | 31.9 | 32.8 | 34.4 |
| | | 28.2 | 28.6 | 27.9 | 27.2 | 28.5 | 27.9 | 27.9 | 27.0 | 27.0 | 29.9 | 29.5 | 30.4 | 31.0 | 32.6 | 34.2 |
| | | 28.6 | 30.2 | 28.8 | 28.2 | 30.4 | 28.9 | 29.5 | 29.2 | 28.8 | 31.8 | 31.8 | 32.3 | 33.8 | 35.5 | 37.3 |
| | | 1154 | 1199 | 1159 | 1130 | 1193 | 1168 | 1176 | 1159 | 1148 | 1258 | 1252 | 1282 | 1332 | 1391 | 1457 |
| | 46 | 28.85 | 29.98 | 28.98 | 28.25 | 29.82 | 29.20 | 29.40 | 28.98 | 28.70 | 31.45 | 31.30 | 32.05 | 33.30 | 34.78 | 36.42 |

| | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 4.0 | 7.5 | 10.1 | 11.8 | 14.8 | 17.5 | 21.5 | 24.2 | 24.0 | 29.7 |
| | 5.86 | 1.9 | 4.3 | 6.8 | 9.0 | 10.5 | 15.6 | 18.3 | 21.7 | 24.9 |
| | 5.95 | 1.0 | 3.7 | 5.3 | 8.8 | 10.4 | 15.8 | 18.4 | 21.8 | 24.3 |
| | 1.2 | 5.0 | 8.0 | 9.5 | 12.2 | 14.8 | 19.2 | 22.2 | 24.6 | 26.5 |
| | | 113 | 154 | 261 | 324 | 443 | 532 | 721 | 831 | 951 | 1054 |
| 2 | | 0.32 | 3.85 | 6.52 | 8.10 | 11.08 | 13.30 | 18.02 | 20.78 | 23.78 | 26.35 |

Lost some wire between 4.0 and —

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1883phae.proj.1429B



OCT-4 1883 C = 52 64.8

| | | RB | RB | RB | RB | RB | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45 | 1 | 35.0 | 25.7 | 34.4 | 34.9 | 34.0 | 35.0 | 34.6 | 36.0 | 35.6 | 36.3 | 37.9 |
| | | 29.9 | 30.4 | 29.6 | 30.1 | 28.9 | 29.5 | 30.4 | 31.2 | 30.5 | 32.0 | 33.8 |
| | | 30.4 | 31.1 | 30.0 | 30.2 | 29.0 | 29.8 | 30.5 | 30.9 | 30.0 | 31.2 | 33.3 |
| | | 33.2 | 33.8 | 32.4 | 32.3 | 31.7 | 33.0 | 32.8 | 33.7 | 33.4 | 34.3 | 37.2 |
| | | 1285 | 1310 | 1264 | 1275 | 1236 | 1273 | 1283 | 1318 | 1295 | 1338 | 1422 |
| | 46 | 32.12 | 32.75 | 31.60 | 31.88 | 30.90 | 31.82 | 32.08 | 32.95 | 32.38 | 33.45 | 35.55 |

| | | RB | RB | RB | RB | RB | RB | RB | RB | RB | RB | RB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | | 7.0 | 9.0 | 12.1 | 15.3 | 19.6 | 24.4 | 27.9 | 31.7 | 35.5 | 39.3 | 43.6 |
| | | 1.5 | 4.5 | 7.1 | 10.9 | 14.4 | 20.1 | 23.1 | 27.1 | 31.3 | 34.5 | 39.2 |
| | | 1.3 | 4.4 | 6.5 | 9.6 | 13.5 | 19.8 | 22.5 | 26.3 | 29.4 | 33.2 | 38.0 |
| | | 5.3 | 7.4 | 10.1 | 13.8 | 17.5 | 23.5 | 25.9 | 30.2 | 34.5 | 37.3 | 41.2 |
| | | 151 | 253 | 361 | 496 | 650 | 878 | 994 | 1153 | 1307 | 1443 | 1623 |
| 2 | | 3.78 | 6.32 | 9.02 | 12.40 | 16.25 | 21.95 | 24.85 | 28.82 | 32.68 | 36.08 | 40.58 |

A 543 − 1

A 1 to 7, 10 to 12 & C to A 10 incl.

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1883phae.proj.1429B



Oct. 6. 1883 C = 50 65.5

| P | P | P | P | P | P | P | P |
|---|---|---|---|---|---|---|---|
| 461 43.0 | 45~2 10.5~ | 14.4 | 49.2 | 55.6 | 1.9 | 6.8 | 2.6 |
| 36.3 | 2.0 | 5.2 | 42.6 | 49.0 | 55.5 | 59.7 | 5.1 |
| 33.2 | 1.0 | 3.4 | 41.5~ | 47.9 | 52.3 | 56.5 | 2.7 |
| 37.5~ | 5.1 | 8.4 | 46.1 | 50.7 | 57.0 | 09 | 7.8 |
| 1500 | 186 | 314 | 1794 | 2032 | 2267 | 39 | 282 |
| 46 37.50 | 47 4.65 | 7.85 | 44.85 | 50.80 | 56.68 | 0.98 | 7.05 |

a 1 ~~A~~ A 8732 Seeing very poor – clouds
-1 Taken +1 by D. B. P.

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1883phae.proj.1429B



Oct 8 1883 C = 5° 65.5'

Taken by D.B.P.

| | PP | PP | PP | PP | PP | PP | PP | PP |
|---|---|---|---|---|---|---|---|---|
| 45°1 | 39.9 | 40.7 | 41.8 | 2 6.5' | 18.4 | 21.0 | 25.1 | 30.5' |
| | 33.6 | 34.0 | 35.6 | 0.3 | 11.5' | 14.0 | 18.0 | 23.6 |
| | 32.3 | 33.8 | 34.8 | 59.7 | 9.7 | 12.9 | 16.8 | 23.8 |
| | 36.5' | 38.0 | 38.1 | 3.9 | 13.4 | 17.5' | 22.0 | 27.4 |
| | 1423 | 1465 | 1503 | 104 | 530 | 654 | 819 | 1053 |
| 46 | 35.58 | 36.62 | 37.58 | 2.60 | 13.25 | 16.35 | 20.48 | 26.32 |

| | PP | PP | PP | PP | PP | PP | PP |
|---|---|---|---|---|---|---|---|
| | 34.5' | 41.4 | 44.6 | 51.7 | 3 0.0 | 6.8 | 10.0 |
| | 28.6 | 36.1 | 38.7 | 45.5' | 54.9 | 0.3 | 2.8 |
| | 28.4 | 35.0 | 38.1 | 44.8 | 52.5' | 58.6 | 1.6 |
| | 31.2 | 39.0 | 41.8 | 48.7 | 56.4 | 2.8 | 6.1 |
| | 1227 | 1515 | 1632 | 1907 | 2238 | 85 | 205 |
| | 30.68 | 37.88 | 40.80 | 47.68 | 55.95 | 2.12 | 5.12 |

Seeing very poor for a few wires

Lost A, 1

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1883phae.proj.1429B



Oct 9/88 C=565

| | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP | RD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 45 | 2.00 | 14.9 | 27.7 | 31.1 | 36.9 | 39.3 | 40.9 | 44.7 | 48.1 | 52.1 | 55.- |
| | 12.8 | 17.8 | 19.8 | 23.6 | 29.4 | 31.6 | 34.0 | 38.9 | 41.9 | 46.1 | 47.8 |
| | 12.8 | 17.7 | 19.8 | 23.0 | 28.6 | 31.0 | 33.6 | 37.3 | 40.0 | 44.9 | 47.0 |
| | 16.1 | 24.4 | 23.8 | 26.8 | 32.2 | 34.8 | 37.5 | 41.7 | 44.4 | 49.2 | 51.5 |
| 47 | 15.42 | 20.38 | 22.78 | 26.12 | 31.78 | 34.18 | 36.50 | 40.65 | 43.60 | 48.08 | 50.38 |

H 2345.
-1
//
Stone

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1883phae.proj.1429B



1883

Oct 10 C = 50 70J

| | RR | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|
| 45-1 | 37.8 | 38.9 | 40.3 | 41.6 | 42.7 | 43.8 | 44.0 |
| | 31.5 | 33.4 | 25.4 | 36.7 | 37.4 | 38.2 | 36.3 |
| | 34.0 | 35.5 | 37.3 | 38.8 | 39.3 | 39.6 | 39.4 |
| | 35.5 | 36.3 | 38.0 | 39.9 | 41.2 | 41.2 | 41.3 |
| 46 | 34.70 | 36.02 | 37.78 | 39.25 | 40.15 | 40.70 | 40.75 |

| | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|
| 45-2 | 9.9 | 13.0 | 13.5 | 14.4 | 19.9 | 23.0 | 25.0 |
| | 2.8 | 5.4 | 5.4 | 11.1 | 13.0 | 16.5 | 17.8 |
| | 2.5 | 7.1 | 6.8 | 11.4 | 13.9 | 18.0 | 18.3 |
| | 5.5 | 10.0 | 10.4 | 15.5 | 15.6 | 19.5 | 21.2 |
| | 5.18 | 8.88 | 9.18 | 14.02 | 15.60 | 19.00 | 20.58 |

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1883phae.proj.1429B



Oct-14 1883.

C = 50 7.06

RR RR RR RR RR

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 45 | 1 | 34.6 | | 38.8 | 46.2 | 2 | 4.0 | 19.2 |
| | 29.3 | 29.6 | | 34.8 | 39.3 | | 5.8 | 12.3 |
| | 30.4 | 30.2 | | 33.9 | 42.4 | | 1.2 | 15.2 |
| | 31.8 | 32.0 | | 36.0 | 43.7 | | 2.8 | 15.7 |
| | | | | | 171.6 | | 6.8 | 62.2 |
| | | | | | 429.0 | | 1.70 | 155.5 |

$A_{+1}$ 1 2 3

$A_{10}$ to 6, 2 to 10 $A_{+1}$ 12.4 5

RR RR RR RR RR

| | | | | |
|---|---|---|---|---|
| 24.8 | 30.6 | 35.8 | 41.9 | 46.6 |
| 18.2 | 25.7 | 29.8 | 34.8 | 40.2 |
| 25.9 | 24.5 | 31.8 | 37.1 | 42.4 |
| 21.7 | 28.6 | 32.6 | 38.7 | 43.6 |
| 90.6 | 111.8 | 130.0 | 152.5 | 173.1 |
| 22.65 | 27.95 | 32.50 | 38.12 | 43.28 |

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1883phae.proj.1429B



Oct-15 1883 C = 50 706

| | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|
| 45 i | 35.0 | 37.4 | 39.0 | 43.7 | 44.2 | 46.5 |
| | 29.6 | 32.5 | 33.3 | 38.0 | 39.3 | 40.8 |
| | 33.1 | 34.7 | 35.9 | 41.6 | 41.6 | 43.0 |
| | 33.9 | 35.8 | 36.8 | 43.0 | 42.7 | 45.1 |

At the crossing of incident line

Obj

1 s Lupus A 5 −1

| | RP | RP | | RP | RP | RP | RP | |
|---|---|---|---|---|---|---|---|---|
| 2 | 9.5 | 12.3 | 2 | 46.2 | 52.6 | 57.4 | 3 2.2 | Am Winds |
| | 2.5 | 6.3 | | 41.4 | 47.8 | 51.6 | 57.2 | |
| | 6.3 | 5.0 | | 44.2 | 49.7 | 53.8 | 59.5 | |
| | 7.2 | 5.9 | | 46.3 | 51.1 | 55.5 | 0.9 | |
| | 260 | 375 | | 1781 | 2014 | 2183 | | 2398 |
| 2 | 6.50 | 9.38 | | 44.52 | 50.35 | 54.58 | | 59.95 |

0.6 pour-A 1.0

1.4 pour-A 0

5 2.2 pour-A 1

30 pour-A 1

40 pour-A 1

1 s Lupus breaks out of sight

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1883phae.proj.1429B



001-75
76

C 50 68.7

| | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|
| 45 | 43.3 | 43.4 | 45.7 | 44.4 | 49.5 | 49.9 |
| | 37.5 | 37.5 | 39.9 | 38.0 | 42.3 | 43.9 |
| | 37.7 | 37.4 | 38.3 | 38.9 | 43.0 | 44.1 |
| | 40.8 | 40.3 | 40.9 | 40.8 | 45.2 | 45.8 |
| 46 | 39.82 | 39.90 | 40.70 | 40.48 | 45.00 | 45.92 |

| | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|
| 2 | 23.1 | 26.5 | 30.4 | 31.5 | 34.9 | 38.1 |
| | 16.6 | 20.2 | 24.8 | 25.4 | 29.1 | 32.5 |
| | 17.5 | 21.1 | 25.5 | 25.9 | 30.0 | 33.0 |
| | 19.8 | 23.2 | 28.9 | 29.5 | 32.5 | 35.9 |
| 47 | 19.25 | 22.75 | 27.40 | 28.08 | 31.62 | 34.88 |

A 1 5 4 1 A 8 0 7 2 7 1 6 0 5 2 5 1 5 0 4 2 4 1 4 0 3 2 3 1 3 0 A 7 4 8 2 1

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1883phae.proj.1429B



so

$\delta C1 \frac{46}{17}$ $\odot = 71.7$

| | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|
| 45 | 47.1 | 48.0 | 48.8 | 49.7 | 50.6 | 51.9 | 53.7 |
| | 39.1 | 40.4 | 41.3 | 42.6 | 44.2 | 44.5 | 45.4 |
| | 37.8 | 38.8 | 40.1 | 40.8 | 43.0 | 43.9 | 44.4 |
| | 41.3 | 42.2 | 43.8 | 44.7 | 46.0 | 46.5 | 46.5 |
| 46 | 41.32 | 42.42 | 43.50 | 44.45 | 45.95 | 46.70 | 47.50 |

Rattle just before $A_{20}$ Lost some wires before rattle

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1883phae.proj.1429B



Oct 17/18 C 30 65.0

| | RP | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|
| 45-1 | 43.5 | 44.0 | 48.8 | 48.5 | 48.8 | 49.7 | 50.8 | 52.9 | 52.7 |
| | 38.2 | 39.9 | 41.6 | 40.4 | 41.0 | 42.6 | 44.0 | 45.9 | 45.8 |
| | 34.0 | 39.0 | 40.5 | 39.7 | 39.9 | 40.6 | 41.9 | 44.1 | 49.7 |
| | 40.4 | 42.5 | 43.6 | 43.1 | 43.9 | 44.4 | 44.8 | 48.2 | 47.3 |
| 46 | 40.42 | 42.10 | 43.62 | 42.92 | 43.40 | 44.32 | 45.38 | 47.78 | 48.38 |

| | RP | RP |
|---|---|---|
| 2 | 19.4 | 22.9 |
| | 12.9 | 15.0 |
| | 9.2 | 13.0 |
| | 14.2 | 16.8 |
| | 55.7 | 57.7 |
| 2 | 13.92 | 14.42 |

A82 Lost 70 71 (72?)

