

KG
11366
v. 804

Erratum in
Rogers A&C. catalogue
J. A. D.

Systematic errors

in Rogers A.G.C. zones 744 and 745 and [740],
See Astron. Nach. 3956 311-314 h. Dr. H. Boeghold.

Investigation for purpose of discovering cause
of above errors: by J.H.D. August 1904

Noted:
see +0.6 com.
was applied
to Nov 11, (744)

1st. Application of Precession in α to the
mess 18830 places for zones 744 & 745 (Nov 12 & 14, 1883)

	744	745	744	745
A.G.C. no.	6723		6849	
Vol XXXVI 1875.0	20 39 21.52	20 39 21.85	20 54 29.68	
ap. & impl. (for ident.)	-1.76 -32.59 +9.64 -1.76	-1.70 -37.52 +9.63 -1.70	-1.89 -38.68 +12.29 -1.89	
A.G.C. 1875.0	20 39 21.66		20 54 29.82	
Pre. in α	+1.7658		+1.7037	
Sec. Var.	-0.0003		-0.0008	
Pre. 1879	-1.7658		+1.7037 +1.7658	
Precession 8 yrs	-14.13	-14.13	-14.13 -13.63	
mess. 1883.0	39 35.65	39 35.98	54 43.24	
(mess) 1875	21.52	21.85	29.61	
~~Cor. to Vol XXXVI~~	0.00	0.00	+0.07	Place in Vol XXXVI - miss place
Cor. to A.G.C. A.G. (1875) - miss place	+0.74	+4.19	+2.1	Place in A.G.C. - miss place

744 2 494 21.69
495 21.76
578 21.58
579 21.65
583 21.57
744
745

413
2 490 29.81
736 29.82
757 29.96
744

745

$$\begin{array}{r} 21 \quad 14 \quad 4.94 \\ - 2.33 \quad - 39.03 \\ + 7.34 \quad - 2.33 \\ \hline \end{array}$$

21	14	4.69
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 $+ 2.0173$

+ 5043

 $+ 2.0171$

- 16.14

- 16.14

$$\begin{array}{r} 14 \quad 21.08 \\ \hline 4.94 \end{array}$$

50
 $- 4.25$

573	4.41
575	4.59
740	4.81
745	4.94

745

$$\begin{array}{r} 211526.70 \\ - 2.28 - 39.50 \\ + 9.96 - 2.28 \end{array}$$
$$\begin{array}{r} 21 \ 17 \ 34.58 \\ - 2.43 \ - 39.20 \\ \hline \end{array}$$

21 17 34.31

+ 2.0244

+ .0046

4 2.0242

- (5.31)

-16.19

$$\begin{array}{r} 15 \overline{) 42.01} \\ \underline{2670} \end{array}$$
$$\begin{array}{r} 17 \quad 50.71 \\ \hline 34.52 \end{array}$$

$-\frac{1}{2}, 22$

+06
+08

600-2-582 26.23
693 26.40
694 26.32
740 26.74
744

5 lbs. 2 - 573 34.05
585 34.10
730 34.24
740 34.58
744

744
7033

$$\begin{array}{r} 21 \ 17 \ 35.20 \\ - 21.43 \ - 39.20 \\ + 7.76 \ - 2.43 \\ \hline 21 \ 17 \ 35.14 \\ + 2.0241 \\ + .0046 \\ + 2.0239 \\ - 16.19 \\ 17 \ 51.32 \\ \hline 35.13 \\ + .07 \\ + .01 \end{array}$$

816 - 2 573 35.09

575	35.01
580	35.04
581	35.21
585	35.16
730	35.06
740	35.35
744	

744
7061

$$\begin{array}{r} 21 \ 20 \ 31.02 \\ - 2.36 \ - 39.95 \\ \hline 21 \ 20 \ 31.08 \\ + 1.8451 \\ + .0026 \\ + 1.8450 \\ - 14.76 \\ 20 \ 45.72 \\ \hline 30.96 \\ + .06 \\ + .12 \end{array}$$

416-2-127 30.87

740	31.25
744	
745	

745

745

$$\begin{array}{r} 21 \ 20 \ 31.19 \\ - 2.30 \ - 39.99 \\ \hline 21 \ 20 \ 31.08 \\ + 1.8451 \\ + .0026 \\ + 1.8450 \\ - 14.76 \\ 20 \ 45.95 \\ \hline 31.19 \\ + .00 \\ + .11 \end{array}$$

744
7034

744
7111

$$\begin{array}{r} 21 \ 27 \ 13.99 \\ - 2.59 \ - 39.45 \\ \hline 21 \ 27 \ 14.02 \\ + 2.0898 \\ + .0060 \\ + 2.0896 \\ - 16.72 \\ 27 \ 30.65 \\ \hline 13.93 \\ + .06 \\ + .09 \end{array}$$

216-2-743 14.04

744	
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745

745

$$\begin{array}{r} 21 \ 17 \ 52.15 \\ - 2.38 \ - 39.24 \\ + 8.30 \ - 2.38 \\ \hline 21 \ 17 \ 51.83 \\ + 2.0265 \\ + .0046 \\ + 2.0263 \\ - 16.21 \\ 18 \ 8.36 \\ \hline 52.15 \\ + .00 \\ - .32 \end{array}$$

416 2-584 51.68

742	51.86
743	51.83
745	

744 7117 21 27 33.16 -2.60 -39.45 21 27 33.27 +2.0908 +0.061 +2.0906 -16.72 27 <u>49.83</u> 33.11 +0.5 +1.6 316-2-743 33.28 744 745	745 21 27 33.37 -2.55 -39.51 -16.72 27 <u>50.10</u> 33.38 -4.01 -1.1	744 7166 21 32 38.32 -2.68 -39.60 21 32 38.28 +2.1179 +0.068 +2.1176 -16.94 32 <u>55.19</u> 38.25 +0.7 +0.3 416-2-569 38.06 572 38.29 744 745	745 21 32 38.47 -2.63 -39.65 -16.94 32 <u>55.41</u> 38.47 00 -4.19
744 7167 21 32 43.71 -2.68 21 32 43.83 +2.1196 +0.069 +2.1193 -16.95 33 <u>0.60</u> ~~32 55.19~~ 43.65 +0.6 +1.8 216-2-744 10.47 744 745	745 21 32 43.95 -2.63 -39.65 -16.95 33 <u>0.90</u> ~~32 55.41~~ 43.95 00 -1.2	744 7178 21 33 10.56 -2.65 -39.95 21 33 10.52 +2.0392 +0.062 +2.0390 -16.31 33 <u>26.81</u> 10.50 +0.6 +0.2 316-2-493 10.47 744 745	745 21 33 10.54 -2.60 -40.01 -16.31 33 <u>26.85</u> 10.54 00 -0.2

744 7301 21 45 14.74 -2.84 -40.40 21 45 14.57 +2.0593 +0.079 +2.0590 -16.47 45 31.15 14.68 +0.6 -4.11 50s-2-491 14.63 744 1 745 892 14.35 893 14.27	745 21 45 14.88 -2.79 -40.49 -16.47 45 31.35 14.88 .00 -4.31	744 7302 21 45 36.49 -2.79 -40.49 21 45 36.43 +2.0615 +0.080 +2.0612 -16.49 45 52.98 35.49 35.49 .00 -4.06 30s-2-745 2 892 36.36 893 36.43	745 21 45 36.49 -2.79 -40.49 21 45 36.43 +2.0615 +0.080 +2.0612 -16.49 45 52.98 35.49 35.49 .00 -4.06
744 7341 21 49 55.86 -2.94 -40.33 21 49 55.86 +2.1265 +0.092 +2.1261 -17.01 50 12.81 55.80 +0.6 +0.6 40s-2-439 55.80 440 55.74 744 745	745 21 49 56.04 -2.89 -40.43 -17.01 50 13.05 56.04 .00 -4.18	744 7362 21 51 53.36 -2.98 -40.17 21 51 53.41 +2.1796 +0.098 +2.1792 -17.43 52 10.74 53.31 +0.5 +1.0 20s-2-744 745	745 21 51 53.47 -2.93 -40.28 21 51 53.41 +2.1796 +0.098 +2.1792 -17.43 52 10.91 53.48 -4.01 -6.07

744	745	744	745
7372		7376	
21 52 58.66	21 52 58.63	21 53 13.95	21 53 14.17
-3.01 -39.99	-2.96 -40.09	-3.02 -39.99	-2.97 -40.09
21 52 58.61		21 53 13.78	
+2.2262		+2.2278	
+0.102		+0.102	
+2.2258		+2.2274	
-17.81	-17.81	-17.82	-17.82
53 16.40	53 16.44	53 31.66	53 31.95
58.59	58.63	+13.84	14.13
+0.7	.00	+1.1	+0.4
+0.2	+0.2	-0.6	-3.5
9.2-2- 254 58.74 744		11.25 2- 254 13.61 744	
255 58.67 745		255 13.56 745	
343 58.61 890 58.36		343 13.61 890d 14.06	
344 58.81 892 58.52		344 13.77 892d 13.84	
435 58.53		435 13.49 892d 13.96	
		436 13.58	

744	745	744	745
7393		7407	
	21	Donkleton	
	21 55 1.42	744 (mean)	
	-2.98 -40.35	21 56 6.98	21 56 6.87
		-3.04 -40.49	-2.99 -40.61
21 55 1.23		21 56 6.89	
+2.1914		+2.1401	
+0.104		+0.102	
+2.1910		+2.1397	
-17.53	-17.53	-17.12	-17.12
55 18.96	55 18.96	56 24.04	56 23.99
1.43	1.43	6.92	6.87
-0.1	-0.1	+0.6	.00
-0.8	-0.8	-0.3	-2.6
2.2-2- 745		2.2-2- 496 6.91	
746		745	

744

7418

21 57 6.13

-3.08 -40.11

21 57 6.09

+2.2364

+0.0109

+2.2360

-17.89

$$\begin{array}{r} 57 \quad 23.96 \\ \hline 6.07 \end{array}$$

$$\begin{array}{r} +.06 \\ +.02 \end{array}$$

$$\begin{array}{r} 406-2-254 \quad 6.01 \\ 255 \quad 5.97 \\ 744 \\ 745 \end{array}$$

745

21 57 6.25

-3.03 -40.22

-17.89

$$\begin{array}{r} 57 \quad 24.14 \\ \hline 6.25 \end{array}$$

$$\begin{array}{r} .00 \\ -.16 \end{array}$$

744

7450

22 0 55.14

-3.14 -40.34

22 0 55.14

+2.2155

+0.0115

+2.2150

-17.72

$$\begin{array}{r} 1 \quad 12.81 \\ \hline 55.09 \end{array}$$

$$\begin{array}{r} +.05 \\ +.05 \end{array}$$

$$\begin{array}{r} 3 \text{ obs: } 2 \quad 744 \\ 745 \\ 749 \quad 55.21 \end{array}$$

745

22 0 55.08

-3.08 -40.47

-17.72

$$\begin{array}{r} 1 \quad 12.81 \\ \hline 55.09 \end{array}$$

$$\begin{array}{r} -.01 \\ +.05 \end{array}$$

744

7465

22 2 29.98

-3.16 -40.54

22 2 29.92

+2.1841

+0.0116

+2.1836

-17.47

$$\begin{array}{r} 2 \quad 47.39 \\ \hline 29.92 \end{array}$$

$$\begin{array}{r} +.06 \\ .00 \end{array}$$

$$\begin{array}{r} 3 \text{ obs: } 2-572 \quad 29.90 \\ 744 \\ 745 \end{array}$$

745

22 2 30.07

-3.11 -40.66

-17.47

$$\begin{array}{r} 2 \quad 47.54 \\ \hline 30.07 \end{array}$$

$$\begin{array}{r} .00 \\ -.15 \end{array}$$

744

7472

22 3 7.77

-3.18 -40.16

22 3 7.66

+2.2717

+0.0120

+2.2712

-18.17

$$\begin{array}{r} 3 \quad 25.88 \\ \hline 7.71 \end{array}$$

$$\begin{array}{r} +.06 \\ -.05 \end{array}$$

$$\begin{array}{r} 5 \text{ obs: } 2-254 \quad 7.64 \\ 255 \quad 7.60 \\ 345 \quad 7.74 \\ 346 \quad 7.54 \\ 744 \end{array}$$

745

744
7502

745
22 6 19.34
-3.18 -40.17

22 6 19.08

+2.3132

+0.126

+2.3127

-18.50

-18.50
6 37.84
19.34

00
-26

412: 580 18.49
581 19.07
745 19.34
746 18.91

744
7509

745
22 7 11.15
-3.20 -40.28

22 7 10.99

+2.3005

+0.128

+2.3000

-18.40

-18.40
7 29.57
11.17

-02
-18

512: 254 10.83
255 10.89
745
749 11.04
750 11.04

744
7519

745
22 8 8.13
-3.21 -40.25

22 8 8.00

+2.3097

+0.130

+2.3092

-18.47

-18.47
8 26.61
8.14

-01
-14

2013: 745
746 7.86

744

7547

745

22 9 47.37
-3.24 -40.90

22 9 47.12

+2.1827

+0.130

+2.1822

-17.46

-17.46
10 48.3
47.37

00
-25

5013: 580 46.87
581 47.25
745
751 46.92
752 47.19

744
7564

745

744
7581

745

$$\begin{array}{r} 22 \ 11 \ 6.82 \\ -3.26 \ -40.74 \end{array}$$

$$\begin{array}{r} 22 \ 12 \ 26.04 \\ -3.28 \ -40.20 \end{array}$$

22 11 6.75

22 12 25.91

+2.2332 +0.135

+2.3468

+0.135

+0.138

+2.2327

+2.3463

-17.86

-18.77

$$\begin{array}{r} -17.86 \\ 11 \ 24.68 \\ \hline 6.82 \end{array}$$

$$\begin{array}{r} -18.77 \\ 12 \ 44.82 \\ \hline 26.05 \end{array}$$
00
-07-01
-14

5th: 5800 [6.29]

$$\begin{array}{r} 5th: 257 \ 25.78 \\ 745 \ 6.78 \\ 746 \ 6.82 \\ 749 \ 6.87 \\ 750 \ 6.53 \end{array}$$

$$\begin{array}{r} 581 \ 6.78 \\ 745 \ 6.82 \\ 749 \ 6.87 \\ 750 \ 6.53 \end{array}$$
745
7564745
7581745
7591744
8449

745

22 11 6.82

22 12 26.04

22 13 27.47

23 40 3.33

23 40 3.16

-3.26 -40.74

-3.28 -40.20

-3.30 -40.22

-4.72 -37.11

-4.68 -37.40

22 11 6.75

22 12 25.91

22 13 27.26

23 40 3.24

+2.2332

+2.3468 +0.138

+2.3494

+2.2341

+0.135

+2.3463

+0.140

+0.330

+2.2327

+2.3489

+2.9328

-17.86

-18.77

-18.79

-23.46

-23.46

$$\begin{array}{r} 11 \ 24.68 \\ \hline 6.82 \end{array}$$

$$\begin{array}{r} 12 \ 44.82 \\ \hline 26.05 \end{array}$$

$$\begin{array}{r} 13 \ 46.27 \\ \hline 27.48 \end{array}$$

$$\begin{array}{r} 40 \ 26.75 \\ \hline 3.29 \end{array}$$

$$\begin{array}{r} 40 \ 26.64 \\ \hline 3.18 \end{array}$$
00
-08-01
-14-01
-22+04
-05-02
+06
$$\begin{array}{r} 5th \\ 581 \ 6.78 \\ 745 \ 6.87 \\ 749 \ 6.87 \\ 750 \ 6.53 \end{array}$$

$$\begin{array}{r} 5th \\ 257 \ 25.78 \\ 745 \ 6.78 \\ 746 \ 6.82 \\ 749 \ 25.92 \\ 750 \ 25.95 \end{array}$$

$$\begin{array}{r} 5th \\ 257 \ 27.14 \\ 745 \ 27.16 \end{array}$$

$$\begin{array}{r} 2th: 2744 \\ 745 \end{array}$$

744 8506 23 45 32.12 -4.91 -37.04 23 45 31.94 +2.9627 +0.371 +2.9612 -23.69 45 55.77 32.08 +0.4 -1.4 23:738 31.92 744 745 877 31.88	745 23 45 31.83 -4.88 -37.36 23.69 45 55.54 31.85 -0.2 +0.9	744 8527 23 48 37.80 +2.9814 +0.398 +2.9798 -23.84 23:742 745	745 23 48 37.74 -5.00 -37.20 -23.84 49 11.60 37.76 -0.2 +0.4
744 8548 23 51 43.46 -5.01 -36.61 23 51 43.26 +3.0094 +0.388 +3.0078 -24.06 52 7.49 43.43 +0.3 -1.7 23:742 43.11 744 745	745 23 51 43.22 -4.98 -36.93 -24.06 52 7.31 43.25 -0.3 +0.1	744 8567 23 53 12.09 -4.92 -36.26 23 53 11.87 +3.0247 +0.362 +3.0233 -24.19 53 36.23 12.04 +0.5 -1.7 23 1 11.77 2 11.82 594 11.91 595 11.84 742 11.73 744 745	745 23 53 11.94 -4.89 -36.55 -24.19 53 36.15 11.96 -0.2 -0.9

744	745	744	745
8588		8608	
23 54 44.92	23 54 44.45	23 57 56.24	23 57 56.06
-5.02 -36.34	-5.00 -36.65	-5.17 -36.26	-5.14 -36.59
23 54 44.38		23 57 56.07	
+3.0331		+3.0559	
+0387		+0418	
+3.0316		+3.0542	
-24.25	-24.25	-24.43	-24.43
55 <u>9.13</u>	58 <u>8.72</u>	58 <u>20.64</u>	58 <u>20.52</u>
44.88	44.47	56.21	56.09
+04	-02	+03	-03
-50	-09	-14	-02
3/16: 703 44.32		5/16 357 55.84	
744 [44.92]		358 56.23	
745 44.45		742 55.96	
		744	
		745	
744	745	744	745
8620		74	
23 59 4.62	23 59 4.51	0 7 42.62	0 7 42.61
-5.11 -36.02	-5.08 -36.35	-5.27 -35.44	-5.25 -35.79
23 59 4.47		0 7 42.63	
+3.0653		+3.1316	
+0401		+0432	
+3.0637		+3.1299	
-24.51	-24.51	-25.04	-25.04
59 <u>29.10</u>	59 <u>29.05</u>	8 <u>7.61</u>	8 <u>7.67</u>
459	454	42.57	42.63
+03	-03	+05	-02
-12	-07	+06	.00
4/16: 740 4.47		3/16 504 42.65	
742 4.28		744	
744		745	
745			

