KG
11366
v.665

North Pole
Reductions.

North Pole

Comparison Chart of Poles and Catalogue

			x	y						
89° 1	89	51	+523.9	+79.0	+11.1	+1.1	+587	+58	+63	-21
" 3		41	+728.6	+858.7	+15.0	+16.0	+794	+846	+65	-13
" 26		41	-1064.7	-250.7	-19.2	-5.2	-1016	-275	+49	-24
" 35		46	-429.8	-707.3	-7.1	-13.8	-376	-730	+54	-23
" 37		52	-262.4	-340.5	-3.8	-6.7	-201	-354	+61	-14
			3009.4	2236.2	56.2	42.8			292	-95
			53.55	52.25					+58	-19

53.55
52.25
105.80
529.

2951 2255

525 527

52.6" = 1 div.

600 | 52.6
526 114
74
526
2140 456
2104

1800 | 526
1578 342
2220
2104
1160

6-l

+583	+58	+59	-21	0"	-3"
+789	+842	+61	-16	+2	+2
-1080	-274	+55	-23	-2	-5
-373	-726	+57	-19	-2	-1
-200	-352	+62	-12	+3	+6
		294	91	$\frac{5-6}{5}$	$\frac{8-9}{5}$
		+58.8"	-18.2"	±2.2"	±3.4"

Col-Sr.

±80 within	10'	2	||
±320 "	20	5	|||
±720 "	30	11	|𝍸|
	40	17	|𝍸|
±2880 "	60		

89°	No. Obs	Dec 89°+
1	1	57'
3	4	41
4	3	35
5	1	25
9	2	28
12	3	32
16	1	27
18	5	29
25	3	28
26	1	41
29	1	38
31	1	38
33	1	30
34	2	20
35	3	46
36	1	39
37	2	52
17	35	

+89 1 Same Sign Rev. Sign. Subtract 2640" Subtract 2580

p10 − 22.4 +20.1 3133.6 2662.5

−7 −2 79.0

p12 − 21.7 +20.3 523.9 2583.5

+23 −20 2609.7

p16 −24.0 +22.3

+89 2 38057

−18.4 −18.5 5083.8 ~~38057~~

−3 −28 1222.2

−18.1 −21.3 2474.3 2609.5 25835

+13 −20

−19.4 −18.3

+89 3

+26.1

−26.5 −26.4 3339.9 24980

−14 728.6 858.7 ~~2695~~

+24.9 −25.0 2611.3 2639.3

+1.7 −0.6 52.6

+22.2 +20 2586.7

+23.2 −24.4

+89 4

+4.9 +13.4 3634.3 3616.0

−7 +4 1024.7 2609.6 1031.6

+5.6 +13.0 2584.4

+3.4 −12

+2.2 +14.2

−0.6 1 3 1

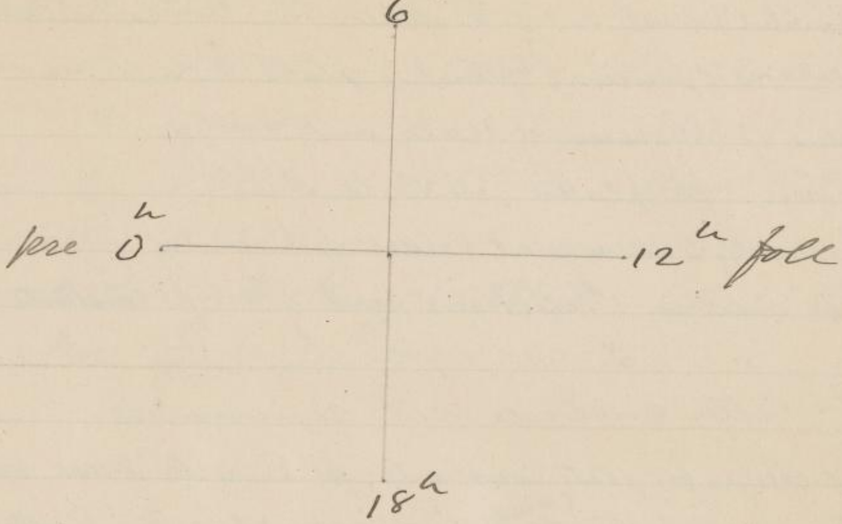
+22 1 9 5 12

−10 8 18 4 14

−14 6 6 8 2

28/15 ±.065

Diagram N. Pole



Index

p6 Standard Stars and Computed Coordinates X + Y from Vol XVIII IX
6–9 Estimated values x + y to determine centres of plates.
pp 10–16 + 26–31 Measures of position (by Miss L.) plates B. C. E, and D (p10 12–14–16 26–30)
18–25 Value of 1 division of scale in x and y
32–33 "Runs" for plates A. B. C. D. E.
34–37 Means of 3 measured values of x and of y for all 5 plates
Those used in 1st Solutions Least Sq Sol. for constants in black ink.
" " " 2 " " " " " " red "
The latter include all remeasures.
38–49 Reductions for plate constants, pl. E. with meas. vals x + y in equations
50–51 1st " of Star 5a (# with μ' discovered by Miss Wells)
pp 52–53 + 66–67 Pl. E. 1st Solution, Reductions for plate constants with Computed X + Y in equations
54–59 " D " " " " " "
60–65 " B " " " " " "
68–73 " A " " " " " "
74–77 " C " " " " " "
78–79 Summary of Residuals O–C from 1st Solutions
80–87 Remeasures A.B.C. p80 and Notes
88–89 Normal Equations & Plate constants a b c a' b' c' from 1st + 2nd Sols.
90–132 The "580" faint Stars within 30' of N. Pole, Measured vals x + y
blank 133–139
140–145 Plate A 2nd Solution (by Miss [illegible]), Reductions for plate constants, Remeasures included
146–151 " B " " " " "
152–157 " C " " " " "
158–163 " D " " " No Remeasures made
164–169 " E " " " Remeasures included
also 180–183 Pl. A, B, C, E " (by A.W.) " " " "
170–179 2nd Sol. Resids O–C from substituting Computed X + Y Pl. A.B.C.D.E for
" " " " " Measured x + y " " see pp. $14\overset{7}{2}$–$16\overset{8}{3}$
184–185 Adopted Plate constants a b c a' b' c' for all Plates A.B.C.D.E.
186–195 Reduction of Lettered Stars and "Single Os"
196–201 Tables II III + V
202– Notes

Design.	Enl.	Orig Pl.	Date	
Plate A	D4915 =	C824	Nov. 29 1887	dark ∴ rev(C-A)
" B	D4842 =	C10247	Feb 23 1897	
" C	D4849 =	C10052	Feb 24 1897	
" D	D4879 =	C10092	Mar 10 1897	dark ∴ " "
" E	D4885 =	"	"	

May 1901
New original selected by Mr King = C11847 Apr 1 1899 Exposure 113
for examination of single meas. v p208

Proper motion suspected from the
examination of C824 + C 10106

D4842 = B

North Polar Standard Stars

H.C.O. XVIII IX Tables V V Computed Values

centre = 50

Estimates

Dm	number	x1900	y1900	divided by 52.6, x	y	x (6)	y	Estimates (6) x	y	
		"	"	mm	mm	+50	+50	mm	mm	
0h +89	1	+ 523.9	+ 79.0	+ 10.0	+ 1.5	60.0	51.5	60.1	51.2	
	2	+ 2474.3	+ 1222.2	+ 47.0	+ 23.2	97.0	73.2	97.2	72.8	
	3	+ 728.6	+ 858.7	+ 13.9	+ 16.3	63.9	66.3	64.0	66.0	
	4	+ 1024.7	+ 1031.6	+ 19.5	+ 19.6	69.5	69.6	69.8	69.3	
	5	+ 1556.1	+ 1334.0	+ 29.6	+ 25.4	79.6	75.4	79.6	74.8	
	6	+ 2023.4	+ 2025.4	+ 38.5	+ 38.5	88.5	88.5	88.6 ~~75.2~~	88.1 ~~97.0~~	
	7	+ 1316.2	+ 2492.2	+ 25.1	+ 47.4	75.1	97.4	75.2	97.0	
5h	9	− 323.8	+ 1884.4	− 6.2	+ 35.8	43.8	85.8	~~44.9~~ 44.0	~~86.5~~ 85.5	?
8h	12	− 1017.1	+ 1319.7	− 19.3	+ 25.1	30.7	75.1	30.8	74.6	
	16	− 1780.5	+ 865.5	− 33.9	+ 16.4	16.1	66.4	16.2	66.1	
	17	− 2446.4	+ 649.0	− 46.5	+ 12.3	3.5	62.3	3.6	62.0	
	18	− 1845.9	+ 199.5	− 35.1	+ 3.8	14.9	53.8	15.0	53.5	
omit 11	19	− 2491.9	+ 337.0	− 47.4	+ 6.4	2.6	~~43.6~~ 56.4	3.0	56.0	
12	21	− 2737.6	− 512.8	− 52.1	− 9.8	− 2.1	40.2	− 1.9	39.9	
12	23	− 2429.3	− 616.6	− 46.2	− 11.7	3.8	38.3	3.8	37.8	
omit 15h	24	− 2360.2	− 1563.2	− 45.3	− 29.7	4.7	20.3	4.6	19.8	
13h	25	− 1647.4	− 871.0	− 31.3	− 16.6	18.7	33.4	18.8	33.0	
12	26	− 1064.7	− 250.7	− 20.2	− 4.8	29.8	45.2	29.9	44.8	
16	28	− 1291.8	− 2471.0	− 24.6	− 47.0	25.4	3.0	off plate,		
15	29	− 861.0	− 974.3	− 16.4	− 18.5	33.6	31.5	33.8	31.2	
16	31	− 388.7	− 1220.5	− 7.4	− 23.2	42.6	26.8	42.8	26.3	
18	32	+ 293.4	− 2566.7	+ 5.6	− 48.8	55.6	~~98.8~~ 1.2	off plate,		
17	33	− 21.3	− 1746.4	− 0.4	− 33.2	49.6	16.8	49.8	16.5	
18	34	+ 423.6	− 2339.2	+ 8.1	− 44.5	58.1	~~94.5~~ 5.5	no scale ~~57.0~~	~~98.0~~	
15	35	− 425.8	− 707.3	− 8.2	− 13.4	41.8	36.6	42.0	36.2	
19	36	+ 353.0	− 1148.3	+ 6.7	− 21.8	56.7	28.8 28.2	56.8	27.8	56.8 27.8 ?
15	37	− 262.4	− 340.5	− 5.0	− 6.5	45.0	43.5	45.2	43.2	
23	39	+ 2607.6	− 566.0	+ 49.6	− 10.8	~~(−0.4)~~ 99.6	39.2	99.5	38.8	

Sum di x +47 −54
y +48 −49

D 4849 = 6

O−C x	O−C y	Resids x +.1	Resids y −.3	Resids y −.4	Estimates x mm	Estimates y mm	O−C x mm	O−C y mm	Resids x +2	Resids y −.4		Cm no.
+.1	−.3	0	0	+[illegible]	60.1	51.1	+.1	−.4	−.1	0	+89	1
+2	−.4	+1	−1	0	97.2	72.8	+.2	−.4	0	0		2
+.1	−.3	0	0	+1	64.0	66.0	+.1	−.3	−.1	+.1		3
+.3	−.3	+2	0	+1	69.8	69.3	+.3	−.3	+.1	+.1		4
.0	−.6	−1	−3	−2	$\overset{9}{7\cancel{8}.3}$	74.9	+.3	−.5	+.1	−.1		5
+.1	−.4	0	−1	0	88.6	88.2	+.1	−.3	−.1	+.1		6
+.1	−.4	0	−1	0	not on plate							7
+.2	−.3	+1	0	+1	44.0	85.5	+.2	−.3	0	+1		9
+.1	−.5	0	−2	−1	30.8	$\overset{8}{74.\cancel{3}}$	+.1	$\overset{3}{-.\cancel{8}}$ 3	−.1	$\overset{+.1}{\cancel{-.4}}$?		12
+.1	−.3	0	0	+1	16.3	66.1	+.2	−.3	.0	+.1		16
+.1	−.3	0	0	+1	3.6	$\overset{1}{6\cancel{8}.9}$	+.1	−.4	−.1	0		17
+.1	−.3	0	0	+1	15.1	53.5	+.2	−.3	0	+.1		18
+.4	−.4	+3	−1	0	3.1	55.8	+.5	−.6	+.3	−.2		19
+.2	−.3	+1	0	+1	−2.0	39.9	+.1	−.3	−.1	+.1		21
.0	−.5	0	−2	−1	3.9	37.8	+.1	−.5	−.1	−.1		23
−.1	−.5	~~−2~~	−2	−1	4.7	19.8	.0	−.5	−.2	−.1		24
+.1	−.4	0	−1	0	18.8	33.0	+.1	−.4	−.1	0		25
+.1	−.4	0	−1	0	29.8	44.8	.0	−.4	−.2	0		26
					not on plate							28
+.2	−.3	+1	0	+1	33.8	31.2	+.2	−.3	0	+.1		29
+.2	−.5	+1	−2	−1	42.7	26.4	+.1	−.4	−.1	0		31
					not in plate							32
+.2	−.3	+1	0	+1	49.7	16.5	+.1	−.3	−.1	+.1		33
					brighter of two } 58.2	5.2	+.1	−.3	−.1	+.1		34
+.2	−.4	+1	−1	0	42.0	36.2	+.2	−.4	+0	.0		35
+.1	$\overset{-.4}{\cancel{-1.0}}$	0	$\overset{0}{\cancel{-.7}}$	$\overset{0}{\cancel{-6}}$	56.8	27.8	+.1	$\overset{.4}{-\cancel{1.0}}$	−.1	$\overset{0}{\cancel{-.6}}$	×	36
+.2	−.3	+1	0	+1	{45.2 45.1	43.2 43.4}	+.2	−.2	0	+.2		
+.1	−.4	.0	−1	0	$\overset{9}{9\cancel{8}.7}$	38.8	+.1	−.4	−.1	0	3	38
25		+15 −3 .04		−26 +11 −.1 −12					−17 +5 12	+13 −5	+11 −15 −11	

March 15, 1897

23.15

Measures of positions of North Polar Standard Stars

Rejected

DM	Number	A	B.	C.	D.	x×526	y×526	-2610.	-2580.		
+89	1	10	115	120	12	3156.0	2682.6	+ 546.0	+ 102.6		
	2	21	20	120	111	5102.2	3787.2	+2492.2	+1207.2		
	3	130	0	129	01	3313.8	3471.6	+ 703.8	+ 891.6	63.	66.
	4	78	99	51	35	3629.4	3629.4	+1019.4	+1049.4		
	5	95	05			4155.4	3892.4	+2545.4	+1312.4		
	6	80	110			4628.8	4628.8	+2018.8	+2048.8		
	7	21	129			3945.0 ✓	5102.2 ✓	+1335.0 ✓	+2522.2 ✓		
	9	121	71			2261.8	4471.0	~~61.8~~ -348.2	+1891.0		
	12	100	39			1578.0	3892.4	-1032.0	+1312.4		
	16	32	124			841.6	3471.6	-1768.4	+ 891.6		
	17	71	00			157.8	3261.2	-2452.2	+ 681.2		
	18	05	69			789.0	2787.8	-1821.0	+207.8		
	19	05	04			157.8	2945.6	-2452.2	+365.6		
	21	10	05			- 105.2	2051.4	-2715.2	-528.6		
	23	120	15			157.8	1946.2	-2452.2	-633.8		
	24	90	15			210.4	999.4	-2399.6	-1580.6		
	25	95	130			946.8	1735.8	-1663.2	-844.2		
	26	110	25			1525.4	2314.4	-1084.6	-265.6		
	28					1315.0	105.2	-1295.0	-2474.8		
	29	99	115			1735.8	1630.6	- 874.2	- 949.4		
	31	95	80			2209.2	1367.6	- 400.8	-1212.4		
	32					2893.0	0.0	+283.0	-2580.0		
	33					2577.4	841.6	- 32.6	-1738.4		
	34					3050.8	263.0	+440.8	-2317.0		
	35	125	110			2156.6	1893.6	-453.4	- 686.4		
	36	109	25			2945.6	1420.2	+335.6	-1159.8		
	37	15	110			2367.0	2261.8	-243.0	- 318.2		
	38					5207.4	1998.8	+2597.4	- 581.2		

Measures rejected

Mar 18 1897

D ~~4878~~ 4885

		Estimates O x mm	y mm	O − C x mm	y mm	Resids: x	y
						+.1	−.4
89°	1	60.1	51.1	+.1	−.4	0	0
	2	97.2	72.8	+.2	−.4	+.1	0
	3	63.9	66.0	.0	−.3	−.1	+.1
	4	69.6	69.2	+.1	−.4	0	0
	5	79.7 ~~78.3~~ ?	74.9	+.1	−.5	0	−.1
	6	88.6	88.2	+.1	−.3	0	+.1
	7	– off plate					
	9	43.9	85.5	+.1	−.3	0	+.1
	12	30.7	74.6	.0	−.5	−.1	−.1
	16	16.2	66.1	+.1	−.3	0	+.1
	17	3.5	62.0	.0	−.3	−.1	+.1
	18	5 16.0 ?	53.5	+.1	−.3	0	+.1
	19	3.0 3.0 ?	56.0	+.4	−.4	+.3	0
	21	−2.1	39.9	0	−.3	−.1	+.1
	23	3.9	37.9	+.1	−.4	0	0
	24	4 3.7 ?	19.9	.0	−.4	−.1	0
	25	18.7	33.0	.0	−.4	−.1	0
	26	29.8	44.8	.0	−.4	−.1	0
	28	25.5	2.6	+.1	−.4	0	0
	29	33.7	31.1	+.1	−.4	0	0
	31	42.7	26.3	+.1	−.5	0	−.1
4th Quad	32	55.6	0.8	.0	−.4	−.1	.0
	33	49.7	16.5	+.1	−.3	0	+.1
"	34	58.1	5.1	.0	−.4	−.1	.0
	35	41.9	36.2	+.1	−.4	.0	.0
"	36	56.8	7 28.8	+.1	−~~.0~~ 4	.0	0 ~~−.6~~
	37	brighter 45.1 45.0	43.1 43.3	+.1	−.4	.0	.0
"	38	99.6	38.8	.0	−.4	−.1	.0
						+4 −10	+.8 −.9 3

B

24.10 March 16, 1897. D 4842

Measures of positions of North Polar Standard Stars (Reticule)