Seems very bad Clouds

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1883phae.proj.1429B



Oct 22/883 · C = 50 65:0

L.C.

| | R | P | R | P | R | P | R | P | R | P | R | P | R | P | R | P | R | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 452 | 15.8 | | 21.7 | | 25.5 | | 27.8 | | 30.0 | | 34.6 | | 36.8 | | 40.7 | | 46.4 | 48.2 |
| | 12.0 | | 12.6 | | 17.1 | | 20.0 | | 22.5 | | 27.6 | | 30.0 | | 33.5 | | 38.5 | 41.5 |
| | 10.5 | | 11.2 | | 15.2 | | 17.9 | | 21.6 | | 24.8 | | ~24 | | 30.8 | | 37.1 | 38.5 |
| | 14.3 | | 15.4 | | 18.7 | | 21.8 | | 24.5 | | 27.8 | | 30.8 | | 34.8 | | 39.9 | 42.0 |
| 47 | 14.15 | | 14.98 | | 19.12 | | 21.88 | | 24.65 | | 28.10 | | 31.25 | | 1398 | | 1619 | 1702 |
| | | | | | | | | | | | | | | | 3495 | | 4048 | 4255 |

P observes from $A_{7/2}$ to $A_{4/2}$ Lost a few strokes

R observes from $A_{4/2}$ to $A_{1/0}$

Roomclock

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1883phae.proj.1429B



Oct. 22 23 1883 C-5073.4

| | RP | RP | RP | | R | R |
|---|---|---|---|---|---|---|
| 45 | 15.15 | 5.21 | 54.7 | 45 | 23.5 | 28.6 |
| | 43.7 | 44.0 | 46.0 | | 15.4 | 20.5 |
| | 41.8 | 42.2 | 44.1 | | 12.0 | 17.2 |
| | 44.9 | 45.5 | 47.8 | | 17.7 | 21.6 |
| | 1819 | 1838 | 1926 | | 686 | 879 |
| 46 | 45.48 | 45.95 | 48.15 | | 17.15 | 21.94 |

$\Delta_{71}$ 3 21 $\Delta_{90828,}$ 80 24, 5 $\overset{2,2}{5,5_0}$ $3,3_0$ $2_0\,1_2\,1_0$

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1883phae.proj.1429B



00 27 VK3
28
Lb.

| | R | R |
|---|---|---|
| 45 2 | 52.0 | 52.8 |
| | 41,0 | 42.4 |
| | 35,1 | 40,2 |
| | 43,8 | 44,3 |
| | 173 9 | 1797 |
| 47 | 43.48 | 44.92 |

$\Delta_{-1}^{+}$ 5 4 $\Delta_{7170\,62\,64\,60}$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.14298



Oct. 29/30 1883

| | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|---|
| 451 | 44.2 | 45.0 | 45.8 | 46.1 | 47.3 | 47.8 | 49.3 | 49.5 | 50.8 | 52.1 |
| | 35.3 | 35.8 | 36.4 | 37.5 | 37.4 | 37.9 | 40.2 | 40.1 | 42.5 | 43.9 |
| | 35.5 | 36.3 | 36.7 | 37.9 | 38.5 | 38.4 | 40.2 | 40.2 | 42.3 | 43.6 |
| | 38.9 | 39.5 | 40.1 | 41.0 | 41.3 | 41.2 | 43.1 | 43.2 | 45.5 | 47.5 |
| 46 | 38.48 | 39.15 | 39.75 | 40.62 | 41.38 | 1653 | 1728 | 1730 | 1811 | 1869 |
| | | | | | | 41.32 | 43.20 | 43.25 | 45.28 | 46.72 |

| | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|---|
| 45 | 21.66 | 26.2 | 28.3 | 30.2 | 34.0 | 37.6 | 41.4 | 44.7 | 49.4 | 57.9 |
| | 8.0 | 17.8 | 19.8 | 21.5 | 25.6 | 29.2 | 33.2 | 36.5 | 42.0 | 44.8 |
| | 7.9 | 19.8 | 19.7 | 21.4 | 25.4 | 29.3 | 32.6 | 35.5 | 41.6 | 44.2 |
| | 10.8 | 20.7 | 22.5 | 24.3 | 28.2 | 31.5 | 35.9 | 38.6 | 44.5 | 46.7 |
| | 433 | 825 | 903 | 977 | 1132 | 1276 | 1431 | 38.82 | 44.38 | 46.90 |
| 47 | 10.82 | 20.62 | 22.58 | 24.42 | 28.30 | 31.90 | 35.78 | | | |

* After Comy Valle

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1883phae.proj.1429B



Nov 1

Oct 31 1883 C = 5·0 76.7

| | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 45 1 | 50.4 | 60.7 | 60.0 | 50.5 | 51.7 | 52.9 | 54.5 | 52.9 | 54.7 | 56.8 | 57.0 |
| | 41.8 | 42.0 | 41.4 | 42.1 | 43.0 | 44.2 | 44.9 | 44.2 | 46.7 | 48.0 | 48.2 |
| | 40.6 | 40.7 | 39.9 | 40.9 | 41.4 | 42.5 | 43.0 | 42.8 | 44.0 | 45.6 | 46.2 |
| | 44.0 | 44.0 | 43.6 | 44.2 | 45.2 | 46.6 | 47.5 | 46.2 | 47.7 | 49.8 | 50.4 |
| | 44.20 | 44.35 | 43.72 | 44.50 | 1813 | 1862 | 1899 | 1861 | 1931 | 2002 | 2018 |
| | | | | | 45.32 | 46.55 | 47.48 | 46.52 | 48.28 | 50.05 | 50.45 |

| | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|---|
| 45 2 | 21.7 | 25.9 | 28.3 | 30.3 | 33.1 | 36.4 | 39.0 | 41.4 | 44.8 | 48.0 |
| | 13.6 | 18.0 | 19.9 | 22.4 | 25.1 | 27.1 | 30.0 | 33.9 | 37.0 | 40.3 |
| | 11.0 | 16.5 | 18.4 | 21.2 | 23.6 | 26.0 | 28.5 | 32.2 | 35.5 | 38.9 |
| | 15.3 | 19.7 | 22.1 | 24.3 | 26.8 | 29.2 | 32.1 | 35.9 | 38.1 | 42.1 |
| | 615 | 801 | 887 | 982 | 1192 | 1187 | 1296 | 1434 | 1554 | 1693 |
| 47 | 15.38 | 20.02 | 22.18 | 24.55 | 29.80 | 29.68 | 32.40 | 35.85 | 38.85 | 42.32 |

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1883phae.proj.1429B



Nov 2 C − 50 72.4

D. B. P. Obs

| | PD | P | P | P | P | P | P | P |
|---|---|---|---|---|---|---|---|---|
| 451 | 54.2 | 53.8 | 56.1 | 58.0 | 59.5 | 1.7 | 24.2 | 33.2 |
| | 43.2 | 42.8 | 46.8 | 46.8 | 48.1 | 50.9 | 15.0 | 23.5 |
| | 40.3 | 39.5 | 42.9 | 42.5 | 45.8 | 47.5 | 11.2 | 20.2 |
| | 46.7 | 45.8 | 48.0 | 48.5 | 51.6 | 53.0 | 16.2 | 26.2 |
| | 1844 | 1819 | 1938 | 1958 | 2050 | 2131 | 666 | 1021 |
| 46 | 46.10 | 45.48 | 48.45 | 48.95 | 51.25 | 53.28 | 16.65 | 25.52 |

| | PP | P | P | P | P | P | P | P | P | P |
|---|---|---|---|---|---|---|---|---|---|---|
| 452 | 35.8 | 45.2 | 47.9 | 57.6 | 3 | 3.8 | 8.6 | 13.9 | 19.1 | 23.0 | 26.9 |
| | 26.0 | 36.1 | 38.8 | 48.3 | 55.1 | 58.9 | 4.5 | 10.3 | 12.5 | 17.6 |
| | 22.9 | 33.2 | 34.9 | 45.1 | 52.1 | 55.5 | 2.1 | 7.1 | 9.6 | 14.8 |
| | 28.0 | 38.0 | 39.5 | 50.0 | 56.8 | 0.2 | 6.3 | 12.0 | 14.1 | 19.8 |
| | 1127 | 1525 | 1605 | 2010 | 2278 | 32 | 268 | 485 | 592 | 791 |
| 47 | 28.18 | 38.12 | 40.12 | 50.25 | 56.95 | 0.80 | 6.70 | 12.12 | 14.80 | 19.78 |

Lost A, 5 A, 6

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1883phae.proj.1429B



Nov 4 1883 C = 50 72.6

D. B. P. Obs'r Rt

| | B | P | P | P | P | P | P |
|---|---|---|---|---|---|---|---|
| 45 2 | 24,2 | 29.7 | 33.5 | 35,8 | ~~40.0~~ 37.3 | 46.1 | 49.9 |
| | 14,3 | 20.0 | 23,4 | 26,3 | 28,8 | 36,1 | 40.7 |
| | 11.0 | 17.0 | 21,2 | 22,8 | 25 1 | 33.8 | 37.0 |
| | 17.1 | 22.2 | 26,0 | 28.4 | 30.5 | 39,4 | 42,9 |
| | 666 | 889 | 1041 | 1133 | 1217 | 1554 | 1705 |
| 47 | 16,65 | 22,22 | 26,02 | 28,32 | 30,42 | 38,85 | 42,62 |

| | P | P | P | P | P | P | P |
|---|---|---|---|---|---|---|---|
| 45 2 | 55,4 3 | 2.0 | 7.0 | 11,5 | 19.9 | 24.2 | 27.8 |
| | 46.5 | 53.0 | 58,1 | 2.8 | 10,6 | 15,4 | 17,8 |
| | 43,1 | 49.1 | 54,9 | 59,4 | 7.5 | 12,4 | 14.2 |
| | 48,4 | 55.~~1~~ | 0.1 | 4.9 | 13.1 | 17,0 | 20.0 |
| | 1934 | 2192 | 01 | 186 | 511 | 690 | 798 |
| 47 | 48.35 | 54.80 | 0.02 | 4,65 | 12,78 | 17,25 | 19,95 |

Lost $A_{-1}$ $A_{+2}$

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1883phae.proj.1429B



Mar. 6 - 1883
C = 75.1

| | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|
| 451 | 51,2 | 52,2 | 53,8 | 54,0 | 54,6 | 56,1 | 56,9 |
| | 43,1 | 44,2 | 45,2 | 45,1 | 46,1 | 47,3 | 48,5 |
| | 42,6 | 43,4 | 44,5 | 44,9 | 46,2 | 46,9 | 48,1 |
| | 46,0 | 47,1 | 48,8 | 49,0 | 49,9 | 51,1 | 51,9 |
| | 45.72 | 46.72 | 48.08 | 48.20 | 49.25 | 2014 | 2054 |
| | | | | | | 50.35 | 51.35 |

| | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|
| 2 | 21,6 | 25,7 | 28,0 | 32,0 | 34,2 | 36,3 | 41,8 |
| | 13,5 | 18,0 | 19,6 | 23,8 | 26,0 | 29,0 | 33,9 |
| | 13,6 | 17,2 | 19,4 | 22,9 | 25,7 | 27,9 | 32,8 |
| | 16,4 | 19,9 | 22,7 | 26,8 | 29,0 | 31,1 | 36,5 |
| | 1624 | 20.05 | 897 | 1055 | 1149 | 1243 | 1450 |
| | | | 2242 | 2638 | 2872 | 3108 | 3625 |