744

82

0 8 16.77
-5.26 -35.37

0 8 16.83

+3.1353

+0.429

+3.1336

-25.07
8 41.81
16.74

+0.3
+0.9

2.06: 744
745

745

0 8 16.89
-5.24 -35.71

-25.07
8 41.99
16.92

-0.3
-0.9

744

104

0 11 33.48
-5.48 -35.30

0 11 33.29

+3.1692

+0.481

+3.1673

-25.34
11 58.79
33.45

+0.3
-1.6

1.06: 593 33.18
744
745
746 33.04

745

0 11 33.45
-5.46 -35.68

-25.34
11 58.82
33.48

-0.3
-1.9

744

124

0 14 40.48
-5.35 -34.81

0 14 40.40

+3.1836

+0.443

+3.1818

-25.45
15 5.90
40.45

+0.3
-0.5

6.06:
352 40.35
355 40.23
356 40.44
742 40.54
744
745

745

0 14 40.36
-5.33 -35.15

-25.45
15 5.84
40.39

-0.3
+0.1

744

125

0 14 41.124
-5.35 -34.81

0 14 40.89

+3.1835

+0.442

+3.1817

-25.45
15 6.65
41.20

+0.4
-2.1

4.15:
504 40.85
742 40.99
744
745

745

0 14 40.88
-5.33 -35.15

-25.45
15 6.36
40.91

-0.3
+0.8

744
129

0 15 51.08

-5.44 -34.81

0 15 51.08

+3.1975

+0.464

+3.1957

-25.57

15 16.61
51.04

+0.4

+0.4

9.6
357 51.09 708 51.06
358 51.11 709 51.09
598 51.06 744
704 51.03 745
705 51.02

745

0 15 51.20

-5.42 -35.18

-25.57

16 16.79
51.22

-0.2

-0.14

744

136

0 16 15.23

-5.45 -34.78

0 16 15.14

+3.2007

+0.466

+3.1988

-25.59

16 40.79
1520

+0.3

-0.6

9.6
598 15.18 742 15.04
608 15.07 744 15.23
704 15.13 745 15.06
705 14.92
708 15.09
709 15.27

745

0 16 15.36

-5.42 -35.14

-25.59

16 40.98
15.39

-0.3

-0.25

744

190

0 22 35.53

-5.62 -34.29

0 22 35.54

+3.2579

+0.501

+3.2569

-26.05

23 1.55
35.50

+0.8

+0.4

745

0 22 35.71

-5.60 -34.67

-26.05

23 1.80
35.75

-0.4

-0.1

744

203

0 24 6.77

-5.67 -34.17

0 24 6.80

+3.2735

+0.513

+3.2714

-26.17

24 32.91
6.74

+0.3

+0.6

745

0 24 6.78

-5.65 -34.57

-26.17

24 32.98
6.81

-0.3

-0.1

3.6
613 35.37
744
745

0.6
593 6.74
742 6.90
744
745

744

215

0 25 15.94

-5.50 -33.86

0 25 15.80

+3.2626

+.0464

+3.2608

-26.09

$$\begin{array}{r} 25 \quad 41.99 \\ \hline 15.90 \end{array}$$
+.04
-1.0

316: 742 15.75
744
745

745

0 25 15.71

-6.47 -34.24

-26.09

$$\begin{array}{r} 25 \quad 41.82 \\ \hline 15.73 \end{array}$$
-.02
+.07

744

258

0 30 2.98

-5.52

0 30 2.96

+3.2935

+.0464

+3.2916

-26.33

$$\begin{array}{r} 30 \quad 29.28 \\ \hline 2.95 \end{array}$$
+.03
+.01

316: 137 3.18
744
908 2.72

745

744

264

0 30 55.11

-5.74 -33.51

0 30 54.82

+3.3253

+.0521

+3.3231

-26.58

$$\begin{array}{r} 31 \quad 21.67 \\ \hline 55.09 \end{array}$$
+.02
-.27

416: 595 54.79
742 54.59
744
745

745

0 30 54.81

-5.72 -33.89

-26.58

$$\begin{array}{r} 31 \quad 21.43 \\ \hline 54.85 \end{array}$$
-.04
-.03

744

287

0 34 7.95

-5.67 -33.10

0 34 7.66

+3.3363

+.0498

+3.3343

-26.67

$$\begin{array}{r} 34 \quad 34.58 \\ \hline 7.91 \end{array}$$
+.01
-.25

716: 742 7.52
744
745
746 7.26
749 7.68
750 7.54
914 7.79

745

745 S. subline

0 34 7.26

-5.66 -33.46

-26.67

$$\begin{array}{r} 34 \quad 33.96 \\ \hline 7.29 \end{array}$$
-.03
+.47

probably not used
by Rogers

$$\begin{array}{r}
 744 \\
 288 \\
 0 \quad 34 \quad 10.03 \\
 -5.67 \quad -33.10 \\
 0 \quad 34 \quad 9.99 \\
 +3.3362 \\
 +0.497 \\
 +3.33 \quad 42 \\
 -26.67 \\
 34 \quad 36.67 \\
 \hline
 10.00 \\
 +0.3 \\
 -0.1
 \end{array}$$

$$\begin{array}{r}
 3 \text{ lbs: } 744 \\
 911 \quad 9.90 \\
 9142 \quad 10.05
 \end{array}$$

$$\begin{array}{r}
 244 \\
 357 \\
 0 \quad 42 \quad 14.72 \\
 -5.80 \quad -32.30 \\
 0 \quad 42 \quad 14.59 \\
 +3.4013 \\
 +0.520 \\
 +3.3992 \\
 -27.19 \\
 42 \quad 41.88 \\
 \hline
 14.69 \\
 +0.3 \\
 -10
 \end{array}$$

$$\begin{array}{r}
 7 \text{ lbs: } 3572 \quad 14.72 \\
 3582 \quad 14.43 \\
 592 \quad 14.61 \\
 593 \quad 14.53 \\
 742 \quad 14.56 \\
 744 \\
 745
 \end{array}$$

745

$$\begin{array}{r}
 745 \\
 0 \quad 42 \quad 14.59 \\
 -5.79 \quad -33.70 \\
 0 \quad 42 \quad 14.59 \\
 -27.19 \\
 42 \quad 41.81 \\
 \hline
 14.62 \\
 -0.3 \\
 -0.3
 \end{array}$$

744

$$\begin{array}{r}
 355 \\
 0 \quad 42 \quad 4.39 \\
 -5.80 \quad -32.30 \\
 0 \quad 42 \quad 4.29 \\
 +3.4000 \\
 +0.519 \\
 +3.3971 \\
 -27.18 \\
 42 \quad 31.55 \\
 \hline
 4.37 \\
 +0.2 \\
 -0.8
 \end{array}$$

$$\begin{array}{r}
 5 \text{ lbs: } 357 \quad 4.36 \\
 358 \quad 4.26 \\
 592 \quad 4.49 \\
 593 \quad 4.47 \\
 742 \quad 4.11 \\
 744 \\
 745 \\
 \hline
 744
 \end{array}$$

$$\begin{array}{r}
 363 \\
 0 \quad 43 \quad 17.82 \\
 -5.57 \quad -32.30 \\
 0 \quad 43 \quad 17.88 \\
 +3.3710 \\
 +0.459 \\
 +3.3692 \\
 -26.95
 \end{array}$$

$$\begin{array}{r}
 3 \text{ lbs: } 200 \quad 17.88 \\
 742 \quad 17.94 \\
 745
 \end{array}$$

745

$$\begin{array}{r}
 0 \quad 42 \quad 4.18 \\
 -5.79 \quad -33.70 \\
 0 \quad 42 \quad 4.29 \\
 -27.18 \\
 42 \quad 31.40 \\
 \hline
 4.22 \\
 -0.4 \\
 +0.7
 \end{array}$$

745

$$\begin{array}{r}
 0 \quad 43 \quad 17.82 \\
 -5.57 \quad -32.30 \\
 0 \quad 43 \quad 17.88 \\
 -26.95 \\
 43 \quad 44.80 \\
 \hline
 17.85 \\
 -0.3 \\
 +0.3
 \end{array}$$

$$\begin{array}{r}
 744 \\
 372 \\
 0 \ 44 \ 43.58 \\
 -5.60 \ -31.80 \\
 0 \ 44 \ 43.59 \\
 +3.3809 \\
 +0.461 \\
 \cancel{45} +3.3791 \\
 \cancel{45} 27.03 \\
 \underline{45 \ 10.58} \\
 43.55 \\
 +0.3 \\
 +0.4
 \end{array}$$

$$\begin{array}{r}
 416: 744 \\
 745 \\
 749 \ 43.83 \\
 750 \ 43.46
 \end{array}$$

$$\begin{array}{r}
 745- \\
 0 \ 44 \ 43.49 \\
 -5.59 \ -32.17 \\
 -427.03 \\
 \underline{45 \ 10.55} \\
 43.52 \\
 -0.3 \\
 +0.7
 \end{array}$$

$$\begin{array}{r}
 744 \\
 373 \\
 0 \ 44 \ 44.43 \\
 -5.60 \ -31.80 \\
 0 \ 44 \ 44.58 \\
 +3.3808 \\
 +0.461 \\
 +3.3790 \\
 -427.03 \\
 \underline{45 \ 11.43} \\
 44.40 \\
 +0.3 \\
 +.18
 \end{array}$$

$$\begin{array}{r}
 416: 744 \\
 749 \ 44.72
 \end{array}$$

$$\begin{array}{r}
 744 \\
 413 \\
 0 \ 48 \ 51.83 \\
 -6.00 \ -31.68 \\
 0 \ 48 \ 51.86 \\
 +3.4716 \\
 +0.563 \\
 +3.4694 \\
 -27.75 \\
 \underline{49 \ 19.55} \\
 51.80 \\
 +0.3 \\
 +0.6
 \end{array}$$

$$\begin{array}{r}
 416: 592 \ 51.93 \\
 593 \ 51.95 \\
 744 \\
 745
 \end{array}$$

$$\begin{array}{r}
 745- \\
 0 \ 48 \ 51.73 \\
 -5.99 \ -32.09 \\
 -27.75 \\
 \underline{49 \ 19.51} \\
 51.76 \\
 -0.3 \\
 +1.0
 \end{array}$$

$$\begin{array}{r}
 744 \\
 422 \\
 0 \ 49 \ 56.86 \\
 -5.72 \ -31.32 \\
 0 \ 49 \ 56.73 \\
 +3.4260 \\
 +0.484 \\
 +3.4241 \\
 -27.39 \\
 \underline{50 \ 24.22} \\
 56.83 \\
 +0.3 \\
 -1.0
 \end{array}$$

$$\begin{array}{r}
 216: 744 \\
 745
 \end{array}$$

$$\begin{array}{r}
 745- \\
 0 \ 49 \ 56.60 \\
 -5.70 \ -31.73 \\
 -27.39 \\
 \underline{50 \ 24.02} \\
 56.63 \\
 -0.3 \\
 +1.0
 \end{array}$$

744

426

0 50 13.81

+3.4279

+0.484

+3.4260

-27.41

$$\begin{array}{r} 50 \quad 41.25 \\ \hline 13.84 \end{array}$$

$$\begin{array}{r} -.03 \\ -.03 \end{array}$$

4hs: 8
145 13.77
745a
755 13.57

744

745

744

448

0 52 44.79

-5.87 -31.13

0 52 44.67

+3.4684

+0.521

+3.4663

-27.73

$$\begin{array}{r} 53 \quad 12.49 \\ \hline 44.76 \end{array}$$

$$\begin{array}{r} +.03 \\ -.09 \end{array}$$

4hs
608 44.50
609 44.81
744
745

744

745

0 52 44.57

-5.86 -31.52

-27.73

$$\begin{array}{r} 53 \quad 12.33 \\ \hline 44.60 \end{array}$$

$$\begin{array}{r} -.03 \\ +.07 \end{array}$$

745

458

~~0 53 46.96~~~~-6.06 -31.57~~

0 53 47.06

+3.5117

+0.574

+3.5094

-28.08

$$\begin{array}{r} 54 \quad 16.06 \\ \hline 46.98 \end{array}$$

$$\begin{array}{r} -.02 \\ +.08 \end{array}$$

4hs: 742 46.96
745
749 47.31
750 47.02

744

466

0 54 13.91

+3.5238

+0.588

+3.5214

-28.17

0 54 14.11

-6.11 -31.56

-28.17

$$\begin{array}{r} 54 \quad 42.30 \\ \hline 14.13 \end{array}$$

-0.2

-2.2

$$\begin{array}{r} 466: 742 \quad 13.92 \\ 745 \\ 912 \quad 13.71 \\ 9148 \end{array}$$

745

744

472

0 55 20.27

-6.89 -30.84

0 55 20.10

+3.4840

+0.521

+3.4819

-27.86

$$\begin{array}{r} 55 \quad 48.10 \\ \hline 20.24 \end{array}$$

+0.3

-1.4

$$\begin{array}{r} 472: 595 \quad 19.96 \\ 742 \quad 20.10 \\ 744 \\ 745 \end{array}$$

745

0 55 20.07

-5.88 -31.23

-27.86

$$\begin{array}{r} 55 \quad 47.96 \\ \hline 20.10 \end{array}$$

-0.3

-0.0

744

745

487

0 56 45.03

-6.16 -30.83

0 56 44.99

+3.5433

+0.592

+3.5409

-28.33

$$\begin{array}{r} 57 \quad 13.33 \\ \hline 45.00 \end{array}$$
+0.3
-0.1
$$\begin{array}{r} 316: 742 \quad 44.99 \\ 744 \\ 745 \end{array}$$

744

495

0 57 18.69

-5.84 -30.55

0 57 18.51

+3.4838

+0.505

+3.4818

-27.85

$$\begin{array}{r} 57 \quad 46.50 \\ \hline 18.65 \end{array}$$
+0.4
-1.4
$$\begin{array}{r} 316: 742 \quad 18.47 \\ 744 \\ 745 \end{array}$$

745

0 57 18.36

-5.83 -30.94

-27.85

$$\begin{array}{r} 57 \quad 46.24 \\ \hline 18.39 \end{array}$$
-0.3
+1.2

744

508

0 58 57.57

-6.14 -30.58

0 58 57.45

+3.5506

+0.582

+3.5483

-28.39

$$\begin{array}{r} 59 \quad 25.93 \\ \hline 57.54 \end{array}$$
+0.3
-0.9
$$\begin{array}{r} 416: 595 \quad 57.36 \\ 742 \quad 57.29 \\ 744 \\ 745 \end{array}$$

745

0 58 57.59

-6.12 -30.98

-28.39

$$\begin{array}{r} 59 \quad 26.01 \\ \hline 57.62 \end{array}$$
-0.3
-1.7

Excess of position 1875.0 given in V.R. XXVI above. to
probable erroneous computation in precession in R.A.

Jones	744	745
20	39	00
	54	+07
21	13	00
	14	+06
	15	+06
	18	+06
	18	+07
	18	00
	21	+06
	27	+06
	28	+05
	33	+07
	33	+06
	33	+06
	45	+06
	46	00
	50	+06
	52	+05
	53	+07
	53	+11
	55	00
	56	+06
	57	+06
22	1	+05
	2	+06
	3	+06
	6	00
	7	-02
	8	-01
	10	00
	11	00
	12	-01
	11	00
	12	-01
	13	-01

Jme	744	745
23	40	+04
	43	+04
	44	-02
	44	+06
	44	+04
	45	+04
	49	-02
	52	+03
	53	+05
	55	+04
	58	+03
	59	+03
0	8	+05
	8	+03
	12	+03
	15	+03
	15	+04
	16	+04
	16	+03
	23	+03
	24	+03
	25	+04
	30	+03
	31	+02
	34	+03
	34	+03
	42	+02
	42	+03
	43	-03
	45	+03
	45	+03
	49	+03
	50	+03
	50	-03
	53	+03
	54	-02
	54	-02
	55	+03
	57	+03
	57	+04
	59	+03

Remarks:
In the book "H 44" on back
"zone stars
Observations and Reductions"
there is a note preceding
reductions of Nov 12, 1883 (744)
"Nov 12
The correction +0.064 which
is applied to (AT+m), sum
of the ~~quadrant~~ constants
and final R.A. is for
re-reduction of (AT+m)

Remarks by JPD:
~~If~~ Even if this is
taken away from figures
of Nov 12 (744) on this page
here, there would be a sum
minus excess left
corresponding to zone 745,

but the large systematic
error spoken of by Dr Bozebride
is not explained by errors
in precession.

28

Interpolation for ABCD
assumed near enough
for this purpose.

E neglected

Computation of ~~app. J_l~~ mean to app. J_l as a check on
similar computations, accepting the a, b, c, d. constants
in the reduction books as correct.