Tab I	DM	Number	A	B	C	D	a+C	B+D	C-a	B-D	Resid.		C-a × 204	D-B × 203	
✓	+89°	1	120	115	10	16	130	131	-110	+99	+1	+1	-22.4	+20.1	+
✓		2	120	20	20	111	130	131	-100	-91	+1	+1	-18.4	-18.5	+
✓		3	130	0	0	130	130	130	-130	-130	+1	0	-26.5	-26.4	+
✓		4	51	97	75	31	126	~~130~~ 128	+24	+66	-3	-2	+4.9	+13.4	+
✓		5	35	04	91	125	126	~~128~~ 129	+56	-121	-3	-1	+11.4	-24.6	+
✓		6	45	110	80	19	125	129	+35	+91	-4	-1	+7.1	+18.5	+
✓		7	109	122	20	06	129	~~129~~ 128	-89	+116	0	-2	-18.2	+23.5	+
✓		9	05	70	121	59	126	~~128~~ 129	+116	+11	-3	-1	+23.7	+2.2	+
✓		12	30	40	100	89	130	129	+70	-49	+1	-1	+14.3	-9.9	+
✓		16	96	120	31	09	127	129	-65	+111	-2	-1	-13.3	+22.5	+
✓		17	~~59~~ 51	01	74	128	125	129	+23	-127	-4	-1	+4.7	-25.8	+
✓		18	125	70	05	59	130	129	-120	+11	+1	-1	-24.5	+2.2	+
✓		19	122	05	05	125	127	~~129~~ 130	-117	-120	-2	0	-23.~~8~~9	-24.4	-
✓		21	119	03	10	126	129	~~130~~ 129	-109	-123	0	-1	-22.2	-25.0	-
✓		23	10	15	120	115	130	~~129~~ 130	+100	-100	+1	0	+22.4	-20.3	-
✓		24	40	12	90	115	130	~~130~~ 127	+50	-103	+1	-3	+10.2	-20.9	-
✓		25	35	125	95	05	130	~~127~~ 130	+60	+120	+1	0	+12.2	+24.4	-
✓		26	15	25	111	~~21~~ 108	126	133	+96	-83	-3	+3	+19.6	-16.8	-
		28	off Plate												
✓		29	32	115	99	18	131	133	+67	+97	+2	+3	+13.7	+19.7	
✓		31	32	80	95	50	127	130	+63	+30	-2	0	+12.9	+6.1	
		32	off plate				-								
✓		33	36	—	95	—	131	—	+59	—	+2	-	+12.0	—	
✓		34	110	—	—	—	-								
✓		35	07	109	125	21	132	130	+118	+88	+3	0	+24.1	+17.9	
✓		36	20	21	110	~~21~~ 109	130	130	+90	-88	+1	0	+18.4	-17.9	
✓		37	111	109	20	20	131	129	-91	+89	+2	-1	-18.6	+18.1	
		38	—	19	—	111	-	130	—	-92		0	—	-18.7	
							$\frac{3088}{24}$ = 128.6 ~~129~~	$\frac{3112}{24}$ = 129.6			+18 -26 24	+8 -16 24			

24.50

Est. p6

		Corr. x.	Corr. y.	Resid. x	Resid. y	C-a 2.03	Cor. x	
+523.6	+122.7	+523.6	+82.5	−0.3	+3.5	−22.3	+523.7	1
+2473.8	+1188.7	+2473.8	+1225.7	−0.5	+3.5	−18.3	+2473.9	2
+677.3	+865.2	+677.3	+918.0	−51.3	+59.3	−26.4	+677.4	3
+1024.3	+$\overset{1062.8}{\cancel{1036.0}}$	+1024.3	+1036.0	−0.4	+4.4	+4.9	+1024.3	4
+1556.8	+1287.8	+1556.8	+1337.0	+0.7	+3.0	+11.4	+1556.8	5
+2025.9	+2067.3	+2025.9	+2030.3	+2.5	+4.9	+7.1	+2025.9	6
+1872.8	−366.4		+2298.7 ✓			−18.1	+1316.9 ✓	7
+1336.1	−1008.3	−324.5	+1888.8	−0.7	+4.4	+23.5	−324.7	9
+905.9	−1754.1	−1017.7	+1322.3	−0.6	+2.6	+14.2	−1017.8	12
+667.9	−2465.5	−1781.7	+869.1	−1.2	+3.6	−13.2	−1781.6	16
+212.5	−1816.3	−2447.5	+707.0	−1.1	+58.0	+4.7	−2447.5	17
+390.1	−2476.7	−1845.5	+205.6	+0.4	+6.1	−24.4	−1845.4	18
−551.9	−2738.5	−247$\overset{6.1}{\cancel{5.5}}$	+390.0	$\overset{+15.8}{\cancel{+16.4}}$	+53.0	−23.$\overset{8}{\cancel{7}}$	−2476.0	19
−656.0	−2474.4	−2737.4	−503.6	+0.2	+9.2	−22.1	−2737.3	21
−1558.2	−2377.2	−2429.8	−613.5	−0.5	+3.1	+22.3	−2429.9	23
−834.0	−1653.0	−2389.4	−1559.7	$\overset{-}{*}$9.2	+3.5	+10.2	−2389.4	24
−253.4	−1072.4	−1651.0	−868.6	−3.6	+2.4	+12.2	−1651.0	25
−2455.2	−1275.4	−1065.0	−248.8	−0.3	+1.9	+19.5	−1065.1	26
	−387.1	−860.5	−969.1	+0.5	+5.2	+13.6	−860.6	29
	+295.9	−387.9	−1218.5	+0.8	+2.0	+12.8	−388.0	31
	8	−20.6	—	+0.7	—	+12.0	−20.6	$3\overset{3}{2}$
		−429.3	−704.3	+0.5	+3.0	+24.0	−429.4	35
		+354.0	−1141.9	+1.0	+6.4	+18.3	+353.9	36
		−261.6	−336.3	+0.8	+4.2	−18.5	−261.5	37
		—	−562.5	—	+3.5			

x″ y″
(+730.0 +865.4 ✓)
1 div subtracted in x because reduced with est 63 in stead of 64. see prot and 1 div in y because estimated & reduced with 66. & is meas from 65. see sign of (B−D)

+654.4″ – 1 div y because est. & reduced with 62 & is meas from 61. see sign (of B−D)

+337.4 – 1 div y because est, & reduced ~~with 56~~ & is meas. from 55.

/6

23.20

March 16, 1897

D 4849

Tab I

D.M. Number Measures of positions of North Polar Standard Stars

	D.M.	Number	A.	B.	C.	D.	A+C	B+D	C−A	B−D	Resid.		201	203	
✓	+89°	1	118	115	100	15	128	130	−108	+100	−3	+1	−21.7	+20.3	+
✓		2	110	15	~~110~~ 20	120	130	135	−90	−105	−1	+6	−18.1	−21.3	+
✓		3	~~10~~ 05	05	129	128	134	133	+124	−123	+3	+4	+24.9	−25.0	−
✓		4	51	95	79	31	130	126	+28	+64	−1	−3	+5.6	+13.0	+
✓		5	35	05	95	125	130	130	+60	−120	−1	+1	+12.1	−24.4	−
✓		6	49	111	80	19	129	130	+31	+92	−2	+1	+6.2	+18.7	+
✓		7	not on plate				1−	−	−	−					
✓		9	05	75	129	55	134	130	+124	+20	+3	+1	+24.9	+4.1	−
✓		12	29	40	105	90	134	130	+76	−50	+3	+1	+15.3	−10.2	−
✓		16	95	125	35	11	130	136	−60	+114	−1	+7	−12.1	+23.1	−
✓		17	51	02	79	125	130	127	+28	−123	−1	−2	+5.6	−25.0	−
✓		18	125	69	09	60	134	129	−116	+09	+3	0	−23.3	+1.8	−
✓		19	121	05	10	128	131	133	−111	−123	0	+4	−22.3	−25.0	−
✓		21	60?	05	−	121	−	126	−	−116	−3	—		−23.5	−
✓		23	05	15	125	115	130	130	+120	−100	−1	+1	+24.1	−20.3	−
✓		24	30	15	100	115	130	130	+70	−100	−1	+1	+14.1	−20.3	−
✓		25	30	0	100	130	130	130	+70	−130	−1	+1	+14.1	−26.4	−
✓		26	15	23	115	105	130	128	+100	−82	−1	−1	+20.1	−16.6	−
✓		28	not on plate				−	−	−	−					
✓		29	30	115	100	15	130	130	+70	+100	−1	+1	+14.1	+20.3	
✓		31	30	~~69~~ 79	99	51	129	130	+69	+28	−2	+1	+13.9	+5.7	
✓		32	not on plate				−	−	−	−					
✓		33	35	70	95	60	130	130	+60	+~~8~~0	−1	+1	+12.1	+2.0	
✓		34	105	101	25	20	130	121	−80	+81	−1	−8	−16.1	+16.4	−
✓		35	130	105	0	20	130	125	−130	+85	−1	−4	−26.1	+17.3	−
✓		36	~~15~~ 20	25	110	107	130	132	+90	∓82	−1	+3	+18.1	−16.6	−
✓		37	110	109	25	20	135	129	−85	+89	+4	0	−17.1	+18.1	
✓		38	40	15	91	110	131	125	+51	−95	0	−4	+10.3	−19.3	+
							3139/24 = 1307	3235/25 = 12.94			+16 −21 24	+35 −25 25			

24.00

			Resid. x	y	c-a x 2.03	Corr. x			
Corr x	Corr y								
+ 524.3	+122.9	+ 82.3	+0.4	+3.3	-21.9	+ 524.1			1
+2474.1	+1185.9	+1228.5	-0.2	+6.3	-18.3	+24$\overset{73}{85}$.9			2
+ 728.7	+ 866.6	+ 916.6	+0.1	+57.9	+25.2	+ 729.0	y. ″ +864.0 ✓	− 1 div y. because Est. reduced with 66. & is meas. from 65. see sign (B−D)=9	3
+1025.0	+1062.4	+1036.4	+0.3	+4.8	+ 5.7	+1025.1			4
+1557.5	+1288.0	+1336.8	+1.4	+2.8	+12.2	+1557.6			5
+2025.0	+2067.5	+2030.1	+1.6	+4.7	+6.3	+2025.1			6
- 323.3		+ 1886.9	+0.5	+2.5	+25.2	- 323.0			9
-1016.7		+ 1322.6	+0.4	+2.9	+15.4	-1016.6			12
-1780.5		+ 868.5	0.0	+3.0	-12.2	- 1780.6	~~+653.6~~		16
-2446.6		+ 706.2	-0.2	+57.2	+ 5.7	-2446.5	y. +653.6 ✓	− 1 div y reduced with 62. instead of 61. see p204	17
-1844.3		+ 206.0	+1.6	+6.5	-23.5	-1844.5			18
-2474.5		+ 390.6	+17.4	+53.6	-22.5	-2474.7	y. +338.0	− 1 div reduced with 56 instead of 55 see p204	19
—		- 505.1	—	+7.7	—	—			21
-2428.1		- 613.5	+1.2	+3.1	+24.4	-2427.8			23
-23$\overset{8}{7}$5.5		- 1560.3	-5.3	+2.9	+14.2	-2385.4			24
-1649.1		- 817.8	-1.7	+53.2	+14.2	-1649.0	y -870.4	+ 1 div y because reduced with 33. & is meas 32 see sign (B−D)	25
-1064.5		- 249.0	+0.2	+1.7	+20.3	-1064.3			26
- 860.1		- 969.7	+0.9	+4.6	+14.2	- 860.0			29
- 386.9		- 1218.1	+1.8	+2.4	+14.0	-3$\overset{8}{9}$6.8			31
- 20.5		- 1740.4	+0.8	+6.0	+12.2	- 20.4			33
+ 424.7		- 2333.4	+1.1	+5.8	-16.2	+ 424.6			34
- 479.5		- 703.7	+0.3	~~+0.4~~ +3.6	-26.4	- 479.8	x -427.2 ✓	− 1 div x because reduced with 41 instead of 42 see p204	35
+ 353.7		- 1143.2	+0.7	+5.1	+18.3	+353.9			36
- 260.1		- 336.3	+2.3	+4.2	-17.3	- 260.3			37
+2607.7		- 561.9	+0.1	+4.1	+10.4	+ 2607.8			38

March 17 1897 D 4849

Additional measures of positions of Nos 2, 16 + 34.

	a	B	C	D					C-a × 2.03	B-D × 2.03		
✓ 2	110	15	20	114	130	129	-*90	-*99	-18.3	-20.1	+2473.9	+1227.3
✓ 16	95	125	35	05	130	130	-*60	$\overset{+}{*}$120	-12.2	+24.4	-1780.6	+867.2
✓ 34	105	105	25	24	130	129	-*80	$\overset{+}{*}$81	-16.2	+16.4	+424.6	-2333.4
✓ D ~~4478~~ 4885 23	15	12	115	118	130	130	+100	$\overset{-}{*}$106	+20.3	-21.5	-24~~52.5~~31.9	-612.3

4842	24	24	128.6	129.6	204.51	202.89	205	203
4849	24	25	130.7	129.4	201.2	203.24	201	203
48[illegible]8	25	25	129.6	129.8	202.9	202.54	203	203
4878	25	26	130.0	129.7	202.3		202	203

May 1[illegible] 1897

Note for all additional measures:

1. Include the original measures only in finding the constant 2.03

2. Substitute the additional measures for the original measures in final reductions for Least Sq. Solution and Residuals O-C in x + y.

June 19th 1897 Note:

For final decision in cases of additional measures see pp 84-85 for +89°18 on A, 23+36 on C } decision same as note 2 above = discordant meas. rejected.

Note: The 30 Stars (19 Standard 10 lettered and the Star near ~~Dm~~ +89° 5 designated 5a with discovered ~~suspected~~ proper motion by Miss Wells.) are included in the series of non Catalogue (faint) stars nos 1 – 581 on D4885 Plate E and are not yet indicated in every case ~~with~~ by Catalogue number or letter on either C or E.

On Card E there is therefore a 4th measure of those of the 30 Stars which are within 30' of the Pole not counting the additional measures on p 14 of this Book

1E

D ~~4878~~ 4885 March 18, 1897. 1h 56m

BD	number	a	B	C	D	a+C	B+D	C-a	B-D			202	203	
√ +89°	1	124	120	~~02~~ 05	~~115~~ 10	129	130	−119	+11.0	−1	0	−24.0	+22.3	+
√ √	2	115	20	19	110	134	130	−96	−90	+4	0	−19.4	−18.3	+2
√ √	3	10	132	120	122	(130	254)	+110	+10			+22.2	+2.0	+
√		05	05	120	125	125	130	+115	−120	−5	0	+23.2	−24.4	
√ √	4	59	100	70	30	129	130	+11	+70	−1	0	+2.2	+14.2	+
√	5	40	08	89	120	129	128	+49	$-11\overset{2}{8}$	−1	−2	+9.9	$-22.\overset{7}{8}$	+
√	6	50	115	80	·15	130	130	+30	+100	0	0	+6.1	+20.3	+
√	7	not on plate												
√	9	10	70	119	60	129	130	+109	+10	−1	0	+22.0	+2.0	−
√	12	35	40	95	90	130	130	+60	−50	0	0	+12.1	−10.2	−
√	16	101	119	29	10	130	129	−72	+109	0	−1	−14.5	+22.1	−
√	17	61	00	70	130	131	130	+9	−130	+1	0	+1.8	−26.4	−
√	18	129	70	00	60	129	130	−129	+10	−1	0	−26.1	+2.0	−
/	19	130	129	00	00	130	129	−130	+129	0	−1	−26.3	+26.2	−
√	21	—	09	—	125	−	134	−	−116	−	+4	—	−23.5	−
√	23	19	11	115	110	134	121	+96	−99	+4	−9	+19.4	−20.1	−
√	24	41	10	89	119	130	129	+48	−109	0	−1	+9.7	−22.1	−
√	25	35	129	90	00	125	129	+55	+129	−5	−1	+11.1	+26.2	−
√	26	22	21	109	110	131	131	+87	−89	+1	+1	+17.6	−18.1	−
√	28	65	52	60	~~90~~ 80	125	132	−5	−28	−5	+2	−1.0	−5.7	−
√	29	39	115	90	11	129	126	+51	+104	+1	−4	+10.3	+21.1	−
√	31	40	80	89	50	129	130	+49	+30	−1	0	+9.9	+6.1	−
√	32	~~10~~	~~109~~ not on plate			see note later →								
√	33	45	79	89	53	134	132	+44	+26	+4	+2	+8.9	+5.3	−
/ √	34	115	111	10	19	125	130	−105	+92	−5	0	−21.2	+18.7	+
√	35	10	109	120	20	130	129	+110	+89	0	−1	+22.2	+18.1	−
√	36	29	30	105	101	134	131	+76	−71	+4	+1	+15.4	−14.4	+
√	37 ①	120	111	10	19	130	130	−110	+92	0	0	−22.2	+18.7 √	−
√	②	129	80	01	50 →	130	130	−128	+30	0	0	−25.9	+6.1 √	
√	38	41	25	85	104 →	(126	129)	+44	−79			+8.9	−16.0	+