A 9,0 to 3,0 + from 3,1 to 1,0

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1883phae.proj.1429B



Nov 6 1883

$\odot$ = 75.1

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| | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|---|
| 452 | 42.9 | 47.9 | 51.2 | 56.1 | 59.8 | 04 | 4.0 | 7.0 | 11.1 | 14.5 |
| | 34.1 | 38.6 | 42.9 | 47.8 | 49.3 | 52.2 | 56.1 | 59.4 | 19 | 5.8 |
| | 34.2 | 38.9 | 42.9 | 46.6 | 49.1 | 52.0 | 55.2 | 58.9 | 2.0 | 5.5 |
| | 38.4 | 43.1 | 47.4 | 51.1 | 53.1 | 56.0 | 59.1 | 2.6 | 6.0 | 9.2 |
| | 37.40 | 42.12 | 46.10 | 5065 | 2093 | 2206 | 2344 | 79 | 210 | 350 |
| 47 | | | | | 52.32 | 55.15 | 58.60 | 1.98 | 5.25 | 8.75 |

A 21
+1

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1993phae.proj.14290



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Nova HR

N.C. C = 75.1

~~RD~~ RD RP

20 4 14.9 10.2

9.0 5.7

7.5 3.5

10.0 5.6

10.42 6.25

$W_{+1}$ 3.40 $A_{10}$ 5.30

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1883phae.proj.1429B



1007 1883

Lb. C − 75.8

| | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|
| 45 1 | 54.1 | 56.7 | 59.1 | 58.3 | 0.2 | 0.4 | 1.4 | 2.4 |
| | 43.5 | 48.3 | 48.2 | 47.0 | 49.1 | 49.3 | 51.1 | 52.1 |
| | 39.2 | 43.1 | 45.6 | 44.2 | 45.8 | 45.7 | 47.5 | 49.6 |
| | 50.3 | 52.9 | 54.0 | 52.7 | 64.0 | 63.0 | 54.2 | 56.9 |
| | 46.78 | 50.25 | 51.72 | 50.55 | 2091 | 2084 | 2142 | 2210 |
| 46 | | | | | X | 52.28 | 52.10 | 53.55 | 55.25 |

| | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|
| 45 2 | 26.0 | 31.2 | 32.2 | 35.1 | 40.8 | 48.8 | 52.5 | 65.7 |
| | 17.3 | 22.0 | 23.0 | 24.9 | 31.8 | 40.1 | 44.4 | 46.3 |
| | 15.2 | 19.3 | 20.8 | 22.9 | 28.1 | 37.3 | 41.0 | 43.5 |
| | 20.2 | 25.1 | 26.4 | 28.1 | 33.8 | 42.1 | 46.0 | 49.1 |
| | 787 | 776 | 1024 | 1110 | 1345 | 1683 | 1839 | 1946 |
| 47 | 19.68 | 19.40 | 25.60 | 27.75 | 33.62 | 42.08 | 45.98 | 48.65 |

Lost 40 41 42

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1883phae.proj.1429B



Nov. 11 1883

L. C. C = 78.2

| | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|
| 45-1 | 54.1 | 54.8 | 55.4 | 54.3 | 58.1 | 0.0 | 59.9 | 0.0 |
| | 46.2 | 46.5 | 49.3 | 47.9 | 49.0 | 50.8 | 51.2 | 51.2 |
| | 40.5 | 46.3 | 46.8 | 40.0 | 48.8 | 49.9 | 50.0 | 50.6 |
| | 48.0 | 48.4 | 49.0 | 49.8 | 57.1 | 53.1 | 53.0 | 53.1 |
| | 1938 | 1963 | 1985 | 2010 | 2070 | 2138 | 2141 | 2149 |
| 46 | 48.45 | 49.05 | 49.62 | 50.25 | 51.75 | 53.45 | 53.52 | 53.72 |

| | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|
| 45-2 | 23.6 | 27.6 | 29.8 | 33.8 | 37.7 | 40.7 | 46.5 | 49.3 |
| | 15.4 | 19.2 | 21.4 | 25.8 | 29.2 | 35.25 | 38 | 40.4 |
| | 15.7 | 19.4 | 22.0 | 25.5 | 29.0 | 31.9 | 38.5 | 40.2 |
| | 17.1 | 21.9 | 23.5 | 27.9 | 31.2 | 34.4 | 40.6 | 42.9 |
| | 718 | 881 | 967 | 1130 | 1271 | 1695 | 1644 | 1728 |
| 47 | 17.95 | 22.02 | 24.18 | 28.25 | 31.78 | 42.38 | 41.10 | 43.20 |

$\Delta_{5402} - 1$ $A_{90} \pm 6_0$ and $\Delta_3, \pm 1_0$ $A_7$ 5-

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1883phae.proj.1429B



Nov 12 1883 C = 78[illegible]²

NC

| | R | RP | RD | P |
|---|---|---|---|---|
| 20.4 | 16.4 | 16.2 | 15.0 | 14.0 |
| | 7.3 | 6.5 | 5.6 | 5.2 |
| | 3.0 | 2.3 | 1.5 | 0.14 |
| | 5.5 | 5.0 | 4.3 | 3.2 |
| | 32.2 | 30.0 | 26.4 | 22.8 |
| 24 | 8.05 | 7.50 | 6.60 | 5.70 |

$A_{1,0}$ to $4_1$

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1883phae.proj.1429B

Nov 12

L@

@ = 71.2

| | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|
| 45 2 | 2.9 | 3.1 | 4.7 | 5.4 | 5.6 | 7.2 | 8.3 |
| | 51.7 | 52.1 | 53.1 | 54.3 | 54.1 | 57.2 | 57.3 |
| | 48.2 | 48.8 | 49.1 | 50.4 | 50.3 | 52.0 | 53.5 |
| | 5.21 | 5.23 | 53.5 | 54.1 | 54.9 | 56.5 | 58.0 |
| | 214.9 | 216.3 | 220.4 | 224.2 | 224.9 | 232.9 | 237.1 |
| 47 | 53.72 | 54.06 | 55.10 | 56.05 | 56.22 | 58.22 | 59.28 |

| | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|
| 45 2 | 30.0 | 35.7 | 38.0 | 40.5 | 44.9 | 47.0 | 48.1 |
| | 18.4 | 25.4 | 27.2 | 28.7 | 33.4 | 35.9 | 37.3 |
| | 14.5 | 21.1 | 23.1 | 24.9 | 28.5 | 31.7 | 32.6 |
| | 19.1 | 25.3 | 26.4 | 29.8 | 32.9 | 35.3 | 38.0 |
| | 800 | 1075 | 1147 | 1252 | 1401 | 1499 | 1560 |
| 47 | 20.00 | 26.88 | 28.68 | 31.30 | 35.02 | 37.48 | 39.00 |

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Nov 14

c = 72 / Mk

~~Mk C.~~

| | RD | RP | RP | RP | RP |
|---|---|---|---|---|---|
| 204 | 18.1 | 18.0 | 16.2 | 16.0 | 14.7 |
| | 7.4 | 8.5 | 6.2 | 5.6 | 5.2 |
| | 3.9 | 4.1 | 3.0 | 2.4 | 1.1 |
| | 6.8 | 9.5 | 5.5 | 4.7 | 4.1 |
| | 9.05 | 9.52 | 7.72 | 7.18 | 6.28 |

$A_{10}$ to $A_{50}$

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1883phae.proj.1429B

Nov 14 1883
Lo. C = 72.5

| RP | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|---|
| 45 2 2.8 | 3.7 | 3.6 | 3.0 | 3.4 | 3.6 | 4.9 | 4.0 | 5.6 | 6.5 | 6.7 |
| 51.0 | 52.3 | 51.6 | 50.9 | 51.7 | 52.4 | 53.2 | 54.0 | 54.9 | 55.2 | 55.6 |
| 47.9 | 48.7 | 47.9 | 46.9 | 48.1 | 48.9 | 48.8 | 49.1 | 50.5 | 50.1 | 50.8 |
| 51.5 | 52.4 | 52.1 | 50.4 | 51.3 | 51.5 | 53.2 | 53.5 | 55.1 | 55.0 | 55.3 |
| 46 / 53.30 | 54.28 | 53.80 | 52.86 | 53.62 | 53.85 | 55.02 | 2206 | 2261 | 2268 | 2284 |
| | | | | | | | 55.15 | 56.52 | 56.70 | 57.10 |

| RP | RP | RP | RP |
|---|---|---|---|
| 8.2 | 8.9 | 9.7 | 9.8 |
| 56.8 | 58.1 | 58.5 | 59.2 |
| 52.0 | 53.4 | 54.4 | 54.3 |
| 56.3 | 57.8 | 59.0 | 58.6 |
| 2333 | 2382 | 10.40 | 10.45 |
| 58.32 | 59.55 | | |

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1883phae.proj.1429B



Nov. 16 C=50 72.5'

M, C,
D, B, P,

| | | P | P | P | P | P | P |
|---|---|---|---|---|---|---|---|
| 20 | 3 | 55.9 | 51.1 | 46.6 | 41.0 | 33.0 | 28.2 |
| | | 15.2 | 40.8 | 35.0 | 30.2 | 22.2 | 17.5 |
| 45.2 = | | 39.6 | 36.2 | 30.0 | 25.3 | 16.4 | 11.4 |
| | | 42.9 | 38.1 | 32.8 | 28.0 | 20.0 | 15.0 |
| | | 1836 | 1662 | 1444 | 1245 | 916 | 721 |
| | 23 | 4590 | 41.55 | 36.10 | 31.12 | 2290 | 18.02 |

A, to A, + A, to 9,
D, B, P, Seeing very bad.

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1883phae.proj.1429B



Nov 16 C = 30 72,5

L C D B P

| | | P | | P | P | P | P | P | 3 | P |
|---|---|---|---|---|---|---|---|---|---|---|
| 45 | 2 | 14,0 | 15:8 | 38,9 | 45,7 | 51,0 | 57,1 | 59,3 | | 8,2 |
| | | 1,2 | 3,2 | 25,4 | 33,0 | 37,5 | 42,3 | 48,8 | | 54,8 |
| | | 56,2 | 58,9 | 22,2 | 28,1 | 33,7 | 39,2 | 41,6 | | 50,1 |
| | | 0,2 | 2,2 | 24,8 | 31,4 | 37,0 | 42,0 | 45,4 | | 54,6 |
| | | 116 | 201 | 1113 | 1382 | 1592 | 1806 | 1921 | | 2277 |
| | 47 | 2,90 | 5,02 | 27,82 | 34,55 | 39,80 | 45,15 | 48,02 | 48 | 56,92 |

| | | P | P |
|---|---|---|---|
| 45 | 3 | 13,3 | 19,4 |
| | | 59,9 | 5,7 |
| | | 53,8 | 1,9 |
| | | 59,1 | 4,8 |

Lost $A_{-1}$, $A_{5^\circ}$, $A_0$, $A_{+1}$ Seeing very unsteady

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1883phae.proj.1429B



Nov 17

e = 7 27

uc

| | RP | RP | RP | RP |
|---|---|---|---|---|
| n 4 | 17.0 | 16.8 | 19.8 | 14.0 |
| | 5.8 | 5.4 | 4.3 | 4.2 |
| | 1.9 | 1.0 | 6.97 | 5-5.0 |
| | 5.8 | 5.3 | 8.6 | 3.1 |
| | 7.62 | 7.12 | 5.65 | 5.18 |

H 0 to 5 0

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1883phae.proj.1429B



Nov 17

C = 70.5

Lb.

| R | R | R | R | R | R | R | R | R |
|---|---|---|---|---|---|---|---|---|
| 45 2 | 126 | 124 | 350 | 572 | 537 | 03 | 50 | 135 | 150 |
| 2. | 80 | 04 | 222 | 378 | 425 | 482 | 566 | 18 | 64 |
| 2. | 07 | 556 | 182 | 313 | 370 | 431 | 510 | 570 | 13 |
| | 56.8 | 59.8 | 231 | 380 | 418 | 483 | 557 | 10 | 6.8 |
| | 2 | 2 | 24.62 | 39.58 | 43.82 | 49.98 | 58.08 | 3.20 | 8.38 |

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1883phae.proj.1429B



Nov 19.

C = 76.0

N. C.

D B. P.

| | | P P | P P | P P |
|---|---|---|---|---|
| 20 | 4 | 12.1 | 11.0 | 8.8 |
| | | 4.9 | 3.4 | 1.8 |
| | | 2.9 | 1.3 | 59.2 |
| | | 5.3 | 3.7 | 2.2 |
| | | 2.52 | 1.94 | 1.20 |
| | 24 | 6.30 | 4.85 | 3.00 |

First few wires of A Clouds stop the observation.