In the reduction books as correct.								
	Nm 12	Nm 14	Nm 12	Nm 12	Nm 14	Nm 12	Nm 14	
	~~21 18~~ 20 54 3 28 -6 34 -27	~~21 18~~ 20 54 3 36 -6 34 -27	~~21 18~~ 20 54 3 28 -6 58 -29	~~21 18~~ 20 50 3 28 -6 38 -28	~~21 14~~ 20 50 3 36 -6 46 -28	~~21 15~~ 20 51 3 28 -6 37 -28	~~21 15~~ 20 51 3 36 -6 45 -28	
A	0.0070 0.2467 0.2537	0.0093 0.2467 0.2560	0.0070 0.2310 0.2380	0.0070 0.3047 0.3117	0.0093 0.3047 0.3140	0.0070 0.2822 0.2892	0.0093 0.2822 0.2915	
B	0.9020 8.7365 9.6385	0.9085 8.7365 9.6450	0.9021 8.8145 9.7166	0.9021 8.7756 9.6777	0.9087 8.7757 9.6844	0.9021 8.8215 9.7236	0.9087 8.8215 9.7302	
C	1.0792 8.8906 9.9698	1.0605 8.8906 9.9511	1.0791 8.9023 9.9814	1.0790 8.8911 9.9701	1.0599 8.8912 9.9511	1.0790 8.9201 9.9991	1.0599 8.9201 9.9800	
D	1.1961 8.9183m 0.1144m	1.2083 8.9183m 0.1266m	1.1961 8.9222m 0.1483m	1.1962 8.8367m 0.0329m	1.2085 8.8365m 0.0450m	1.1962 8.8603m 0.0565m	1.2085 8.8603m 0.0688m	
d	1.794 435 933 -1.301 +1.861	1.803 442 894 -1.339 +1.800	1.730 521 958 -1.313 +1.896	2.050 476 933 -1.079 +2.380	2.061 483 894 -1.109 +2.329	1.946 529 998 -1.139 +2.334	1.956 537 955 -1.171 2.277	
l. (222)	-1.76	-1.70	-1.89	-2.38	-2.33	-2.33	-2.28	
→								
u								
	Nm 12	Nm 12	Nm 14	Nm 12	Nm 14	Nm 12	Nm 12	Nm 14
	~~21 18~~ 20 54 3 28 -6 34 -27	~~21 18~~ 20 54 3 36 -6 34 -27	~~21 18~~ 20 54 3 36 -6 42 -28	~~21 21~~ 20 57 3 28 -6 31 -27	~~21 21~~ 20 57 3 36 -6 39 -28	~~21 28~~ 20 54 3 28 -6 24 -27	~~21 28~~ 20 54 3 28 -6 24 -27	~~21 28~~ 20 54 3 36 -6 32 -27
← Same as before?	0.0070 0.3062 0.3132	0.0070 0.3062 0.3132	0.0093 0.3068 0.3161	0.0070 0.2660 0.2730	0.0093 0.2660 0.2753	0.0070 0.3202 0.3272	0.0070 0.3204 0.3274	0.0093 0.3204 0.3277
	0.9021 8.7863 9.6884	0.9021 8.7863 9.6884	0.9087 8.7864 9.6951	0.9021 8.8661 9.7682	0.9087 8.8661 9.7748	0.9021 8.7954 9.6975	0.9021 8.7961 9.6982	0.9088 8.7961 9.7049
	1.0790 8.8948 9.9788	1.0790 8.8948 9.9788	1.0599 8.9061 9.9600	1.0790 8.9521 0.0311	1.0599 8.9521 0.0120	1.0790 8.9113 9.9903	1.0790 8.9119 9.9909	1.0598 8.9119 9.9717
	1.1963 8.8318m 0.0281m	1.1963 8.8318m 0.0281m	1.2085 8.8308m 0.0393m	1.1963 8.8728m 0.0691m	1.2085 8.8728m 0.0813m	1.1963 8.8060m 0.0023m	1.1963 8.8053m 0.0016m	1.2086 8.8053m 0.0139m
	2.057 488 952 -1.067 +2.430	2.057 488 952 -1.067 +2.430	2.070 496 912 -1.095 +2.383	1.875 586 1.074 -1.172 +2.363	1.885 595 1.028 -1.206 +2.302	2.124 498 978 -1.006 +2.594	2.125 499 978 -1.003 +2.596	2.137 507 937 -1.033 +2.548
	-2.43	-2.43	-2.38	-2.36	-2.30	-2.59	-2.60	-2.55

Mm 12	Mm 12	Mm 14	Mm 14	Mm 12	Mm 14	Mm 12	Mm 14
21 33 9 3 28 -6 19 -26	21 33 9 3 28 -6 19 -26	21 33 9 3 36 -6 27 -27	21 33 9 3 36 -6 27 -27	21 35 9 3 28 -6 19 -26	21 38 9 3 36 -6 27 -27	21 45 21 3 28 -6 7 -25	21 45 21 3 36 -6 15 -26
0.0070 0.3259 0.3329	0.0070 0.3263 0.3333	0.0093 0.3259 0.3352	0.0093 0.3263 0.3356	0.0070 0.3094 0.3164	0.0093 0.3094 0.3187	0.0070 0.3139 0.3209	0.0093 0.3139 0.3232
0.9021 8.8040 9.7061	0.9021 8.8037 9.7058	0.9088 8.8040 9.7128	0.9088 8.8037 9.7125	0.9021 8.8404 9.7425	0.9088 8.8404 9.7492	0.9022 8.8806 9.7828	0.9088 8.8806 9.7894
1.0789 8.9197 9.9986	1.0789 8.9195 9.9984	1.0598 8.9197 9.9795	1.0598 8.9195 9.9793	1.0789 8.9421 0.0210	1.0598 8.9421 0.0019	1.0788 8.9735 0.0523	1.0597 8.9735 0.0332
1.1963 8.7931m 9.9894m	1.1963 8.7924m 9.9887m	1.2086 8.7931m 0.0017m	1.2086 8.7924m 0.0010m	1.1963 8.8135m 0.0098m	1.2086 8.8135m 0.0221m	1.1964 8.7959m 9.9923m	1.2087 8.7959m 0.0046m
2.153 .507 997 -976 +2.681 -2.68	2.154 .508 996 -974 +2.684 -2.68	2.164 .516 954 -1.004 +2.630 -2.63	2.166 .516 954 -1.002 +2.634 -2.63	2.072 .553 1.050 -1.023 +2.652 -2.65	2.083 .561 1.005 -1.052 +2.597 -2.60	2.094 .606 1.128 -982 +2.846 -2.84	2.105 .616 1.079 -1.010 +2.790 -2.79

Mm 14	Mm 12	Mm 14	Mm 12	Mm 14	Mm 12	Mm 12	Mm 14	Mm 14
21 46 22 2 36 -6 14 -26	21 50 26 3 28 -6 2 -25	21 50 26 3 36 -6 10 -26	21 52 28 3 28 -6 0 -25	21 52 28 3 36 -6 8 -26	21 53 29 3 28 -5 59 -25	21 54 30 3 28 -5 58 -25	21 55 29 3 36 -6 7 -25	21 57 30 3 36 -6 6 -25
0.0093 0.3141 0.3234	0.0070 0.3278 0.3348	0.0093 0.3278 0.3371	0.0070 0.3385 0.3455	0.0093 0.3285 0.3478	0.0070 0.3477 0.3547	0.0070 0.3479 0.3549	0.0093 0.3477 0.3570	0.0093 0.3479 0.3572
0.9088 8.8813 9.7901	0.9022 8.8703 9.7725	0.9088 8.8703 9.7791	0.9022 8.8533 9.7555	0.9088 8.8533 9.7621	0.9022 8.8347 9.7369	0.9022 8.8350 9.7372	0.9089 8.8347 9.7436	0.9089 8.8350 9.7439
1.0597 8.9741 0.0338	1.0788 8.9690 0.0478	1.0597 8.9690 0.0287	1.0788 8.9592 0.0380	1.0597 8.9592 0.0189	1.0788 8.9486 0.0274	1.0788 8.9489 0.0277	1.0596 8.9486 0.0082	1.0596 8.9489 0.0085
1.2087 8.7952m 0.0039m	1.1964 8.7720m 9.9684m	1.2087 8.7720m 9.9807m	1.1964 8.7539m 9.9503m	1.2087 8.7539m 9.9626m	1.1964 8.7387m 9.9357m	1.1964 8.7379m 9.9343m	1.2087 8.7387m 9.9474m	1.2087 8.7379m 9.9466m
2.106 617 1.081 -1.009 +2.795 -2.79	2.162 592 1.116 -930 +2.940 -2.94	2.173 601 1.068 -956 +2.886 -2.89	2.216 570 1.091 -892 +2.985 -2.98	2.227 578 1.045 -918 +2.932 -2.93	2.263 546 1.065 -861 +3.013 -3.01	2.264 546 1.066 -860 +3.016 -3.02	2.275 554 1.019 -886 +2.962 -2.96	2.276 554 1.020 -884 +2.966 -2.97

Nr 14	Nr 12	Nr 14	Nr 12	Nr 14	Nr 12	Nr 14	Nr 12	Nr 14
21 ^h <u>31</u> 3 36 -6 5 -25	21 ^h <u>32</u> 3 28 -5 56 -25	21 ^h <u>32</u> 3 36 -6 4 -25	21 ^h <u>33</u> 3 28 -5 55 -25	21 ^h <u>33</u> 3 36 -6 5 -25	22 ^h <u>37</u> 3 28 -5 51 -24	22 ^h <u>37</u> 3 36 -5 59 -25	22 ^h <u>39</u> 3 28 -5 49 -24	22 ^h <u>39</u> 3 36 -5 57 -25
0.0093 0.3408 0.3501	0.0070 0.3306 0.3376	0.0093 0.3306 0.3399	0.0070 0.3447 0.3567	0.0093 0.3497 0.3590	0.0070 0.3456 0.3526	0.0093 0.3456 0.3549	0.0070 0.3394 0.3464	0.0093 0.3394 0.3487
0.9089 8.8608 9.7697	0.9022 8.8901 9.7923	0.9089 8.9101 9.8190	0.9022 8.8471 9.7493	0.9089 8.8471 9.7560	0.9022 8.8744 9.7766	0.9089 8.8744 9.7833	0.9022 8.8971 9.7993	0.9089 8.8971 9.8060
1.0596 8.9652 0.0248	1.0788 8.9843 0.0631	1.0596 8.9843 0.0439	1.0788 8.9579 0.0367	1.0596 8.9579 0.0175	1.0787 8.9762 0.0549	1.0596 8.9762 0.0358	1.0787 8.9913 0.0700	1.0596 8.9913 0.0509
1.2087 8.7468m 9.9555m	1.1964 8.7611m 9.9575m	1.2087 8.7611m 9.9698m	1.1964 8.7304m 9.9268m	1.2087 8.7304m 9.9391m	1.1965 8.7321m 9.9286m	1.2087 8.7321m 9.9408m	1.1965 8.7401m 9.9366m	1.2087 8.7401m 9.9488m
2.240 588 1.059 -9.03 +2.984 -2.98	2.176 619 1.156 -9.07 +3.044 -3.04	2.187 659 1.107 -9.33 +3.020 -2.99	2.273 561 1.088 -8.45 +3.077 -3.08	2.286 570 1.041 -8.69 +3.028 -3.03	2.252 598 1.135 -8.48 +3.137 -3.14	2.264 607 1.086 -8.73 +3.084 -3.08	2.220 630 1.175 -8.64 +3.161 -3.16	2.232 640 1.125 -8.89 +3.108 -3.11
Nr 12	Nr 14	Nr 14	Nr 14	Nr 14	Nr 14	Nr 14	Nr 14	Nr 14
22 ^h <u>39</u> 3 28 -5 49 -24	22 ^h <u>43</u> 3 36 -5 53 -25	22 ^h <u>43</u> 3 36 -5 53 -25	22 ^h <u>44</u> 3 36 -5 52 -25	22 ^h <u>46</u> 3 36 -5 50 -24	22 ^h <u>47</u> 3 36 -5 49 -24	22 ^h <u>49</u> 3 36 -5 47 -24	22 ^h <u>50</u> 3 36 -5 46 -24	22 ^h <u>50</u> 3 36 -5 46 -24
0.0070 0.3564 0.3634	0.0093 0.3644 0.3737	0.0093 0.3619 0.3712	0.0093 0.3636 0.3729	0.0094 0.3392 0.3486	0.0094 0.3392 0.3486	0.0094 0.3707 0.3801	0.0094 0.3711 0.3805	0.0094 0.3711 0.3805
0.9022 8.8548 9.7570	0.9089 8.8460 9.7549	0.9089 8.8569 9.7658	0.9089 8.8566 9.7649	0.9089 8.9305 9.8394	0.9089 8.9305 9.8394	0.9089 8.8543 9.7632	0.9089 8.8576 9.7665	0.9089 8.8576 9.7665
1.0787 8.9651 0.0438	1.0596 8.9612 0.0208	1.0596 8.9660 0.0276	1.0596 8.9679 0.0275	1.0596 9.0160 0.0756	1.0596 9.0160 0.0756	1.0596 8.9681 0.0277	1.0596 8.9709 0.0305	1.0596 8.9709 0.0305
1.1965 8.7112m 9.9077m	1.2087 8.6929m 9.9016m	1.2087 8.6958m 9.9045m	1.2087 8.6914m 9.9001m	1.2088 8.7318m 9.9406m	1.2088 8.7318m 9.9406m	1.2088 8.6716m 9.8804m	1.2088 8.6696m 9.8784m	1.2088 8.6696m 9.8784m
2.309 572 1.106 -8.08 +3.179 -3.18	2.364 569 1.050 -7.97 +3.186 -3.18	2.351 583 1.065 -8.03 +3.196 -3.20	2.359 582 1.065 -7.94 +3.212 -3.21	2.231 690 1.191 -8.72 +3.240 -3.24	2.231 690 1.191 -8.72 +3.240 -3.24	2.400 579 1.066 -7.59 +3.286 -3.28	2.402 586 1.073 -7.56 +3.303 -3.30	2.402 586 1.073 -7.56 +3.303 -3.30

Nm12	Nm14	Nm12	Nm14	Nm12	Nm14	Nm14	Nm12	Nm14
22"40	22"40	23"45	23"45	23"44	23"44	23"44	23"45	23"45
16	16	19	19	20	20	20	21	21
3 28	3 36	3 28	3 36	3 28	3 36	3 36	3 28	3 36
-5 12	-5 20	-4 9	-4 17	-4 8	-4 16	-4 16	-4 7	-4 15
-21	-22	-17	-18	-17	-18	-18	-17	-18
0.0094	0.0094	0.0071	0.0095	0.0071	0.0095	0.0095	0.0071	0.0095
0.4679	0.4679	0.4670	0.4670	0.4706	0.4706	0.4706	0.4695	0.4695
0.4773	0.4773	0.4741	0.4765	0.4777	0.4801	0.4801	0.4766	0.4790
0.9090	0.9090	0.9024	0.9091	0.9024	0.9091	0.9091	0.9024	0.9091
8.8980	8.8980	8.8807	8.8807	8.9343	8.9340	8.9343	8.9696	8.9694
9.8070	9.8070	9.8831	9.8898	9.8367	9.8431	9.8434	9.8720	9.8785
1.0596	1.0594	1.0780	1.0590	1.0780	1.0590	1.0590	1.0780	1.0590
9.0139	9.0139	9.0663	9.0663	9.0362	9.0360	9.0362	9.0589	9.0588
0.0735	0.0733	0.1443	0.1253	0.1142	0.0950	0.0952	0.1367	0.1178
1.12089	1.12089	1.1969	1.2091	1.1969	1.2091	1.2091	1.1969	1.2091
7.9441m	7.9441m	7.9324m	7.9339m	7.8661m	7.8678m	7.8661m	7.8793m	7.8792m
9.1530m	9.1530m	9.1308m	9.1436m	9.0630m	9.0769m	9.0752m	9.0762m	9.0883m
3.001	3.001	2.980	2.995	3.004	3.021	3.021	2.996	3.013
641	641	764	776	687	697	697	745	756
1.184	1.184	1.394	1.335	1.301	1.245	1.246	1.371	1.311
-142	-142	-135	-139	-116	-119	-119	-119	-123
4.684	4.684	+5.005	+4.967	+4.876	+4.844	+4.845	+4.993	+4.957
-4.72	-4.68	-5.00	-4.97	-4.88	-4.84	-4.84	-5.00	-4.96

Nm12	Nm14	Nm14	Nm12	Nm14	Nm12	Nm14	Nm12
23"46	23"46	23"49	23"52	23"52	23"52	23"54	23"55
22	22	25	28	28	30	30	31
3 28	3 36	3 36	3 28	3 36	3 28	3 36	3 28
4 6	4 14	4 11	4 0	4 8	3 58	4 6	3 57
-17	-18	-17	-17	-17	-17	-17	-18
0.0071	0.0095	0.0095	0.0071	0.0095	0.0071	0.0095	0.0071
0.4722	0.4722	0.4749	0.4720	0.4790	0.4812	0.4812	0.4823
0.4793	0.4817	0.4844	0.4867	0.4885	0.4883	0.4907	0.4894
0.9024	0.9091	0.9091	0.9024	0.9091	0.9024	0.9091	0.9024
8.9373	8.9373	8.9611	8.9392	8.9392	8.9027	8.9027	8.9105
9.8397	9.8464	9.8702	9.8416	9.8483	9.8051	9.8118	9.8329
1.0780	1.0590	1.0589	1.0780	1.0589	1.0780	1.0589	1.0780
9.0382	9.0382	9.0535	9.0396	9.0396	9.0173	9.0173	9.0341
0.1162	0.0972	0.1124	0.1176	0.0985	0.0953	0.0762	0.1121
1.1969	1.2091	1.2091	1.1969	1.2091	1.1969	1.2091	1.1970
7.8247m	7.8247m	7.7298m	7.5716m	7.5716m	7.4589m	7.4589m	7.3552m
9.0216m	9.0338m	8.9389m	8.7685m	8.7807m	8.6558m	8.6680m	8.5522m
3.015	3.032	3.051	3.063	3.080	3.078	3.095	3.086
691	702	742	695	705	638	648	681
1.307	1.251	1.295	1.311	1.254	1.246	1.192	1.294
-105	-108	-087	-059	-060	-045	-047	-036
+4.908	+4.877	+5.001	+5.01	+4.979	+4.917	+4.888	+5.026
-4.91	-4.88	-5.00	-5.01	-4.98	-4.92	-4.89	-5.02

Mm14	Mm12	Mm14	Mm12	Mm14	Mm12	Mm14	Mm12	Mm14
23 55 31 3 36 4 5 -17	23 58 34 3 28 3 54 -16	23 58 34 3 36 4 2 -17	23 59 35 3 28 3 53 -16	23 59 35 3 36 4 1 -17	23 58 35 3 28 3 44 -15	23 58 35 3 28 3 52 -16	23 58 35 3 28 3 44 -16	23 59 35 3 36 3 51 -16
0.0095 0.4823 0.4918	0.0071 0.4856 0.4927	0.0095 0.4856 0.4951	0.0071 0.4870 0.4941	0.0095 0.4870 0.4965	0.0071 0.4962 0.5033	0.0095 0.4962 0.5057	0.0071 0.4968 0.5039	0.0095 0.4968 0.5063
0.9091 8.9305 9.8396	0.9024 8.9568 9.8592	0.9091 8.9568 9.8659	0.9024 8.9342 9.8366	0.9091 8.9342 9.8433	0.9025 8.9454 9.8479	0.9092 8.9454 9.8546	0.9024 8.9404 9.8428	0.9092 8.9404 9.8496
1.0589 0.0341 0.0930	1.0780 9.0509 0.1289	1.0589 9.0509 0.1098	1.0780 9.0365 0.1145	1.0589 9.0365 0.0959	1.0779 9.0435 0.1214	1.0588 9.0435 0.1023	1.0780 9.0403 0.1183	1.0588 9.0403 0.0991
1.2091 7.3952m 8.5643m	1.1970 6.8948m 8.0918m	1.2091 6.8948m 8.1039m	1.1970 6.2784m 7.4754m	1.2091 6.2784m 7.4875m	1.1970 7.5973 8.7943	1.2092 7.5973 8.8065	1.1970 7.6248 8.8218	1.2092 7.6248 8.8340
3.104 691 1.239 -0.37 +4.997 -5.02	3.110 723 1.346 -0.12 +5.167 -5.17	3.127 734 1.287 -0.13 +5.135 -5.14	3.120 686 1.302 -0.03 +5.105 -5.11	3.137 697 1.246 -0.03 +5.077 -5.08	3.186 704 1.322 0.02 +5.274 -5.27	3.204 716 1.267 0.04 +5.250 -5.25	3.192 696 1.313 0.06 +5.267 -5.26	3.208 707 1.256 0.08 +5.239 -5.26