2h 35m

$\frac{3251}{25}$ = 130

$\frac{3371}{26}$ = 129.7

$\frac{3247}{25}$ = 129.9

3379 = 129.96

Corr. x.	Corr. y		Resid. x	Resid. y	c-a x 2.03		
+ 522.0	+124.9	+ 80.3	-1.9	+1.3	-24.2	+ 521.8	
+2472.8	+1188.9	+1225.5	- 1.5	+ 3.3	-19.5	+2472.7	
+ 726.0	+ 893.6	+ 889.6	- 2.6	+30.9	+22.3	+ 726.1	y. + 863.3 from 2591.
727.0	+867.2	+ 916.0	- 1.6	+57.3	+23.3	+ 727.1 -1div y	+863.4 sub. 1div.y because reduced with $\overset{3}{}$ est. 66. instead of 65. v. p204
+1021.6	+1063.6	+ 1035.2	- 3.1	+ 3.6	+ 2.2	+ 1021.6	
+15$\overset{5}{3}$5.$\overset{3}{5}$	+1289.7	+ 1335.1	- 0.8	+ 1.1	+ 9.9	+ 1555.3	
+2024.9	+2069.1	+2028.5	+ 1.5	+$\overset{3}{4}$.1	+ 6.1	+ 2024.9	
- 326.2		+ 1889.0	- 2.4	+ 4.6	+22.1	- 326.1	
- 1019.9		+1322.6	- 2.8	+ 2.9	+12.2	- 1019.8	
-1782.9		+ 869.5	- 2.4	+ 4.0	-14.6	- 1783.0	
- 2450.4		+ 707.6	- 4.0	+58.6	+ 1.8	-2450.4	y. + 655.0 subtracted 1div y because reduced with est 62. & [illegible] from 61 see [illegible] (B-D) 17
- 1847.1		+ 205.8	- 1.2	+ 6.3	-26.2	- 1847.2	
- 2478.5		+ 339.4	+13.4	+ 2.4	-26.4	- 2478.6	1st meas. 19
		- 505.1		+ 7.7	—		
-2432.8		- 613.7	- 3.5	+ 2.9	+19.5	- 2432.7	
-2389.9		- 1558.5	- 9.7	+ 4.7	+ 9.7	-2389.9	
-1652.1		- 870.4	- 4.7	+ 0.6	+11.2	- 1652.0	
- 1067.0		- 247.5	- 2.3	+ 3.2	+17.7	- 1066.9	
-1296.0		- 2469.1	- 4.2	+ 1.9	- 1.0	- 1296.0	
- 863.9		- 970.5	- 2.9	+ 3.8	+10.4	- 863.8	
- 390.9		- 1218.5	- 2.2	+ 2.0	+ 9.9	- 390.9	
							24th Oct. 1900 Miss L. found +8°32 on $\overset{=E}{D}$4885 also on $\overset{=D}{D}$4879 for est. see p9, meas. by Miss L. p82
- 23.7		- 1743.7	- 2.4	+ 2.7	+ 8.9	- 23.7	
+ 419.6		- 2335.7	- 4.0	+ 3.5	-21.3	+ 419.5	
- 431.2		- 704.5	- 1.4	+ 2.8	+22.3	- 431.1	
+ 351.0		- 1145.4	- 2.0	+ 2.9	+15.4	+ 351.0	
- 265.2		- 336.9	- 2.8	+ 3.6	-22.3	- 26$\overset{5}{2}$.3 ✓	
		- 324.3			-26.0	- 269.0 ✓	
+2606.3		- 5$\overset{6}{7}$5.2	- 1.3	- 9.2	+ 8.9	+ 2606.3	

Value of 1 div of Scale from Estimates

D4842

x	y	no. Stars	Computed Σx mm	Σy mm	Σ Resids x	y	Observed Σx	Σy	Sun nos +89°
+	+	7	+183.6	+171.9	+.2	$\overset{+.1}{0}$	$+\overset{8}{183.7}$	$+\overset{2.0}{171.9}$	1.2.3.4.5.6.7
−	+	6	−188.4	+99.8	+.4	+.3	−188.0	+100.1	9.12.16.17.18.19
−	−	10	−232.5	−167.4	+.4	+.1	−232.1	−167.3	21 23 24.25 26 29 31 33 35,37
+	−	2	+ 56.3	− 32.6	0	$-\overset{0}{.6}$	+ 56.3	$-\overset{2.6}{33.2}$	36.38
		25	±660.8	±471.7			±660.2	$\pm 472.\overset{6}{\underset{0}{5}}$	

89 28
32 } off D4842
34 no scale

660.8 : 660.2 = 526:

660.8 : +0.6 = 526: 0.5   1 div = 526.5

$471.7 : 472.\overset{0}{5} = 526 :$

$471.7 : -0.\overset{9}{\underset{3}{8}} = 526 : -\overset{1.0}{\underset{3}{0.9}}$ 1 div = $525.\overset{7}{0}$

D4849

x	y	no.	C Σx	Σy	Σ Resids x	y	O Σx	Σy	Sun nos. +89°
+	+	6	+158.5	+124.5	−.1	+.2	+158.4	+124.7	1.2.3.4.5.6
−	+	6	−188.4	+99.8	+.1	+.2	−188.3	+100.0	9.12.16.17.18.19
−	−	10	−232.5	−167.4	−.9	+.3	−233.4	−167.1	21 23 24 25 26 29 31 33 35 37
+	−	3	+64.4	−77.1	−.3	$\overset{+.1}{-.5}$	+64.1	$-77.\overset{0}{6}$	34.36.38.
		25	643.8	468.8			644.2	$\overset{8.8}{469.4}$	

89 7
28
32 } off D4849

643.8 : 644.2 = 526

643.8 : −0.4 = 526: −0.3   1 div 525.7

$468.8 : \overset{8.8}{469.4} = 526$

$468.8 : -0.\overset{0}{6} = 526 : -0.\overset{0}{7}$ " $52\overset{6.0}{5.3}$

4885
D4878

x	y	No.	Computed Σx mm	Computed Σy mm	Σ Resids x	Σ Resids y	Observed Σx	Observed Σy	Star no.s +89°
+	+	6	+158.5	+124.5	0	+.1	+158.5	+124.6	1. 2. 3. 4. 5. 6
−	+	6	−188.4	+99.8	+.1	+.3	−188.3	+100.1	9. 12. 16. 17. 18. 19
−	−	11	−257.1	−214.4	−.4	$+.\overset{1}{\cancel{2}}$	−257.5	$-214.\overset{3}{\cancel{2}}$	21, 23. 24 25 26 28 29 31 33 35 37
+	−	4	+70.0	−125.9	−.3	$-.\overset{0}{\cancel{6}}$	+69.7	$-12\overset{5.9}{\cancel{6.5}}$	32. 34. 36. 38
		27	±674.0	±564.6			±674.0	$\pm 56\underset{4.9}{5.\overset{5}{\cancel{4}}}$	

89.7 ff D4878

674.0 : 674.0 = 526 :

1 div = 526.0

$564.6 : 56\overset{4.9}{5.\overset{5}{\cancel{4}}} = 526$

$564.6 : -0.\overset{9}{\underset{3}{\cancel{1}}} = 526 : -0.\underset{3}{\cancel{8}}$ 1 div = $525.\overset{7}{\cancel{2}}$

Scale Value

D4842	1 div	$52\overset{6.1}{\cancel{5.8}}$
4849	"	$525.\overset{8}{\cancel{5}}$
4885 4878	"	$525.\overset{8}{\cancel{6}}$
Mean	"	$525.\overset{9}{\cancel{6}}$

		Comp. of 1 div Computed values.		D4842		D4849		D4878	
						Estimates supp. 6+9 85			
Dm +89° 1st Quad		x 1900	y 1900	x	y	x	y	x	y
		"	"	mm		mm	mm	mm	mm
	1	+523.9.	+ 79.0.	60.1	51.2	60.1	51.1	60.1	51.1
	2	+2474.3.	+1222.2	97.2	72.8	97.2	72.8	97.2	72.8
	3	+ 728.6	+ 858.7.	64.0	66.0	64.0	66.0	63.9	66.0
	4	+1024.7.	+1031.6.	69.8	69.3	69.8	69.3	69.6	69.2
	5	+1556.1.	+1334.0	79.6	74.8	79.3	74.9	79.7	74.9
	6	+2023.4.	+2025.4.	88.6	88.1	88.6	88.2	88.6	88.2
		+8331.0.	+6550.9.	459.3,	422.2.	459.0,	422.3,	459.1,	422.2
2nd Quad	9	-323.8.	+1884.4.	44.0	85.5	44.0	85.5	43.9	85.5
	12	-1017.1	+1319.7.	30.8	74.6	30.8	74.8	30.7	74.6
	16	-1780.5	+ 865.5	16.2	66.1	16.3	66.1	16.2	66.1
	17	-2446.4	+ 649.0	3.6	62.0	3.6	61.9	3.5	62.0
	18	-1845.9.	+199.5	15.0	53.5	15.1	53.5	15.0	53.5
		-7413.7.	+4918.1.	109.6,	341.7.	109.8,	341.8.	109.3	341.7
3rd Quad.	23	-2429.3	-616.6.	3.8	37.8	3.9	37.8	3.9	37.9
	25	-1647.4.	-871.0.	18.8	33.0	18.8	33.0	18.7	33.0
	26	-1064.7.	-250.7.	29.9	44.8	29.8	44.8	29.8	44.8
	29	- 861.0	-974.3.	33.8	31.2.	33.8	31.2	33.7	31.1
	31	- 388.7	-1220.5.	42.8	26.3	42.7	26.4	42.7	26.3
	35	- 429.8.	- 707.3.	42.0	36.2	42.0	36.2	41.9	36.2
Ensble	37 omit	- 6820.9.	-4640.4.	171.1,	209.3.	171.0.	209.4.	170.7.	209.3
4th Quad	36	+353.0.	-1148.3.	56.8.	27.8	56.8.	27.8.	56.8	27.8.

					x		Resid.		y	
					D4842	D4849	D4878	D4842	D4849	D4878
		-3	+4	-19	-0.3	+0.4	-1.9	+3.5	+3.3	+1.3
		-5	-2	-15	-0.5	-0.2	-1.5	+3.5	+6.3	+3.3
		+13	+1	-21	+13 [-51.3]	+0.1	-2.6 -1.6	+6.7 [+59.3]	+5.3 [+57.9]	+4.7 +30.9 +57.3
		-4	+3	-31	-0.4	+0.3	-3.1	+4.4	+4.8	+3.6
		+7	+14	-8	+0.7	+1.4	-0.8	+3.0	+2.8	+1.1
		+25	+16	+15	+2.5	+1.6	+1.5	+4.9	+4.7	+3.1
	7									
		-7	+5	-24	-0.7	+0.5	-2.4	+4.4	+2.5	+4.6
		-6	+4	-28	-0.6	+0.4	-2.8	+2.6	+2.9	+2.9
		-12	0	-24	-1.2	0.0	-2.4	+3.6	+3.0	+4.0
		-11	-2	-40	-1.1	-0.2	-4.0	+5.4 [+58.0]	+4.6 +57.2	+6.0 +58.6]
		+4	+16	-12	+0.4	+1.6	-1.2	+6.1	+6.5	+6.3
Omit	19	~~+4~~			15.8 ✓ +~~16.4~~	+17.4	+13.4	+0.4 +53.0	+1.0 +53.6	+2.4
	21				+0.2	—		+9.2	+7.7	+7.7
	23	-5	+12	-35	-0.5	+1.2	-3.5	+3.1	+3.1	+2.9
omit	24				- ~~+~~ 9.2	-5.3	-9.7	+3.5	+2.9	+4.7
		-3.6	-17	-47	-3.6	-1.7	-4.7	+2.4	+0.6 +53.2	+0.6
		-3	+2	-23	-0.3	+0.2	-2.3	+1.9	+1.7	+3.2
	28						-4.2			+1.9
		+5	+9	-29	+0.5	+0.9	-2.9	+5.2	+4.6	+3.8
		+8	+18	-22	+0.8	+1.8	-2.2	+2.0	+2.4	+2.0
	32									
	33	+7	+8	-24	+0.7	+0.8	-2.4	—	+6.0	+2.7
	34					+1.1	-4.0		+5.8	+3.5
	35	+5	+3	-14	+0.5	+0.3	-1.4	+3.0	+3.6	+2.8
	36	+10	+7	-20	+1.0	+0.7	-2.0	+6.4	+5.1	+2.9
	37	+8	+23	-28	{ +0.8	+2.3	-2.8	+4.2	+4.2	+3.6
	38				—	+0.1	-1.3	+3.5	+4.1	-9.2

~~D4842~~
List of Stars for:
Least Square Solution

Dec +89° 1 $\overset{O-C}{-.3} = \overset{obs\ x \div 100}{\cancel{+}5''.236}\ a + \overset{obs\ y \div 100}{.82''5}\ b$

2

3

~~D4878~~ 4885 pp. 80–120
min Leland is Bowk No 3
chgd to No 5

	No. Sc.	No.	x	y	y − x	Σx	Σy	
4								
5	1	29	128.6	129.7	+11	3728	3761	+33
6	30	28	129.0	129.7	+7	$\overset{3}{\cancel{4}}613$	3631	+18
9	58	28	128.7	129.8	+11	3604	3637	$+3\overset{3}{4}$
12	86	28	129.2	129.8	+6	3617	3635	+18
16	114	28	129.0	129.9	+9	3614	3636	+22
17	142	28	128.5	129.8	+13	3598	3635	+37
18	170	28	129.6	130.0	+4	3628	3639	11
~~21~~	198	28	$129.\overset{1}{8}$	129.8	+7	3616	3634	18
23	226	28	129.1	129.2	+1	3615	3618	3
25	254	29	128.9	130.1	+12	3739	3773	34
26	283	28	129.6	130.0	+4	3630	3630	0
29	311	28	128.9	129.5	+6	3608	3756	148 †
31	339	29	129.3	130.0	+7	3751	3769	18
~~33~~	367	27	129.4	129.6	+2	3493	3499	6
35	394	27	129.2	129.7	+5	3490	3503	13
18 stars 36	421	27	129.0	129.7	+7	3484	3502	18
(quit, triple 37)	448	28	129.7	130.0	+3	3632	3640	8
~~38~~	476	28	129.5	129.8	+3	3627	3633	6
	504	28	129.3	129.8	+5	3621	3634	13
	531	$\overset{27}{\cancel{28}}$	129.3	130.0	+7	3490	$3\overset{5}{6}09$	19
	558	23	129.7	130.0	+3	2984	2992	8
						$7518\overset{2}{a}$	75666	484 ÷ 581
							−130 = 75536	
					263 ÷	129.40 ✓	~~129.9~~ 130.23	130.01
					=	20.3	20.2	202.3

D4885 = Ɛ = V

3 sets of stars	Σx (a+c)	Σy (B+d)
+89° 1, 2, 3, 4 5, 5a, 6 see Bk5 122, 124, this NP. p16	2719 ~~2718~~	2722
9, 12, 16, 17, 18, 23, 25 see Bk5 122, 124, this p16	2978	2718
26 29, 31 35 36 37 a, K B5 p96 see Bk5 122, 124, this p16,	2723	2725
b c d e f g h see Bk5 94 92 90 90 92 96 100	2714	2728
k l Bk5 100 98	776	779
	11910 / 92 =	1167.2 / 90 =
	129.5	129.7

See Suppl Env. for details

204	128.68	63	2045
203	129.24	64	2035
202	129.88	.64	
201	130.52	.65	
200	131.17	65	
	131.82		

= Plate D

D 4879 pp 26-30 of this book

this book	notes	Σx = a+c		Σy = B+d
p26	30	388.5	30	390.0
p28	30	388.3	31	402.8
p30	31	401.1	31	403.3
		1177.9 / 91		1196.1 / 92

mean 129.4 130.0

263 / mean = 2032 2023 ✓

adopt 203

D4879

Cat. + Let. stars pp 26-30

263 / 2035 129.24
2035
5950
4070
18800
18305
4850
4070
7800

263 / 2045
12866
12861

75666 / 582 2045
582 130.01 5850
1746 4090
1164 17600 17600
~~4582~~ 60 16360 16360
13200 12400
12270 12270
9300 1300
8180
1120

129.40
130.01
129.70

130.01 / 263
263 / 130.01
26002 202
29800
26

75666 / ~~263~~ 581
581 130.23
1756
~~1162~~
~~588~~
1743
1360
1162
1980

Adopt 203.

D4879 4885

Scale Value x 1 div

Sec/120

Quadrant	Computed Σx	Estimates D4842	D 4849	D $48\overset{85}{78}$	no. Stars
		Σx	Σx	Σx	
1st "	+8331.0″	459.3mm	459.0mm	459.1mm	6
4 "	+353.0	56.8	56.8	56.8	1
2	+8684.0	516.1	515.8	515.9	7
Mean	+1240.6	73.71	73.68	73.70	
2 Quad.	−7431.7	109.6	109.8	109.3	5
3 "	−6820.9	171.1	171.0	170.7	6
2	−14234.6	280.7	280.8	280.0	11
Mean	−1294.1	25.52	25.62	25.46	
Diff of means	2534.7	48.19	48.06	48.24	
log diff	3.40393				
		$1.68\overset{296}{\cancel{178}}$	1.68178	1.68341	
log scale value		1.72097	1.72215	1.72052	
" " = b = 1 div		52.60	52.74	52.54	