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1883phae.proj.1429B

Nov 19 C = 76.5

L.C.

| | PP | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|
| 45 2 | 1.1 | 3.4 | 4.1 | 4.2 | 5.7 | 6.3 | 7.5 | 8.2 | 9.0 |
| | 52.5 | 54.1 | 54.8 | 55.8 | 57.2 | 57.3 | 57.5 | 59.0 | 0.1 |
| | 48.1 | 49.5 | 50.9 | 51.7 | 53.0 | 52.8 | 53.0 | 52.5 | 55.6 |
| | 52.5 | 54.1 | 55.1 | 56.6 | 57.1 | 57.1 | 57.8 | 59.2 | 0.6 |
| | 2142 | 2211 | 2249 | 2283 | 2330 | 2335 | 2358 | 09 | 53 |
| 47 | 53.55 | 55.28 | 56.22 | 57.08 | 58.25 | 58.38 | 58.95 | 0.22 | 1.32 |

| | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|
| 45 2 | 01.9 | 40.7 | 42.4 | 43.8 | 47.4 | 49.1 | 51.9 | 56.1 |
| | 28.9 | 31.0 | 33.3 | 34.9 | 39.0 | 40.2 | 43.1 | |
| | 24.8 | 27.5 | 29.2 | 30.0 | 35.0 | 46.4 | 39.5 | Rej |
| | 28.4 | 31.2 | 33.2 | 34.8 | 39.4 | 40.8 | 43.1 | |
| | 1200 | 1304 | 1381 | 1435 | 1608 | 1765 | 1776 | |
| 47 | 30.00 | 32.60 | 34.52 | 35.88 | 40.20 | 44.12 | 44.40 | |

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1883phae.proj.1429B



~~Nov 28~~ 21

C = 78.2

U.C.

| | RP | RP | RP | RP | RP | RD | RP |
|---|---|---|---|---|---|---|---|
| 20 4 | 10.9 | 12.0 | 12.1 | 12.0 | 10.6 | 9.4 | D.2 |
| | 3.8 | 2.7 | 2.6 | 2.7 | 1.6 | 0.9 | 5.52 |
| | 3.2 | 3.9 | 3.4 | 2.5 | 1.5 | 0.3 | 5.90 |
| | 5.4 | 6.5 | 6.0 | 6.0 | 4.2 | 2.9 | 5.54 |
| 24 | 5.70 | 6.28 | 6.02 | 5.88 | 4.42 | 3.38 | 1.20 |

A 1 2 3 4 5

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1883phae.proj.1429B



Nov. 24/1883

Lb.

| | R | R | R | R | R | R |
|---|---|---|---|---|---|---|
| 45-2 | 8.0 | 32.4 | 35.8 | 43.9 | 47.4 | 51.8 |
| | 18.4 | 21.5 | 30.9 | 34.6 | 38.8 | 41.8 |
| | 56.8 | 22.0 | 29.6 | 33.0 | 36.6 | 40.9 |
| | 0.3 | 24.8 | 32.8 | 36.2 | 35.9 | 43.4 |
| | 38 | 1017 | 1331 | 1477 | 1627 | 1782 |
| 47 | 0.95 | 25.42 | 33.28 | 36.92 | 40.68 | 44.55 |

1 $8_2$ 8, $7_2$ 7, $6_0$ $6_2$ 6, 6 $0_0$ $5_2$ 5, 5 $0_{-2}^{11}$ $4_2$ 4, $4_0$ $3_2$ 3, $3_0$ $2_2$ 2, $2_0$ $1_2$ 1, 1 0

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1883phae.proj.1429B



Nov 25 1883

WR.

@ = ~~82,7~~ 79,8

| | | RR | RR | RR | RR | RR | RR | RR | RR |
|---|---|---|---|---|---|---|---|---|---|
| 80 | 4 | 13,4 | 15,2 | 16,1 | 15,2 | 10,4 | 8,6 | 3,1 | 11,1 |
| | | 5,7 | 6,4 | 7,2 | 7,7 | 7,0 | 5,7 | 5,3 | 3,8 |
| | | 5,8 | 12,2 | 4,0 | 6,4 | 5,6 | 4,9 | 4,0 | 2,4 |
| | | 7,4 | 7,8 | 9,1 | 8,2 | 8,4 | 8,3 | 6,2 | 4,3 |
| | | 327 | 416 | 4 | 375 | 364 | 325 | 286 | 216 |
| | 24 | 8,18 | 10,40 | | 9,38 | 9,10 | 8,12 | 7,15 | 5,40 |

A 1h 5 2h

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1003phae.proj.1429B



Nov 25

C = 77.8

L b.

| | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|
| 45 | 206.9 | 8.9 | 2 35.0 | 36.3 | 39.6 | 43.5 | 47.8 | 52.2 |
| | 56.7 | 58.9 | 25.1 | 27.0 | 30.0 | 34.3 | 39.1 | 43.2 |
| | 53.6 | 56.3 | 23.0 | 24.7 | 27.1 | 32.0 | 35.2 | 40.6 |
| | 57.4 | 0.3 | 27.2 | 27.9 | 30.4 | 35.0 | 39.2 | 43.0 |
| | 2346 | 44 | 1103 | 1159 | 1271 | 1448 | 1613 | 1790 |
| 47 | 58.65 | 1.10 | 47 27.58 | 28.98 | 31.78 | 36.20 | 40.32 | 44.75 |

A −1.21 A +0.5 # 5, 2, 20 #1.0 A +1.543

1 Stn. Subt 20'

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1883phae.proj.1429B



Nov. 26

Lb. $\dot{C} = 81.5$

| | RP | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|
| 45 | 2.3 | 3.0 | 5.0 | 4.8 | 6.8 | 6.9 | 7.8 | 9.2 | 9.9 |
| | 53.2 | 53.8 | 55.1 | 55.0 | 56.0 | 56.2 | 58.6 | 8.9 | 0.2 |
| | 50.9 | 51.0 | 53.0 | 52.8 | 53.9 | 53.7 | 56.1 | 56.2 | 58.1 |
| | 54.1 | 54.5 | 56.0 | 55.3 | 57.1 | 57.7 | 58.2 | 59.8 | 0.4 |
| | 2205 | 2223 | 2291 | 2277 | 2338 | 2345 | .09 | 141 | 86 |
| 47 | 55.12 | 55.58 | 57.28 | 56.92 | 58.45 | 58.62 | .022 | 3.52 | 2.15 |

~~Nov. 27~~

| | RP | RP | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|---|
| 45 | 32.5 | 34.8 | 36.1 | 39.6 | 40.8 | 42.9 | 45.0 | 47.1 | 51.0 | 52.2 |
| | 22.8 | 25.2 | 27.4 | 30.0 | 31.3 | 33.0 | 35.2 | 37.1 | 41.1 | 43.0 |
| | 21.4 | 23.3 | 25.7 | 27.2 | 29.0 | 31.1 | 34.2 | 36.0 | 38.8 | 41.1 |
| | 23.3 | 26.0 | 26.2 | 30.2 | 31.5 | 33.9 | 36.4 | 38.1 | 41.6 | 43.9 |
| | 1000 | 1093 | 1182 | 1270 | 1326 | 1409 | 1508 | 1583 | 1725 | 1802 |
| 47 | 25.00 | 27.32 | 29.55 | 31.75 | 33.15 | 35.22 | 37.70 | 39.58 | 43.12 | 45.05 |

Ag to 5 and from 8 to 1

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Nov. 27 C = 81.5 –

M. C.

| | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|
| 203 | 52.4 | 51.0 | 50.3 | 46.0 | 44.0 |
| | 47.8 | 45.1 | 44.3 | 40.4 | 37.4 |
| | 44.5 | 41.2 | 39.8 | 36.0 | 33.8 |
| | 45.2 | 44.9 | 42.9 | 38.4 | 36.3 |
| | 48.48 | 45.55 | 43.32 | 40.20 | 37.88 |

Dankfurd Goofaird

$A_{\frac{3}{2}}$ to $b_0$

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1883phae.proj.1429B



Nov. 27 C=81,

Lb,

| | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|
| 45 2 | 9.4 | 10.3 | 13.2 | 14.0 | 15.2 |
| | 58.9 | 0.1 | 2.8 | 3.4 | 5.2 |
| | 54.8 | 55.8 | 58.4 | 58.7 | 1.2 |
| | 58.8 | 59.2 | 1.2 | 2.4 | 4.4 |
| 47 | 0.48 | 1.35 | 3.90 | 4.62 | 6.50 |

| | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|
| 2 | 39.1 | 42.0 | 46.8 | 49.3 | 50.9 |
| | 29.0 | 32.1 | 36.4 | 39.9 | 41.0 |
| | 24.5 | 27.4 | 32.1 | 35.6 | 36.2 |
| | 28.1 | 31.2 | 35.4 | 36.4 | 39.4 |
| | 30.18 | 33.18 | 37.68 | 40.80 | 41.88 |

Seeing very bad

Lost Ago

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Nov 28 C = 81.5

M.C.

| | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|
| 20 3 | 55.2 | 55.0 | 53.0 | 49.2 | 49.6 | 41.0 |
| | 48.8 | 45.9 | 43.8 | 41.1 | 40.4 | 35.6 |
| | 42.4 | 42.2 | 40.4 | 39.7 | 37.0 | 34.3 |
| | 44.9 | 44.5 | 42.6 | 35.5 | 33.3 | 34.5 |
| | 47.08 | 46.90 | 44.95 | 41.98 | 1663 | 1474 |
| | | | | | 41.58 | 36.85 |

Jun $3_2$ to $6_0$

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1883phae.proj.1429B



Nov 28

Lb $\zeta^0 = 81.5$

| | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|
| 45 | 2 13.8 | 16.0 | 16.3 | 17.1 | 19.0 |
| | 2.2 | 4.8 | 5.2 | 6.0 | 7.0 |
| | 58.1 | 59.6 | 0.1 | 1.0 | 2.7 |
| | 1.6 | 2.8 | 4.1 | 4.6 | 5.3 |
| | 47 3.90 | 5.80 | 6.42 | 7.18 | 8.50 |

| | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|
| 45 | 2 39.1 | 44.0 | 44.5 | 47.0 | 57.3 | 5-2.4 |
| | 28.9 | 33.4 | 34.2 | 36.2 | 40.2 | 41.1 |
| | 24.1 | 27.9 | 29.2 | 30.9 | 35.2 | 37.0 |
| | 27.0 | 31.5 | 32.9 | 34.2 | 37.9 | 40.0 |
| | 1191 | 2 1368 | 1408 | 1483 | 1646 | 1705 |
| 47 | 29.78 | 34.20 | 35.20 | 37.08 | 41.15 | 42.62 |

$\zeta_0$ to $5_1$ and $3_2$ to $1_0$

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Nov 30. C. = 81.5

M.C.

20

| | P | P | P | P | P | P | P | P | P | P |
|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 4 | 9.7 | 8 | 46.0 | 39.6 | 36.2 | 31.4 | 27.9 | 20.9 | |
| | | 39.4 | | 36.0 | 29.9 | 26.2 | 21.2 | 17.9 | 11.2 | |
| | | 4.0 | | 30.1 | 24.0 | 20.3 | 14.9 | 11.5 | 4.1 | |
| | | 57.2 | | 32.7 | 26.9 | 23.2 | 29.0 | 15.0 | 8.1 | |
| | | 103 | | 1448 | 1204 | 1059 | 965 | 723 | 443 | |
| 24 | | 2.58 | 23 | 36.20 | 30.10 | 26.48 | 24.12 | 18.08 | 11.08 | |

D B P Seeing very good

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Nov, 30. C = 81,5°

L. C.,

| | P P | P P | P P | P P | P P | P P | P P |
|---|---|---|---|---|---|---|---|
| 45° 2 | 14,5° | 14,9 | 41,2 | 49,2 | 54,0 | 59,1 | 3 9,3 |
| | 1,9 | 3,7 | 29,8 | 37,4 | 43,0 | 47,0 | 5°8,2 |
| | 57,1 | 59,1 | 25,3 | 33,1 | 38,1 | 43,0 | 5°3,4 |
| | 1,5° | 3,1 | 28,2 | 36,5 | 41,2 | 45,8 | 5°6,5° |
| | 150 | 208 | 1245 | 1562 | 1763 | 1949 | 2374 |
| 47 | 3,75 | 5,20 | 31,12 | 39,05 | 44,08 | 48,72 | 59,35 |

D. B.P. Seeing unsteady. Some clouds

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1883phae.proj.1429B



Nov. Dec.

U. C. C = 81,5

| | | RP | RP | RP | RP | R.P. |
|---|---|---|---|---|---|---|
| 20 | 4 | 14,3 | 14,0 | 13,2 | 13,8 | 12,0 |
| | | 3,3 | 3,0 | 2,7 | 3,11 | 1,5 |
| | | 57,4 | 57,4 | 56,0 | 56,4 | 53,4 |
| | | 1,4 | 1,2 | 59,9 | 0,1 | 58,7 |
| | | 164 | 156 | 118 | 134 | 66 |
| | 24 | 4,10 | 3,90 | 2,95 | 3,35 | 1,65 |

| | | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|
| 20 | 3 | 48,0 | 46,2 | 43,8 | 41,1 | 35,4 |
| ~~48,0~~ | | 37,1 | 35,6 | 33,4 | 30,8 | 28,7 |
| | | 31,5 | 29,4 | 28,0 | 25,0 | 22,4 |
| | | 64,1 | 33,0 | 30,7 | 28,0 | 26,4 |
| | | 150,7 | 144,2 | 135,9 | 124,9 | 117,3 |
| | 23 | 37,68 | 36,55 | 33,98 | 31,22 | 29,32 |

Seeing very bad.