Mm12	Mm14	Mm12	Mm12	Mm14	Mm14	Mm12	Mm12	Mm14
23 48 3 28 3 40 -15	23 48 3 36 3 48 -16	23 51 3 28 3 37 -15	23 51 3 28 3 37 -15	23 51 3 36 3 45 -16	23 51 3 36 3 45 -16	23 52 3 28 3 36 -15	23 53 3 28 3 34 -15	23 52 3 36 3 44 -16
0.0071 0.5015 0.5086	0.0095 0.5015 0.5110	0.0071 0.5034 0.5105	0.0071 0.5034 0.5105	0.0095 0.5034 0.5105	0.0095 0.5034 0.5105	0.0071 0.5053 0.5124	0.0071 0.5058 0.5127	0.0095 0.5053 0.5148
0.9025 8.9821 9.8846	0.9092 8.9821 9.8913	0.9025 8.9377 9.8402	0.9025 8.9377 9.8402	0.9092 8.9377 9.8402	0.9092 8.9377 9.8402	0.9025 8.9560 9.8585	0.9025 8.9559 9.8584	0.9092 8.9560 9.8632
1.0779 9.0674 0.1453	1.0588 9.0674 0.1262	1.0779 9.0383 0.1162	1.0779 9.0383 0.1162	1.0588 9.0383 0.1162	1.0588 9.0383 0.1162	1.0779 9.0500 0.1279	1.0779 9.0499 0.1278	1.0588 9.0500 0.1088
1.1970 7.7892 8.9862	1.2092 7.7892 8.9984	1.1970 7.8006 9.0576	1.1970 7.8006 9.0576	1.2092 7.8006 9.0576	1.2092 7.8006 9.0576	1.1970 7.9036 9.1006	1.1970 7.9141 9.1111	1.2092 7.9036 9.1128
3.225 767 1.397 0.97 +5.486 -5.48	3.243 778 1.338 1.00 +5.459 -5.48	3.240 0.692 1.307 1.14 +5.353 -6.36				3.254 722 1.343 1.26 +5.445 -5.44	3.257 722 1.342 1.26 +5.447 -5.45	3.271 733 1.284 1.30 +5.418 -5.42

M ₁₄	M ₁₂	M ₁₄	M ₁₂	M ₁₄	M ₁₂	M ₁₄	M ₁₂	M ₁₂	M ₁₄
0 ¹ 17 23 53 3 36 3 43 -16	0 ² 25 23 59 3 28 3 29 -14	0 ² 25 23 59 3 36 3 37 -15	0 ² 25 0 ¹ 1 3 28 3 27 -14	0 ² 25 0 ¹ 1 3 36 3 35 -15	0 ² 26 2 3 28 3 26 -14	0 ² 26 2 3 36 3 34 -15	0 ² 31 7 3 28 3 21 -14	0 ² 31 7 3 28 3 21 -14	0 ² 31 7 3 36 3 29 -14
0.0095 0.5058 0.5153	0.0071 0.5135 0.5206	0.0095 0.5135 0.5230	0.0071 0.5156 0.5227	0.0095 0.5156 0.5251	0.0071 0.5141 0.5212	0.0095 0.5141 0.5236	0.0071 0.5182 0.5253	0.0071 0.5224 0.5295	0.0095 0.5224 0.5319
0.9092 8.9559 9.8651	0.9025 8.9719 9.8744	0.9092 8.9719 9.8811	0.9025 8.9786 9.8811	0.9092 8.9786 9.8878	0.9025 8.9340 9.8365	0.9092 8.9340 9.8432	0.9025 8.9230 9.8255	0.9025 8.9692 9.8717	0.9092 8.9692 9.8784
1.0588 9.0499 0.1087	1.0778 9.0601 0.1379	1.0587 9.0667 0.1188	1.0778 9.0644 0.1422	1.0587 9.0644 0.1231	1.0778 9.0353 0.1131	1.0587 9.0353 0.0940	1.0778 9.0281 0.1059	1.0778 9.0576 0.1354	1.0586 9.0576 0.1162
1.2092 7.9141 9.1233	1.1970 8.0656 9.2626	1.2093 8.0656 9.2749	1.1970 8.0980 9.2950	1.2093 8.0980 9.3073	1.1971 8.0886 9.2857	1.2093 8.0886 9.2979	1.1971 8.1562 9.3533	1.1971 8.1980 9.3751	1.2093 8.1980 9.4073
3.275 1.733 1.284 1.33 +5.425 -5.42	3.316 1.749 1.374 1.83 +5.622 -5.62	3.334 1.760 1.314 1.88 +5.596 -5.62	3.332 1.760 1.388 1.97 +5.677 -5.67	3.350 1.772 1.327 2.03 +5.652 -5.67	3.321 1.686 1.297 1.93 +5.497 -5.50	3.339 1.694 1.242 1.99 +5.477 -5.50	3.352 1.669 1.246 2.25 +5.522 -5.52	3.384 1.744 1.366 2.48 +5.742 -5.74	3.403 1.756 1.307 2.55 +5.721 -5.72

M ₁₂	M ₁₂	M ₁₄	M ₁₂	M ₁₂	M ₁₄	M ₁₄	M ₁₄
0 ² 35 11 2 28 3 17 -14	0 ² 35 11 3 28 3 17 -14	0 ² 35 11 3 36 3 25 -14	0 ² 45 19 3 28 3 9 -13	0 ² 45 19 3 28 3 9 -13	0 ² 45 19 3 36 3 17 -14	0 ² 45 21 3 36 3 15 -14	0 ² 45 20 3 36 3 16 -14
0.0071 0.5239 0.5310	0.0071 0.5321 0.5392	0.0095 0.5321 0.5392	0.0071 0.5321 0.5392	0.0071 0.5321 0.5392	0.0095 0.5321 0.5392	0.0095 0.5321 0.5392	0.0095 0.5321 0.5392
0.9025 8.9441 9.8666	0.9025 8.9452 9.8477	0.9092 8.9452 9.8477	0.9025 8.9452 9.8477	0.9025 8.9452 9.8477	0.9092 8.9452 9.8477	0.9092 8.9452 9.8477	0.9092 8.9452 9.8477
1.0778 9.0409 0.1187	1.0778 9.0407 0.1184	1.0584 9.0407 0.1184	1.0777 9.0407 0.1184	1.0777 9.0407 0.1184	1.0584 9.0407 0.1184	1.0584 9.0407 0.1184	1.0584 9.0407 0.1184
1.1971 8.2240 9.4211	1.1971 8.3157 9.5129	1.2094 8.3157 9.5129	1.1972 8.3157 9.5129	1.1972 8.3157 9.5129	1.2094 8.3157 9.5129	1.2094 8.3157 9.5129	1.2094 8.3157 9.5129
3.396 7.02 1.814 2.64 +5.676 -5.67	3.461 7.04 1.813 2.26 +5.804 -5.80	3.461 7.04 1.813 2.26 +5.804 -5.80	3.461 7.04 1.813 2.26 +5.804 -5.80	3.461 7.04 1.813 2.26 +5.804 -5.80	3.461 7.04 1.813 2.26 +5.804 -5.80	3.461 7.04 1.813 2.26 +5.804 -5.80	3.461 7.04 1.813 2.26 +5.804 -5.80

Nm 14	Nm 12	Nm 12	Nm 14	Nm 12	Nm 14	Nm 14	Nm 12	Nm 14
0° 45'	0° 45'	0° 45'	0° 46'	0° 49'	0° 49'	0° 50'	0° 50'	0° 51'
21	21	21	22	25	25	26	26	27
3 36	3 28	3 28	3 36	3 28	3 36	3 36	3 28	3 36
3 15	3 7	3 7	3 14	3 3	3 11	3 10	3 2	3 9
-14	-13	-13	-13	-13	-13	-13	-12	-13
a b c d m l g n								
0.0095	0.0071	0.0071	0.0095	0.0071	0.0095	0.0095	0.0071	0.0095
0.5296			0.5325	0.5411	0.5411	0.5553		0.5356
0.5374			0.5420	0.5482	0.5506	0.5448		0.5451
0.9092	0.9025	0.9025	0.9093	0.9025	0.9093	0.9093	0.9026	0.9093
8.8921			8.9104	8.9642	8.9642	8.9018		8.9016
9.8013			9.8197	9.8667	9.8735	9.8777		9.8709
1.0586	1.0777	1.0777	1.0585	1.0777	1.0585	1.0585	1.0776	1.0585
9.0076			9.0184	9.0522	9.0522	9.0126		9.0124
0.0662			0.0769	0.1299	0.1107	0.0711		0.0709
1.12094	1.11972	1.11972	1.12094	1.11972	1.12094	1.12094	1.11972	1.12094
8.3089			8.3320	8.3926	8.3926	8.3651		8.3653
9.5183			9.5414	9.5890	9.6020	9.5725		9.5747
3.460			3.483	3.534	3.553	3.506		3.509
633			660	736	747	647		647
1.1165			1.1194	1.1349	1.1290	1.1178		1.1178
330			348	389	400	374		376
+5.588			+5.685	+6.008	+5.990	+5.705		+5.710
-5.59			-5.67	-6.00	-5.99	-5.70		-5.71

Nm 12	Nm 14	Nm 14	Nm 14	Nm 12	Nm 14	Nm 12
0° 58'	0° 58'	0° 58'	0° 58'	0° 58'	0° 58'	0° 57'
29	31	30	31	31	32	33
3 28	3 36	3 36	3 36	3 28	3 36	3 28
2 59	3 5	3 6	3 5	2 57	3 4	2 55
-12	-13	-13	-13	-12	-13	-12
0.0071	0.0095	0.0095	0.0095	0.0071	0.0095	0.0071
0.5407	0.5407	0.5462	0.5476	0.5426	0.5426	0.5501
0.5478	0.5502	0.5557	0.5571	0.5497	0.5521	0.5572
0.9026	0.9093	0.9093	0.9093	0.9026	0.9093	0.9026
8.9262	8.9262	8.9262	8.9262	8.9217	8.9217	8.9667
9.8288	9.8355	9.8719	9.8800	9.8243	9.8310	9.8713
1.0776	1.0585	1.0585	1.0585	1.0776	1.0585	1.0776
9.0271	9.0271	9.0505	9.0559	9.0238	9.0238	9.0642
0.7083	0.6856	0.7090	0.7144	0.7014	0.6823	0.7318
1.11972	1.12094	1.12094	1.12094	1.11972	1.12094	1.11972
8.4019	8.4019	8.4336	8.4428	8.4195	8.4195	8.4616
9.5991	9.6183	9.6430	9.6522	9.6167	9.6289	9.6588
3.530	3.550	3.595	3.607	3.546	3.566	3.608
674	685	744	759	667	678	744
1.1273	1.1218	1.1287	1.1301	1.1263	1.1209	1.1354
397	408	440	449	414	426	456
+5.874	+5.861	+6.066	+6.116	+5.890	+5.877	+6.162
-5.87	-5.87	-6.06	-6.11	-5.89	-5.89	-6.16

M ₁₄			
M ₁₄	M ₁₂	M ₁₂	M ₁₄
0' 57 33	0' 58 34	0' 59 35	0' 59 35
3 36	3 28	3 28	3 36
5 5	2 54	2 53	3 1
-13	-12	-12	-12
0.0095	0.0071	0.0071	0.0095
0.5501	0.5426	0.5510	0.5510
0.5596	0.5497	0.5581	0.5605
0.9093	0.9026	0.9026	0.9093
8.9687	8.9054	8.9580	8.9580
9.8780	9.8080	9.8147	9.8673
1.0585	1.0585	1.0585	1.0585
9.0542	9.0134	9.0466	9.0466
0.1127	0.0910	0.0719	0.1051
1.2094	1.1972	1.1972	1.2095
8.4616	8.4250	8.4711	8.4711
9.6710	9.6222	9.6385	9.6806
3.628	3.546	3.566	3.635
7.55	6.43	6.53	7.37
1.296	1.233	1.180	1.331
469	419	431	446
+6.148	+5.841	+5.830	+6.137
-6.16	-5.84	-5.83	-6.14

Result:

No systematic error
in a₁₄ & in pl. correction
as computed originally,
assuming that the
constants a, b, c, d, are
correct.

1875.0

Roger no 2170 9.4 5^h 13^m 51.73 $\begin{pmatrix} +4.8715 \\ +0.215 \end{pmatrix}$ +53° 56' 36.8 $\begin{pmatrix} +4.010 \\ -0.698 \end{pmatrix}$ $\begin{matrix} \text{ep} \\ 85.1 \end{matrix}$ $\begin{matrix} \text{gme} \\ 835 \end{matrix}$ $\begin{matrix} \text{BD} \\ +53.899 \end{matrix}$

Roger's note: p. 175, BD +53.899 identified as Bhas 55.61

Ristenpart (Mar 19 1904) says Roger (no 2170) is 3.69 smaller than Bonn VI, +53.899 and Bonn reductions according to Prof. Mönrichmeyer in Bonn are correct there being 3 well acc'd ant. threads

Ristenpart says further that perhaps Comb. 2190 was skewed if a correction of some minutes and change of thread groups are permitted.

Roger no 2190 $\begin{matrix} \text{mag} \\ 9.3 \end{matrix}$ 5^h 18^m 17.80 $\begin{pmatrix} +4.8783 \\ +0.196 \end{pmatrix}$ +53° 56' 38.9 $\begin{pmatrix} +3.629 \\ -0.701 \end{pmatrix}$ $\begin{matrix} \text{ep} \\ 75.2 \end{matrix}$ $\begin{matrix} \text{gme} \\ 376 \\ 379 \end{matrix}$ +53° 9' 11

Difference

$$2190 - 2170 = + 4^m 26.07 \quad + 2.1$$

this star was
improperly reduced
by J. A. Dunne
reduction looks (Roger's)

Al C. Cambridge (Rosen) No 3196

Should be

As printed erroneously

1875.0

	α	δ
Obs. of Mar 1, 1871	$8^h 29^m 59.03$	$+51^\circ 54' 48.04$
Mar 5, 1871	$8^h 29^m 58.94$	$+51^\circ 54' 49.34$
Mean	$8^h 29^m 58.98$	$+51^\circ 54' 48.69$

June 32	$8^h 30^m 3.81$	$+51^\circ 54' 39.8$
June 35	3.74	39.7

} Vol XXXV
H.C.O.

Not in Vol XXXV these quantities will be changed to

		June 32	June 35
June 32	Mean of RA in is	$29^m 13.31$	$29^m 12.57$
	Mean of δ in is	$29^m 37.3$	$29^m 12.7$
	Red. to Horiz. in is	-18.12	$+13.45$
June 35	Sum of red. (for δ)	$+10.78$	$+10.94$
	" " " for δ		