D 4842 b = 52.60″
4849 52.74
4878 52.54

$\overline{1.88}$
52.63

Scale value y

Quadrant	Computed Σy "	Estimates D4842 Σy mm	D4849 Σy mm	D4878 (85) Σy mm	no. Plates
1.	+6550.9	422.2	422.3	422.2	6
2.	+4918.1	341.7	341.8	341.7	5
Σ.	+11469.0	763.9	764.1	763.9	11
Mean	+1042.6	69.45	69.45	69.45	
3 Quad.	−4640.4	209.3	209.4	209.3	6
4.	−1148.3	27.8	27.8	27.8	1
Σ	−5788.7	237.1	237.2	237.1	7
Mean	−826.9	33.87	33.89	33.87	
diff.	1869.5	35.58	35.56	35.58	
	3.27173				
		1.55121	1.55096	1.55121	
log scale value		1.72052	1.72077	1.72052	

take diff of Σs

52.54" D 4842
52.57 D 4849
52.54 D 4878
52.55
Mean 52.59

D 4879

12.30

April 14, 1897

	B.D. No	x	y	A	B	C	D	A+C	B+D	C−A	B−D	$\frac{C-A}{2.03}$ ×	2.03	x × 52.6	y × 52.6
✓+ 89°	1	60.1	51.1	5	119	125	11	130	130	+120	+108	+24.4	+21.9	3156.0	2682.6
✓	2	97.2	72.8	19	22	111	108	130	130	+92	−86	+18.7	−17.5	5102.2	3787.2
✓ subtract x 1 div. from y	3	63.9	66.0	120	4	9	126	129	130	−111	−122	−22.5	−24.8	3313.8	3471.6
✓	4	69.6	69.3	70	100	59	30	129	130	−11	+70	−2.2	+14.2	3629.4	3629.4
✓	5	79.~~7~~6	74.9	90	7	40	122	130	129	−50	−115	−10.2	−23.3	4155.4	3892.4
✓	5a	7~~9~~8.4	75.5	36	60	93	70	129	130	+57	−10	+11.6	−2.0	4102.8	3945.0
✓	6	88.6	88.2	80	116	50	15	130	131	−30	+101	−6.1	+20.5	4628.8	4628.8
✓	9	43.8	85.5	120	70	9	59	129	129	−111	+11	−22.5	+2.2	2261.8	4471.0
✓	12	30.7	74.6	96	39	33	91	129	130	−63	−52	−12.8	−10.6	1578.0	3892.4
✓	16	16.3	66.2	29	120	101	10	130	130	+72	+110	+14.6	+22.3	841.6	3471.6
✓ 〃 ×	17	3.5	62.0	69	1	60	129	129	130	−9	−128	−1.8	−26.0	157.8	3261.2
✓	18	15.0	53.4	125	70	4	60	129	130	−121	+10	−24.6	+2.0	789.0	2787.8
✓	23	3.8	37.8	111	14	19	115	130	129	−92	−101	−18.7	−20.5	157.8	1946.2
✓	25	18.7	33.0	90	125	40	05	130	130	−50	+120	−10.2	+24.4	946.8	1735.8
✓	26	29.8	44.7	106	24	23	106	129	130	−83	−82	−16.8	−16.6	1525.4	2314.4
✓	29	3~~7~~3.7	31.2	90	117	39	13	129	130	−51	+104	−10.4	+21.1	1735.8	1630.6
✓	31	42.7	26.4	90	80	40	50	130	130	−50	+30	−10.2	+6.1	2209.2	1367.6
✓	35	41.9	36.2	119	110	~~21~~ 11	21	130	131	−108	+89	−21.9	+18.1	2156.6	1893.6
✓	36	56.8	27.8	102	28	28	103	130	131	−74	−75	−15.0	−15.2	2945.6	1420.2
✓	37	45.2	43.2	10	111	120	19	130	130	+110	+92	+22.3	+18.7	2367.0	2261.8
✓	a	45.0	43.4	2	80	128	49	130	129	+126	+31	+25.6	+6.3	2367.0	2261.8
✓	b	44.6	44.3	80	99	50	32	130	131	−30	+67	−6.1	+13.6	2314.4	2314.4
✓	c	42.4	47.4	55	70	74	60	129	130	+19	+10	~~+22.1~~ +3.9	+2.0	2209.2	2472.2
✓	d	38.9	48.3	125	80	4	49	129	129	−121	+31	−24.6	+6.3	1998.8	2524.8
✓	e	39.7	51.8	96	20	33	110	129	130	−63	−90	−12.8	−18.3	2051.4	2682.6
✓	f	42.4	51.9	54	4	75	126	129	130	+21	−122	+4.3	−24.8	2209.2	2682.6
✓	g	45.2	50.5	22	56	108	75	130	131	+86	−19	+17.5	~~−22.1~~ −3.9	2367.0	2630.0
✓	h	52.7	44.6	81	60	49	70	130	130	−32	−10	−6.5	−2.0	2735.2	2314.4
✓	k	50.4	47.9	38	3	91	127	129	130	+53	−124	+10.8	−25.2	2630.0	2472.2
✓ 1.10	l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2577.4

(a+c) 3885 / 30 = 1295

(B+D) 3900 / 30 = 1300

1 Del 5 Cor.x	2 Cor.y	3 Cor x −2610.	4 Cor y −2580.	5 x×52.6 corrected by (C−a)×2.03 with sign changed	6 Cor.x −2610.			
3180.4	2660.7	+570.4	+ 80.7	3131.6	+521.6			
5120.9	3804.7	2510.9	+1224.7	5083.5	+2473.5			
3291.3	3496.4	681.3	+916.4	3336.3	+726.3	J ″ +863.8 ✓	subtracted 1 div because est from 66. + meas. from 65 see (B–D)	3
3627.2	3615.2		+1035.2	3631.6	+1021.6			
4145.2	3915.7		+1335.7	4165.6	+1555.6			
4114.4	3947.0		+1367.0	4091.2	+1481.2			
4622.7	4608.3		+2028.3	4634.9	+2024.9			
2239.3	4468.8	~~4468.8~~	+1888.8	2284.3	−325.7			9
1565.2	3903.0		+1323.0	1590.8	−1019.2			
856.2	3449.3		+ 869.3	827.0	−1783.0			
156.0	3287.2		+707.2	159.6	−2450.4	J. +654.6 ✓	−1 div y because Est + red. 62 + is meas. 61. (see B–D)	17
764.4	2785.8		+205.8	813.6	−1796.4	x. −1849.0 ✓	+ 1 div x, Est + red. 15, is meas. 14 see (C–A)	18
139.1	1966.7	~~1966.7~~	−613.3	176.5	−2433.5			
936.6	1711.4		−868.6	957.0	−1653.0			25
1508.6	2331.0		−249.0	1542.2	−1067.8			
1725.4	1609.5		−970.5	1746.2	−863.8			
2199.0	1361.5		−1218.5	2219.4	−390.6			
2134.7	1875.5		−704.5	2178.5	−431.5			35
2930.6	1435.4		−1144.6	2960.6	+ 350.6 ~~49.4~~			
2389.3	2243.1		−336.9	2344.7	−265.3			
2392.6	2255.5		−324.5	2341.4	−268.6			
2308.3	2300.8		−279.2	2320.5	−289.5			
2213.1	2470.2		−109.8	2205.3	−404.7			
1974.2	2518.5		−61.5	2023.4	−586.6			d
2038.6	2700.9		+120.9	2064.2	−545.8			
2213.5	2707.4		+127.4	2204.9	− 405.1			
2384.5	2633.9		+ 53.9	2349.5	− 260.5			
2728.7	2316.4		−263.6	2741.7	+ 131.7			
2640.8	2497.4		− 82.6	2619.2	+ 9.2			
2530.3	2583.9		+ 3.9	2519.3	− 90.7			

D 4879

23.00

April 15, 1897.

		x	y	a,	B,	C,	D.	a + C	B+D	C-a	B-D	C-a × 2.03	B-D × .03
√+ 89°	1	60.1	51.1	5	119	125	11	130	130	+120	+108	+24.4	+21.9
√	2	97.2	72.7	18	21	112	110	130	131	+94	−89	+19.1	−18.1
√	3	63.9	66.0	120	4	10	125	130	129	−110	−121	−22.3	−24.6
√	4	69.6	69.3	72	100	57	30	129	130	−15	+70	−3.0	+14.2
√	5	79.7	74.8	90	9	40	121	130	130	−50	−112	−10.2	−22.7
√	5a	78.3	75.5	36	60	93	70	129	130	+57	−10	~~−~~ + 11.6	−2.0
√	6	88.6	88.2	80	117	50	14	130	131	−30	+103	−6.1	+20.9
√	9	43.9	85.5	120	70	10	60	130	130	−110	+10	−22.3	+2.0
√	12	30.7	74.7	93	40	35	90	128	130	−58	−50	−11.8	−10.2
√	16	16.3	66.2	28	120	101	10	129	130	+73	+110	+14.8	+22.3
√	17	3.5	62.0	68	130	60	130	128	260	−8	0.0	−1.6	0.0
√	18	15.0	53.4	~~18~~ 127	~~127~~ 70	~~40~~ 3	~~3~~ 60	130	130	−124	+10	−25.2	+2.0
√	23	3.8	37.9	111	13	19	117	130	130	−92	−104	−18.7	−21.1
√	25	18.6	33.0	90	127	40	3	130	130	−50	+124	−10.2	+25.2
√	26	29.8	44.8	108	22	21	107	129	129	−87	−85	−17.7	−17.3
√	29	33.7	31.2	91	118	38	12	129	130	−53	+106	−10.8	+21.5
√	31	42.7	26.4	90	80	40	50	130	130	−50	+30	−10.2	+6.1
√	35	41.9	36.2	118	109	11	21	129	130	−107	+88	−21.7	+17.9
√	36	56.8	27.7	100	28	30	102	130	130	−70	−74	−14.2	−15.0
√	37	45.1	43.2	10	111	120	19	130	130	+110	+92	+22.3	+18.7
√	a	45.1	43.4	2	81	128	48	130	129	+126	+33	+25.6	+6.7
√	b	44.6	44.3	81	97	50	32	131	129	−31	+65	−6.3	+13.2
√	c	42.4	47.5	56	70	72	60	128	130	+16	+10	+3.2	+2.0
√	d	38.9	48.4	127	80	2	49	129	129	−125	+31	−25.4	+6.3
√	e	39.7	51.8	96	20	33	110	129	130	−63	−90	−12.8	−18.3
√	f	42.4	52.0	55	2	75	128	130	130	+20	−126	+4.1	−25.6
√	g	45.2	50.5	21	52	108	78	129	130	+87	−26	+17.7	−5.3
√	h	52.6	44.5	81	60	49	70	130	130	−32	−10	−6.5	−2.0
√	k l	50.3	47.9	39	3	90	127	129	130	+51	−124	+10.4	−25.2

(a+c)
3883/30 = 1294

(B+D)
4028/31 = 1299

23.35

		Cor. x.	Cor. x−2610.	Cor. y−2580.		
3180.4	2660.7	$31\overset{3}{2}1.6$	+521.6	+80″.7		
5121.3	3805.3	5083.1	+2473.1	+1225.3		
3291.5	3496.2	3336.1	+726.1	+916.2	y ″ +863.6 subtracted 1 div y because est. 66 + meas. 65. (replaced with mm mm) sec(β−δ)=.9 [Est. reduced = 66.0×52.6 −2580 −½ div = +865″.3. Computed y = +858″.7]	3
3626.4	3615.2	3632.4	+1022.4	+1035.2		
4145.2	3915.1	4165.6	+1555.6	+1335.1		
~~4091.2~~ 4114.4	3947.0	4091.2	+1481.2	+1367.0		
4622.7	4607.9	4634.9	+2024.9	+2027.9		
2239.5	4469.0	2284.1	−325.9	+1889.0		9
1566.2	3902.6	1589.8	−1020.2	+1322.6		
856.4	3449.3	826.8	−1783.2	+869.3		
	3261.2	159.4	−2450.6	+681.2	y. +654.9 ✓ from 2 eqs.	17
763.8	2785.8	814.2	−1795.8	+205.8	x −1848.4 ✓ +1 div x because Est. + red. 15 mm + is meas 14 mm sec (b−A)	18
189.1	1967.3	176.5	−2433.5	−612.7		
936.6	1710.6	957.0	−1653.0	−869.4		25
1507.7	2331.7	1543.1	−1066.9	−248.3		
1725.0	1609.1	1746.6	−863.4	−970.9		
2199.0	1361.5	2219.4	−390.6	−1218.5		
2134.9	1875.7	2178.3	−431.7	−704.3		35
2931.4	1435.2	2959.8	+349.8	−1144.8		
2389.3	2243.1	2344.7	~~+~~−265.3	−336.9		
2392.6	2255.1	2341.4	−268.6	−324.9		
2308.1	2301.2	2320.7	−289.3	−278.8		
2212.4	2470.2	2206.0	−404.0	−109.8		
1973.4	2518.5	2024.2	−585.8	−61.5 ✓		d
2038.6	$2700.\overset{9}{8}$	2064.2	−545.8	+120.9		
2213.3	2708.2	2205.1	−404.9	+128.2	has been reduced with Est. 51 + is meas. from 51	
2384.7	2635.3	2349.3	−260.7	+55.3		
2728.7	2316.4	$274\overset{1}{2}.7$	+131.7	−263.6		
2640.4	2497.4	2619.6	+9.6	−82.6		
252[illegible].7	2584.1	2519.9	−90.1	+4.1		

D 4879

23.20

April 18, 1897

		x	y	A	B	C	D	a+c	B+D	c-a	B-D	c-a 2.03	B-D 2.03
✓ 4 89°	1			4	120	126	10	130	130	+12.2	+11.0	+24.8	+22.3
✓	2			19	~~27~~ 21	111	109	130	131	+9.2	-8.7	+18.7	-17.7
✓	3			120	5	10	~~122~~ 124	130	129	-11.0	-11.9	-22.3	-24.2
✓	4			70	99	59	31	129	130	-1.1	+6.8	-2.2	+13.8
✓	5			90	9	40	121	130	130	-5.0	-11.2	-10.2	-22.7
✓	5a			37	60	92	70	129	130	+5.5	-1.0	+11.2	-2.0
✓	6			79	118	50	12	129	130	-2.9	+10.6	-5.9	+21.5
✓	9			119	70	10	60	129	130	-10.9	+1.0	-22.1	+2.0
✓	12			94	39	35	91	129	130	-5.9	-5.2	-12.0	-10.6
✓	16			28	120	101	10	129	130	+7.3	+11.0	+14.8	+22.3
✓	17			66	130	62	130	128	260	-0.4	0.0	-0.8	00
✓	18			129	70	130	60	259	130	+.1	+1.0	+0.2	+2.0
✓	23			111	14	19	115	130	129	-9.2	-10.1	-18.7	-20.5
✓	25			90	127	40	3	130	130	-5.0	+12.4	-10.2	+25.2
✓	26			108	25	21	106	129	131	-8.7	-8.1	-17.7	-16.4
✓	29			90	117	39	13	129	130	-5.1	+10.4	-10.4	+21.1
✓	31			90	80	40	50	130	130	-5.0	+3.0	-10.2	+6.1
✓	35			120	109	10	21	130	130	-11.0	+8.8	-22.3	+17.9
✓	36			101	27	28	105	129	132	-7.3	-7.8	-14.8	-15.8
✓	37			10	110	120	20	130	130	+11.0	+9.0	+22.3	+18.3
✓	a.			3	81	127	49	130	130	+12.4	+3.2	+25.2	+6.5
✓	b			81	99	49	31	130	130	-3.2	+6.8	-6.5	+13.8
✓	c			55	70	74	60	129	130	+1.9	+1.0	+3.9	+2.0
✓	d			126	81	3	49	129	130	-12.3	+3.2	-25.0	+6.5
✓	e			97	20	31	110	128	130	-6.6	-9.0	-13.4	-18.3
✓	f			54	3	75	127	129	130	+2.1	-12.4	+4.3	-25.2
✓	g			24	55	105	75	129	130	+8.1	-2.0	+16.4	-4.1
✓	h			81	60	49	70	130	130	-3.2	-1.0	-6.5	-2.0
✓	k			39	4	96	126	129	130	+5.1	-12.2	+10.4	-24.8
✓ 23.40	l			54	41	76	85	130	131	+2.2	-3.9	+4.5	-7.9

(a+c)
4011/31 = 129.4

(B+D)
4033/31 = 130.1

		Cor. x	Cor. x -2610.	Corr. y -2580.		
3180.8	2660.3	3131.2	+ 521.2	+ 80.3"		
5120.9	3804.9	5083.5	+2473.5	+ 1224.9		
3291.5	3495.8	3336.1	+ 726.1	+ 915.8	+ 863.2 ✓ – 1 div because Est. + red. 66 + is meas from 65. See (B–R)	3
3627.2	3615.6	3631.6	+1021.6	+ 1035.6		
4145.2	3915.1	4165.6	+1555.6	+ 1335.1		
4114.0	3947.0	4091.6	+1481.6	+ 1367.0		
4622.9	4607.3	4634.7	+2024.7	+ 2027.3		
2239.7	4469.0	2283.9	– 326.1	+ 1889.0		9
1566.0	3903.0	1590.0	–1020.0	+ 1323.0		
856.4	3449.3	826.8	–1783.2	+ 869.3		
157.0	3261.2	158.6	–2451.4	+ 681.2	+ 654.9 ✓ from 25q1.	17
~~789.2~~	2785.8	788.8	– ~~1821.2~~	+ 205.8	– 1847.5 ✓ from 25q1.	18
139.1	1966.7	176.5	–2433.5	– 613.3		
936.6	1710.6	957.0	– 1653.0	– 869.4		25
1507.7	2330.8	1543.1	– 1066.9	– 249.2		
1725.4	1609.5	1746.2	– 863.8	– 970.5		
2199.0	1361.5	2219.4	– 390.6	– 1218.5		
2134.3	1875.7	2178.9	– 431.1	– 704.3		35
2930.8	1436.0	2960.4	+ 350.4	– 1144.0		
2389.3	2243.5	2344.7	– 265.3	– 336.5		
2393.2	2255.3	2341.8	– 268.2	– 324.7		
2307.9	2300.6	2320.9	– 289.1	– 279.4		
2213.1	2470.2	2205.3	– 404.7	– 109.8		
1973.8	2518.3	2023.8	– 586.2	– 61.7	✓	d
2038.0	2700.9	2064.8	– 545.2	+ 120.9		
2213.5	2707.8	2204.9	– 405.1	+ 127.8		
2383.4	2634.1	2350.6	– 259.4	+ 54.1		
2728.7	2316.4	2741.7	+ 131.7	– 263.6		
2640.4	2497.0	2619.6	+ 09.6	– 83.0		
2529.3	2585.3	2520.3	– 89.7	+ 5.3		

D4842 = Plate B

No. St.	No.	Σx	No.	Σy
p 6 Mis L Bk 7 1	30	3886	31	4026
p 8 Mis L Bk 7 to	11	1425	11	1430
p 10 Mis L Bk 7	30	3892	31	4030
p 10 this book	24	3088	24	3112
	95	1229.1	97	1259.8
		129.4		129.9

$\frac{263}{mean}$ = 2.032

$\frac{263}{mean}$ = 2.0246

Adopt 2.03 for x and y.

Table for constant 2.03

Plate Design	No. x	Sum	Mean	$\frac{26.3}{mean}$	no y	Sum	Mean	$\frac{26.3}{mean}$	
A	87	1127.2	129.6	2.029	87	1128.5	129.7	2.028	p33
B	95	1229.1	129.4	2032	97	1259.8	129.9	2.025	p32
C	577	747~~1.1~~0.8	129.5	2.031	581	7545.~~1~~0	129.9	2.025+	p33
C	76	987.8			77	999.2			
D	91	1177.9	129.4	2032	92	1196.1	130.0	2023	p23
E	581	7518.2	129.4	2032	582	7566.6	130.01	2023	p22
E	92	1191.0	129.5		90	1167.1	129.7		p23

D4915 = Plate A

	Bk	page	No.	Σx	No.	Σy
Cat + Set.	5	170	29	3760	29	3756
" "		172	29	3757	29	3768
" "		174	29	3755	29	3761
		176	~~11~~	~~1422~~	~~11~~	~~1429~~
			87	11272	87	11285
				129.56		129.66

263 / Mean = ·2029

263 / Mean = 2.029

Adopt 2.03

Plate C.

			No.	Σx	No.	Σy
Cat. Stars	this bk	12	24	3139	25	3235
	7 ~~8~~	4	31	4019	30	3901
Cat + Set ..	5 ~~8~~	176	21	2720	22	2856
			76	9878	77	9992

D4849 = Plate C

additional meas. not included here.