$A_0$ to $3_0$ and from $7_0$ to $9_0$

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Dec 2

C = 826

W C.

| | RR | RR | RR | RR | RR | RR | RR |
|---|---|---|---|---|---|---|---|
| W 4 | 15.8 | 17.6 | 15.9 | 14.8 | 13.8 | 11.4 | 11.8 |
| | 5.3 | 6.7 | 5.6 | 4.8 | 3.0 | 1.2 | 0.8 |
| | 58.4 | 59.2 | 58.9 | 57.2 | 56.3 | 54.4 | 54.2 |
| | 2.5 | 3.7 | 3.0 | 2.0 | 0.0 | 57.8 | 57.6 |
| | 220 | 267 | 234 | 188 | 131 | 48 | 44 |
| 24 | 5.50 | 6.68 | 5.85 | 4.70 | 3.28 | 1.20 | 1.10 |

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1883phae.proj.1429B



Dec 2

c = 8 2 5

L. C.

| | RP | RP | RP | RP |
|---|---|---|---|---|
| 45 | 2 2 1 0 | 221 | 2 5 4 | 25.0 |
| | 8 3 | 9 8 | 13.1 | 12.2 |
| | 5 9.5 | 3.0 | 5.7 | 5.6 |
| | 14 9 | 5.3 | 8 8 | 8.7 |
| | 437 | 402 | 528 | 515 |
| 47 | 10.92 | 10.05 | 13.20 | 12.88 |

| | RP | RP | RP | RP |
|---|---|---|---|---|
| 2 | 450 | 489 | 506 | 53.8 |
| | 327 | 360 | 388 | 40.8 |
| | 258 | 285 | 30.8 | 34.1 |
| | 283 | 320 | 339 | 37.2 |
| | 1318 | 1454 | 1535 | 1659 |
| 2 | 32.95 | 36.35 | 38.38 | 41.48 |

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Dec 3 Perhaps 7 25

C = 74.5

W, C,

| | P | P | P | P |
|---|---|---|---|---|
| 204 | 9.9 | 8.4 | 6.5 | 4.7 |
| | 59.0 | 56.2 | 54.0 | 52.8 |
| | 49.9 | 47.4 | 46.9 | 46.0 |
| | 53.1 | 50.6 | 49.2 | 47.5 |
| | 23 57.98 | 54.65 | 54.15 | 52.75 |

$A_{30}$ to $b_{11}$

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1883phae.proj.1429B



Dec 3

L C, c = 74,8

| | P | P | R | P | R | P | R | P | R | P | R | P | R | P | R | P | R | P | R | P | R | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 452 | 21,1 | | 42,2 | | 48,0 | | 50,4 | | 51,9 | | 54,0 | | 00 | | 2,5 | | 5,2 | | 14,0 | | 16,2 | |
| | 7,1 | | 31,7 | | 35,2 | | 36,5 | | 38,9 | | 40,4 | | 47,4 | | 50,2 | | 51,8 | | 54,9 | | 38 | |
| | 0,0 | | 25,3 | | 27,1 | | 29,1 | | 31,0 | | 33,3 | | 39,8 | | 42,1 | | 44,7 | | 53,4 | | 55,8 | |
| | 4,6 | | 27,8 | | 30,4 | | 32,8 | | 35,1 | | 35,9 | | 43,1 | | 46,2 | | 48,2 | | 57,7 | | 00 | |
| | 8.20 | | 31.75 | | 35.18 | | 37.20 | | 39.48 | | 40.90 | | 47.58 | | 50.25 | | 52.48 | | 1.25 | | 3.95 | |

D. B,P 9₀ to 7₁ ~~R.~~ R. 7₀ to 5₀ and 3₀ to 1₀

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1883phae.proj.1429B



Dec. 6,

C = 24 92.8

W.B.

| RP | RR | RP | RP | RP |
|---|---|---|---|---|
| 204 479 | 46.2 | 19.7 | 16.6 | 16.9 |
| 38.2 | 38.2 | 9.5 | 0.5- | 17.1 |
| 32.8 | 31.9 | 3.8 | 0.9 | 10 |
| 34.5- | 33.9 | .67 | 2.6 | 42 |
| 38.35 | 37.55- | 10.02 | 9.15 | 9.80 |

| RP | RP | RP |
|---|---|---|
| 14.1 | 11.3 | 0.4 |
| 44 | 1.5 | 58.3 |
| 586 | 554 | 541.2 |
| 1.5- | 587 | 54.0 |
| 186 | 73 | 2309 |
| 4.65 | 1.82 | 57.72 |

A 7.5- 8. to 9. A 1.12

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1883phae.proj.1429B



Dec. 6

C-24.528

RC

| | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|
| 45 | 47.1 | 48.3 | 51.9 | 51.2 | 53.1 | 53.5 |
| | 36.7 | 39.6 | 40.9 | 40.1 | 42.0 | 42.2 |
| | 29.8 | 30.4 | 33.2 | 32.9 | 35.1 | 35.4 |
| | 33.1 | 34.2 | 37.15 | 36.5 | 39.0 | 41.9 |
| | 36.65 | 37.62 | 40.78 | 40.18 | 42.30 | 45.25 |

| | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|
| 3 | 16.3 | 21.1 | 23.7 | 25.1 | 27.7 | 31.4 |
| | 5.2 | 9.9 | 12.1 | 14.1 | 16.8 | 19.9 |
| | 5.7 | 3.8 | 5.9 | 7.0 | 10.0 | 13.2 |
| | 2.9 | 6.8 | 9.2 | 11.8 | 14.0 | 16.9 |
| | 231 | 416 | 509 | 580 | 685 | 814 |
| 48 | 5.78 | 10.40 | 12.72 | 14.50 | 17.12 | 20.35 |

A90 to 50 and from 30 to 10

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1883phae.proj.1429B



Dec 7

C = 2497.6

M.C.

| | PP | PP | PP | PP | PP | PP |
|---|---|---|---|---|---|---|
| 20 4 | 47.2 | 45.7 | 20.3 | 14.7 | 9.8 | 4.0 |
| | 87.0 | 35.8 | 10.2 | 4.8 | 0.2 | 54.6 |
| | 30.0 | 25.4 | 3.1 | 58.0 | 53.2 | 46.5 |
| | 83.6 | 32.1 | 6.5 | 1.1 | 56.0 | 50.4 |
| | 1480 | 1420 | 401 | 186 | 2392 | 2155 |
| 24 | 37.00 | 35.50 | 10.02 | 4.65 | 59.80 | 53.88 |

| | PP | PP |
|---|---|---|
| 20 3 | 57.9 | 50.9 |
| | 48.1 | 40.8 |
| | 40.6 | 33.2 |
| | 44.0 | 36.4 |
| | 1906 | 1613 |
| 23 | 47.65 | 40.32 |

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.14298



Dec. 9. C = 24 96.7

L.C.

| | RP | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|
| 453 | 17.1 | 19.8 | 22.1 | 23.8 | 25.0 | 29.7 | 30.8 | 36.4 | 38.3 |
| | 5.2 | 9.1 | 11.0 | 13.0 | 14.3 | 18.6 | 19.3 | 25.0 | 27.4 |
| | 4.0 | 4.2 | 6.8 | 8.3 | 9.9 | 14.1 | | 19.6 | 22.9 |
| | 5.4 | 8.0 | 9.8 | 12.1 | 13.5 | 17.5 | Rj | 23.0 | 26.1 |
| | 287 | 414 | 497 | 572 | 627 | 799 | | 1030 | 1147 |
| 48 | 7.18 | 10.35 | 12.42 | 14.30 | 15.68 | 19.98 | | 25.75 | 28.68 |

D B P 9 to 4, W.a.R. from 4 to 9 rej 7

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1883phae.proj.1429B



Dec 10

@ = 24 9 6,7

| | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|
| 20 4 | 15,1 | 13,7 | 11,1 | 9,4 | 6,1 |
| | 6,2 | 5,3 | 2,2 | 0,8 | 57,8 |
| | 1,0 | 59,0 | 56,2 | 55,8 | 52,1 |
| | 3,5 | 2,9 | 59,2 | 58,2 | 55,2 |
| | 6,45 | 5,22 | 2,18 | 0,92 | 57,80 |

16 to 30 + form 60 to 90

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1883phae.proj.14298



Dec 10 1883
C = 2496.7

| | PP | PP | PP |
|---|---|---|---|
| 45 2 | 43.8 | 46.1 | 47.4 |
| | 35.5 | 36.5 | 39.0 |
| | 30.2 | 31.8 | 34.0 |
| | 33.3 | 30.5 | 37.2 |
| 47 | 35.70 | 36.22 | 39.40 |

| | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|
| 45 3 | 14.0 | 16.9 | 19.4 | 22.2 | 24.5 | 27.1 | 30.1 |
| | 4.8 | 7.5 | 9.9 | 12.5 | 14.9 | 17.2 | 20.2 |
| | 0.3 | 3.0 | 5.1 | 8.2 | 10.1 | 12.4 | 15.4 |
| | 3.3 | 6.2 | 8.7 | 11.8 | 13.5 | 15.8 | 19.5 |
| 48 | 5.60 | 8.40 | 10.78 | 13.68 | 15.75 | 18.12 | 21.30 |

D.P. 9° to 7° N.a.R. 7° to 5° + from 2 to 6

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



DEC 11 1883

C=96.7

M.C.

| | PR | PR | PR | PR | PR | PR |
|---|---|---|---|---|---|---|
| 20 4 | 46.0 | 45.8 | 45.1 | 42.9 | 40.8 | 26.0 |
| | 36.5 | 36.2 | 36.4 | 33.5 | 32.2 | 16.4 |
| | 31.3 | 31.1 | 30.4 | 28.7 | 26.2 | 11.0 |
| | 34.9 | 34.4 | 33.5 | 32.0 | 28.9 | 13.2 |
| 24 | 37.18 | 37.02 | 36.35 | 34.28 | 32.02 | 16.65 |

| | RP | RP | RP |
|---|---|---|---|
| 3 | 48.2 | 45.2 | 43.8 |
| | 39.4 | 37.0 | 34.8 |
| | 33.9 | 31.0 | 28.9 |
| | 37.1 | 33.1 | 31.8 |
| 23 | 39.65 | 36.58 | 34.82 |

A 1 2 5 A 1/2 2 0 3 3 2 4 0 4 4/2 .6 0 6 6.2 7 0 7 7/2 8 0

Latitude before + after wires

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1883phae.proj.14298



Dec 11

$\alpha = 96.7$

L.C.

| | PP | PP | PP | PP | PP | PP | PP | PP |
|---|---|---|---|---|---|---|---|---|
| 45 | 3 | 17.8 | 24.2 | 29.5 | 33.0 | 40.6 | 46.0 | 52.2 | 57.0 |
| | | 6.9 | 13.0 | 18.2 | 22.6 | 29.7 | 35.4 | 41.1 | 46.2 |
| | | 0.5 | 7.4 | 12.9 | 16.3 | 24.0 | 29.4 | 35.9 | 40.2 |
| | | 4.0 | 11.2 | 15.7 | 19.3 | 27.2 | 32.4 | 39.3 | 43.8 |
| | | | | | | 1215 | 1432 | 1687 | 1872 |
| 48 | | 7.30 | 13.95 | 19.08 | 22.80 | 3038 | 3580 | 4218 | 4680 |

D.B.P

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Dec 12 1883
C = 24 96.7
MC

| | PP | PP | PP | PP | PP | PP | PP |
|---|---|---|---|---|---|---|---|
| 204 | 48.6 | 45.2 | 43.9 | 19.0 | 14.9 | 9.6 | 5.7 |
| | 40.0 | 36.9 | 35.1 | 8.9 | 5.8 | 1.4 | 57.5 |
| | 39.9 | 30.4 | 29.4 | 2.9 | 59.1 | 54.6 | 50.4 |
| | 36.2 | 33.1 | 32.1 | 6.5 | 2.2 | 57.9 | 52.8 |
| 24 | 39.68 | 36.40 | 37.62 | 9.58 | 5.50 | 0.62 | 56.60 |

| | PP | PP |
|---|---|---|
| 203 | 59.8 | 55.4 |
| | 51.9 | 46.7 |
| | 44.9 | 40.4 |
| | 47.8 | 43.5 |
| | 2044 | 1860 |
| 23 | 51.10 | 46.50 |

Seeing very bad indeed D.B.P.