19800426, 0001, 19800426

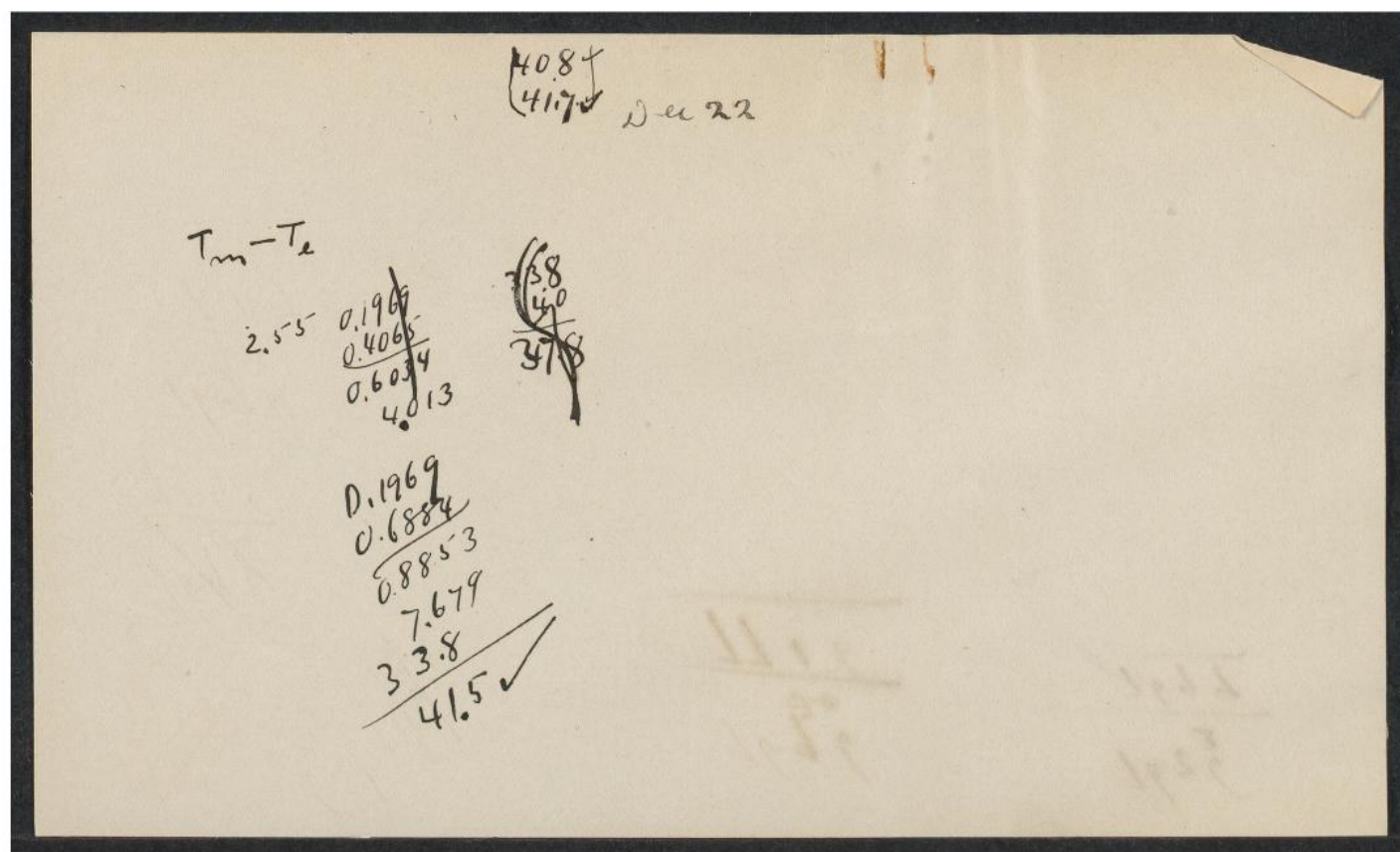
-10.91

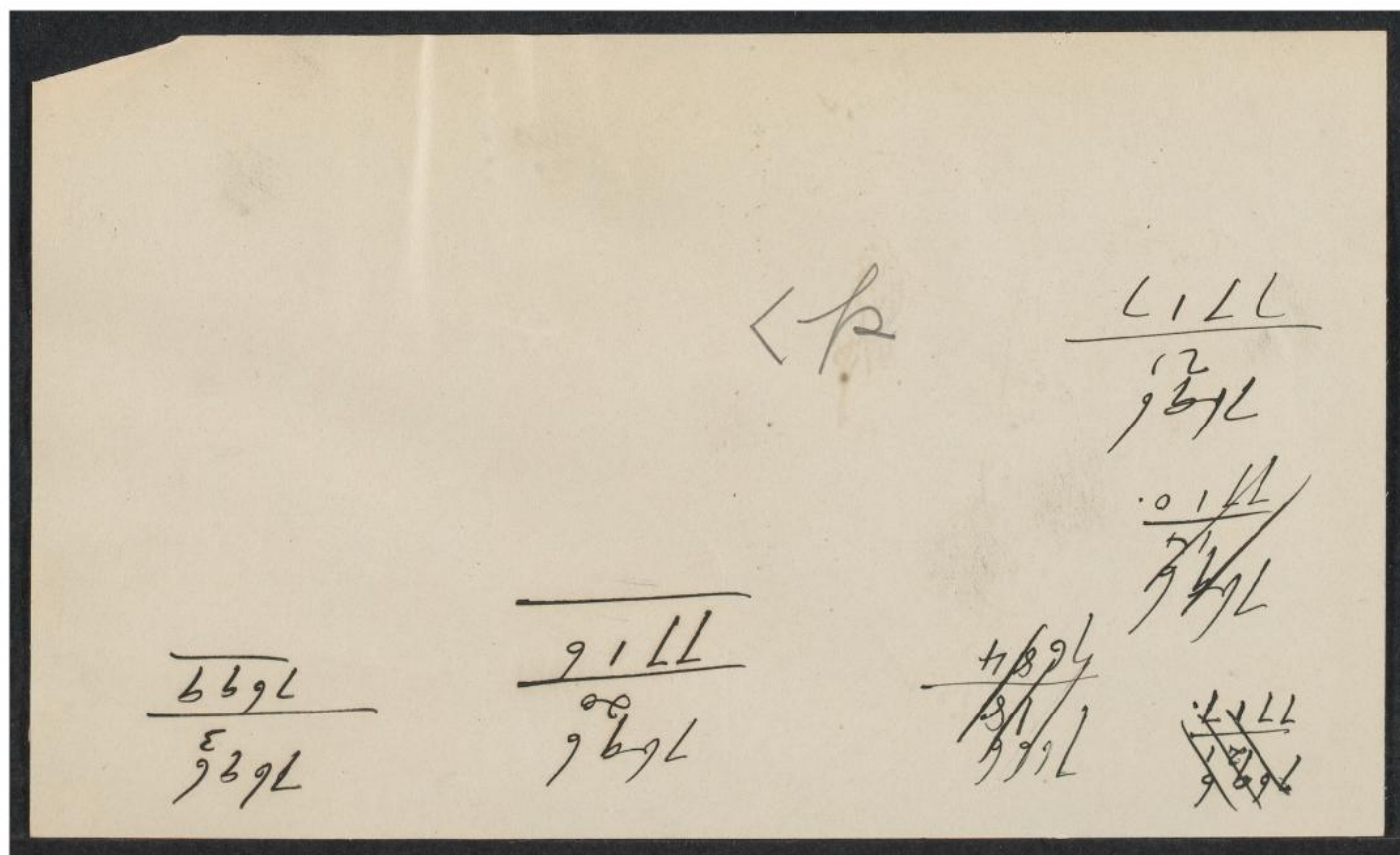
Dec 13 1870 34.2 42.4 46.2 50.1 53.9 2268 45.36 -10.91 34.45	Dec 22 1870 33.8 [41.9] 45.5 49.6 53.4 2242 44.84 -10.91 33.93
--	--

Hanscomb AGC 1195

Cat. +4.0458 +16.083

Computed
Now +4.045 +16.08





~~1870~~
 1870
 75
 5 yrs.

2.5

+ .00055
 2.5
 275
 110
 + .001375
 + 4.0458
 + 4.0472
 5
 + 20,2360

Obs. Feb 18, 1870 2^h 26 22.59 = 1870.0
 2^h 26 42.83 = 1875.0

Dec 13 1870 alt. to m. pl.
18 4.08
22 -4.02
 3.97

Rgl.
Rogers 1195
GD 50 587
1875.0 2 26 42.90 +4.0458 +.0554
+50.38 21.5 +16.083 -0.359
Zme
11 Dec 13, 1870
12 Dec 18, 1870
14 Dec 22, 1870
271 Dec 29, 1873

BD 160° 587

Nice 2^h 28 23.76 +50° 45' 28" Strabromy 2^h 28 23.88 +50° 45' 2.3 } 19000

~~Strabromy~~ 2 28 24.08

Hammond greater +.32

Hammond Greater 24.08
+20

1900-1875 = 25

12.5

.00055

625

625

+ 00.006875

+ 4.0403

+ 4.0472

25

202360

80944

101,1800

2 26 42.90

2 28 24.08

Band VI

+50° 58' 2 25 21.75 +50° 33 0.1

Band VI
Rosen A.G.C.

			+80.84	
2	26	42.56	}	1875.0
2	26	42.90		
			+ 24 Hammel greater	

Rosen A.G.C. No 1195-

1875-1855=20 yrs

+ .000554

+ .000554

+ 4,0458

+ 4,0403 x 20 = +808060

Rosen	+50° 38' 21.5"	1875.0	+16.083
	6 42.1		<u>25</u>
	+50° 45' 3.6"		8041.5
			<u>32166</u>
Nice	50 45 2.8	1900.0	60)402.075 (6' 42")
Strasbourg	50 45 2.3		<u>360</u>
			42.1

Wires used = D, E, _{1, 2, 3, 4} also called

m e f g h

when C, _{1, 2, 3, 4} (or a b c d) were used
a note is made to that effect

$$\begin{array}{r}
 1 - 12.442 \\
 2 - 9.887 \\
 3 - 7.462 \\
 4 - 4.885 \\
 5 - 0.000 \\
 \hline
 34.676 \\
 - 69.352 \\
 \hline
 \end{array}$$

Dec 18 1890

$$\begin{array}{r}
 34.4 \\
 42.5 \\
 46.4 \\
 50.0 \\
 \hline
 54.0 \\
 227.3 \\
 45.46
 \end{array}$$

$$\delta = 50^\circ 33'$$

$$\begin{array}{r}
 0.1969 \\
 0.8410 \\
 \hline
 1.0379
 \end{array}$$

$$\begin{array}{r}
 10.91 \\
 \hline
 34.55
 \end{array}$$

Dec 29 1893

$$\begin{array}{r}
 31.1 \\
 34.2 \\
 37.5 \\
 40.8 \\
 44.1 \\
 \hline
 187.7 \\
 37.54 \\
 10.91 \\
 \hline
 26.63
 \end{array}$$

BD 50 587 (Roger 1195)

$$b = \tan \delta \cos \alpha$$

$$c = \sec \delta \cos \alpha$$

$$d = \sec \delta \sin \alpha$$

$$+ 0.0860$$

$$9.9042$$

$$9.9902$$

$$\log [K+5]$$

$$1.1761$$

$$881.41 = \log h$$

$$0.6069$$

$$\log q$$

$$+ 0.1978$$

$$9.9042$$

$$0.1020$$

$$\log C [K+5]$$

$$1.1761$$

$$892.59 = \log c$$

$$+ 0.1978$$

$$+ 9.7762$$

$$9.9740$$

$$\log d [K+5]$$

$$1.1761$$

$$877.79 = \log d$$

17^h 47^m 50^s T. Moon ±20^h 45^m Berlin

Dec 5.2

Dec 15.1

Dec 25.1

A
a

$$\begin{array}{r} 9.7604 \\ 0.6069 \\ \hline 0.3673 \end{array} \quad 2.330$$

$$\begin{array}{r} 9.7863 \\ 0.6069 \\ \hline 0.3932 \end{array} \quad 2.473$$

$$\begin{array}{r} 9.8113 \\ 0.6069 \\ \hline 0.4182 \end{array} \quad 2.619$$

B
b

$$\begin{array}{r} 0.3450 \\ 9.9902 \\ \hline 0.3352 \\ 1.1761 \\ \hline 9.1591 \end{array} \quad \begin{array}{r} 2.164 \\ 1.442 \end{array}$$

$$\begin{array}{r} 0.3435 \\ 9.9902 \\ \hline 0.3337 \\ 1.1761 \\ \hline 9.1576 \end{array} \quad \begin{array}{r} 2.157 \\ 1.437 \end{array}$$

$$\begin{array}{r} 0.3286 \\ 9.9902 \\ \hline 0.3188 \\ 1.1761 \\ \hline 9.1427 \end{array} \quad \begin{array}{r} 2.083 \\ 1.389 \end{array}$$

C
c

$$\begin{array}{r} 0.7306 \\ 0.1020 \\ \hline 0.8326 \\ 1.1761 \\ \hline 9.6565 \end{array} \quad \begin{array}{r} 2.807 \\ 1.453 \end{array}$$

$$\begin{array}{r} (0.3285) \\ 1.1020 \\ \hline 1.4305 \\ 1.1761 \\ \hline 0.2544 \end{array} \quad \begin{array}{r} 2.195 \\ 1.197 \end{array}$$

$$\begin{array}{r} 0.0753 \\ 1.1020 \\ \hline 1.1773 \\ 1.1761 \\ \hline 0.0012 \end{array} \quad \begin{array}{r} 2.157 \\ -1.002 \end{array}$$

D
d

$$\begin{array}{r} 1.2920 \\ 9.9740 \\ \hline 1.2660 \\ 1.1761 \\ \hline 0.0899 \end{array} \quad \begin{array}{r} 4.845 \\ 1.230 \\ 5.455 \end{array}$$

$$\begin{array}{r} 1.3078 \\ 9.9740 \\ \hline 1.2818 \\ 1.1761 \\ \hline 0.1057 \end{array} \quad \begin{array}{r} 4.843 \\ 1.275 \\ 6.982 \end{array}$$

$$\begin{array}{r} 1.3097 \\ 9.9740 \\ \hline 1.2837 \\ 1.1761 \\ \hline 0.1076 \end{array} \quad \begin{array}{r} 4.862 \\ 1.281 \\ 5.289 \\ -1.002 \\ 4.287 \end{array}$$

$$+ 1.527$$

$$- 2.695$$

Star $\alpha = 2$ 26.7
 Berlin $\frac{54}{8} \frac{28.1}{0.48}$
 Interpolation $= \frac{5}{2} \frac{49}{15}$ after Mch 18' Berlin time
 $\frac{1}{2}$ latitude $= 0.1$

$$A \cos 20.0528 = g \cos G$$

$$\log g = 1.1039$$

$$G = 9^{\circ} 55'$$

$$\log \cos G = 9.9935$$

$$\log 20.0528 \quad \frac{1.0974}{1.3021}$$

$$\log A \quad \frac{9.7953}{}$$

$$B = g \sin G$$

$$\log g = 1.1039$$

$$G = 9^{\circ} 55'$$

$$\log \sin G = 9.2362$$

$$\log B \quad \frac{0.3401}{}$$

f no chance
 $\log h$ - "
 $\log H$ - "
 $\log G$ - "
 $\log g$ - "

$$C = h \sin H$$

$$\log h = 1.3105$$

$$H = 2^{\circ} 44'$$

$$\log \sin H = 8.6779$$

$$\log C = 9.9884$$

$$D = h \cos H$$

$$\log h = 1.3105$$

$$H = 2^{\circ} 44'$$

$$\log \cos H = 9.9995$$

$$\log D \quad \frac{1.3100}{}$$

$$f = A 46.0653 + E$$

$$A \quad \frac{9.7953}{0.6069} \quad 0.4022 \quad 2.524$$

$$B \quad \frac{8.8141}{0.3401} \quad 9.1542 \quad .143$$

$$C \quad \frac{8.9259}{9.9884} \quad 8.9143 \quad .082$$

$$D \quad \frac{1.3100}{8.7979} \quad 0.1079 \quad 1.282$$

$$d \quad \frac{1.282}{-4.031}$$

applied to mean
place reduction

Dec 18, 1870

BD 50 587
No 1195

$$RA_{\text{app}} = RA_{1870.0} + f + t_m + g \sin(G+\alpha) \tan \delta + h \sin(H+\alpha) \sec \delta$$

$$a = 46''.0659 + 20.0526 \tan \delta \sin \alpha \quad \left| \quad a' = 20''.0526 \cos \alpha \right.$$

$$2 \ 26 \ 42.9 \quad \delta$$

$$+50 \ 38''.41 \ 21.5$$

$$\begin{array}{r} 30^\circ \\ 6 \ 30' \\ 10 \ 30 \\ \hline 13.6 \\ 42.6 \\ \hline 40.72 \\ 36.68 = \alpha \end{array}$$

$$38.36$$

$$50.64 = \delta$$

$$\sin 36.68 = 0.6069$$

$$\tan \delta = +0.0860$$

$$\begin{array}{r} \log 20.05 \\ 1.3021 \\ \hline 1.5423 \\ 1.4245 \\ \hline 1.1643 \end{array}$$

$$\begin{array}{r} 14.60 \\ 26.073 \\ 46.066 \\ \hline 72.139 \\ 60.666 \end{array}$$

$$\begin{array}{r} 1.4918 \\ 1.7830 \\ \hline 1.8581 \end{array}$$

$$\begin{array}{r} 1.1761 \\ 0.6820 \end{array}$$

$$4.808$$

$$2.9591$$

$$\begin{array}{r} 0.6069 \\ \text{Computed} \\ \text{Corrected} \end{array} \begin{array}{r} 4.045 \\ \rightarrow [4.0458] \end{array}$$

$$\cos \alpha = 0.99042$$

$$\begin{array}{r} 30.21 \\ 1.5623 \\ \hline 1.4665 \\ 1.2063 \\ \hline 1.2927 \end{array}$$

$$16.08$$

$$[16.083]$$

Observation intended for $+55^{\circ}13.44$
 Obs. made Mar 12, 1884 a
 assumed that ^{here} as recorded the ~~total~~ was used
 and that 51° not 55° was used as can be
 suspected from record.
 $1855.0 = 9 \ 31 \ 31.7 \quad + 55 \ 6.4 = +55^{\circ}13.44$
 $\quad \quad \quad +30.0 \quad \quad -3^{\circ}57.0$

 $1855.0 = 9 \ 32 \ 1.7 \quad + 51 \ 9.4 =$ position
 $\quad \quad \quad 9.5 \quad \quad \quad$ in zone
 $\quad \quad \quad$ zone $+51^{\circ}$

$+51^{\circ}$ Nearest star in zone $+51^{\circ}$
 $1535 \ 9.1 \ 9^{\circ}32 \ 5.2 \quad +51 \ 13.9$

On the assumption that the
wires are really as recorded
viz: A_{-1} 2, 3, 4, 5.

(-27.4)

Mean

$$\begin{array}{r} 9^{\circ} 32' 22.65 \\ + 27.04 \\ \hline 9^{\circ} 32' 49.69 \\ T: \\ \hline 9^{\circ} 32' 20.96 \\ + 28.7 \\ \hline 9^{\circ} 33' 26.4 \end{array}$$

δ $9^{\circ} 32' [55.0]$

$$\begin{array}{r} 29^{\circ} 32' 49.7 \\ - 4'' \\ \hline \end{array}$$

all T $9^{\circ} 32' 20.96$

18750 $9^{\circ} 33' 26.4$ $[51]$

18750 $9^{\circ} 32' 56.4$ $+55' 1'' 2''$ (Pacton
1320 55 1344
Barnet Hill)

Star $\left\{ \begin{array}{l} + 30.0 \\ \left\{ \begin{array}{l} + 3' 2'' \\ \text{or} \\ - 3^{\circ} 56' 58'' \end{array} \right. \end{array} \right.$