Bk	page	No.	Σx	No.	Σy
8 ~~5~~	126	22	2845	23	2984
	128	26	3364	28	3637
	130	24	311~~4~~ 0	24	3124
	132	20	2592	20	2599
	134	26	3367	26	3376
	136	27	3495	26	3374
	138	25	3233	24	3122
	140	27	3501	27	3503
	142	27	3497	29	3771
	144	23	2971	24	3116
	146	31	4015	32	4155
	148	26	3365	27	3505
	150	27	3491	26	3374
	152	29	3756	29	3766
	154	26	3366	25	3249
	156	29	3754	30	3893
	158	28	3627	28	3636
	160	28	362~~2~~ 3	28	3641
	162	27	3500	27	349~~9~~ 8
	164	28	3633	26	3374
	166	28	3626	28	3636
	168	23	2977	24	3117
this book	12	24	3139	25	3235
6	4	31	4019	30	3901
this book	14				
3	176	577	747~~11~~ 08	581	7545~~1~~ 0
			129.5		129.9

263 / Mean = 2.031

2.025 +

Results of Measures on Plates A. B. C. D. E (p 36)

Dm no +89°	Plate D 49.5 = A Mean x from 3 measures	Mean y	Final Values A Mean x	Mean y	Plate D 4242 = B Mean x from 3 measures	Mean y	Final Values B Mean x	Mean y
1	+ 520.1	+ 79.4			+523.7	+ 82.2		
2	——	+ 1225.3	——	+1225.2 (4)	+2473.2	+1225.6	+2473.4	+1226.0 (4)
3	+ 726.2	+ 862.6	+726.2	+862.8 (4)	+ 729.7	+ 865.5		
4	+1021.5	+ 1035.1			+1024.8	+ 1036.1		
5	+1555.2	+ 1335.2			+1557.3	+1336.9		
5a	+1480.9	+ 1364.7			+1482.9	+1368.1	+1482.8	+1368.3 (4)
6	+2021.3	+ 2027.8			+2026.4	+2030.4		
9	− 326.2	+ 1888.7			−324.2	+1888.8		
12	−1021.5	+ 1322.0			−1017.8	+1322.4		
16	−1786.6	+ 868.0			−1781.4	+ 86~~9.1~~ 8.8 *		
17	−2453.6	+ 651.2			−2448.6	+ 654.3	−2449.4	+654.5 (3) +654.4 (3)
18	−1850.3	+ 202.6	−1850.4	+202.1 (3)	−1845.8	+ 205.8		
23	−2435.9	− 619.3			−2430.2	− 613.~~3~~ 6 *		
25	−1654.4	− 874.1			−1650.7	− 869.3		
26	−1069.3	− 251.5			−1065.6	− 248.8		
29	− 864.1	− 974.9			− 860.4	− 969.5		
31	− 391.2	−1222.5			− 387.6	−1218.5		
35	− 432.1	− 708.4			−429.6	−704.2		
36	+ 350.1	− 1146.8			+ 353.8	−1142.1		
Σ								
37	− 265.3	− 340.1			−261.9	−336.4		

pp38-79 Data for 1st Least Sq. Sol in black ink * used before checked in 1st Least Sq. Sol

pp140 " " 2 " " " " red all data ch kd

Dec 22 1900 Error of ".4 in y found on p80 PRB which changes means ".1 only. The

Jan 18 1901 See Table I of Mss for the checked data from which these results may be obtain.

uncorrected values i.e. before Least Sq Sol.

Plate D 4849 = C Mean x from 3 measures	Mean y	Seidel Values C Mean x	Mean y	Plate 4879 = D Mean x from 3 measures	Mean y	
+523.9	+ 81.4	+523.8	+81.3 (4)	+521.5	+80.6	In Cases of discordant measures
+2473.8	+ 1227.5	+2473.8	+1227.4 (4)	+2473.4	+1225.0	no errors found in clicking. ∴
+ 728.9	+ 864.4	+ 729.2	+864.3 (4)	+ 726.2	+ 863.5	no remeasures
+1025.2	+ 1036.7	+1025.2	+1036.5 (4)	+1021.9	+ 1035.3	no recomputation
+1557.2	+ 1337.1			+1555.6	+1335.3	necessary
+1482.4	+ 1367.6 (2)	+1482.5	+1368.0 (3)	+1481.3	+1367.0	
+2025.8	+ 2030.2			+2024.8	+2027.8	
− 322.7	+ 1887.7			− 325.9	+1888.9	
−1016.9	+1322.4	−1016.8	+1322.4 (4)	−1019.8	+1322.9	
−1780.7	+ 867.6	−1780.7	+ 867.5 (4)	−1783.1	+ 869.3	
−2446.4	+ 653.7			−2450.8	+ 654.8	
−1844.2	+ 205.5			−1848.3	+ 205.8	
−2427.8	− 614.1 (2)	−2427.8	−614.0 (3)	−2433.5	−613.1	
−1648.9	− 869.9			−1653.0	− 869.1	
−1064.4	− 248.5	−1064.4	−248.5 (4)	−1067.2	−248.8	
− 859.9	− 969.8	− 859.8	−969.6 (4)	− 863.7	−970.6	
− 386.8	− 1218.2	− 386.8	−1218.2 (4)	− 390.6	−1218.5	
− 427.4	− 703.7	− 427.5	− 703.8 (4)	− 431.4	− 704.4	
+ 353.9	− 1142.0	+ 354.0	−1141.4 (3)	+ 350.3	−1144.5	
− 261.0	− 336.4	− 261.0	− 336.4 (4)	− 265.3	− 336.8	

note July 8th 1897 Plate B In Recomp of 1st Sol. Nos 16 + 23 corrected values of y-y used
" July 12 " Plate E " " " " 6 the " " x-x "

red ink values was used in 2 Least Sq Sol.

The means + residuals were first done in single sheets. See supplementary envelope.

Data for (both) Least Sq Solutions

Plate D 4885 = E   Final Values E 2

No. +890	mean x from 3 measures	1st mean y	E 2		Plate A x-X	Plate A y-Y	B x-X	B y-Y
1	+521″.5	+80″.4	+521″.5	+80″.4 (4)	-3″.8	+6″.4	-0″.2	+3″.2
2	+2472.8	+1225.4	[illegible]	[illegible]	—	+3.1 +3.0	-1.1 -0.9	+3.4 +3.8
3	+726.6	+863.5	+726.5	+863.2 (5) ?	-2.4 -2.4	+3.9 +4.1	+1.1	+6.8
4	+1021.6	+1035.3	+1021.8	+1035.2 (4)	-3.2	+3.5	+0.1	+4.5
5	+1555.5	+1335.4			-0.9	+1.2	+1.2	+2.9
5a	+1481.3	+1367.0						
6	+2024.6 7*	+2028.4			-2.1	+2.4	+3.0	+5.0
9	-325.8	+1888.9			-2.4	+4.3	+0.4	+4.4
12	-1019.6	+1323.0	-1019.6	+1323.0 (4)	-4.4	+2.3	-0.7	+2.7
16	-1783.1	+869.4			-6.1	+2.5	-0.9	* ~~+3.6~~ +3.3
17	-2450.6	+654.6			-7.2	+2.2	~~-2.2~~ -3.0	+5.3 +5.5
18	-1847.3	+205.9			-4.4 -4.5	+3.1 +2.6	+0.1	+6.3
23	-2432.3	-613.4	-2432.2	-613.1 (4)	-6.6	-2.7	-0.9	* ~~+3.3~~ +3.0
25	-1652.8	-869.7			-7.0	-3.1	-3.3	+1.7
26	-1067.3	-248.3	-1067.4	-248.3 (4)	-4.6	-0.8	-0.9	+1.9
29	-863.5	-970.7	-863.6	-970.6 (4)	-3.1	-0.6	+0.6	+4.8
31	-390.6	-1217.7	-390.6	-1218.4 (4)	-2.5	-2.0	+1.1	+2.0
35	-431.4	-704.4			-2.3	-1.1	+0.2	+3.1
36	+350.7	-1144.9	+350.8	-1144.9 (4)	-2.9	+1.5	+0.8	+6.2
37	-265.3	-336.7	-265.2	-336.6 (4)	-2.9	+0.4	+0.5	+4.1

Residuals used in 1st Least Square Solution in black ink * used before checked in

" 2 " " " red "

Note: The final measured values of mean x and mean y are the
in red ink; for these a 4th measure has been made either because th
the mean of the 3 original measures equalled or exceeded

		Final Values						Final Values		
C		C		D		E		E		Dm
x-X	y-Y	x-X	y-Y	x-X	y-Y	x-X	y-Y	x-X	y-Y	+89
0.0″	+2.4″	-0.1″	+2.3	-2.4″	+1.6″	-2.4″	+1.4″	-2.4″	+1.4″	1
-0.5	+5.3	-0.5	+5.2	-0.9	+2.8	-1.5	+3.2			2
+0.3	+5.7	+0.6	+5.6	-2.4	+4.8	-2.0	+4.8	-2.1	+4.5	3
+0.5	+5.1	+0.5	+4.9	-2.8	+3.7	-3.1	+3.7	-2.9	+3.6	4
+1.1	+3.1			-0.5	+1.3	-0.6	+1.4			5
										5a
+2.4	+4.8			+1.4	+2.4	+1.~~2~~3 *	+3.0			6
+1.1	+3.3			-2.1	+4.5	-2.0	+4.5			9
+0.2	+2.7	+0.3	+2.7	-2.7	+3.2	-2.5	+3.3	-2.5	+3.3	12
-0.2	+2.1	-0.2	+2.0	-2.6	+3.8	-2.6	+3.9			16
0.0	+4.7			-4.4	+5.8	-4.2	+5.6			17
+1.7	+6.0			-2.4	+6.3	-1.4	+6.4			18
+1.5	+2.5	+1.5	+2.6	-4.2	+3.5	-3.0	+3.2	-2.9	+3.5	23
-1.5	+1.1			-5.6	+1.9	-5.4	+1.3			25
+0.3	+2.2	+0.3	+2.2	-2.5	+1.9	-2.6	+2.4	-2.7	+2.4	26
+1.1	+4.5	+1.2	+4.7	-2.7	+3.7	-2.5	+3.6	-2.6	+3.7	29
+1.9	+2.3	+1.9	+2.3	-1.9	+2.0	-1.9	+2.8	-1.9	+2.1	31
+2.4	+3.6	+2.3	+3.5	-1.6	+2.9	-1.6	+2.9			35
+0.9	+6.3	+1.0	+6.9	-2.7	+3.8	-2.3	+3.4	-2.2	+3.4	36
+1.4	+4.1	+1.4	+4.1	-2.9	+3.7	-2.9	+3.8	-2.8	+3.9	37

bed in 1st Least. Sq. Sol. See Notes p 35 on Plate B Revises plans 16 + 23 y-Y
" " " C " " C x-X

the same as those used in the 1st Least. Sq. Solution except for the cases
cause the star was within 30′ of N. pole or because the residuals from
1.0 in x or y. see list p 84

4885
~~D4878~~

Least Square Comp for a. b. c ~~D4878~~ 4885

X' = ax + by + c

x coeff c

		(1)		(2)	(3)		(4)	(5)	(19)
		x − X		mean Obs x / 100	mean Obs y / 100	$(\frac{X}{100})^2$	Computed Values X / 100	Y / 100	$\frac{Y^2}{100}$
Dec +89°	1	−2.4″	=	+5.2 a	+0.8 b + c		″	″	
	2	−1.5	=	+24.7	+12.3			+12.2	148.8
	3	−2.0	=	+7.3	+8.6				
	4	−3.1	=	+10.2	+10.4			+10.3	106.1
	5	−0.6	=	+15.6	+13.4			+13.3	176.9
	6	+1.~~7~~3	=	+20.2	+20.3			+20.2	408.0
	9	−2.0	=	−3.3	+18.9	10.2	−3.2	+18.8	353.4
	12	−2.5	=	−10.2	+13.2				
	16	−2.6	=	−17.8	+8.7			+8.6	
	17	−4.2	=	−24.5	+6.5				
	18	−1.4	=	−18.5	+2.1			+2.0	4.0
	23	−3.0	=	−24.3	−6.1			−6.2	38.4
	25	−5.4	=	−16.5	−8.7				
	26	−2.6	=	−10.7	−2.5	112.4	−10.6	~~10.6~~	
	29	−2.5	=	−8.6	−9.7				
31 ? 3	31	−1.9	=	−3.9	−12.2				
	35	−1.6	=	−4.3	−7.0			−7.1	50.4
	36	−2.~~8~~3	=	+3.5	−11.4			+11.5	132.2
Σ		+ 1.2 − 41.6		+ 86.7 − 142.6	+ 115.2 − 57.6				
		− 40.4	=	− 55.9	+ 57.6 + 18 c		−55.7		

omitted 3 meas used in x + y
a 4th meas taken in y

$\frac{40.7}{18}$ Mean (x − X) − 2.~~3~~2″ − ~~40.4~~ 3* = − 55.7 + ~~57.9~~ 6.6 + 18. c

Equations for a b c with Observed Values ~~for~~ as coefficients

− 40.4″ = − 55.9″ a + 57.6″ b + 18″ c

+ 343.9 = + 3917.0 a + 985.9 b − 55.9 c

− 20.3 = + 985.9 a + 2120.5 b + 57.6 c

~~(x−X)X~~ (7) | (X/100)² (9) | XY/100 (11) | X/100 (13) sec(4) | (x−X)Y (15) | XY/100 (17) sec(11) | (Y/100)² (19) | Y/100 (21) sec(5)

x coeff a (6) (x − X) x ″ =	(8) (x²/100) ″	(10) xy/100 ″	(12) sec(2) ~~x/100~~	x coeff b (14) (x − X) y ″ =		(16) sec(10) xy/100	(18) (y/100)² ″	(20) sec(3) y/100
−12.5 =	+27.0 a	+4.2 b	+ ~~24~~ 5.0 c see col 2	−1.9 =		+4.2	+0.6	+0.8
−37.0	+610.1	+303.8	+301.3	−18.4	−18.3	omit here see col 10	+151.3	+148.8 omit here see col 3
−14.6	+53.3	+62.8		−17.2			+74.0	
−31.6	+104.0	+106.1	+105.1	−32.2	−31.9		+108.2	+106.1
−9.4	+243.4	+209.0	+207.5	−8.0			+179.6	+176.9
~~+24.2~~ +26.3*	+408.0	+410.1	+408.0	+24.4	+24.3 26.3*		+412.1	+408.0
+6.6 +6.4	+10.9 +10.2	−62.4	−60.2	−37.8	−37.6		+357.2	+353.4
+25.5	+104.0	−134.6		−33.0			+174.2	
+46.3	+316.8	−154.9	−153.1	−22.6	−22.4		+75.7	+74.0
+102.9	+600.2	−159.2		−27.3			+42.2	
+25.9	+342.2	−38.8	−37.0	−2.9	−2.8		+4.4	+4.0
+72.9	+590.5	+148.2	+150.7	+18.3	+18.6		+37.2	+38.4
+89.1	+272.2	+143.6		+47.0			+75.7	
+27.8 +27.6	+114.5 +112.4	+26.8	+26.5	+6.5			+6.2	
+21.5	+74.0	+83.4		+24.2			+94.1	
+7.4	+15.2	+47.6		+23.2			+148.8	
+6.9	+18.5	+30.1	+30.5	+11.2	+11.4		+49.0	+50.4
−8.0	+12.2	−39.9	−40.2	+26.2	+26.4		+130.0	+132.2
+457.0	+3917.0	+1575.7	+1571.2	+181.0	+181.6 (3)		+2120.5	~~+2109.7~~
−113.1		−589.8	~~−588.3~~ 4	−201.3	−200.6 4			
+343.9 =		+985.9		−20.3 =				
+343.5 =	+3914.2 a	+ 98~~8~~6.9 b		− ~~19.0~~ ~~18.8~~	−16.8*			+2108.0 ✓

*+345.6

see p 52 for a b c re

with computed values as coefficients of a b c see pp 54–5~~5~~7

−40.4″ = −55.7″ a

+343.5 =

× changed after 15

* with star 6 corrected from +1.2″ to +1.3″ x − X

Least. Sq. Comp. for a' b' c' D ~~4878~~ 4885

$\mathfrak{Y} = a'y - b'x + c'$

$y - \mathfrak{Y} = +y - x$

Oct 89 ⁺ °	1	√ +1.4 =	+0.8a'	− 5.2b'	+ c'
	2	+3.2 =	+12.3	− 24.7	
	3	+ +4.$\overset{8}{7}$ =	+ 8.6	− 7.3	
	4	+3.7 =	+10.4	− 10.2	
	5	+1.4 =	+ 13.4	− 15.6	
	6	+3.0 =	+20.3	− 20.2	
	9	+4.5 =	+18.9	+ 3.3	
	12	+3.3 =	+13.2	+ 10.2	
	16	+3.9 =	+8.7	+ 17.8	
	17	+5.6 =	+6.5	+24.5	
	18	+6.4 =	+2.1	+18.5	
	23	+3.2 =	−6.1	+24.3	
	25	+1.3 =	−8.7	+16.5	
	26	+2.4 =	−2.5	+10.7	
	29	+3.6 =	−9.7	+8.6	
* See p 38 for note	31	+2.8 =	−12.2	+ 3.9	
Recomp.? if changed.	35	+2.9 =	−7.0	+4.3	
	36	+3.4 =	−11.4	−3.5	
		+ 60.7 8	+ 115.2	+142.6	
		−	− 57.6	− 86.7	
			+ 57.6	+ 55.9	

$\frac{+60.7}{18}$ Mean $(y-\mathfrak{Y})$ + 3.4"

~~* Recomp. not made~~

× coeff b' $(y - y)x$		$\frac{xy}{100}$	$\left(\frac{x^2}{100}\right)$	$\frac{x}{100}$	× coeff a' $(y - y)y$		$\left(\frac{y}{100}\right)^2$	$\frac{xy}{100}$	$y/100$
∓ 7.3″	=	−4.2	+27.0	−5.2	+1.1	=			
−79.0	=				+39.4	$+39.\overset{0}{3}$			
−34.3					+40.4				
−37.7					+38.5	+38.1			
−21.8					+18.8	+18.6			
−60.6					+60.9	+60.6			
+14.8	+14.4				+85.0	+84.6			
+33.7					+43.6				
+69.4					+33.9	+33.5 *			
+137.2					+36.4				
+118.4 stet					+13.4	+12.8			
+77.8					−19.5	−19.8			
+21.4					−11.3				
+25.7	+25.4				−6.0				
+31.0					$-\overset{4.9}{35.0}$				
+10.9					−34.2				
+12.5					−20.3	−20.6			
−11.9					−38.8	−39.1			
+ 552.8					+ 411.4				
− 252.6					− 165.0				