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Dec. 12 1883
C = 24 96.7
L C

PP PP

452 49.8 51.0
38.9 40.1
32.1 33.7
34.8 36.8
1556 1616
47 3890 4040

~~RP~~ RP RP RP RPRPRP RPRPRP RP

45 3 37.5 ~~40.0~~ 19.7 20.6 22.5 26.5 27.9 32.1 32.9 37.1 39.3 42.8
~~26.0~~ ~~FD~~ 9.7 11.2 15.4 16.0 20.0 21.0 24.3 26.5 31.1
~~27.3~~ 2.6 4.0 5.8 10.0 10.5 15.0 16.1 19.9 21.5 26.1
5.6 7.1 8.9 12.2 13.4 17.9 19.2 22.5 25.1 28.9
1038 1131 1289
48 8.98 10.35 11.60 16.12 16.95 21.25-21.30 25.95 28.28 32.22

false stroke
2 or 3 strokes

D.B.P. 9 to 5½ R 5, to 5 0 3 0 to 1 0 A 5-1/3 2 1
rej 3rd stroke for 5 before R.a. 41

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1883phae.proj.1429B



Dec 13 1883

C = 25 0.0 M.C.

| | RP | PP | RP | RP RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|
| 20 | 4 4,9 | 4,5,4 | 4,5,3 | 4,4,9 | 4,4,2 | 4,0,2 | 3,9,6 | 3,9,0 |
| | 3,7,2 | 3,7,7 | 3,5,5 | 3,6,7 | 3,6,9 | 3,2,2 | 3,1,3 | 3,1,1 |
| | 3,2,0 | 3,1,8 | 3,1,4 | 3,1,0 | 3,0,3 | 2,7,0 | 2,5,7 | 2,5,1 |
| | 3,3,5 | 3,3,9 | 3,4,0 | 3,3,5 | 3,3,0 | 2,8,8 | 2,9,9 | 2,7,2 |
| 24 | 37.25 | 37.45 | 37.12 | 36.52 | 36.10 | 32.05 | 31.12 | 30.60 |

| | RP | RP | RP |
|---|---|---|---|
| 20 | 3 4,5,1 | 4,2,0 | 3,9,1 |
| | 3,6,2 | 3,5,2 | 3,2,1 |
| | 2,2,1 | 2,8,1 | 2,6,1 |
| | 3,4,0 | 3,0,9 | 2,8,9 |
| 23 | 34.85 | 1362 | 1252 |
| | | 34.05 | 31.30 |

A 1 2 5 A 6, to 8,

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1983phae.prdj.1429B



D C15 1882

C = 25 0.0 U.C.

| | RP | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|
| 20.4 | 53,2 | 53,7 | 53,9 | 51,0 | 50,6 | 50,- | 52,6 | 45,1 | 47,9 |
| | 41,8 | 42,2 | 42,4 | 40,0 | 39,5 | 39,1 | 39,4 | 39,9 | 35,8 |
| | 34,4 | 35,0 | 35,1 | 33,0 | 33,2 | 33,1 | 33,0 | 30,1 | 28,2 |
| | 37,0 | 37,2 | 37,1 | 34,2 | 33,7 | 33,4 | 33,7 | 31,6 | 34,1 |
| | 1664 | 1681 | 1682 | 1589 | 1554 | 1541 | 1551 | 1487 | 1420 |
| 24 | 41,60 | 42,02 | 42,05 | 39,72 | 38,85 | 38,52 | 38,78 | 37,18 | 35,50 |

| RP | RP | RP |
|---|---|---|
| 22,4 | 20,2 | 19,1 |
| 11,0 | 8,7 | 7,1 |
| 8,6 | 1,5 | 0,0 |
| 5,9 | 3,5 | 2,12 |
| 429 | 339 | 284 |
| 10,72 | 6,48 | 7,10 |

A +, 1 2 3 4 5 - 1/2 to! A 8 2 9 0

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1883phae.proj.1429B



Dec 15 - 16

26.

c = 25 0.0

| | R R | R R | R R | R R |
|---|---|---|---|---|
| 45 - 3 | 31,6 | 42,8 | 47,6 | 54,7 |
| | 17,2 | 28,4 | 32,7 | 40,0 |
| | 8,4 | 17,5 | 23,2 | 30,7 |
| | 11,0 | 31,2 | 27,0 | 34,5 |
| | 6'82 | 11'99 | 13'05 | 15'99 |
| 48 | 17,05 | 29,98 | 32,62 | 39,98 |

A 90 4 70 2 50 1 0

Seeing very bad

Star invisible part of time

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1883phae.prbj.14298



Dec 21 C = 24 85.6

M. C.

| | | PP | PP | PP | PP | PP | PP | PP | PP |
|---|---|---|---|---|---|---|---|---|---|
| 20 | 4 | 53.8 | 52.8 | 49.0 | 47.2 | 24.5 | 15.0 | 8.9 | 3.0 |
| | | 39.6 | 39.1 | 34.8 | 33.3 | 10.0 | 1.2 | 56.1 | 48.9 |
| | | 31.4 | 29.7 | 25.8 | 24.8 | 1.1 | 51.7 | 45.6 | 39.2 |
| | | 32.7 | 31.5 | 28.6 | 26.9 | 4.0 | 54.1 | 47.7 | 42.0 |
| | | 1575 | 1531 | 1382 | 1322 | 396 | 20 | 2183 | 1331 |
| | 24 | 39.38 | 38.28 | 34.55 | 33.05 | 9.90 | 0.50 | 54.58 | 33.28 |

Seeing very bad D. B. P.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Dec 21, C = 24 86.5 Sure
L. C.

| | | PP | PP |
|---|---|---|---|
| 45 | 2 | 55.0 | 58.8 |
| | | 40.0 | 43.1 |
| | | 30.9 | 33.6 |
| | | 34.2 | 38.0 |
| | | 1601 | 1735 |
| | 47 | 40.02 | 43.38 |

| | | PP | PP | PP | PP | PP |
|---|---|---|---|---|---|---|
| 45 | 3 | 25.6 | 35.1 | 40.0 | 45.1 | 51.0 |
| | | 10.9 | 20.7 | 24.5 | 31.3 | 37.0 |
| | | 1.8 | 11.0 | 16.8 | 32.4 | 28.2 |
| | | 4.4 | 14.9 | 19.7 | 24.2 | 30.8 |
| | | 427 | 817 | 1010 | 1330 | 1470 |
| | 48 | 10.68 | 20.42 | 25.25 | 33.25 | 36.75 |

Ag 0 to 7 0 6 to 1 0 Seeing good D, B, P,

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1883phae.prpj.14298



Dec 22

UC.

| RP | RP | | RP | RD |
|---|---|---|---|---|
| 250 | 1,3 | 204 21 | 5[illegible]1.0 | 5[illegible]7.7 55.9 |
| | 44.4 | 54.0 | 42.11 | 42.2 40.3 |
| | 36.0 | 44.1 | 32.1 | 33.0 30.7 |
| | 38.8 | | 35.0 | 35.0 33.2 |
| | 45.12 | | 42.05 | 42.10 40.02 |

| RP | RP | RP |
|---|---|---|
| 288 | 218 | 221 |
| 13.9 | 8.1 | 7.9 |
| 28 | 53.3 | 56.2 |
| 5.7 | 5.85 | 5.91 |
| 1280 | 5.98 | 6,42 |

A 41 1235 — A1, to H1 8259 A 1

Seeing very bad indeed

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1883phae.proj.1429B



D ξ @ 2 r

C = 24 8 5,6

L.C

| RR | RR | RR | RR | RR | RR | RR |
|---|---|---|---|---|---|---|
| 4 5 3 | 4,8 | 8 5 | 7,8 | 32,9 | 40,0 | 44,6 | 47,8 |
| | 46,8 | 50,0 | 50,6 | 15,0 | 22,8 | 27,3 | 30,2 |
| | 38,0 | 41,9 | 41,2 | 5,6 | 12,2 | 17,5 | 21,4 |
| | 40,8 | 44,8 | 44,7 | 8,3 | 15,0 | 15,3 | 24,4 |
| | | | | | | | 12,38 |
| 48. | 47.60 | 51,30 | 51,08 | 15,52 | 22,50 | 27,18 | 30,45 |

| RR | RR | RR | RR |
|---|---|---|---|
| 4 5,8 | 55,0 | 58,7 | 1,8 |
| 32,1 | 36,4 | 41,2 | 44,2 |
| 23,6 | 27,6 | 31,6 | 35,6 |
| 25,6 | 29,7 | 34,3 | 38,1 |
| 13,11 | 24,87 | | |
| 32,78 | 37,18 | 41,45 | 44,92 |

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1883phae.prpj.1429B



Dec 24

@ = 25.0

| | RR | RR | RR | RR | RR | RR | RR | RR | RR |
|---|---|---|---|---|---|---|---|---|---|
| 45-226 | 8 | 33.4 | 38.6 | 45.8 | 55.7 | 08 | 60 | 72.3 | 16.8 |
| | 11.1 | 17.8 | 22.7 | 29.5 | 38.9 | 44.0 | 50.7 | 56.7 | 08 |
| | 59.7 | 6.4 | 11.6 | 17.8 | 29.3 | 33.9 | 39.2 | 45.4 | 50.2 |
| | 3.2 | 9.5 | 15.7 | 21.5 | 31.6 | 36.8 | 42.8 | 48.8 | 54.2 |
| | 408 | 671 | 881 | 1141 | 1555 | 1750 | 1987 | 2235 | .20 |
| 47 | 10.20 | 16.78 | 22.02 | 28.52 | 38.88 | 43.75 | 49.68 | 55.88 | 0.50 |

A 60 61 50 42.9, 40 3.3, 3.2 2.0 1.2 1.0

A 543

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1883phae.proj.1429B



Dec 26 1883

C = 25 0.00

MC

| | PP | PP | PP | PP |
|---|---|---|---|---|
| 20 4 | 43.2 | 18.0 | 9.6 | 3.2 |
| | 30.6 | 5.1 | 57.9 | 50.5 |
| | 20.2 | 54.1 | 46.0 | 40.4 |
| | 24.8 | 58.9 | 50.2 | 44.8 |
| | 1188 | 161 | 2237 | 1989 |
| 24 | 29.70 | 4.02 | 55.92 | 49.72 |

| | PP | PP |
|---|---|---|
| 20 3 | 57.6 | 51.6 |
| | 44.9 | 39.0 |
| | 34.9 | 29.2 |
| | 38.8 | 33.0 |
| | 1762 | 1528 |
| 23 | 44.05 | 38.20 |

Seeing very bad D. B. P.

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1883phae.proj.1429B



Dec 26/1883

$\delta = 25^\circ 0, 0$ (e)

$\mathcal{L}$ c

| | PP | PP | — | | — | — | — |
|---|---|---|---|---|---|---|---|
| 45° 2 | 5°4,6 | 5°2,5° | 57.5° | 45° 3 | 2,1 | 26.0 | 35,8 |
| | 40,2 | 39,2 | 44,2 | | 47,9 | 13.2 | 21,7 |
| | 29,4 | 28.2 | 43,4 | | 37,7 | 3.2 | 11,3 |
| | 35,0 | 33,1 | 38,2 | | 42,3 | 7.2 | 15,8 |
| | 1592 | 1530 | 1833 | | 1900 | 496 | 846 |
| 47 | 39,80 | 38,25 | 45,82 | | 47,50 | 12,40 | 21,15 |

| | PP | PP |
|---|---|---|
| 45° 3 | 40,7 | 49,0 |
| | 16,4 | 35,6 |
| | 16,6 | 25,4 |
| | 20,9 | 29,2 |
| | 946 | 1392 |
| 48 | 23,65 | 34,80 |

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1883phae.proj.1429B



Dec, 29 wb

$\odot$ = 25.0

| | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|
| 204 | 49.0 | 50.1 | 48.4 | 47.1 | 48.1 | 47.0 | 46.1 | 41.3 |
| | 38.8 | 39.8 | 38.1 | 37.2 | 37.7 | 36.3 | 35.3 | 34.9 |
| | 28.2 | 29.6 | 20.7 | 26.8 | 27.3 | 26.1 | 25.2 | 24.2 |
| | 31.7 | 32.9 | 30.9 | 30.1 | 31.0 | 29.4 | 29.5 | 27.9 |
| 24 | 36.92 | 38.10 | 36.28 | 35.30 | 36.28 | 34.70 | 34.02 | 32.08 |

| | RP | RP | RP | RP |
|---|---|---|---|---|
| 204 | 19.1 | 15.3 | 13.1 | 11.1 |
| | 8.6 | 5.3 | 2.8 | 1.0 |
| | 57.9 | 54.2 | 52.3 | 52.0 |
| | 1.9 | 59.3 | 56.0 | 54.3 |
| | 6.88 | 3.52 | 1.05 | 59.10 |

$A_{+1}$ 1 2 3 5 — $A_1$ to $4_1$ $8_2$ $9_0$ $A_{-1}$

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1883phae.proj.1429B



Jan 2 C = 25° 0.00
L.C.

| | PP | PP | PP | RP | R |
|---|---|---|---|---|---|
| 45° 3 | 24.4 | 30.2 | 38.1 | 45.7 | |
| | 11.4 | 17.9 | 24.2 | 31.8 | |
| | 1.8 | 8.0 | 15.4 | 22.4 | |
| | 5.7 | 13.0 | 19.4 | 27.3 | |
| | 433 | 691 | 991 | 1272 | |
| 48 | 10.82 | 17.28 | 24.28 | 31.80 | |

| | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|
| | 5°21 | 5°8.0 | 4 | 0.8 | 5°8 | 8.7 | 12.7 |
| | 38.7 | 43.7 | | 49.1 | 5°21 | 55.7 | 5°3 |
| | 28.0 | 33.8 | | 38.0 | 43.0 | 46.0 | 48.8 |
| | 34.0 | 39.0 | | 42 | 34 | 47 | 2[illegible] |
| | 1538 | 1745 | | 1882 | 2081 | 2204 | 2362 |
| | 38.45 | 43.62 | | 47.05 | 52.02 | 55.10 | 59.05 |

| | | | | | |
|---|---|---|---|---|---|
| | 5°4.4 | 5°8 | 8.7 | 12.7 | 16.8 |
| | 49.1 | 5°21 | 55.7 | 5°3 | 2.2 |
| | 38.0 | 43.0 | 46.0 | 48.8 | 53.0 |
| | 42 | 34 | 47 | 5°4 | 5°2 |
| | 1882 | 2081 | 2204 | 2362 | 82 |
| | 47.05 | 52.02 | 55.10 | 59.05 | 2.05 |

P observes $A_{8,1}$ to $A_{1,0}$ R observes $A_{+1}$ 2 +1

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1883phae.proj.1429B



Jan 3

C – 25-D

RP

| | RP | RP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|
| 24 | 47,1 | 47,5 | 45,5 | 46,8 | 46,4 | 45,4 | 44,8 | 43,4 | 43,8 |
| | 34,9 | 36,5 | 36,1 | 35,3 | 35,0 | 38,8 | 33,0 | 31,5 | 32,1 |
| | 25,5 | 26,3 | 26,2 | 25,6 | 24,5 | 23,2 | 22,9 | 21,9 | 22,0 |
| | 29,1 | 25,9 | 30,0 | 29,2 | 28,5 | 27,9 | 27,0 | 25,9 | 26,0 |
| 24 | 34.25 | 35.05 | 34.95 | 34.22 | 33.60 | 32.58 | 31.92 | 30.68 | 30.98 |

R $A_{1\,2\,3\,4\,5}^{H1}$ — P observes $A_{1_0}$ to $6_0$

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1883phae.proj.1429B



Jan 3

L.C. C = 26 0.00

| | PP | | | | |
|---|---|---|---|---|---|
| 45-3 | 29.2 | 39.8 | 44.2 | 49.6 | 57.8 |
| | 15.1 | 25.4 | 39.3 | 34.9 | 42.5 |
| | 5.0 | 15.9 | 20.0 | 25.1 | 33.0 |
| | 8.2 | 19.8 | 23.8 | 29.2 | 37.1 |
| | 575 | 1009 | 1273 | 1388 | 1704 |
| 48 | 14.38 | 25.22 | 31.82 | 34.70 | 42.60 |

| | PP | PP |
|---|---|---|
| 45-4 | 5.9 | 14.0 |
| | 51.2 | 0.0 |
| | 41.2 | 50.1 |
| | 45.7 | 54.2 |
| | 2040 | 2383 |
| 49 | 51.00 | 59.58 |

Seeing bad P. Observes.