$18550 + 55' 1344$ 9.5 $9^{\circ} 31' 31.7$ $+55' 6.4$ Not under

$+30$ $+30$ in $+55'$ zone

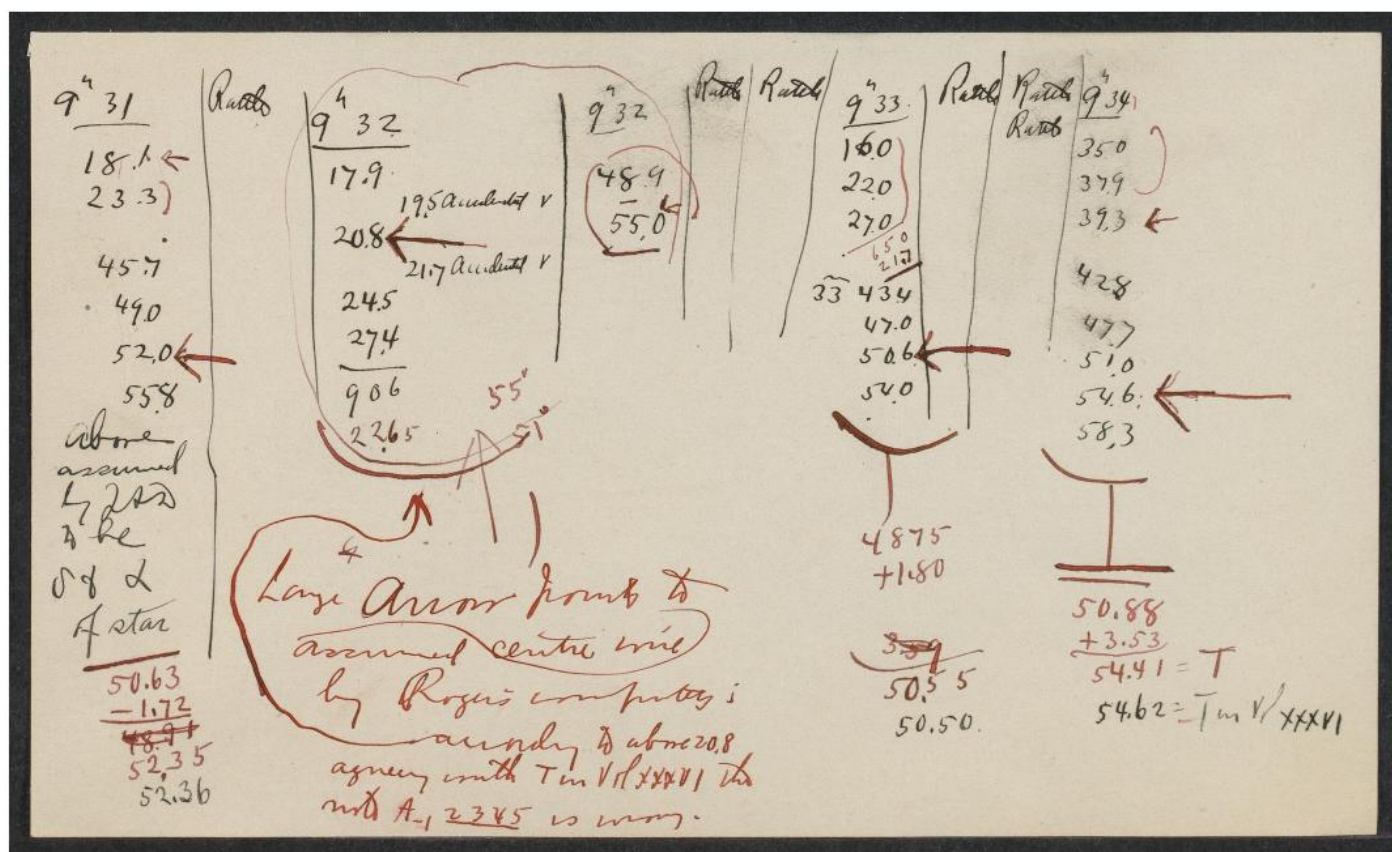
$9^{\circ} 32' 11.7$ $+55' 9.4$

Reiterations note:

Rosen AGC. 3449
zone 778

Mar 12, 1884

wrong by minutes of arc



June 778

3449 9 32 57.73 +55° 3' 40.7"

See notes: end of volume

March 12, 1884

9 31 31.7 = 1855.0

{ 9 32 57.7 +55° 3' 40.7"

1875.0

Zone 781 March 18/1884

$8^{\circ} 23$ 6.4
 11.5
 16.6
 19.0
 22.4
 26.0
29.2

T = 23 42.64 Recd A-1

$8^{\circ} 24 19.95$
 $+ 54 7 51.5$ } 1875.6

Mar 22, 1884

9 15 59.5

16 5.7

10.7

16 21.4

25.0

28.5

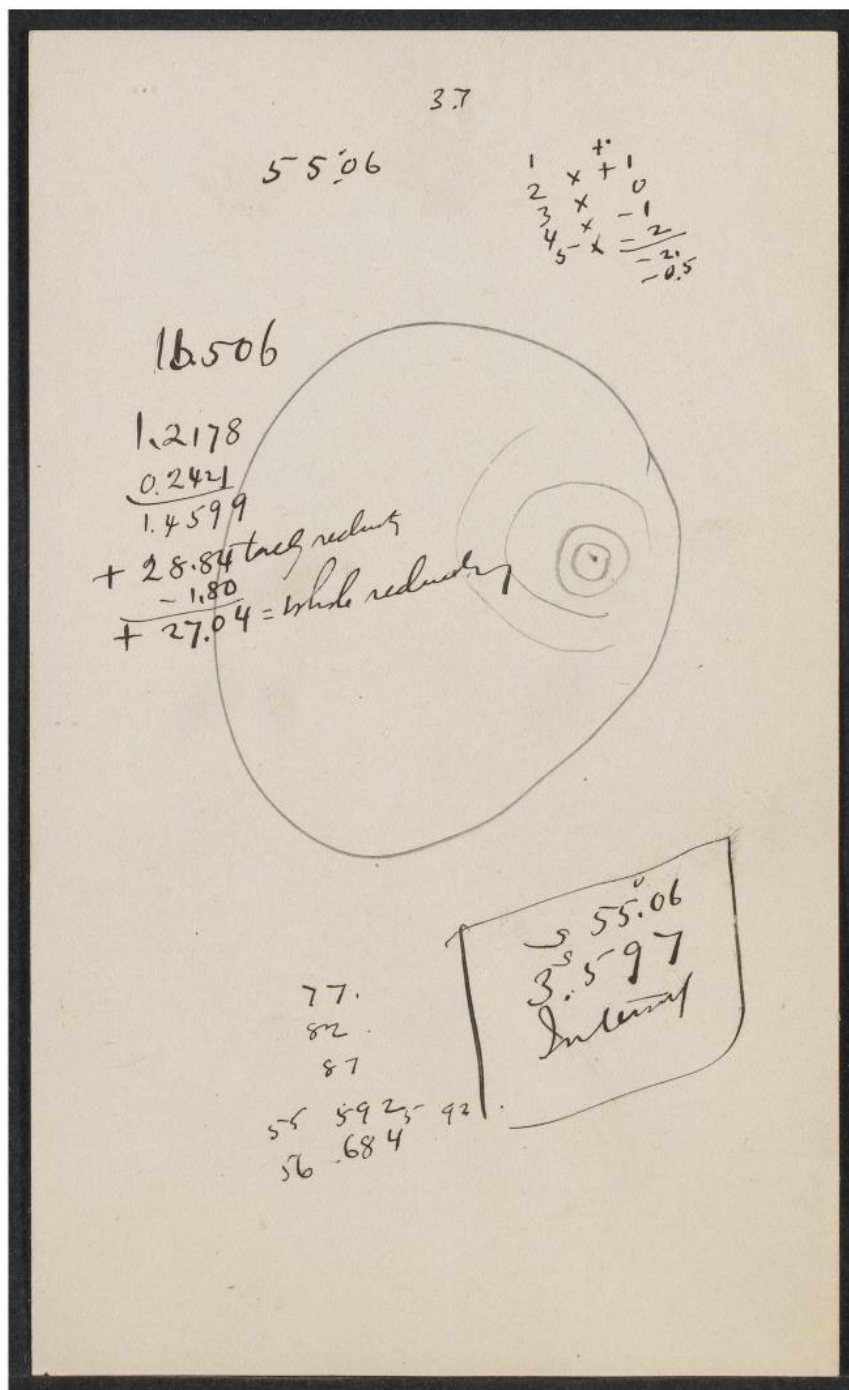
32.0

35.7

T = 16 28.50

Alone

- 9 17 10.56 } 187.50
54 14 29.9



zme 778

$$\underline{H\ 3449} = BD\ 55\ 1344$$

$$\begin{array}{r} 9.6\ 9^{\circ}32\ 57.73\ +4.2175\ -0.0646 \\ +55\ 3\ 40.7\ -16.067\ -0.361 \end{array} \Bigg\} 187.50$$

Rogers	$\alpha_{57.73}$	$\delta_{3^{\circ}40.7}$	
Wendell	57.18	1' 4.9	
B	56.13	1' 1.9	(1860.2)
Hels .6041	56.60	1' 2.3	(1875.2\ 23.5)

$\rightarrow$ Barr VI

$\text{BD } 1344$
 $55 \quad \cancel{3427}$

$-3.2 \quad +3' 50''$
 $9 \ 31 \ 31.69 \ +55 \ 6 \ 22.5$

$\text{aphelion} \left\{ \begin{array}{l} 9 \ 31 \ 28.49 \ +51 \ 10 \ 12.5 \\ \quad \quad \quad \text{or } 55 \ 10 \ 12.5 \end{array} \right\} 1855.0$

2.06
 $\frac{1.51}{3.57} \ 51$

Wm internal

50	3.205	+68	5
51	.273	+73	4
52	.346	+77	5
53	~~4~~ 23	+82	5
54	.505	+87	5
55	.592		

Star is α
 $3'.20$ less

$3' 50''$ greater

1875.0 plus B $9^{\circ} 32' 56.13$ + $55^{\circ} 1' 1.9$ (1860.2)

Ans. 6041 56.60 $1' 2.3$ (1875.2 23.5)

Mean $9^{\circ} 32' 56.36$ + $55^{\circ} 1' 2.1$ = 1875.0 for BD 55 1344

- 3.20 + $3' 50''$

$\left\{ \begin{array}{l} 9^{\circ} 32' 53.16 + 55^{\circ} 4' 52'' = 1875.0 \text{ for star observed} \\ \text{by Rogers in 1884} \end{array} \right.$

$\left\{ \begin{array}{l} \text{Star precedes BD 55 1344 } 3'.20 \\ \text{and is north } 3' 50'' \text{ of star} \end{array} \right.$

Maybe 4° less in δ

Mar 12, 1884

sheet

7^h 31

18 J.

23.3

$$\int = 9 \quad 31 \quad 20.8$$

$$\alpha \quad 9 \quad 32 \quad 20.96$$

$$60^s 16 = \text{Interval}$$

Wm	2	45.7	3.3
Wt	3	49.0	3.0
tudy	4	52.0	3.8
	5	55.8	

$$9^h \quad 31 \quad 20.25$$

$$50.63 \quad \text{---} \quad 9^h \quad 31 \quad 50.63$$

27.04 reduction

$$32 \quad 20.96$$

$$Vh \quad \text{---} \quad T = 32 \quad 20.96$$

$$30.33$$

$$9 \quad 32 \quad 17.67$$

$$9 \quad 32 \quad 20.96$$

$$+1 \quad 17.39$$

$$9 \quad 33 \quad 38.35$$

$$-2.66$$

$$9 \quad 33 \quad 35.69$$

1884.0

1875

9

+422

37.98

-37.98

$$9 \quad 32 \quad 57.71$$

1.75

1.74

3.6

2.7

6.3

9

$$60^s$$

$$45$$

$$105^s$$

Record

2' 15.0

21.0

~~50.7~~

36.0

2' 18.0

3' 45.0

39.0

3' 42.0

$$\begin{array}{r}
 1.9722 \text{ by internal} \\
 0.1138 \text{ by 15 sec} \\
 \hline
 9.7579 \text{ by cos } \delta \\
 1.8439 \\
 69.80 \\
 \hline
 1' 9.80
 \end{array}$$

Old red. to horiz. wire = -27.42

$$\begin{array}{r}
 T \quad 32 \quad 20.96 \\
 \delta \quad 32 \quad 54.5 \\
 \quad - 33.54 \\
 \hline
 \text{by } 1.5255 \\
 \text{by 15 sec } 0.1138 \\
 \text{by cos } \delta \quad 9.7579 \\
 \quad 1.3972 \\
 \hline
 - 24.96 \text{ computed}
 \end{array}$$

$$\begin{array}{r}
 T \text{ mean} \quad 9 \quad 32 \quad 20.96 \\
 S \text{ mean} \quad 9 \quad 31 \quad 20.7 \text{ Chromograph} \\
 \quad + 60.26
 \end{array}$$

$$\begin{array}{r}
 \text{by } 1.7800 \\
 \text{by 15 sec } 0.1138 \\
 \text{by cos } \delta \quad 9.7579 \\
 \quad 1.6517 \\
 \quad + 44.84 \text{ should be} \\
 \quad - 27.42 \text{ used} \\
 \quad + 1' 12.26
 \end{array}$$

$$\begin{array}{r}
 + 55 \quad 3' \quad 40.7 \\
 53 \quad 4 \quad 53 = 1875.0 \\
 55 \quad 1 \quad 3 \quad 1875.0 \text{ ph for other observations} \\
 \hline
 \text{Star } 3' \quad 50'' \text{ greater}
 \end{array}$$

Sum 9^h 31 18.1
 $\frac{233}{414}$

9 31 20.7

Mean Sum

Vol XXXVI range

9 32 54.5

 $\frac{m}{1} \quad \frac{9}{33.8}$

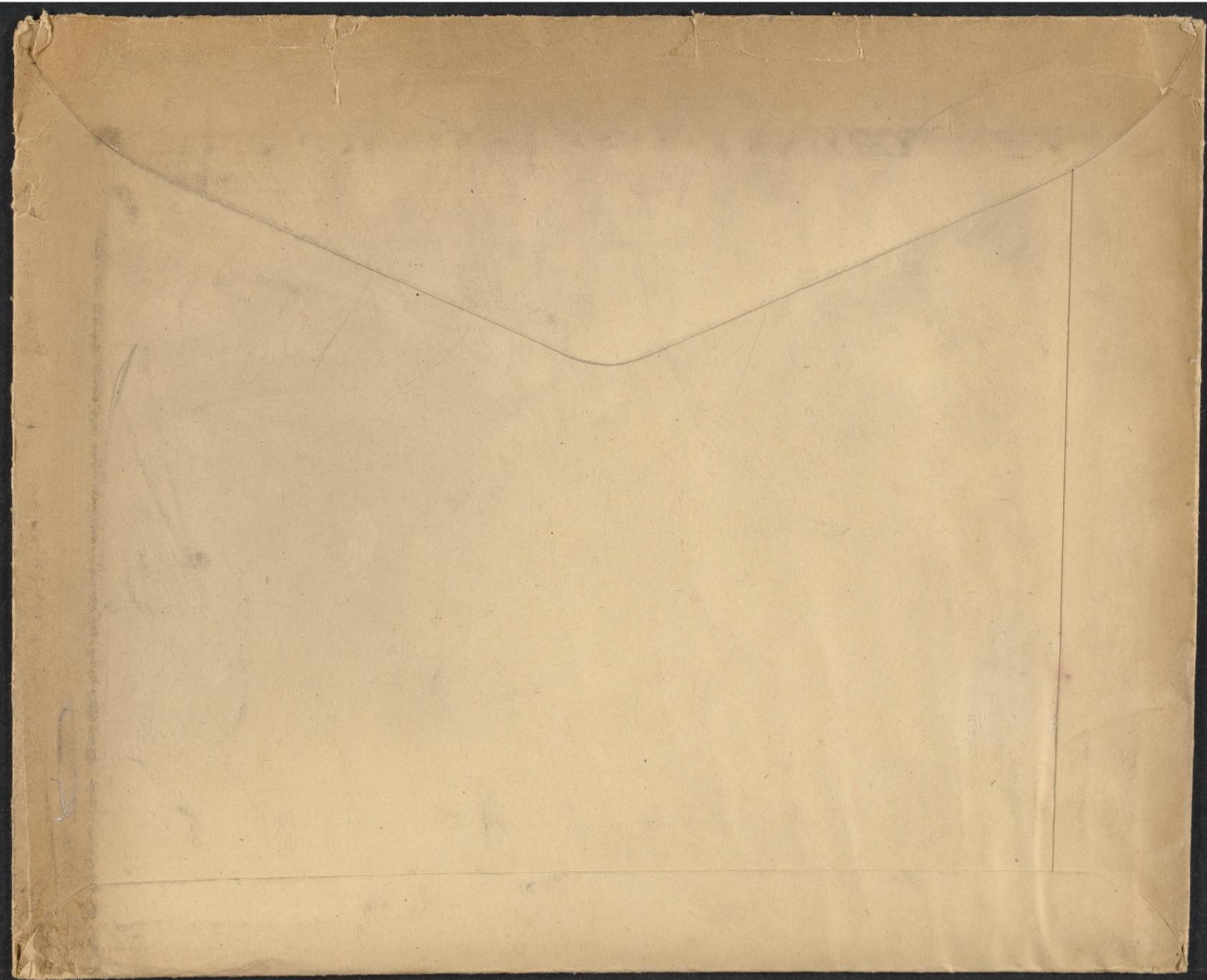
= Difference

~~Tables~~

~~Append 1891~~

Miscellaneous Notes, { References to Roger's Reduction books
for general data etc.
Roger's lbs. etc etc.

(None refer to zone 10°)



Rogers Zone Work.

- Book page
- J.7 $\frac{2}{3}$ from beginning Explanation of uses of various groups of WIRES
- J.9 Under date of Sept 25. 1872
- J.10 June 20, 1873 New arrangement of wires
- M5 Jan 15, 1874 ~~arrangement of wires~~ Order of observing wires etc.
- M 21 Miscel. Formulas for zone reductions, tables etc. constants etc. Workingbook
- M9410 Observing lists (mess)
- J.14 Feb. 3, 1876 Adopted LATITUDE of the Meridian Circle
- J.14 Definition of fixed circle Jan 31, 1876
- J.14 Position of Circle Jan 31, 1876
- J.14 Position Circle Used for Value of Runs Jan 31, 1876
- J.14 Value of 5' for every 10" of circle
- D 4 Mess. errata for 18750 positions
- D 9. Mess zone corrections notes 4 positions
- D 10 Mess zone corrections & positions
- J.30 Errors found in Vol XXV Positions
- J.7 Diagram for observing Personal Equation Sep 9, 1872
- J.14 ~~1.100~~ zone corrections. 4 positions.
- J.5 55% List of stars marked in Zone Books as Not Seen ^{with dates} (those marked I have an error in the reduction from 1835)
- Box 2 Mess errata Vols XV + XXV
- Box 2 Cases where δ errors are 1" or less
- Box 2 Various catalogues - Discussions of
- H 5 190. Change of wires

Information about Rogers AYC. No 1991
 Book H 41 p 116, R.d. apparently all right
 I 5 in List of Stars not seen, is
 marked doubtful, i.e. ©

h 66 C 5 No note to obs. of Jan 30, 1878
 But obs. of Feb 2, 1878 has note
 "Lower & foll. of 4 # which
 will serve to show the fact that close
 neighboring stars excited."
 Chromograph sheet of Jan 30, 1878 was read correctly
 Feb 2 1878 record for star was lost

857
2957

h
3 58

10.5
12.4
15.0
17.8
22.7 ?