$+300.\overset{0}{2} = -985.9a' + 3917.0b' + 55.9c'$ $\quad +24\overset{4}{6.3} = +2120.5a' - 985.9b' + 57.6c'$

+300.2 $\qquad$ ~~+243.2~~

+299.5 = $\qquad$ +242.8

D ~~4878~~ 4885

X

Least. Sq. Equations for a, b, c Coefficients a b c a′b′c′ =

× coeff c $-40''.4 = -55''.9a + 57''.6b + 18''c$

.. .. a $+343.9 = +3917.0 + 985.9 - 55.9$

.. .. b $-20.3 = +985.9 + 2120.5 + 57.6$

						c
$-2.2 =$	$-3.1a$	$+3.2b$	$+c$	$-.16''$	$+.07''$	-2.11
$+6.2 =$	$+70.1$	$+17.6$	$-c$	$+3.68$	$+.40$	-2.12
$-0.4 =$	$+17.1$	$+36.8$	$+c$	$+.90$	$+.85$	-2.15
						-2.13

$+4.0 = +67.0a + 20.8b$

$+5.8 = +87.2a + 54.4b$

$+.192 = +3.221a + b$ $+.169$ $b = +.023$

$+.107 = +1.603a + b$ $+.084$ $+.023$

$+.085 = +1.618a$

$a = +.0525$

$a = +.0525'' \times .01$

$b = +.023$ " "

$c = -2.1$

*

For final Values see p 48
with Observed Values as Coefficients of
a b c - a′ b′ c′

$V = a'y^{2} - b'x + c'$

[illegible] Equations for a′ b′ c′

× coeff c′ $+60.\overset{8}{7}'' = +57.6''a' +55.9''b' +18''c'$

" b′ $+300.\overset{2}{4} = -985.9a' +3917.0b' +55.9c'$

" a′ $+246.\overset{4}{3} = +2120.5a' -985.9 +57.6c'$

c′

$+3.4 ✓ = +3.2a' +3.1b' +c' +.18 +.14 = +3.08$

$+5.4 ✓ = -17.6a' +70.1b' +c' -.97 +3.29 \quad 3.08$

$+4.3 ✓ = +36.8a'$ [illegible]$7.1b' +c' +2.02 -.80 \quad 3.08$

$+3.08$

$-2.0 = +20.8a' - 67.0b'$

$+1.1 " = -54.4a' + 87.2b'$

a′

$-.096 = a' - 3.221b' \quad -.151 = +.055$

$+.020 = -a' + 1.603b' \quad +.075 = +.055$

$-.076 \quad -1.618b'$

$b' = +.047''$

$a' = +.055'' \pm .01$

$b' = +.047 \quad "$

$c' = +3.1$

approx $c = -2''.3$ & $c' = +3''.4$ pp38+40

4885
D ~~4878~~

reject
$a = +0''.047$
$b =$ ~~+.040~~ +.028
$c =$ ~~−2.3~~ −2.2

Residuals;

Dm 85°	$(x-\bar{x})-2.3$ x	2.2	$(y-\bar{y})+3.4$ y		O−C x	
1	−0.1″	−.2	−2.0″		−.8″	−.4″
2	+.8	+.7	−.2		−.6	−.8
3	+.3	+.2	+.7		−.2	−.3
4	−.8	−.9	+.3		~~−.5~~	−1.7
5	+1.7	+1.6	−2.0		+.7	+.5
5a						
6	+3.5	+3.4	−.4		+ ~~2.2~~	+1.9
9	+.3	+.2	+1.1		−.8	−.9
12	−.2	−.3	−.1		.0	−.2
16	−.3	−.4	+.5		+.3	+.1
17	−1.9	−2.0	+2.2		−.8	−1.0
18	+.9	+.8	+3.0		~~+1.8~~	+1.7
23	−.7	−.8	−.2		+.5	
25	−3.1	−3.2	−2.1		−2.1	
26	−.3	−.4	−.7		+.2	
29	−.2	−.3	+.2		+.4	
31	+.4	+.3	−.6	−8.8 +8.0	+.8	
35	+.7	+.6	−.5		+1.0	−7.7 +7.1
36	−.0	−.1	.0	±16.8/18	−.3	±14.5/18	±14.8/18
37	−.6		+.4			
	−7.6 +8.6 ±16.2/18	−8.6 +7.8 ±16.4				±0.8″	±0.82″

Ao.D. 18 stars $x = \pm 0''.92$ $y = \pm 0''.93$

0.91

Sent to N.Y.
Apr. 17 1897

1 Solutions X

4885 = Σ
D 4878

1st Sol. I
a = +0.052
b = +0.022
c = −2″.1
} p42

2° Sol II
a = +0″.050
b = +0.026
c = −2.2
} p48

3° Sol. III
a = +0.053
b = +0.021
c = −2.0
} p52

See also p66-67 for

1900 +89		Obs. x − X		ax		by	c	c	Comput. = Σ	O − C 1st in x	2nd in x	No. Authorities Vol X VIII IX	3rd
0h	1	−2″.4	=	+.3	.3	+0	−2″.1	−2″.2	−1″.8	−0″.6	−.5	(1)	−″.7
1h	2	−1.5	=	+1.3	1.2	+.3			−0.5	−1.0	−.8	(4)	−1.0
3h	3	−2.0	=	+.4	.4	+.2			−1.5	−0.5	−.4	(6)	−.6
3h	4	−3.1	=	+.5	.5	+.2			−1.4	−1.7	−1.6	(3)	−1.8
2h	5	−0.6	=	+.8	.8	+.3			−1.0	+0.4	+.5	(1)	+.3
3h	6	+1.2	=	+1.0	1.0	+.4 .5			−0.7	+1.9	+1.9	(1)	+1.7
5h	9	−2.0	=	−.2	.2	+.4 .5			−1.9	−.1	−.1		−.2
8h	12	−2.5	=	−.5	.5	+.3			−2.3	−.2	−.1	(3)	−.3
10h	16	−2.6	=	−.9	.9	+.2			−2.8	+.2	+.3		+.1
11h	17	−4.2	=	−1.3	1.2	+.1			−3.3	−.9	−.9	(4)	−1.0
11h	18	−1.4	=	−1.0	.9	+0			−3.1	+1.7	+1.7	(5)	+1.6
12h	23	−3.0	=	−1.3	1.2	−.1			−3.5	+.5	+.5		+.4
13h	25	−5.4	=	−.9	.8	−.2			−3.2	−2.2	−2.2	(2)	−2.3
12	26	−2.6	=	−.6	.5	−0			−2.7	+.1	+.1 ~~−.27~~	(1)	.0
15h	29	−2.5	=	−.4	.4	−.2			−2.7	+.2	+.3		+.1
16h	31	−1.9	=	−.2	.2	−.3			−2.6	+.7	+.8		+.5
15h	35	−1.6	=	−.2	.2	−.2			−2.5	+.9	+1.0		+.7
19h	36	−2.3	=	+.2	.2	−.2			−2.1	−.2	−.1	(1)	−.3
										−7.4 +6.6 ±14.0	−.67 +.71 ±1.38		−.82 +.54 ±13.6
										±0″.78	±0.77		±076

For final value se

3 [illegible]

15	37	−2.9	=	−.1	−.1	−.1 −.1	−2.1	−2.2	−2.4 ~~−2.3~~	−.6	−.5 ~~−.5~~		−0.4

1st 2nd 3rd in x

Are 1st Sol. data — i.e. before remeasures made p 80 &c

" I 1st solution with Obs. $x/_{100} + y/_{100}$ in equations Sol. made in x + y

" II 2 .. .. Cu " " " .. " " x only

" III 3 .. .. Computed $x/_{100} + y/_{100}$ " .. .. x + y

Final Values 1st Solution in x + y → with slow b x − x corrected
I III

Y

a' = +.″055
b' = +.047
c' = +3.1
} p43

a' = +.″055
b' = +.046
c' = +3.1
} p53

Obs. y − Y		a'y	− b'x		c'	Comp. Σ		O − C ρ	
+1.″4	=	+.″0	−.″2		+3.″1	+2.″9		−1.″5	
+3.2	=	+.7	−1.2	−1.1		+2.6	+2.7	+.6	+.5
+4.~~7~~8	=	+.5	−.3			+3.3		+1.~~4~~5	
+3.7	=	+.6	−.5			+3.2		+.5	
+1.4	=	+.7	−.7			+3.1		−1.7	
+3.0	=	+1.1	−.9			+3.3		−.3	
+4.5	=	+1.0	+.2	+.1		+4.3	+4.2	+.2	+.3
+3.3	=	+.7	+.5			+4.3		−1.0	
+3.9	=	+.5	+.8			+4.4		−.5	
+5.6	=	+.4	+1.2	+1.1		+4.7	+4.6	+.9	+1.0
+6.4	=	+.1	+.8			+4.0		+2.4	
+3.2	=	−.3	+1.1			+3.9		−.7	
+1.3	=	−.5	+.8			+3.4		−2.1	
+2.4	=	−.1	+.5			+3.5		−1.1	
+3.6	=	−.5	+.4			+3.0		+.6	
+2.8	=	−.7	+.2			+2.6		+.2	
+2.9	=	−.4	+.2			+2.9		.0	
+3.4	=	−.6	−.2			+2.3		+1.1	

+~~7.7~~8.0
−8.9
±16.~~8~~9

±0.″94

+.88
−.89
±17.70

±0.″964
final

see pp 66-67 = Corrected 1st Solution Σ.

37 +3.8 = −.2 +.1 +3.0 +0.8 +0.8

1st Sol. I — 3 in y III — 3 Sol III

X

~~D 4878~~ 4885

Recomputation of a, b, c p42 Coeffs = Obs. values x + y

a = +.050 +.05029
b = +.026

						c
−2.24″	=	−3.1 a	+3.2 b	+c	−.16″ +.08″	−2.16 4
+6.15	=	+70.1 a	+17.6 b	−c	+3.50 2 +.46	−2.19
−0.35	=	+17.1 a	+36.8 b	+c	+.86 +.96	−2.17
						−2.17

+3.91 √ =

+5.80 √ =

logs

0.59218 = 1.82607 a 1.31806 b

0.76343 = 1.94052 a 1.73560 b

8.76611 = a 9.49199 b 7.90705

8.82291 = a 9.79508 b 8.21014
8.41506

					a
+.05836	=	+a	+.3105 b	+.00807	+.05029
+.06651	=	+a	+.6239 b	+.01622	+.05029
−.00815	=	−	0.3134 b		

7.91116 n
9.49610 n

log b 8.41506

b +0.02601

a = +.050 x 01
b = +.026 ..
c = −2.2″

angle b = 6.41506 0° 0′ 45.5″ approx angle
4.68557
1.72949 0 0 53.6 = angle b.

p46 in red ink = II 2° Solution
(Residuals with values a b c from this Solution)

In II 2° Solution in y   not necessary   see values c'

4885 = Σ
D 4878

Constants from Obs. Coeffs = x.y: a = +.050 ×.01, b = +.026 ×.01, c = −2.2 (p48)
from Computed Coeffs = X Y: a = +.053 ×.01, b = +.021 ×.01, c = −2.0 (p52)

		Obs x	a x	b y	c	Obs x − Σax+by+c = Obs x′	6	O−C x
1st Quad	5	+1555.5 =	+.8	+.3	−2.0	+1556.4	+1556.1	+.3 √ +.7 y
+89	5a	~~+4091.3~~	~~+204.6~~	~~+1026~~	~~−2.2~~	+1482.4	constants from Obs. x & y	
		+1481.3 =	+.741	+.355	−2.2			
off D4878 85	7		+.785	+.287	−2.0	+1482.3	" " Comp. X−Y	
2nd Quad	19 (12)	−1019.6 =	−.5	+.3	−2.0	−1017.4	−1017.1	−.3 f × & y
	21							
	24						see pp 46-47 & p66	
	28							
	32							
no y scale	33							
no x or y "	34							
4th Quad	36	+350.7	+.2 ~~+.1~~	−.2	−2.0	const. fr. Comp. X Y +352.8 7 2.9	+353.0	−.3 ~~+.2~~
3rd Quad	37	−265.3 =	−.133	−.088	−2.2	Const. fr. Obs. x & y −263.3	−262.4	−0.5
no y scale	38		−.141	−.071	−2.0	" " Comp. X Y −263.1		−0.7

*Note:
Subtract Σax + by + c from Obs x — See pp 66-67 for all plates
" Σa′y − b′x + c′ " Obs y

D 4879 = D

Constants from Computed Coeffs = X Y (of a.b.c & c)

a = +.058 6 ×.01
b = +.035 0 p56
c = −2.8 3

uncorr. x = Obs. − X = −.5
X = 6 see p6
corr x − X = O−C

see pp 58-59

		Obs x						
	5	+1555.6 =	+.4 1.1	+.5 4	−2.8 3	+1556.4 0 √	+1556.1	+.3 √
							see pp 58-59	
Dm +89	5a	+1481.3	+1.0	+.4	−2.3	+1482.2 √		
			~~+.859~~	~~+.478~~	~~−2.2~~	~~+1612.8~~	~~+1480.4~~ 2.2	
+89	37	−265.3	−.2	−.1	−2.3	−262.7	−262.4	−0.3
"			~~.154~~	~~.118~~ √		~~262.8~~ 2.9 262.8	~~−262.4~~	~~−0.9~~ ~~−0.4~~ .5
= A	5	+1555.2	+2.1	−.3	−3.2	+1556.6 √		
D 4915	5a	+1480.9 =	+2.0	−.3	−3.2	+1482.4		
see pp 68-69								
p70 a = +.136 ×.01 b = −.023 c = −3.2	37	= 265.3 =	−.4	+.1	−3.2	−261.8		+.6 √

pp 68-69

* pp 50-51 corrected according to note

D4878

Obs. Coeffs.
$a' = +.055 \times 01$
$b' = +.047 \times 01$ } p 43
$c' = +3.1$

Computed Coeff.
$a' = +.055 \times 01$
$b' = +.046 \times 01$ } p 53
$c' = +3.1$

$O - y'$

	Obs y	a′y	−b′x	c′	Obs y − 2a′y + b′x ± c′	C	O − C y	
5	+1335.4″	+.7	−.7	+3.1		+1332.3 +1334.0″	−1.7″	X & Y
	~~+3947.0~~	~~+21.7~~	~~−192.3~~	+3.1	~~+1375.7~~ +1363.8 }			const. for Obs. x & y
5a	+1367.0	+.752	−.696	+3.1				
		+.752	−.681	+3.1	+ ~~1377.1~~ +1363.8 }			Comp. X & Y
12	+1323.0	+.7	+.5	+3.1		+1318.7 +1319.7	−1.0	X & Y

	Obs y	a′y	−b′x	c′	O	C	O − C	
36	−1144.9	−.6	−2	+3.1	−1147.2 −339.7	−1148.3	+1.1	Comp. X & Y
37	−336.7 =	−18.5	+12.5	+3.1	−339.6	−340.5	+0.8 } +0.9	Const. for Obs. x & y
		−18.5	+12.2	+3.1	−339.7 ~~340.0~~ −339.7		+0.8 } +0.8 ~~0.9~~	Comp. X & Y

D4879 = Mar 10 1897

with Computed Coeffs.
$a' = +.050 \times 01$
$b' = +.054 \times 01$ } p 57
$c' = +3.0$

Obs y						
+1335.3	+.7	−.8	+3.0	+1332.4		−1.6
+1367.0	+.7	−.8	+3.0	= +1363.9 ~~1369.9~~	C	
−336.8	−.2	+1		−339.7 ~~339.9~~	−340.5	+0.8″ ~~0.6~~

D4915 = Nov. 29 1887

				c′		
5	+1335.2	+3.0	−1.5		+1333.6 ~~1333.5~~	
5a	+1364.7	+3.1	−1.4	+.6	1887.9 +1362.9 ~~1362.8~~	$\mu' = +.117''$
					1897.3 +1363.9	
					9.4 + 1.1	
37	−340.1	−.8	+.2		−339.7 ~~339.4~~ −339.6	+0.9 ~~0.8~~

p 71
$a' = +.225 \times 01$
$b' = +.099 \times 01$ ~~+.098~~
$c' = +.4$ ~~+.7~~

1st Sol
4885
D4878 = E

X

With Star 6 α-X corrected see red values
~~to be recomp here~~

Computation a b c, with Coefficients = Computed Values X and Y

check

x coeff c −40.4 (3) = −55.7 a +56.6 b +18 c −3.0 +1.2 −36.7 = −38.5

.. a +343.5 (56) = +3914.2 a +986.9 b −55.7 c +208.6 +208 +1136 = +343.0

.. b −18.8 (6) = +986.9 a +2108.0 b +56.6 c +526 +444 −115.5 = −18.5

a = +053
b = +021

c

−2.24 − 2.14 = −31 a +3.1 b + c −.16 +.06 −2.04

+6.20 + 6.17 = +70.5 +17.7 − c +3.74 +3.76 +.37 −2.04 2.06

− .30 − 0.33 = +17.4 +37.2 + c +.92 +.93 +.78 −2.04 2.03

−2.04

c

+3.96 +4.03 = +67.4 a +20.8 b − .16 +.08 −2.16

+5.90 +5.84 = +87.9 a +54.9 b +3.57 +.47 −2.16

+ .88 +.98 −2.16

0.60531 = 1.82866 1.31806 b

0.76641 = 1.94399 1.73957 b

8.77665 = a 9.48940 b 7.81253

8.323 13

8.82242 = a 9.79558 b 8.11871

a

+.05876 +.05979 = a +0.3086 b +.00~~649~~ 816 +.05~~3~~30 +.05060

+.06712 +.01644 = a +0.6246 b +.01~~344~~ 1652 +.05~~3~~30 +.05060

−.00836 −.00665 = −.3160 b

7.82282
9.49969
8.32313

+ .02645 b = +.02104

a = +.05~~33~~1 ×01
b = +.028
c = −2.0 (2)

1st Sol. Plate E recomputed in X because
of error in x − X star 6 (q.1) see p 38

For 2d Solution see p. 767 $\overline{-Y}$ Sign reversed before multiplying by $X/100$ see p. 40
∴ no recomp. necessary of 1st Solution

Comp. a' b' c' Coeffs = Computed values X + Y

see p. 41

Check:

× coeff c' $+60.8'' = +56.6a' \quad +55.7b' \quad +18c'$ $\quad +3.1 \quad +2.6 +55.3 \quad +61.0''$

.. b' $+299.5 = -986.9a' \quad +3914.2b' \quad +55.7c'$ $\quad -54.0 \quad +182.2 +171.0 = +299.2$

. a' $+242.8 = +2108.0a' \quad -986.9b' \quad +56.6c'$ $\quad \underline{+115.2 \quad -46.9 \quad \overset{+173.8}{+.05467}} = +242.1$

$a = +.055 \quad b = +.046 \quad +.04654 \quad c'$

$+ \; 3.38 = +3.1\,a' \quad +3.1b' \quad +c'$ $\quad +.17 \quad +.14$ $\quad +3.07'' \; +3.07$

$+ \; 5.38 = -17.7\,a' \quad +70.5b' \quad +c'$ $\quad -.97 \quad \overset{3.28}{+3.24}$ $\quad 3.11 \quad 3.07$

$+ \; 4.29 = +37.2\,a' \quad -17.4b' \quad +c'$ $\quad +2.\overset{3}{0}5 \quad -.\overset{81}{80}$ $\quad 3.04 \quad 3.07$

$+3.07$

$+ \; 2.00 = -20.8a' \quad +67.4b'$

$+ \; 1.09 = -54.9a' \quad +87.9b'$

0.30103 = 1.31806 1.82866

0.03743 = 1.73957 1.94399

$8.98297 = a' \quad 0.51060\,b' \quad 9.17846$

$8.29786 = a' \quad \overset{8.66786}{0.20442}\,b' \quad 8.87228$

$\qquad \qquad \qquad \qquad a'$

$+ \; .09615 = -a' \; +3.2404\,b' \quad +.15082 \quad +.05467$

$+ \; \underbrace{.01985} = \underbrace{-a' +1.6011\,b'} \quad +.07452 \quad +.05467$

$+ \; .07630 = \qquad +1.6393\,b'$

8.88252

$\underbrace{0.21466}$

8.66786 $b' = +.04654$

$a' = +.055'' \times .01$

$b' = +.046$

$c' = +3.1$

D4879 ~~old plate 1887~~ =D Coefficients = Computed X & Y.