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1883phae.proj.1429B



Jan H

Lt. C.

C = 25. 0.00

| | | PP | PP | PP | PP | | | |
|---|---|---|---|---|---|---|---|---|
| 20 | 4 | 50.8 | 46.8 | 45.5 | 24.2 | 14.1 | 10.4 | 1.5 |
| | | 38.2 | 33.9 | 32.0 | 11.2 | 0.8 | 58.6 | 49.3 |
| | | 28.9 | 23.9 | 21.8 | 0.0 | 49.2 | 46.1 | 37.4 |
| | | 31.5 | 27.2 | 25.6 | 4.3 | 53.4 | 50.7 | 40.8 |
| | | 1494 | 1318 | 1249 | 397 | 2375 | 2258 | 1890 |
| | 24 | 37.35 | 32.95 | 31.22 | 9.92 | 59.38 | 56.45 | 47.25 |

| | | PP | PP | PP |
|---|---|---|---|---|
| 20 | 3 | 56.8 | 52.4 | 44.2 |
| | | 44.0 | 40.2 | 31.9 |
| | | 32.2 | 28.0 | 20.1 |
| | | 36.1 | 32.2 | 24.4 |
| | | 1691 | 1528 | 1206 |
| | 23 | 42.28 | 38.20 | 30.15 |

P observes, Seeing bad

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1883phae.proj.1429B



Jan 5

M.C. C = 25 0,00

| | PP | PP | PP | PP | PP | PP |
|---|---|---|---|---|---|---|
| 20 4 | 53,2 | 50,4 | 50,3 | 48,5 | 22,0 | 14,3 |
| | 37,0 | 35,0 | 34,5 | 31,9 | 6,8 | 59,2 |
| | 26,9 | 23,9 | 23,9 | 21,2 | 55,4 | 47,4 |
| | 30,0 | 26,7 | 27,0 | 25,0 | 59,4 | 50,5 |
| | 1471 | 1360 | 1357 | 1266 | 236 | 2314 |
| 24 | 36,78 | 34,00 | 33,92 | 31,65 | 5,90 | 57,85 |

$A_{+1}{}^{3}$ $A_{1_0}$ 1, $1_2$ $A_{3_0}{}^{3}{}_{2}$ $4_2$ to $7_0$ $8_1$

Seeing very bad P Observes

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1883phae.proj.1429B



Jan 6 1884

C = 25 - 0.0 W

Lc

| | | PP | PP | PP | PP |
|---|---|---|---|---|---|
| 45 | 3 | 7.7 | 35.2 | 43.1 | 44.8 |
| | | 50.0 | 18.3 | 25.0 | 37.5 |
| | | 39.8 | 8.0 | 15.2 | 28.1 |
| | | 43.3 | 12.2 | 18.8 | 31.8 |
| | | 2008 | 737 | 1021 | 1422 |
| | 47 | 50.20 | 48 18.42 | 25.52 | 35.55 |

| | | PP | PP | PP |
|---|---|---|---|---|
| 45 | 4 | 1.2 | 9.0 | 14.7 |
| | | 44.2 | 52.1 | 58.1 |
| | | 34.4 | 43.0 | 47.9 |
| | | 37.0 | 45.6 | 50.3 |
| | | 1768 | 2097 | 2310 |
| | 49 | 44.20 | 52.42 | 57.75 |

P Observes. Lost ~~A2~~ 2

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1429B



Jan 7 /884
C = 25° 0.00
MC

| | PP | PP | PP | — | — | — | — | — |
|---|---|---|---|---|---|---|---|---|
| 20 4 | 58,0 | 56,0 | 56,0 | 55;0 | 53,2 | 25;7 | 18,0 | |
| | 43,4 | 41,5 | 41,2 | 39,8 | 38,2 | 10,9 | 3,0 | |
| | 32,0 | 30,2 | 30,0 | 29,2 | 27,1 | 59,9 | 51,8 | |
| | 35,1 | 32,8 | 32,5 | 31,8 | 29,8 | 2,0 | 55;2 | |
| | 1685 | 1605 | 1597 | 1558 | 1483 | 385 | 80 | |
| 24 | 42,12 | 40,12 | 39,92 | 38,95 | 37,08 | 9,62 | 2,00 | |

| | PP | PP | PP | P | P | PP | PP |
|---|---|---|---|---|---|---|---|
| 20 4 | 1379 | 8,5 | 0,5 | 20 | 3 53,1 | 87,8 | 32,0 |
| | 58,8 | 53,8 | 45,1 | | 38,7 | 22,2 | 17,2 |
| | 47,0 | 41,6 | 33,8 | | 27,3 | 11,1 | 5,6 |
| | 50,0 | 45,0 | 36,1 | | 30,0 | 14,7 | 8,8 |
| | 2297 | 2089 | 1755 | | 1491 | 858 | 636 |
| 24 | 57,42 | 52,22 | 43,88 | 23 | 37,28 | 21,45 | 15,90 |

P Observes $A_{+1}$ 5 A $A_{+1}$'

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1883phae.proj.1429B



Jan 9 1884

MC C=25 0,00

| | | pp | pp |
|---|---|---|---|
| 20 | 4 | 15,1 | 6,8 |
| | | 3,1 | 55,0 |
| | | 52,2 | 43,8 |
| | | 36,0 | 49,0 |
| | | 64 | 2146 |
| | 24 | 1,60 | 53,65 |

| | | pp | pp | pp |
|---|---|---|---|---|
| 20 | 3 | 57,8 | 52,4 | 42,0 |
| | | 45,4 | 40,6 | 30,6 |
| | | 34,5 | 29,4 | 19,1 |
| | | 39,1 | 33,4 | 24,2 |
| | | 1768 | 1558 | 1159 |
| | 23 | 44,20 | 38,95 | 28,98 |

P Observes $A_3$ to 9

Seeing variable

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1883phae.proj.1429B



Jan 10 1884

WB $\odot = 25,0$

| | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|
| N 4 | 462 | 462 | 460 | 460 | 460 | 442 |
| | 363 | 363 | 362 | 362 | 364 | 350 |
| | 267 | 264 | 261 | 263 | 262 | 244 |
| | 300 | 301 | 300 | 298 | 296 | 283 |
| 24 | 34.68 | 34.75 | 34.68 | 34.58 | 34.55 | 32.98 |

| RP | RP | RP | RP |
|---|---|---|---|
| 450 | 440 | 427 | 418 |
| 350 | 342 | 330 | 321 |
| 249 | 238 | 220 | 213 |
| 283 | 272 | 259 | 257 |
| 33.30 | 32.32 | 30.90 | 30.08 |

A 1 1 2 3 4 5 — $A_{10}$ to 50

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1883phae.proj.1429B

200

Jan 14 / 18 4 $1

C = 25 0.08

MC

| | RP | RP | RP, RP | |
|---|---|---|---|---|
| 204 | 358 | 38.9 | 13.5 | 7.15 |
| | 29.4 | 27.8 | 20 | 06 |
| | 17.2 | 17.2 | 60.5 | 49.4 |
| | 222 | 21.2 | 561 | 539 |
| | 1086 | 1051 | 21 | 2354 |
| 24 | 27.15 | 26.28 | 0.52 | 58.85 |

$A_{10}$ to $5_0$ $8_0$ $8_1$ $8_2$ 9.0

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1883phae.proj.1429B



Jan 16 1884

C = 25° 0.00

M.C.

| | PP | PP | PP |
|---|---|---|---|
| 20 4 | 52.7 | 49.8 | 48.6 |
| | 38.5 | 35.8 | 34.1 |
| | 25.4 | 23.7 | 22.5 |
| | 29.8 | 27.2 | 26.2 |
| 24 | 38.60 | 34 12 | 32.85 |

| | RP | RP | RP | RP | RP | RP | PP |
|---|---|---|---|---|---|---|---|
| 20.4 | 24.8 | 21.1 | 20.8 | 18.3 | 13.9 | 7.8 | 32 |
| | 1'1.0 | 7.7 | 6.8 | 4.5 | 5.99 | 6.50 | 9.99 |
| | 5'9.0 | 5'5.1 | 5'4.8 | 5'2.5 | 4.72 | 4.19 | 3.77 |
| | 3'.0 | 1'.92 | 5'.87 | 1'.62 | 5.06 | 4.59 | 4.10 |
| 24 | 9.45 | 5.78 | 5.28 | 2.38 | 23.06 | 21.06 | 19.18 |
| | | | | | 57.65 | 52.65 | 47.95 |

very very bad.

P observes from $A_0$ to $A_7$ R

R Obs at 6 2 0 9.0 $A_{-1}$ 12

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1883phae.proj.1429B



Jan 17 18 B4

C = 25 0.00

Mo -

| | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|
| W 4 | 500 | 484 | 490 | 496 | 497 | 461 | 447 |
| | 381 | 368 | 373 | 363 | 351 | 352 | 325 |
| | 262 | 249 | 25.2 | 239 | 224 | 219 | 202 |
| | 295 | 280 | 282 | 275 | 258 | 274 | 239 |
| 24 | 359 | 345 | 349 | 343 | 327 | 321 | 303 |

$A_{10}$ to $5_0$

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1883phae.proj.1429B



Jan 18

Me. C = 25 0.00

| | PP | | | | | | |
|---|---|---|---|---|---|---|---|
| 20 4 | 49.5 | 48.0 | 46.3 | 45.8 | 45.1 | 41.8 | 28.1 |
| | 36.3 | 35.8 | 34.2 | 34.3 | 33.2 | 30.8 | 16.0 |
| | 24.1 | 33.3 | 22.3 | 21.3 | 20.6 | 17.8 | 21.1 |
| | 28.0 | 27.6 | 26.8 | 25.5 | 24.8 | 22.0 | |
| | 1379 | 1447 | 1296 | 1269 | 1237 | 1124 | |
| 24 | 34.48 | 36.18 | 32.40 | 31.72 | 30.92 | 28.10 | |

| | P | P | PP | | | |
|---|---|---|---|---|---|---|
| 20 4 | 16.8 | 9.0 | 2.5 | 54.1 | 47.6 | |
| | 51.1 | 57.5 | 50.8 | 43.7 | 36.2 | |
| | 52.1 | 44.9 | 37.8 | 30.5 | 23.5 | |
| | 56.7 | 49.0 | 42.4 | 35.0 | 28.1 | |
| | 107 | 2204 | 1935 | 1633 | 1354 | |
| 24 | 2.68 | 55.10 | 48.38 | 40.82 | 33.85 | |

P observes $A_{+1}$ 5 A $A_{-1}$

Swing good.