28.0
31.7
34.0
35.0
38.0

41.5 ?
Ruttle

44.6 Ruttle ?

Not do 1's to much engines when applies +25.63

Con 2 α 2(25.63)

$\bar{\alpha} = 51.26$

3 59 28.58
3 58 37.32

RA Star 1723

88 1251
58 18.57
-16.06

36.49 : 29.86 1: 51.26

1.5623

1.7098
1.4751
3.1849
1.5623
1.6226
4
=41.94

+09 54 27.2
+49 53 45.3

δ Star 1723

6114
613
16
3.2

$$+ 485567 = \text{Pecun}$$

178341
307226
0.25125
0.12614

9.97093
0.15421

69° 16' 25" Morning

110' 43.8" = Δ
13.8

$$d = 3.67226 + 1.33695 \text{ and } km$$

7 22 55 . + 54 57 52 = 18750

Right ascension
+ 07
+ 07
5.58
5.52

2874 Rec. + 4.8581 - 0354

June
463 7 22 51.51
464 7 22 51.45
465 7 22 51.39

3463
Delta Tm
New Hill 183

8464
New Hill 2137

125
24
10
5
121
52
141

$\text{Time } 2798280$
 $\text{for } 141874 \text{ Yr. at } 171874$
 $+ 54^{\circ} 59' 30''$
 $RA = 6^h 33^m 32.02^s$
 $+ 3.07226 + 1.33695 \sin \alpha \tan \delta = a$
 $20.0542 \cos \alpha = a'$

$\alpha = 6^h 33^m 32^s$ $\delta = 54^{\circ} 59' 30''$
 90°
 $\delta = 15'$
 $8'$
 $98^{\circ} 23'$
 $\alpha = 98^{\circ} 38' 37''$
 $+ 81.6223$
 $81^{\circ} 23'$
 $\sin = 9.99507$

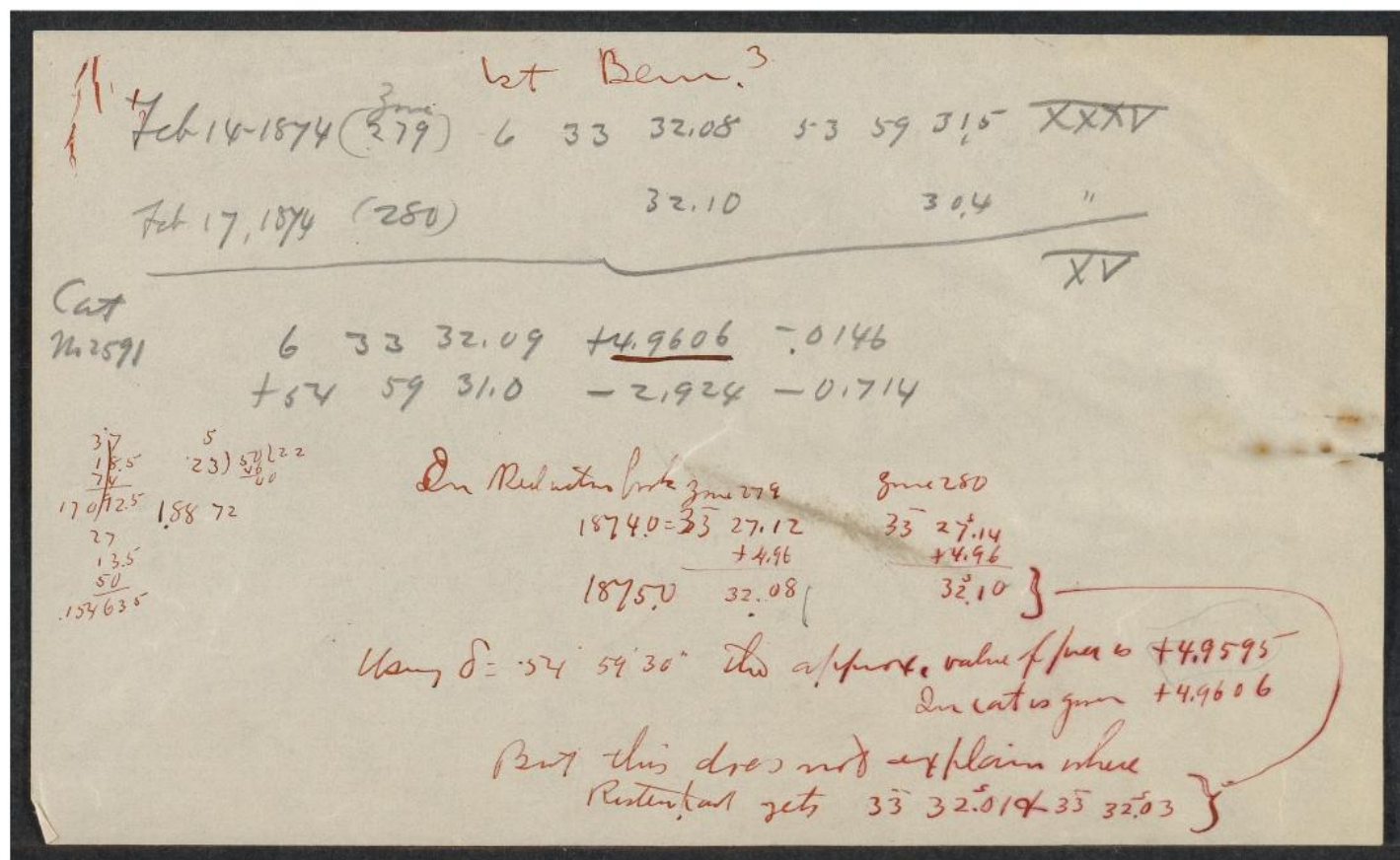
$\tan$
 $+ 54^{\circ} 59' 30'' = 9.99382$
 0.15464
 $\sin \alpha$
 $\tan \delta$
 9.99507
 0.15464
 0.12612
 0.27583

9.9953
 0.1548
 0.1261
 0.2762
 $= \text{Prec.}$

1.88722
 3.07226
 $4.9595 = \text{Prec.}$
 3.50
 26.11
 29.61
 3.50
 43.11

56
 20.6
 14.2
 20.6
 3.50

$41^{\circ} 31.06$
 3.51
 27.56

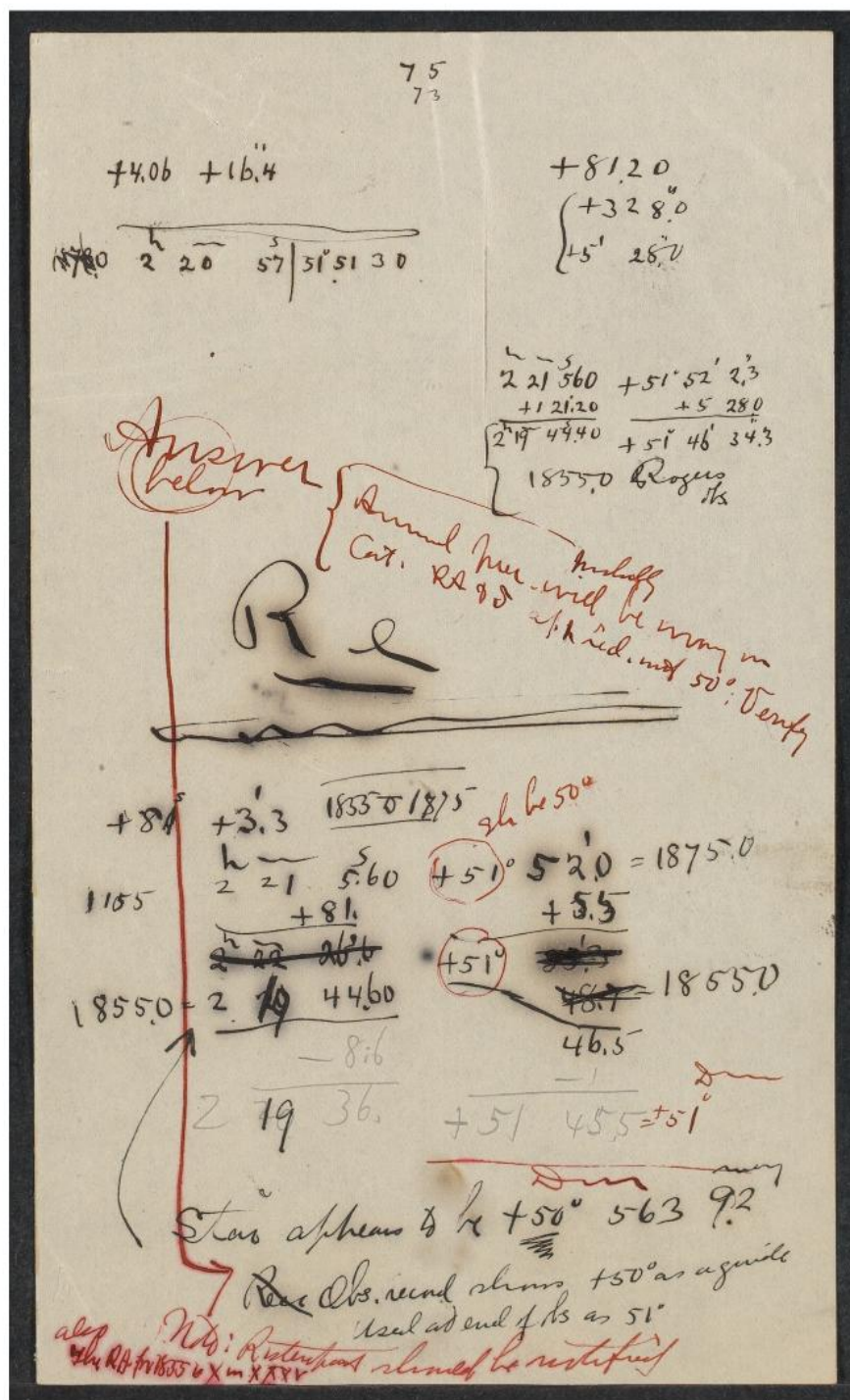


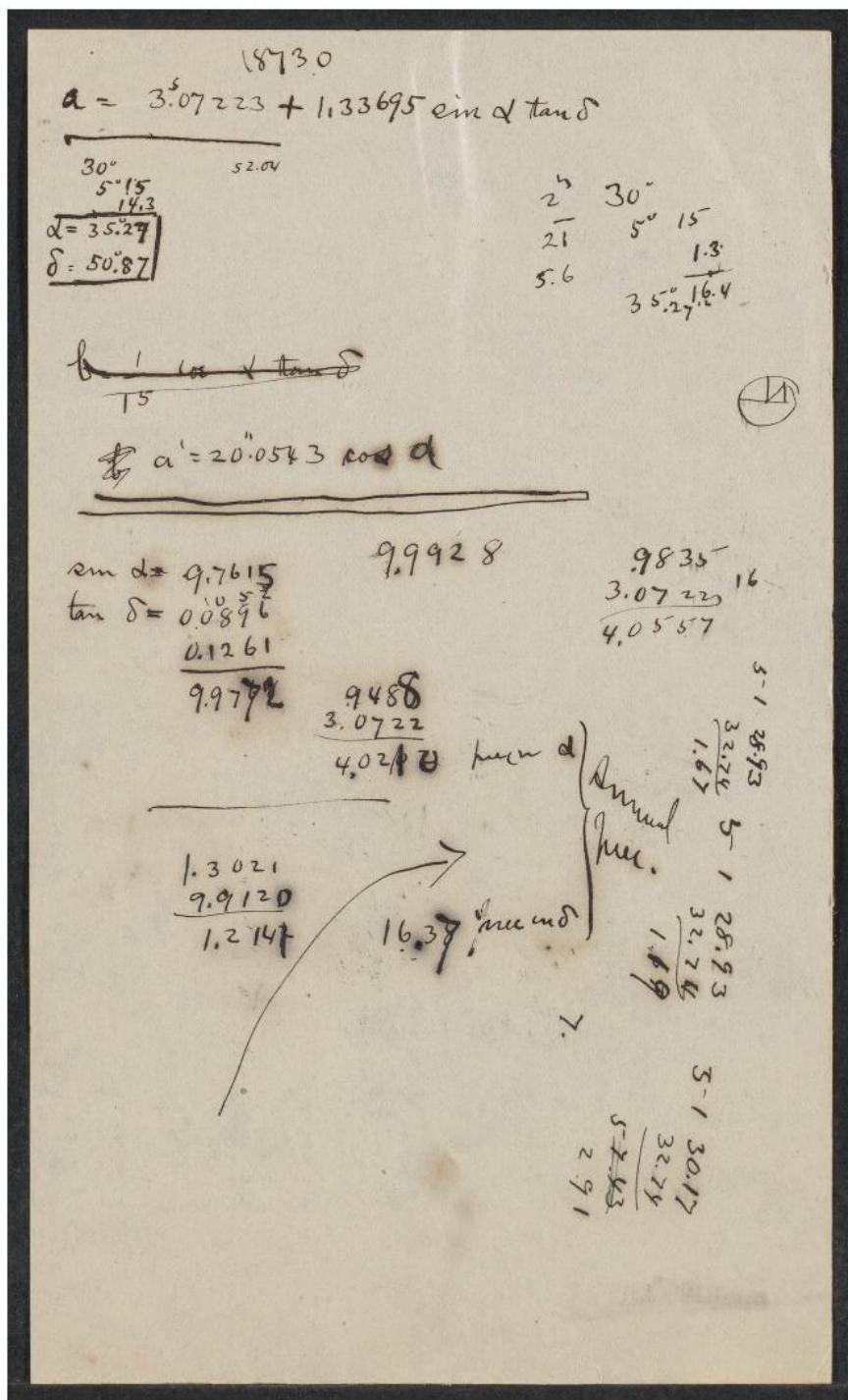
Zone 622

No 1991 = as Rogers supposed
+51' 986

1875.0 9.3 4' 42" 47.60 +4.6385 +.0300 Jan 30
+51' 8" 41.8 +6.629 -.641 1878

Make list of
cases where there is but
a single observation.





No
1155

Zone 268 } Year 73.9
270

du 16, 1873
du 18, 1873

Cat. Pizutteo.

1155 89 2' 21 5.60 +51 52 23 268 270 18750
[11574] [8.2] [2 20 57.02] [+51 51 3.1] 753 754

XXXXV

2' 19 36.7 2' 21 5.60 51 52 17 268
2 19 36.7 5.60 51 52 219 270

1904bae.proj.18000

try exchange
stamp for each component
the star name
nos 1987+1989

Having Prof. sheet - Reminders.

Ristenhart is right
but second is printed

- one 18550 Cat no.

24 Jan 17, 1871 16.2 42172 Ristenhart's assumption - 10⁵ cov. cannot be accepted. Record = 100 faint

32 March 1, 1871 30 3196 See Dr. xxv. false chm. vol 254 27 Corollary. Corollary

35 March 5, 1871

66 May 18, 1871 { 4172 Ristenhart is right about zone 66 but wrong about zone 70

70 May 24, 1871 { 4173 zone 70

84 June 19, 1871 { 4670 Ristenhart's assumption is not correct. Record of these two zones may be in error.

85 June 21, 1871

101 Aug 2, 1871 { 5478 Bern 3

102 Aug 3, 1871 {

154 Feb 1, 1874 { 2043 Ristenhart is right except that his 257 should be 258

276 Feb 10, 1874 { 2044 Ristenhart is right regarding exchange and preceding stars sh. be for zone 276 52'7.5 and for zone 277, 52'6.3; for filtration zone 276 sh. be 51'48.1; zone 277 51'48.8: this brings to notice the observation just preceding

277 Feb 11, 1874 {

279 Feb 14, 1874 { 2591 Bern 3 Ristenhart says preceding is computed with δ 54'59: Not checked

280 Feb 17, 1874 { 2591 Bern 3 (From catalogue is +54 59' 31": Printed preceding is 4.96: Probably wrong sh. be according to his figures 4.94: zone 279 } Printed 32'08 32'10; He wants 32'01 } He is probably right

364 Jan 10, 1875 { 1533 +10⁵ cov. Chm re-read: No change: Record "of the lower pr. of 3 stars"

463 March 13, 1876 { 2874 Bern 1 Not checked

464 March 14, 1876 {

476 Aug 9, 1876 { 5483

476 Aug 9, 1876 { 5492 (Zeile einzuschalten)

477 Aug 10, 1876 { 5492 Zeile " Ristenhart doubts that in both zones the δ of 5483 was obtained and δ of 5492. He probably is wrong the star seems to be the δ of No 5484 if there is such a star.

477 Aug 10, 1876 { 5483

562 Aug 27, 1877 { 6180 } ablesung zu vertauschen

562 Aug 27, 1877 { 6182 }

566 } over

612 Dec 29, 1877 { 2063 Bern 2 Not checked

628 Feb 7, 1878 { 1601 } 1600 (A.N. 148, 1180) Kempf's figures right: Roger had 15 Kempf sent to standard Cat. No 1601 as stars sh. used 2 yrs previous of 3

629 Feb 11, 1878 {

660 June 26, 1878 { 4747 Prae. mit falschem Zeichen angebracht Ristenhart is right

661 July 1, 1878 {

727 Jan 23, 1879 { 1495 Ristenhart undoubtedly right.

742 Nov 7 - 1883 { 6729 Can't find chm. sheet: Can't see on what grounds R. makes his assumption of δ times = 56.60: sh. Red. look at is 39 33.08 See 140 1744
- 772 Feb 21, 1872 { 772 730 für die 1. Zeile zu setzen

822 6025 Ristenhart may be right

822 Aug 28, 1871 6180 I see no evidence supporting R's assumption under July 28 he indicates that 10.4829 is below 10.2 and (f.d.) grey.

822 Aug 28, 1871 6182

832 Jan 31, 1873 1773 Can't find chm. sheet but should show 2 stars described

832 Jan 31, 1873 2075 Can't find chm. sheet but should show 2 stars described

835 Feb 12, 85 { 835 24 another comparison with 8750 (Hans 5 sh. be Hans)

888 Feb 30, 85 6283 Bern 3

889 Feb 1, 85 6283 Bern 3

889 Feb 4, 1885: Ristenhart's assumption is not correct. Record of these two zones may be in error.

904 Nov 29, 85: Ristenhart's assumption is not correct. Record of these two zones may be in error.

Miscellaneous:

Rogers' etc etc

~~No zone 10-14' out~~

Reference ^{Miss} Book "H 2", p 9 (9th horizontal space) gives $53' 5.96 (18700) + 1' 31.05 = 54' 37.01 = 1875.0$
 No 1 } " (10th " ") " $53' 7.24 (18700) + 1' 31.05 = 54' 38.29 = 1875.0$
 " 3 }

{ Error in
add. of precession
in both cases }

Notes:- Annals XXXVI, p 291, Errata for Vol XV, "read 54"

The min 55' in Vol XXXVI for zones 12 & 14 is wrong.
 The min. 55' in Cat. XV and XXV is wrong.

(Error) Cause:- Mistake in copying for printer. See final reduction
 book "I" p 48, 10 horizontal space, extreme right, min. of δ for 1875.0
 was originally 54', then 55'; then subsequently corrected to 54' as it should be.

Remarks. Vol XXXVI, column "mean of circle readings" 21' 47.50 is correct.