Resids from old corr C = −2.4		x−X		X/100	Y/100	(X/100)²	(Y/100)²	(x−X)X/100	(x−X)Y/100
Dm+89° .0	1	−2.4″	=	+5.2″	+0.8″	27.0	0.6	−12.5″	−1.9″
+1.5	2	−0.9	=	+24.7	+12.2	610.1	148.8	−22.2	−11.0
.0	3	−2.4	=	+7.3	+8.6	53.3	74.0	−17.5	−20.6
−.4	4	−2.8	=	+10.2	+10.3	104.0	106.1	−28.6	−28.8
+1.9	5	−0.5	=	+15.6	+13.3	243.4	176.9	−7.8	−6.6
+3.8	6	+1.4	=	+20.2	+20.2	408.0	408.0	+28.3	+28.3
+.3	9	−2.1	=	−3.2	+18.8	10.2	353.4	+6.7	−39.5
−.3	12	−2.7	=	−10.2	+13.2	104.0	174.2	+27.5	−35.6
−.2	16	−2.6	=	−17.8	+8.6	316.8	74.0	+46.3	−22.4
−2.0	17	−4.4	=	−24.5	+6.5	600.2	42.2	+107.8	−28.6
.0	18	$-\overset{2}{\cancel{0}}.4$	=	−18.5	+2.0	342.2	4.0	$+\overset{44}{\cancel{7}}.4$	$-\overset{4}{\cancel{8}}.8$
−1.8	23	−4.2	=	−24.3	−6.2	590.5	38.4	+102.1	+26.0
−3.2	25	−5.6	=	−16.5	−8.7	272.2	75.7	+92.4	+48.7
−.1	26	−2.5	=	−10.6	−2.5	112.4	6.2	+26.5	+6.2
−.3	29	−2.7	=	−8.6	−9.7	74.0	94.1	+23.2	+26.2
+.5	31	−1.9	=	−3.9	−12.2	15.2	148.8	+7.4	+23.2
+.8	35	−1.6	=	−4.3	−7.1	18.5	50.4	+6.9	+11.4
−.3	36	−2.7	=	+3.5	−11.5	12.2	132.2	−9.4	+31.0
+8.8		−42.4		+86.7	+114.5			−98.0	$-19\overset{9}{\cancel{5}}.8$
−8.6		+1.4		−142.4	−57.9		579.5 ~~+427.5~~	~~+482.5~~	+201.0
±17.4						X²/100	Y²/100	~~+384.5~~ +100	$+\underset{1}{\cancel{5}}.2$
±0.97									
Σ		$-4\overset{3}{\cancel{1}}.0$	=	−55.7	+56.6	+3914.2	+2108.0		
	37	−2.9	=	−2.6	−3.4				

~~* Recomposite p/1 54 − 57~~ −56 &

Resids from approx d = +3.3″	y − Y	(y−Y)X	(y−Y)Y	XY/100
		″	″	
−1.7 ✓	+1″.6 =	+8.3	+1.3	+4.2
−.5	+2.8 =	+69.2	+34.2	+301.3
+1.5	+4.8 =	+35.0	+41.3	+ 62.8
+.4	+ 3.7 =	+37.7	+38.1	+105.1
−2.0	+ 1.3 =	+20.3	+ 17.3	+ 207.5
−.9	+2.4 =	+48.5	+48.5	+ 408.0
+1.2	+4.5 =	−14.4	+84.6	− 60.2
−.1	+3.2 =	−32.6	+42.2	− 134.6
+.5	+3.8 =	−67.6	+32.7	− 153.1
+2.5	+5.8 =	−142.1	+37.7	− 159.2
+3.0	+6.3 =	−116.6	+12.6	− 37.0
+.2	+3.5 =	− 85.0	− 21.7	+ 150.7
−1.4	+1.9 =	−31.4	−16.5	+ 143.6
−1.4	+ 1.9 =	−20.1	− 4.8	+ 26.5
+.4	+3.7 =	−31.8	−35.9	+ 83.4
−1.3	+2.0 =	−7.8	−24.4	+ $\overset{4}{8}$7.6
−.4	+2.9 =	−12.5	−20.6	+ 30.5
+.5	+3.8 =	+13.3	−43.7	− 40.2
−9.7		+232.3	+390.5	+1571.2 ✓
+10.2		$\overset{67.9}{-557.4}$	−167.6	−584.3 ✓
±19.9		3?942 ✓		
±1.11	+59.9 ✓	−32$\overset{9}{6}$.6	+222.9	+986.9 ✓

37 +3.7

$X' = ax + by + c$

or $x' = aX + bY + c$ adoptia

D4879=D Computed values X + Y in Equations for a, b, c.

p54

Check:

× coeff c − 4~~1~~3.0 = −55.7a + 56.6b + 18c − 3.8 + 1.7 − 41.1 = −43.2

a + ~~384~~ 421.5 = +3914.2a + 986.9b ~~+~~ −55.7c + 264.5 + 29.7 + 126.4 = +420.6

b + ~~5~~ 12 = +986.9a + 2108.0b + 56.6c + 66.7 + 63.4 − 128.5 = +1.6

C =

See p52 − 2.~~28~~ 39 = −.~~18~~ 21 + .~~11~~ 09 + c −2.2~~1~~ 7

+ ~~6.90~~ 7.57 = +4.~~6~~ 76 + .~~61~~ 53 − c −2.2~~1~~ 8

+ 0.0~~1~~ 2 = +~~1.44~~ 1.17 + 1.~~39~~ 12 + c −2.2~~1~~ 7

−2.27

+ ~~4.62~~ 5.18 =

+ ~~6.91~~ 7.59 =

0.71433 see p52

~~4.66464~~ = 1.82866 a

0.88024

~~0.84448~~ = 1.94399 a

.88567

~~8.83598~~ = 9.48940 b 7.96742

8.47802

~~8.90049~~ = 9.79558 8.27360

.93625

a

+.0~~6855~~ 7685 = a +.~~01071~~ .00928 +.~~05784~~ .06757

+.0~~7752~~ 8635 = a +.~~02168~~ 01878 +.~~05784~~ 06757

−.~~01097~~ = −.3160 b

−.00950

7.97772

~~8.04027~~

8.49969

~~8.54052~~ b = ~~+.03472~~

8.4780~~2~~3 b = +.03006

a = +.0~~7~~6 8 ×01

b = +.03~~5~~0 "

c = −2.~~2~~3

Sign of coeff b' reversed — $y' = a'y - b'x + c'$

∴ no Recomps necessary $y' = a'Y - b'X + c'$ adopted

See p55

check

$\text{coeff } c' \; +59.''9 = +56.6\,a' + 55.7\,b' + 18\,c'$ $\quad +2.8 \quad +3.0 \quad +54.0 = +59.''8$

$b' \; +329.6 = -986.9\,a' + 3914.2\,b' + 55.7\,c'$ $\quad -49.7 \quad +210.7 \quad +167.1 = +328.1$

$a' \; +222.9 = +2108.0\,a' - 986.9\,b' + 56.6\,c'$ $\quad +106.1 \quad -53.1 \quad +169.8 = +222.8$

$a' = +.050$
$b' = +.054$

c'

$+3.33 =$ $\quad +.16 +.17 + c'$ $\quad +3.00 \quad +3.00$

$+5.92 =$ $\quad \overset{.68}{-.89} + \overset{3.81}{3.80 + c'}$ $\quad +3.01 \quad +2.99$

$+3.94 =$ $\quad \overset{1.86}{+1.87} - \overset{.94}{.93 + c'}$ $\quad +3.00 \quad +3.02$

$+3.00$

$+2.59$
$+1.98$

$0.41330 = 1.31806\,a'$
$0.29667 = 1.73957\,a'$

$9.09524 = -a' \; 0.51060\,b' \quad 9.24264$
$8.55710 = -a' \; \overset{8.73204}{0.20442}\,b' \quad 8.93646$

a'

$+.12452 = -a' \quad +.17484 \quad +.05032$
$+.03607 = -a' \quad +.08639 \quad +.05032$
$+.08845 = +1.63936\,b'$

8.94670
0.21466
$8.73204 \quad b' = +.05383$

$a' = +.''050$
$b' = +.054$
$c' = +3.0$

a = +".058 +.068
b = +.035 +.030
c = −2.2 − 2.3

a' = +".050
b' = +.054
c' = +3.0

D 4879 Residuals:

		Obs.				C	O−C		
		x − X	ax	by	c	Σ = x'	x		
Dm +89°	1	−2.4	+.3016	+.0280	−2.2	−1.9	−".5	−".5	−".5
	2	−0.9	+1.4326	+.4270		−0.4	−0.5	−0.5	−0.7
	3	−2.4	+.4234	+.3010		−1.5	−0.9	−0.9	−.8
	4	−2.8	+.5916	+.3605		−1.2	−1.6	−1.6	−1.5
	5	−0.5	+.9048	+.4655		−0.8	+.3	+0.3	+.3
	6	+1.4	+1.4716	+.7070		−0.3	+1.7	+1.7	+1.7
	9	−2.1	−.1866	+.6580		−1.7	−.4	−0.4	−.2
	12	−2.7	−.5916	+.4620		−2.3	−.4	−0.4	−.1
	16	−2.6	−1.0324	+.3010		−2.9	+.3	+0.3	+.7
	17	−4.4	−1.4210	+.2275		−3.3	−1.0	−1.1	−.6
	18	−0.4	−1.0730	+.0700		−3.2	+2.8	+2.8	+1.0
	23	−4.2	−1.4094	−.2170		−3.8	−.4	−0.4	−.1
	25	−5.6	−.9570	−.3045		−3.5	−2.1	−2.1	−1.9
	26	−2.5	−.6148	−.0875		−2.9	+.4	+0.4	+.6
	29	−2.7	−.4988	−.3395		−3.0	+.3	+0.3	+.5
	31	−1.9	−.2262	−.4270		−2.8	+.9	+0.9	+1.1
	35	−1.6	−.2494	−.2485		−2.6	+1.0	+1.0	+1.2
	36	−2.7	+.2030	−.4025		−2.4	−0.3	−0.3	−.3
							±1.78	±.159	±.138
								±".86	±.77

~~5a~~

5

37 −29 = −.2 −.1 −25 −.4 −.3

5a

					6	0-6
		a'y	-b'x	c'	Σy'	y
	=	+0″	-.3″	+3.0″	+2.7″	-1.1″
	=	+.6	-1.3		+2.3	+.5
	=	+.4	-.4		+3.0	+1.8
	=	+.5	-.6		+2.9	+.8
	=	+.7	-.8		+2.9	-1.6
	=	+1.0	-1.1		+2.9	-.5
	=	+.9	+.2		+4.1	+.4
	=	+.6	+.6		+4.2 ~~+3.0~~ +3.2	+1.5 ~~+.2~~ -1.0
	=	+.4	+1.0		+4.4	-.6
	=	+.3	+1.3		+4.6	+1.2
	=	+.1	+1.0		+4.1	+2.2
	=	-.3	+1.3		+4.0	-.5
	=	-.4	+.9		+3.5	-1.6
	=	-.1	+.6		+3.5	-1.6
	=	-.5	+.4		+2.9	+.8
	=	-.6	+.2		+2.6	-.6
	=	-.4	+.2		+2.8	+.1
	=	-.6	+.2		+2.6 2 +3.8	+1.1 6
						9 -81 +97 4 ±1.73 1.85
						±0.96″ ±1.03
37 3.7	=	-.2	+.7 1		2.9 +3.0	.8 +.1

1st Solution corrected (in red ink)

D4842 =B

Resids from approx C = .1		x − X	X/100	Y/100	(x − X)X/100	(x − X)Y/100
Dec +89° 1	−.1	−0.″2 =	+5.2	+0.8	−1.0	−0.2
2	−10	−1.1 =	+24.7	+12.~~3~~2	−27.2	−13.~~5~~4
3	+1.2	+1.1 =	+7.3	+8.~~7~~6	+8.0	+9.~~6~~5
4	+.2	+0.1 =	+10.2	+10.~~4~~3	+1.0	+1.0
5	+1.3	+1.2 =	+15.6	+13.~~4~~3	+18.7	+16.~~1~~0
6	+3.1	+3.0 =	+20.~~3~~2	+20.~~3~~2	+60.~~1~~6 error	+60.~~9~~6
9	−.3	−0.4 =	−3.2	+18.~~9~~8	+1.3	−7.~~6~~5
12	−.6	−0.7 =	−10.2	+13.2	+7.1	−9.2
16	−.8	−0.9 =	−17.8	+8.~~7~~6	+16.0	−7.~~8~~7
17	−21	−22 =	−24.5	+6.5	+53.9	−14.3
18	+.2	+0.1 =	−18.5	+2.~~1~~0	−1.8	+0.2
23	−.8	−0.9 =	−24.3	−6.~~1~~2	+21.9	+5.~~5~~6
25	−32	−3.3 =	−16.5	−8.7	+54.4	+28.7
26	−.8	−0.9 =	−10.~~7~~6	−2.5	+9.~~6~~5	+2.2
29	+.7	+0.6 =	−8.6	−9.7	−5.2	−5.8
31	+1.2	+1.1 =	−3.~~8~~9.8	−12.2	−4.3	−13.4
35	+.3	+0.2 =	−4.3	−7.~~0~~1	−0.9	−1.4
36	+.9	+0.8 =	+3.5	−11.~~4~~5	+2.8	−9.~~1~~2
	±19.8	−10.6			−40.4	−82.~~3~~1 −82.1
		+8.2			+25~~4.8~~5.2	+12~~4.2~~3.8
± 1.″04		−2.4			+214.~~4~~8	+41.~~9~~7

−9.9
+9.1

37 +0.5 =

5a

blk ink = obs x+y ÷100

adopted red ink = computed X+Y ÷100

Sign to be rev.

approx c′ = +4.0

Resid.	$y-Y$		$(y-Y)\frac{X}{100}$	$(y-Y)\frac{Y}{100}$	
−.8 ✓	+3.2 =		+16.6	+ 2.6	
∓.6	+3.4 =		+ 84.0	+41.8 5	
+2.8	+6.8 =		+ 49.6	8.5 + 59.2	
+.5	+4.5 =		+ 45.9	4 + 46.8	
−1.1	+2.9 =		+ 45.2	+ 38.9 6	
+1.0	+5.0 =		+101.5 0	+101.5 0	
+.4	+4.4 =		− 14.1	27 + 83.2	
−1.3	+2.7 =		− 27.5	+ 35.6	
−.4	+3.6 3 =	* see p 34	58.7 see p 34 − ~~64.1~~	28.4 + ~~31.3~~	see p 34 * corrected here = 1st Sol Recomp
+1.3	+5.3 =		−129.8	+34.4	
+2.3	+6.3 =		−116.6	2.6 + 13.2	
−.7	+3.3 0 =	* see p 34	72.9 see p 34 − ~~80.2~~	18.6 − ~~20.1~~	see p 34 * " " "
−2.3	+1.7 =		− 28.0	− 14.8	
−2.1	+1.9 =		− 20.3 1	− 4.8	
+.8	+4.8 =		− 41.3	− 46.6	
−2.0	+2.0 =		− 7.8	−24.4	
−.9	+3.1 =		−13.3	2.0 − 21.7	
+12.7₃ +11.3 +2.2	+6.2 =		+ 21.7	11.3 − 70.7	
			+364.5 0 ±407.5	23 +488.5 ±691.6	
±23.5			−543.0 30.1	2.5 − 203.1	
±1.31	70.5 ~~+74.1~~ ✓		~~−178.5~~ sign rev. + 166.1	~~+285.4~~ +279.8	
87	+4.1 =				

1st Solution corrected (in red ink)