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1883phae.proj.1429B



Jan 21 1884

$C = 25 - 0.00$

$u, b_1$

| | PP | PP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|
| 20 4 | 52.5 | 52.0 | 5-21 | 51.9 | 508. | 49.9 | 48.4 | 46.5 |
| | 37.4 | 37.5 | 37.2 | 36.9 | 36.9 | 36.0 | 34.1 | 32.3 |
| | 25.0 | 25.2 | 23.2 | 25.0 | 24.0 | 23.8 | 21.2 | 19.9 |
| | 29.1 | 28.0 | 28.7 | 28.1 | 26.8 | 26.4 | 24.0 | 23.1 |
| | 35.75 | 35.68 | 35.80 | 35.48 | 34.38 | 34.02 | 31.92 | 30.45 |

$A_{1_0}$ to $5_0$ + from $6_2$ to $9_0$

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1883phae.proj.14298



Jan 22 1884
C = 25° 0,00
W. 6

| | PP | PP | RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|
| 20 h. | 53,8 | 51,6 | 50,2 | 50,3 | 49,7 | 49,0 | 48,0 | 47,1 | 46,1 |
| | 38,1 | 37,2 | 36,2 | 35,9 | 35,3 | 34,2 | 33,9 | 32,4 | 31,4 |
| | 25,8 | 25,0 | 24,7 | 23,2 | 23,1 | 22,0 | 21,1 | 20,4 | 20,0 |
| | 29,9 | 27,8 | 27,1 | 26,3 | 26,4 | 24,3 | 23,9 | 23,7 | 23,1 |
| | 36.90 | 35.40 | 34.55 | 33.92 | 33.62 | 32.38 | 31.72 | 30.90 | 30.15 |

$A_1$ to $5_2$ $7_1$ to $9_0$

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1883phae.proj.1429B



Jan 26 | 8h 4 C = 25 0.00

11 C

| | PP | PP | PP | — | — | — | — | — |
|---|---|---|---|---|---|---|---|---|
| 20 4 | 5 5.1 | 5 4.1 | 5 3.4 | 5 2.1 | 51.3 | 50.9 | 48.2 | 46.8 |
| | 41.8 | 40.8 | 40.6 | 40.0 | 38.7 | 38.0 | 36.2 | 34.0 |
| | 29.4 | 29.0 | 28.8 | 27.1 | 26.8 | 25.6 | 23.5 | 21.5 |
| | 33.5 | 32.1 | 32.0 | 30.8 | 29.4 | 28.7 | 26.8 | 24.9 |
| 24 | 39.95 | 39.00 | 38.70 | 37.50 | 36.55 | 35.80 | 33.68 | 31.80 |

| | PP | PP | PP | | PP |
|---|---|---|---|---|---|
| 20 4 | 23.0 | 16.1 | 5.9 | 20 3 | 49.2 |
| | 10.1 | 3.5 | 52.3 | | 35.5 |
| | 57.2 | 50.8 | 40.5 | | 23.9 |
| | 1.1 | 54.2 | 44.1 | | 27.2 |
| 24 | 7.85 | 1.15 | 50.70 | 23 | 33.95 |

P observes. Lost first stroke of $A_{10}$ Seeing good

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1883phae.proj.1429B



Jan 27 C = 25-0?

UC

| | RR | RR | RR | RR | RR |
|---|---|---|---|---|---|
| 20 4 | 250 | 208 | 185 | 143 | 100 |
| | 10.7 | 6.0 | 4.6 | 2.0 | 58.9 |
| | 597 | 550 | 527 | 492 | 443 |
| | 30 | 588 | 561 | 552 | 481 |
| | 384 | 206 | 119 | 2377 | 2214 |
| 24 | 9.60 | 5.15 | 2.98 | 59.42 | 55.35 |

A 3 2 C 0

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1883phae.proj.1429B



Feb 1 1884 C = 25 0,0e

M.C

| | | PP | PP | PP | PP | PP | PP | PP |
|---|---|---|---|---|---|---|---|---|
| 20 | 4 | 49.2 | 49.5 | 47.2 | 46,9 | 46.0 | 43.1 | 41.9 |
| | | 35.9 | 36.3 | 35.0 | 34.0 | 33.4 | 30.7 | 29.0 |
| | | 36.2 | 36.9 | 35.3 | 34.2 | 33.1 | 30.0 | 28.9 |
| | | 30.1 | 30.4 | 29.0 | 28.2 | 27.2 | 24.0 | 23.0 |
| | | 1514 | 1531 | 1465 | 1433 | 1397 | 1278 | 1228 |
| | 24 | 37.85 | 38.28 | 36.62 | 35.82 | 34.92 | 31.95 | 30.70 |

| | | PP | PP | PP | | | PP | PP |
|---|---|---|---|---|---|---|---|---|
| 20 | 4 | 20.0 | 13.8 | 9.0 | 20 | 3 | 48.0 | 42.0 |
| | | 7.0 | 0.8 | 56.4 | | | 35.2 | 30.0 |
| | | 6.4 | 0.1 | 53.3 | | | 35.2 | 29.3 |
| | | 0.4 | 54.1 | 49.6 | | | 28.9 | 22.2 |
| | | 338 | 88 | 2303 | | | 1473 | 1235 |
| | 24 | 8.45 | 2.20 | 57.58 | | 23 | 36.82 | 30.88 |

Pobs $A_{1,0}$ to $5_0$ + $7_1$ to $9_0$

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1883phae.proj:1429B



Feb 21 884 C = 25-0,00

| | PP | PP | PP | | PP |
|---|---|---|---|---|---|
| 20 H | 43.8 | 7.8 | 2.6 | 20 3 | 57.2 |
| | 28.7 | 54.2 | 50.0 | | 37.3 |
| | 29.8 | 52.5 | 48.0 | | 36.4 |
| | 23.2 | 46.7 | 41.6 | | 29.9 |
| 24. | 31.38 | 55.30 | 50.55 | | 38.70 |

P Observes $A_1$ to about $A_{40} + A_{70}$

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1883phae.proj.1429B



Feb 15 1884 C = 2n 19,3

| | PP | PP | PP | PP | QP | RP | RP |
|---|---|---|---|---|---|---|---|
| 20 4 | 50.8 | 48.8 | 48,8 | 46.8 | 22.8 | 16,4 | 14,8 |
| | 38,0 | 35,9 | 35,8 | 34,6 | 11,1 | 5,1 | 2,3 |
| | 42,1 | 39,9 | 40,3 | 38,1 | 14,4 | 13,1 | 6,7 |
| | 33,0 | 30,8 | 30,6 | 29,0 | 5,4 | 9,0 | 6,9 |
| | 1639 | 1554 | 1555 | 1485 | 537 | 337 | 207 |
| 24 | 40,98 | 38,85 | 38,88 | 37,12 | 13,42 | 8,42 | 5,18 |

| RP | RP | RP | RP | RP |
|---|---|---|---|---|
| 10,7 | 9,0 | 6,2 | 4,7 | 07 |
| 58,8 | 58,2 | 55,5 | 54,0 | 49,8 |
| 2,1 | 08 | 58,2 | 56,6 | 52,5 |
| 53,2 | 57,2 | 49,1 | 46,8 | 43,2 |
| 48 | 52 | 2290 | 2221 | 2062 |
| 1,20 | 1,30 | 57,25 | 55,52 | 51,55 |

P. Observed $A_{1,0}$ to 5%. Lost $A_{1,2} + A_{2,0}$
R Observed $A_{1,0}$ to 9% $A + 1.1345$

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1003phae.prbj.1429B



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1883phae.proj.1429B



Feb 21 1884

C = 25 18.8

| | PP | PP | PP | PP | PP | PP | PP | PP |
|---|---|---|---|---|---|---|---|---|
| 20 H | 49.8 | 48.1 | 47.5 | 46.5 | 24.8 | 18.0 | 14.0 | 8.4 |
| | 35.0 | 34 H | 34.0 | 33.6 | 12.7 | 5.0 | 1.2 | 56.8 |
| | 40.1 | 39.0 | 37.8 | 37.3 | 14.3 | 7.6 | 3.5 | 57.2 |
| | 30.1 | 29.9 | 27.9 | 27.4 | 4.9 | 57.4 | 53.2 | 47.7 |
| | 38.75 | 37.85 | 36.80 | 36.20 | 14.18 | 7.00 | 2.98 | 57.52 |

| | PP | | PP | PP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|---|---|---|
| 20 | 42.1 | 20 3 | 55.2 | 50.0 | 47.1 | 38.7 | 37.2 | 35.6 | 31.7 |
| | 49.0 | | 42.9 | 37.6 | 34.4 | 25.8 | 23.8 | 23.1 | 19.1 |
| | 50.3 | | 44.5 | 38.1 | 36.1 | 27.3 | 26.1 | 24.8 | 21.1 |
| | 41.1 | | 35.0 | 25.2 | 28.0 | 17.6 | 16.2 | 14.1 | 11.0 |
| | 50.62 | | 1776 | 1551 | 1437 | 1094 | 1034 | 24.48 | 20.75 |
| | | 23 | 44.40 | 38.78 | 35.92 | 27.35 | 25.85 | | |

A 1, ∝ C

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1003phae.proj.14298



May 25

Feb. 22 C = 21,2

| | R.P. | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|
| 204 | 49,7 | 45,9 | 46,0 | 46,8 | 44,8 | 45,2 |
| | 39,2 | 36,2 | 36,0 | 36,7 | 34,2 | 34,3 |
| | 42,8 | 38,8 | 38,8 | 39,7 | 37,4 | 37,8 |
| | 32,4 | 29,0 | 29,1 | 29,8 | 27,2 | 27,8 |
| | 164,1 | 149,9 | 149,9 | 153,0 | 143,6 | 145,1 |
| 24 | 41,02 | 37,48 | 37,48 | 38,25 | 35,90 | 36,28 |

| RP | RP | RP | PP RP | RP | PP | RP | RP RP |
|---|---|---|---|---|---|---|---|
| 22,5 | 20,4 | 18,0 | 14,9 | 13,7 | 10,7 | 7,8 | 4,1 | 1,2 | 0,0 |
| 11,9 | 9,5 | 6,9 | 4,0 | 2,9 | 59,1 | 57,3 | 54,2 | 51,1 | 49,7 |
| 13,7 | 11,9 | 9,0 | 5,9 | 5,6 | 1,2 | 58,8 | 55,2 | 52,8 | 51,2 |
| 5,4 | 3,1 | 0,2 | 56,8 | 56,3 | 53,0 | 49,7 | 46,3 | 43,5 | 42,4 |
| 53,5 | 44,9 | 34,1 | 21,6 | 18,5 | 4,0 | 233,6 | 219,8 | 208,6 | 203,3 |
| 133,8 | 112,2 | 85,2 | 54,0 | 46,2 | 10,0 | 584,0 | 549,5 | 521,5 | 508,2 |

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Feb 24 1882

@ = 21,1

| | RR | | | | | | RR |
|---|---|---|---|---|---|---|---|
| 204 | 24.6 | 19.2 | 3,0 | 37 | 44.6 | 39,0 | 34.6 |
| | 10.0 | 2,9 | 4,98 | 4,87 | 3,09 | 25,2 | 21.7 |
| | 10.6 | 5,3 | 5,01 | 4,98 | 3,12 | 25,8 | 20,7 |
| | 2,0 | 54,1 | 40,0 | 41.6 | 21,5 | 17.0 | 12,2 |
| | 472 | 95 | 2029 | 2038 | 1282 | 1068 | 892 |
| 24 | 11,80 | 2,38 | 50,72 | 50,95 | 32,05 | 26,70 | 22,30 |

A30 W

A6, W (after battle) 9!

K-1 1 2 3 4 5

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4 Feb 25 C = 21.7

| | | PP | | | | PP | | PP | PP |
|---|---|---|---|---|---|---|---|---|---|
| 20 | 4 | 27.1 | 21.0 | 15.1 | 8.9 | 1.1 | 20 3 | 57.0 | 52.1 |
| | | 15.1 | 6.8 | 1.9 | 56.7 | 47.0 | | 43.3 | 37.2 |
| | | 15.4 | 8.2 | 2.9 | 56.3 | 48.2 | | 45.0 | 39.1 |
| | | 6.7 | 58.9 | 54.0 | 47.8 | 39.8 | | 36.1 | 25.9 |
| | | 643 | 349 | 139 | 2297 | 1961 | | 1814 | 1583 |
| | 24 | 16.08 | 8.72 | 3.48 | 57.42 | 49.02 | 23 | 45.35 | 39.58 |

| RP | RP | RP | RP | RP | RP | RP |
|---|---|---|---|---|---|---|
| 48.9 | 44.7 | 42.2 | 40.8 | 37.2 | 34.7 | 21.0 |
| 35.0 | 31.8 | 29.1 | 26.6 | 23.0 | 20.5 | 17.5 |
| 36.1 | 8.4 | 30.0 | 27.1 | 24.2 | 22.3 | 18.6 |
| 27.0 | 23.4 | 20.1 | 18.0 | 15.1 | 13.1 | 19.3 |
| 1468 | 1323 | 1218 | 1125 | 995 | 906 | 764 |
| 36.70 | 33.08 | 30.45 | 28.12 | 24.88 | 22.65 | 19.10 |

P observes $A_1$ to $9_0$

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Feb 27 1884

C = 25° 21.8

| | PP | PP | PP | PP | PP |
|---|---|---|---|---|---|
| 20 4 | 49.5 | 48.9 | 48.0 | 46.0 | 44.8 |
| | 37.8 | 37.4 | 36.1 | 33.4 | 33.0 |
| | 39.8 | 39.3 | 38.2 | 35.8 | 34.7 |
| | 30.5 | 30.1 | 29.0 | 26.9 | 25.9 |
| | 39.40 | 38.92 | 37.82 | 35.52 | 34.60 |

1513 1421

P observes $A_{+1}$ 2 45 $A_{1}$ to 2 $A_{3}$ to 6
0 0 1

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1993phao.proj..142OB

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1883phae.proj.1429B

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9 = 102
16 X
25 X
36 X
44 X
53 X
64 X
76 X
90 X
98 X
109 X
119 X
125 X
135 X
142 X
153 X
158 57

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1963phae.proj..42SB

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