Reference

No 2 } Miss Book "H 2", p 13 (4th horizontal space) gives $57' 56.82 (18700) + 1' 28.65 = 59' 25.47 (18750)$ zone 14
 " 4 } " (3rd " ") " $57' 57.38 (18700) + 1' 28.65 = 59' 26.03$ " zone 12

Cause of Error: Mistake in reductions: see 9th column to right book "H 2"
 Notes: Book "I", p 55, 4th horizontal column, 58' subsequently changed to 59' in pencil
 12th col. & right.

Min 58' in Catalogue wrong

Not in Vol XXV

Min 58' in zones 12 & 14, Vol XXXV wrong

This mistake does not affect any column but the final result
 in Vol XXXV zone 12 & 14

Error in addition
 of precession
 both cases

Reference

No 7 }
8 }

Circle Mean Record is 45' etc.

18750 min is 34' in mass.

and Cat. + XXV + XXXV

[B + R = 35' in XXV]

Reference

No 9 }

10 }

11 }

12 }

Mistake in mass H 18' of 20' in mass 1873 & 1875

See June 11 1873 h 46 9th hory. space left -782 ch. h -27.82

17 " " 10 " "

July 6 h 62 h d " "

July 9 " 2nd " "

Wrong 20" in zones 241, 242, 245, 246 of XXV

" " in Catalogue of XV

" " in XXV

Reference

13

Zone 251

Record is 40' 2 89 21.0

Zone 252 (Data in question)
1873

40 2 59.9 5.3

Note One of the two is wrong 1'

Note in XXV

H 19.115 6 h. h. Circle mean - 252 43' 26 : 18750 - 39' 17.7 ^{no reduction}5th " " 254 42 14.95 18750 - 40' 16.8

Reference

No~~167~~

167

(Dec 16, 1873 Age 100 Z June 268

In XXXV mic mean is 43' 1.45"
 the record of mean mic. gms 43 1.45-~~1.45~~
Ristenpart wishes 44' 1.45"

H 20, p 35
 the
 4 last line space

XXXV 18750 gms $2^h 2^m 8.64$ or $37' 13.4$ for June 268

Re-reduction gms

37'

Cat XV

37'

not in XXXV

Ristenpart wishes 36'

See next case other ok.

Reference

no

15

Column
 mean &
 end
 Readings

June 270.

Mic. mean" $42' 53.90$ in Vol XXXV
 Record $43' 54.90$

Reduction ^{H 20} has

a corrected

43' and 54.90

So XXXV is wrong both

on 1' and min. 8 sec. of arc. while

Ristenpart is wrong as regards suggesting 53.90
 instead of 54.90

In 612
 is a
 note in
 mic. record.

18750
position

June 270, Dec 18, 1873

XXXV 18750 or $2^h 2^m 8.17$ or $37' 15.2$

In this are two mistakes in ' and " of arc

Re-reduction in H 20, 35 gives $36'$ and $14.17 = 36' 14.2$
 which is what Ristenpart wants

these two mistakes are in H 20 p 35, 3rd last line space
 where $35' 40.61$ (advised) sh be $35' 39.61$.

Reference

no

16

"C 14, May 14, 1874

Record for mean rise for 299 zone - $47' 11.95''$ (~~$47' 11.95''$~~)(Premium zone 298 (may 12, 1874) zone $48' 9.85''$ (~~$48' 9.85''$~~))

5 of ~~XXV~~ $299, 51^{\circ} 44' 16.0''$
 $298, 51^{\circ} 45' 15.8''$ } 18750

XV has 44'

~~XXV~~ has none

1904 phase: print

(1)

			18550	δ	No. Catalogue	Reference	
	~~Ref~~						
	(R)	Dec 18, 1870	1 37 58	50.5	813	1	Reason of error found { see foll. mss. pages. sec 2
12	(R)		1 50 7	49.10	922	2	Found
14	(R)	Dec 22, 1870	1 37 58	50.9	813	3	Reason of error found, see sec 2
14	(R)		1 50 7	49.10	922	4	Found
36	Lf	Mar. 7, 1871 ~~Mar. 7, 1871~~	7 0 58	50.5	2765	5	Probably found
200	Lf	Dec 3, 1872	1 29 32	51.8	730	6	Probably found
214	Lf	Feb 5, 1873	5 56 43	50.6	2420	7	Found probably
215		Feb 6, 1873	5 56 43	50.6	2420	8	"
241	(R)	June 11, 1873	15 3 45	50.5	4692	9	Found
242	(R)	June 17, 1873	15 3 45	50.5	4692	10	"
245	(R)	July 6, 1873	15 3 45	50.5	4692	11	"
246	(R)	July 9, 1873	15, 3, 45	50.5	4692	12	"
252	Lf	Oct 9, 1873	22, 7, 54	51.7	7528	13	✓
268	Lf	Dec 16, 1873		52.6	1002	14	✓
270	Lf	Dec 18, 1873		52.6	1002	15	✓
299	Lf	May 14, 1874	12 4 41	51.7	4021	16	
302	Lf	May 27, 1874	12 35 13	51.8	4125	17	
303	Lf	May 28, 1874	12 35 13	51.8	4125	18	
341	Lf	Oct 11, 1874	21, 38, 60	50.6	7245	19	✓
342	Lf	Oct 12, 1874	21, 38, 60	50.6	7245	20	✓
355	Lf	Nov 18, 1874	23, 53, 28	50.1	8581	21	✓
357	Lf	Nov 24, 1874	0 34 56	54.6	305	22	✓
360	Lf	Dec 3, 1874	0 3 26	50.9	47	23	✓
552	Lf	June 18, 1877	14 24 3	55.1	4540	24	
553	Lf	June 19, 1877	14 24 3	55.1	4540	25	
783	Lf	March 24, 1884	9 11 58	51.5	3363	26	
785	Lf	March 31, 1884	9 11 58	51.5	3363	27	
788	Lf	April 14, 1884	8 59 38	54.10	3316	28	

Lf means error reading Microscopes
 Ref means error in computing

Cassin

Oct 11 + Oct 12 1874

Zone 341 & 342

Zone 341

Record

$$\left\{ \begin{array}{l} \text{Mic} = 45.1, 1.9, 11.1 \\ 45.1, 1.9, 11.7 \end{array} \right\}$$

$$\left\{ \begin{array}{l} \text{mean} \\ 46' 6.50 \text{ Zone 341} \\ 46' 6.80 \text{ 342} \end{array} \right\}$$

Perhaps in both dates Mic sh. be increased 1'

No double era detected 7-341

Zone 355

8881

Zone 354 also

Seems all right 355

Agrees with

$$\left\{ \begin{array}{l} 356 \text{ in Mic. record} \\ 356 \text{ } \delta \text{ not reduced} \end{array} \right\}$$

Possibly the explanation is that the mic records for 355 for first star should be exchanged
See also in rec next date.

357 ✓ L.f. see next record: (crossed out 3 mic 342)

360 ✓ L.f. ^{Memphis} 30 not 31

552

553

} ✓ both records give 24' not 25 as Richter had wanted

783

785

} L.f. a note in record

788

The 6' 5.1 used in XXXVI taken from right

hand kept record book: evidently wrong

see record "Apr 14 5 2 40.2 43.2: Data needs investigation"

Pages 845

(1418

1419

J. E. Espin

Jan 2 1909

letter inquiring
about new estimates
in star zone of
these stars

L. Dunning

Franklin 1419 has no

external band

The 2 stars are nearly

1418 with many

peculiarities (Precession)

1875.70 position one

Jan 205	3	4	44.97	+51° 18'	51.10
206	3	4	50.10	+51° 18'	50.98

(L. D. Dunning finds that
Rixen's part has no published
note regarding above in first
of errors of Cat's pub. in 1908

Rogers
Catalogue
Vol. No. IV
Ena correct
2/2/72

10 yrs
5 yrs

+ 0.402
5
+ .002010
4.4990
+ 4.5010

+ 45.01
- 45.01

- .580
5

-,002900
+ 9.579
+ 9.576

+ 95.76 = 10 yrs for 1885
- 95.76 for 1885

1771 AGC
1772 Cambridge
1773

4.50

1872 + 13.5
1873 + 9.0
1884 - 40.5
mean

Jan 19.85
Jan 21 "
Jan 26
Jan 29
Jan 31

4 5 ✓ 51.98
✓ 51.76
✓ 51.87
✓ 51.69 du look 6
✓ 51.12

50 32 11.9
10.2 hr
9.1
12.1
11.9

Rogers
assumed
computers
assumed
two stars
submerged
45.68 - 135.50

1772 in Prgen

Elkins letter
inquiring about this
revised 2/2/72, May 24, 1974

Feb 7, 1872
Feb 8, 1872
Jan 14, 1873
Jan 26, 1884

— 52.32 133
— 52.19 128
— 52.13 127
— 52.34

Decision
1773 in Prgen

1772+1773 Same star undoubtedly
some local or temporary phenomenon in 1883

book
H 42
explanation of Rogers
zone reduction
in book H 1 & H 42

page 62 (x page 240)

Sept-1907- Ristentant had queried from Prof Pickery
 as regards what special correction had been applied to
 Prof Seale: zone 120 evident from a discrepancy in results
 between XXV + XXXV except the 3 stars indicated
 Regarding zone 120 (Sep 21, 1871) in page 4, "H 11"
 book

See book "H 11"

page 4, See in red ink, note fn 2 & also
 page 5 Red ink; regarding 'circle being loose'
 page 5 Black ink. Equatorial point, new value
 resulting in a correction for same.

This resulting correction of $+55$ has been
 applied to the circle reading in pencil
 where necessary, on 2nd, 4th, 6th, 8th & 10th
 spacings (horizontal) on pages 5, 7, 9, 11
 13, 15, 17, 19, 21, 23, 25, 27, to 29, though
 in the latter part of the list the
 pencil corrections seem to be subsequently
 erased. (It may be necessary to find why, or if they really are included)

Beyond noting the above I have
 examined no further, so I at the
 present moment do not know
 how, or when or in what books the accident
 of the circle was detected or if there is an
 original note. You may wish care for that
 information

222

Work of 20th

for Rittenbaur

Sept 1907

Gathering of original notes & other
data to find if possible what
were the actual conditions & facts,
concerning the observations.

Data from the Catalogue

6118 9.2 (dupl. mag.) 19 35 1570 +51' 54" 70 717 119, 120 51 2643

- ① 2.118, 820
- ② dimed. 8.782 mag 7.11
- ③ 2.820 dimed. 5.5 7.684

} Dates of obs.

6148 9.2 19 38 2857 +51' 34" 161 782 119, 120, 820, 822 51 2661

- ① (dupl. mag.)
- ② 2.118 dimed. 2890 (5.670) mag 7.15

} Dates of obs.

7497 9.1 21 56 689 +53' 34" 186 804 496, 745

- ① dupl. mag. prec.
- ② 2.744 med. 688, 124 (5.639)

} Dates of obs.

7767 2.2 27 2378 +54' 33" 237 775 503, 584, 585

- ① dupl. med. mag 2543 8.7, 9.2
- 2.584 9.2 89
- 2.585 9.2 90

- ② 2.582 mag. 8.8 2580 2.21 (5.674)

} Dates of obs.

Zone 120 Sep 21, 1971

Special variation used

Original notes in

Zone 118 Original record. = { double Δ = 5
no zone res. = { looks like "up."
119 = { 9.2 118
120 = { 9.5 118
820 = { 9.5 upper #
822 = { suspected double

V. XXXV, 194, zone 118 both placed pattern given

Original records:

Zone 118 = double, Δ = 5.2 Δδ = 4
119 9.2 } (No other note)
120 9.2 }
820 faint companion seen
822 #21 No note; and

V. XXXV, 194, zone 118 both placed pattern given

Original records:

Zone 496 = 9.1 reg. order 1 stroke each S.
497 = 9.1
745 = "close double mean S + R.A."
745 = 9.2 (No other companion res. J.R.)
7.3

Original records:

Zone 502 = "8.8 faint close comp. for
503 = 8.7 Mean S + R.A.
584 9.2 Double, mean S + R.A.
585 8.9
585 9.2 Mean S + R.A.
9.0

Original notes in observing books.

18 Original record. = { δ for both 2 breeches (bks) each δ }
 zone no. 19 = { double $\Delta\alpha = .1$ $\Delta\delta = 2''$ mean for α " (by J.R.D. looks like mean for α) }
 20 = { looks like ["rep. #] meaning probably upper star in field. H.S. J.R.D. }
 820 = { "9.2" "alt. H.S. J.R.D." }
 822 = { "9.5" upper * foll " }
 820 = "Suspected double mean δ & RA" (Cork b 28, h 133)

Original records:

Zone 118 = double, $\Delta\alpha = .2$ $\Delta\delta = 4''$ both mean for α 2 str. each for δ
 119 9.2 } (No other note)
 120 9.2 }
 820 faint companion same RA. A
 822 9.1 No note; not even neg. given

Original records:

Zone 496 = 9.1 rep. order 1 stroke each δ , same RA. 9.2 (no remarks by J.R.D.)
 497 9.1
 744 = "Close double mean δ & RA."
 745 = 9.2 (No other remarks, J.R.D.)
 9.3

Original records:

Zone 502 = "8.8" faint clue comp. for δ above
 503 = 8.7 mean δ & RA.
 584 9.2 Double, mean δ & RA
 585 8.9 Mean δ & RA.
 9.0

1875.0 in Vol. XXXV + XXXVI

ZONE	RA.	δ
118	{ 15.71 15.74	{ 2.4 3.1
119	15.62	5.7
120	15.77	7.1
820	15.74	5.5

118	{ 28.90 28.90	{ 176 304	← See if printed error
119	28.56	16.2	
120	28.63	14.0	
820	28.62	16.8	
822	28.54	16.7	

496	6.91	14.4
497	App. is a foll. star; design. 497. Designation not cor. in observing book	
744	6.98	12.4
745	6.87	14.8

502	23.80	23.1
503	23.85	23.7
584	23.76	24.5
585	23.73	22.8

Data from the catalogue - Vol. XV

STAR No. 1151 86 (dupl. 1152 med) 2 20 36.61 +53° 17' 41.1 77.9 608 } 53° 53' 1

* 1152 86 (dupl. 87 + 94 med) 2 20 36.72 " 43.0 77.9 602, 609 } No 1152, Vol. XV, uncertainty in extent of components.

Zone 608 = 2000, 1977
607 = 2000, 1977
609 = 2000, 1977 } Dates of obs.

1177 93 (dupl. 1180 min) 2 23 32.01 +53° 41' 39.2 77.9 606 } 53° 53'

* 1180 93 (dupl. 93 + 90 med) 2 20.2 388 77.9 602, 605 } No 1180, 1158' uncertainty in extent of comp.

Zone 605 = 2000, 1977
606 = 2000, 1977
607 = 2000, 1977 } Dates of obs.

1309 84 (dupl. 1310 min) 2 44 0.58 +52° 28' 52.6 73.0 203 } 52° 64'

1310 84 (dupl. 84 + 80 med) 2 40 54.3 77.9 597, 603 } No 1310, Notes on original comp. defective

Zone 597 = 2000, 1977
602 = 2000, 1977
603 = 2000, 1977 } Dates of obs.

* 1370 89 (dupl. 92 + 93 med) 2 57 59.7 + 52 33 55.1 77.6 510, 624 } No 1370, Notes on original comp. defective.

1371 89 (dupl. 1370 mag) 580 544 77.7 511, 608, 622 } 52° 658

Zone 624 = 2000, 1978
608 = 2000, 1977
622 = 2000, 1977
511 = 2000, 1977 } Dates of obs.

4471 84 (dupl. 4471 + 4472) 14 10 55.50 +51° 1' 22.7 76.1 176, 554, 655 } 51° 1703

4472 84 (dupl. 4471 + 4472) 55.81 17.9 75.0 176, 554

Zone 654 = 2000, 1978
605 = 2000, 1975
176 = 2000, 1975
79 = 2000, 1977 } Dates of obs.

* 5425 79 (dupl. 5425 med) 17 57 34.88 +52° 51' 19.4 71.6 103 } 52° 2/25

5426 79 (dupl. 5425 med) 17 57 34.88 +52° 51' 19.4 71.6 103

Zone 103 = 2000, 1977
107 = 2000, 1977 } Dates of obs.

Original Notes in Observing books.

18750 in Vols. XXXV & XXXVI

		ZONE	RA.	δ
609	Original record = "Mean δ + RA" (book C 24, p 131) } zone 602	602	36.63	41.4
	Original record = "Double - Mean δ + RA." } zone 609 (book C 25, p 15)	609	36.82	44.7
	Original record = "Suspected very close double. Companion fol. above δ ." } zone 608, (book C 25, p 15)	608	36.61	41.1
	zone 602, Original record = "2nd δ pr. Mean δ + RA. A faint $\times$ pr." (p 131, book C 24)	602	31.93	38.8
	zone 605 Original record = "Suspected triplet, Mean δ + RA. } zone 605, (p 145, C 24)	605	32.10	38.7
	zone 606 Original record = "Only 2nd wire. Clouds" } zone 606, " "	606	32.01	39.2
597 603	zone 597 Original record = "Mean δ + RA. close double" } zone 107, book C 24	597	0.82	54.6
	zone 603, Original record = "Very close double, Mean δ + RA." } zone 603, " "	603	0.59	54.0
	zone 203, Original record = "84 reg. A ₄ . Double. Seeing bad!" (book C 10)	203	0.58	52.6
624 608 622	zone 624 Original record = "Close double mean δ + RA"	624	52.86	53.4
	zone 608 Original record = "Suspected double elongation in RA"	608	52.85	53.9
	zone 622 Original record = "Reg. 1st 2 w" - Bluey & Red: double this word being & this star see p 63 book C 25	622	52.91	54.5
510 511	zone 510 Original record = "87 suspected close double"	510	52.68	54.8
	zone 511 Original record = "92 pr. 89 stars. (Mean δ + RA)"	511	52.65	54.9
654 655 176 554	zone 654 Original record = "Mean δ + RA"	654	55.70	22.1
	zone 655 " = "[R. $\times$]"	655	55.81	22.1
	zone 176 " = "(81/86 8 fold)"	176	{ 55.43 55.81	{ 22.7 22.1
	zone 554 " = "(84/85 2nd δ pr.)	554	{ 55.55 55.81	{ 23.8 18.7
103 107	zone 103 Original record = 79	103	34.88	19.4
	zone 107 " = 90/85 double $\Delta\delta 0 \Delta\alpha .25$ Mean } $\Delta\delta 0$ double $\Delta\alpha .25$ Mean } this is probably means for zone 107 but sometimes also line desc. that zone 103	107	34.79	18.7