=B
D4842

~~Recompute~~

Check:

x-X − 2.4″ ✓ = −55.7 a +56.6 b +1.8 c −3.2 −.5 +1.4 = −2.3

(x-X)X/100 +214.~~0~~8 = +3914.2 a +986.9 b −55.7 c +227.4 −9.3 −4.4 = +213.7

" Y/100 +41.~~9~~7 ✓ = +986.9 a +2108.0 b +56.6 c +57.3 −19.8 +4.5 = +42.0

a = +.615
b = −.149

c

− 0.13″ −0.13 −1.91 −.46 = −2.37 + c +2.24″

Sep 1.52 ~~+38.49~~ ~~+3.85~~ 3.86 +43.86 −2.64 = +40.72 − c +2.23

+ ~~7.40~~ +.74 ✓ +10.70 −5.54 = +5.16 + c +2.24

−.18 ✓ −.03 C = +.08 ✓

+3.7~~2~~3 +4.1~~0~~1 −.17 ✓ +.08 ✓

+4.~~59~~60 +1.01 ✓ −.35 ✓ +.08 ✓

0.57054 = 1.82866

0.66181 = 1.94399

8.74188 = 9.48940 b 7.46247

7.97307

8.71782 = 9.79558 7.76865

a

+.05534 +.05519 = a −.0029~~0~~4 +.058~~09~~28

+.05233 ~~+.05222~~ = a −.005~~87~~95 +.058~~09~~28

+.00301 +.00297 −.3160 b

7.47276
9.49969

7.97307

b = −.00940

b = −.00953 ✓

a = ~~+.615~~ +.058 ✓

b = ~~−.149~~ −.0~~09~~10

C = ~~+2.2~~ +.1 ✓

corrected Values in red ink

y-Y for Plates 16 + 23 corrected see pp 35-36

For 2' Solution see p149

~~Recomp~~

Check:

y-Y ~~+78.8~~ +85 = +56.6 a' +55.7 b' + 18 c' -2.2 -6.6 +79.9 = +71.1

.. Y/100 ~~+178.5~~ +166.1 = -988.9 a' +3914.2 b' + 55.7 c' +38.6 -462.4 +247.3 = -176.5

.. Y/100 ~~+285.4~~ 279.8 = +2108.0 a' - 988.9 b' + 56.6 c' -82.6 +116.6 +251.3 = +285.3

a' = -.03917 a' = -.039
b' = -.11814 b' = -.118

c' c'

+3.92 + ~~0.40~~ 3.95 = See p53 -.12 -.37 -.36 +4.43 +4.44

+2.98 - ~~3.20~~ = +.69 +.69 -8.33 -8.32 +4.43 +4.44

+4.94 ~~+5.04~~ = -1.45 -1.46 +2.06 +2.05 +4.44 +4.44

+4.43 +4.44

-.94 - ~~3.60~~ 7.15 =

-1.96 - 8.24 = +.08 -.02 c' = +3.86

-.47 -.41 +3.86

+.98 +.10 +3.86

0.~~55630~~ 85431 n = 1.31806

0.91593 n = 1.73957

9.~~23824~~ 53625

9.17636 0.51060 9.58300
9.07240
0.20442 9.27682

~~-.04663~~ 519 - ~~.17308~~ 34376 = -a' -.~~04544~~ 38283 ~~-.02178~~ ~~+.12764~~ 01876 a' - .03917

~~-.03561~~ 70 - .15009 = -a' -.~~02245~~ 18916 ~~-.01076~~ ~~+.12764~~ 00927 - .03917

~~-.01102~~ - .~~02299~~ = +1.63936 b'

.00949 .19367

9.28706 +.02643 +.02643

~~8.36154~~ n +.02643 +.02643

0.21466 a' = ~~-.039~~ +.026

9.07240 b' = ~~-.118~~ -.006

~~8.14688~~ n c' = ~~+4.4~~ +3.9

b' = -~~.011402~~ Plate 13 1st Sol. was recomputed in Y because

-.00579 -~~.11814~~ sign b' X/100 was wrong + also errors in (y-Y)

Plates 16+23. see p61 Σ(y-Y) X/100

X

a = +.058 ~~+.615~~
b = −.009 ~~−.149~~
c = ~~+2.2~~ +.1
} p62

a = +.058
b = −.010
c = +.1
~~← to be corr~~

D4842 = B

for data see p60

Dec +89°

	x−X/10	aX/100	bY/100	c	Σc	O−c
1	−0.2 =	+.3~~2~~	−.0	+.1	+.4	−.6
2	−1.1 =	+1.4~~1~~	−.1		+1.4	−2.5
3	+1.1 =	+.4~~5~~	−.1		~~+4~~ 0.4	~~−3.0~~ +0.7
4	+.1 =	+.6~~3~~	−.1		+.6	−.5
5	+1.2 =	+.9	−.1		+.9	+.3
6	+3.0 =	+1~~.2~~	−.2		+1.1	+1.9
9	−.4 =	−.2	−.2		−.3	−.1
12	−.4 =	−.6	−.1		−.6	−.1
16	−.9 =	−1.0	−.1		−1.0	+.1
17	−2.2 =	−1.4	−.~~4~~1		−1.~~3~~4	−.~~9~~8
18	+.1 =	−1.1	−.0		−1.0	+1.1
23	−.9 =	−1.4	+.~~0~~1		−1.~~3~~2	+.~~4~~3
25	−3.3 =	−1.0	+.1		−.8	−2.5
26	−.9 =	−.6	+.~~0~~1		−.~~5~~4	−.~~4~~5
29	+.6 =	−.5	+.1		−.3	+.9
31	+1.1 =	−.2	+.1		.0	+1.1
35	+0.2 =	−.2	+.1		.0	+.2
36	+.8 =	+.2	+.1		+.4	+.4

−7.6
+7.0
±14.6

−10.6
+6.4 3
±~~17.0~~ ~~169~~
±0.~~94~~ 81

37 $\frac{X}{100}$ = −2.6

+.5	−.2	+.0	−.1	+.6

Y

a′ = −.039
b′ = −.118
c′ = +4.5⁴
} p63

±.026
±.006
+3.9

~~to be corr~~

y−Y	a′Y/100	−b′X/100		c′	Σ		O−C	
″ +3.2 =	+ 0.0	″ +.6	+.0	3.9 ~~+4.4~~	″ +5.0	″ +3.9	″ −1.8	″ −0.7
+3.4 =	+ $\overset{3}{.5}$	+2.9	+.1	~~+6.8~~	+6.8	+4.3	−3.4	−0.9
+6.8 =	+ $\overset{2}{.3}$	+.9	.0	~~+5.0~~	+5.0	+4.1	+1.8	+2.7
+4.5 =	+ $\overset{3}{.4}$	+1.2	+.1		+5.2	+4.3	−.7	+2
+2.9 =	+ $\overset{3}{.5}$	+1.8	+.1		+5.7	+4.3	−2.8	−1.4
+5.0 =	+ $\overset{5}{.8}$	+2.4	+.1		+6.0	+4.5	−1.0	+0.5
+4.4 =	+ $\overset{5}{.7}$	−0.4	0		+3.3	+4.4	+1.1	.0
+2.7 =	+ $\overset{3}{.5}$	−1.2	−.1		+2.7	+4.1	.0	−1.4
+3.6 =	+ $\overset{2}{.3}$	−2.1	−.1		+2.0	+4.0	+1.6	−.4
+5.3 =	+ .2	−2.9	−.1		+1.3	+4.0	+4.0	+1.3
+6.3 =	+ $\overset{0}{.1}$	−2.2	−.1		+2.1	+3.8	+4.2	+2.5
+3.3 =	− + .2	−2.9	−.1		+1.7	+3.6	+1.6	−.3
+1.7 =	+ − $\overset{2}{.3}$	−1.9	−.1		+2.8	+3.6	−1.1	−1.9
+1.9 =	+ − .1	−1.2	−.1		+3.3	+3.7	−1.4	−1.8
+4.8 =	+ − $\overset{2}{.4}$	−1.0	−0		+3.8	+3.7	+1.0	+1.1
+2.0 =	+ − $\overset{3}{.5}$	−0.5	−0		+4.4	+3.6	−2.4	+1.6
+3.1 =	+ − $\overset{2}{.5}$	−0.5	−0		+4.4	+3.7	−1.3	−.6
+6.2 =	+ − .3	+.4	+0		+5.1	+3.6	+1.1	+2.6
							−15.9	−11.0
							+16.4	+10.9
							±32.3 ~~±1.81~~	±21.9 ±1.22

Y/100
−3.4

37 +4.1	$\overset{-.1}{+.4}$	$\overset{0}{+.3}$	+	$\overset{+3.8}{+5.1}$		$\overset{+.3}{-1.0}$

See pp 46-47

D4885 = ε

a = +0.053 ⎫ +0.051
b = +0.021 ⎬ p52 +0.026
c = −2.0″ ⎭ −2.2

x−X data in p46	aX/100 p54	bY/100	c	Σ, =x′		O−C	
Dec+89° 1	+.3	+.0	−2.~~0~~2	−1.7″	−1.9	−.7″	−.5
2	+1.3	+.~~2~~3		−.5	−.6	−1.0	−.9
3	+.4	+.2		−1.4	−1.6	−.6	−.4
4	+.5	+.~~2~~3		−1.3	−1.4	−1.8	−1.7
5	+.8	+.3		−.9	−1.1	+.3	+.5
6	+1.~~1~~0	+.~~4~~5		−.5	−.7	+1.7	+1.9
9	−.2	+.~~4~~5		−1.8	−1.9	−.2	−.1
12	−.5	+.3		−2.2	−2.4	−.3	−.1
16	−.9	+.2		−2.7	−2.9	+.1	+.3
17	−1.~~3~~2	+.~~1~~2		−3.2	−3.2	−1.0	−1.0
18	−~~1.0~~.9	+.0		−3.0	−3.1	+1.6	+1.7
23	−1.~~3~~2	−.~~1~~2		−3.4	−3.6	+.4	+.6
25	−.~~1~~8	−.2		−3.1	−3.2	−2.3	−2.2
26	−.~~6~~5	−.~~0~~1		−2.6	−2.8	.0	+.2
29	−.4	−.2		−2.6	−2.8	+.1	+.3
31	−.2	−.~~2~~3		−2.4	−2.7	+.5	+.8
35	−.2	−.~~1~~2		−2.3	−2.6	+.7	+1.0
36	+.2	−.~~2~~3		−2.0	−2.3	−.3	~~+3.6~~ 0
						−8.2 ±.54	−6.9 +7.3 ±14.2
						± ~~.76~~″	±.79
							See p46
37 −2.8 p37	−.1	−.1		−2.2		−.4	

5a

$a' = +.055$ ✓
$b' = +.046$ ✓ } p53
$c' = +3.1$ ✓

see p47

J − Y		$a'Y/100$	$-b'X/100$	c'	Σb	O−C
″ +1.4	=	″ +0	″ −.2	″ +3.1	″ +2.9	−1.5 ✓
+3.2	=	+.7	−1.1		+2.7	+.5 ✓
+4.8	=	+.5	−.3		+3.3	+1.5 ✓
+3.7	=	+.6	−.5		+3.2	+.5 ✓
+1.4	=	+.7	−.7		+3.1	−1.7 ✓
+3.0	=	+1.1	−.9		+3.3	−.3 ✓
+4.5	=	+1.0	+.1		+4.2	+.3 ✓
+3.3	=	+0.7	+.5		+4.3	−1.0 ✓
+3.9	=	+.5	+.8		+4.4	−.5 ✓
+5.6	=	+.4	+1.1		+4.6	+1.0 ✓
+6.4	=	+.1	+.8		+4.0	+2.4 ✓
+3.2	=	−.3	+1.1		+3.9	−.7 ✓
+1.3	=	−.5	+.8		+3.4	−2.1 ✓
+2.4	=	−.1	+.5		+3.5	−1.1 ✓
+3.6	=	−.5	+.4		+3.0	+.6 ✓
+2.8	=	−.7	+.2		+2.6	+.2 ✓
+2.9	=	−.4	+.2		+2.9	+0 ✓
+3.4	=	−.6	−.2		+2.3	+1.1 ✓
						+8.3
						−8.9
						±17.0
p37 +3.9		−.2	+.1	+3.0		+0.9 ±0.94

For corrected Resids
1°Solution see pp 72-73

a = +136
b = −.023
c = −3.2
} p70

For correct
Value see p140 also pp 70-73 for
corrected Results

D4915 = A

Resids from
approx c = −3.9

Dec		x−X	a X	b Y	c	Σ	O−C	(x−X) X/100	(x−X) Y/100
89° 1	+1	−3.8 =	+.7″	−.0″	−3.2	−2.5″	−1.3″	+19.8	+ 3.~~1~~0
* 2		=	+3.4	−.3		−.1			
3	+1.5	−2.4 =	+1.0	−.2		−2.4	.0	−17.5	−20.6
4	+.7	−3.2 =	+1.4	−.2		−2.0	−1.2	−32.6	−33.0
5	+3.0	−0.9 =	+2.1	−.3		−1.4	+.5	−14.0	−12.0
6	+1.8	−2.1 =	+2.7	−.5		−1.0	−1.1	−42.4	−42.4
9	+1.5	−2.4 =	−.4	−.4		−4.0	+1.6	+7.7	−45.1
12	−.5	−4.4 =	−1.4	−.3		−4.9	+.5	+44.9	−58.1
16	+2.2	−6.1 =	−2.4	−.2		−5.8	−.3	+108.6	−52.5
17	−3.3	−7.2 =	−3.3	−.1		−6.6	−.6	+176.4	−46.8
18	−.5	−4.4 =	−2.5	−.0		−5.7	+1.3	+81.4	−8.8
23	−2.7	−6.6 =	−3.3	+.1		−6.4	−.2	+160.4	+40.9
25	−3.1	−7.0 =	−2.2	+.2		−5.2	−1.8	+115.5	+60.9
26	−.7	−4.6 =	−1.4	+.0		−4.6	.0	+46.8	+11.5
29	+.8	−3.1 =	−1.2	+.2		−4.2	+1.1	+26.7	+30.1
31	+1.4	−2.5 =	−.5	+.3		−3.4	+.9	+9.8	+30.5
35	+1.6	−2.3 =	−.6	+.2		−3.6	+1.3	+9.9	+16.3
36	+1.0	−2.9 =	+.5	+.3		−2.4	−.5	−10.2 ±926.6	+33.4
	+13.4	−62.1					−7.0	+809.9	+226.~~7~~6 ±546.0
	−13.0	+3.8					+7.2	−116.7	−319.3
	±26.4	−65.9					±14.2	+693.2	−92.~~6~~7
	17	~~−58.3~~					17	39.6	
	±1.55						±0.84	+653.6	
37		−2.9	−.4	+1		−3.5	+.6		

* approx measure to be made

a′ = +.22~~6~~9
b′ = +.09~~8~~7 } p21
c′ = +.~~2~~1

~~c to be corr.~~

X = Proper Motions in Vol XVIII 1×

Resids from approx c′ = +1.1	y − Y		a′Y	− b′X	c′	Σ = y′	O − C	final values of 1st Sol.	(y−Y)X/100	(y−Y)Y/100	Dm +89°
−.~~2~~17	+0.4	=	+.2	−.5	+.~~2~~1	−.~~1~~2	+.5	+.6	+2.1	+0.3	1
+~~1.9~~2.0	+3.1	=	+2.8	−2.4		+.~~6~~5	+2.5	+2.6	+76.6	+37.8	2×
+2.~~7~~8	+3.9	=	+~~1.9~~2.0	−.7		+1.4	+2.5	+2.5	+28.5	+33.5	3×
+2.~~3~~4	+3.5	=	+2.~~3~~4	−1.0		+1.5	+2.0	+2.0	+35.7	+36.0	4
+~~0~~1	+1.2	=	+3.0	−1.5		+1.~~7~~6	−.5	−.4	+18.7	+16.0	5
+1.~~2~~3	+2.4	=	+4.6	−~~1.9~~2.0		+2.~~9~~7	−.5	−.3	+48.5	+48.5	6
+3.~~1~~2	+4.3	=	+4.~~2~~3	+.3		+4.~~7~~8	−.4	−.5	−13.8	+80.8	9
+1.~~1~~2	+2.3	=	+3.0	+1.0		+4.~~2~~1	−1.9	−1.8	−23.5	+60.4	12×
+1.~~3~~4	+2.5	=	+~~1.9~~2.0	+1.7		+3.8	−1.3	−1.3	−44.5	+21.5	16
+1.~~0~~1	+2.2	=	+1.5	+2.4		+4.~~1~~0	−1.9	−1.8	−53.9	+14.3	17×
+~~1.9~~2.0	+3.1	=	+.4	+1.8		+2.~~4~~3	+.7	+.8	−57.4	+6.2	18×
−3.~~9~~8	−2.7	=	−1.4	+2.~~3~~4		+1.1	−3.8	−3.8	+65.6	+16.7	23
−4.~~3~~2	−3.1	=	−2.0	+1.6		−.~~2~~3	−2.9	−2.8	+51.2	+27.0	25×
−~~2.0~~1.9	−0.8	=	−.6	+1.0		+.~~6~~5	−1.4	−1.3	+8.5	~~+12.0~~ + 2.0	26
−1.~~8~~7	−0.6	=	−2.2	+.8		−1.~~2~~3	+.6	+.7	+5.2	+5.8	29
−3.~~2~~1	−2.0	=	−2.8	+.4		−2.~~2~~3	+.2	+.3	+7.8	+24.4	31
−2.~~3~~2	−1.1	=	−1.6	+.4		−1.~~0~~1	−.1	.0	+4.7	+7.8	35×
+.~~3~~4	+1.5	=	−2.6	−.3		−2.~~7~~8	+4.2	+4.3	+5.2	−17.2	37
~~+16.8~~ +17.9 +17.6	+30.4						+13.2	+13.8	+358.3	+409.~~2~~0	
−18.~~6~~3	−10.3						−14.7	−14.0	−19~~1~~3.1	−17.2	
±35.~~x~~5	±40.7						±27.9	±27.8	±551.4	±426.4	
							18				
±1.9~~8~~7	+20.1						±1.55	±1.54	+16~~4~~5.2	+39~~2.0~~1.8	37
									−165.2		
37	+0.4		−.8	+2		−.~~4~~5	+.8	+.9	with sign rev.		

For correct values see p73

1st Sol.

X

Correct values in red ink

D4915 A

omitting Dm +89° 2 no x scale on this plate for this Star

Σ

chk

x – X .. ~~–58.3~~ –65.9 = –80.4 a + 444 b + 17 c   –10.9 – 1.0 – 54.1 = –65.9

.. X/100 +6~~4~~5 3.~~2~~6 = +3304.1 a + 685.6 b – 80.4 c   +449.0 – 13.3 + 255.7 = 691.4

.. Y/100 –92.~~6~~7 = +685.6 a + 1959.2 b + 444 c   +93.7 + 44.4 – 141.2 = –92.4

a = +.13589
b = –.022678

a = +.136
b = –.023

c

– 3.88 = –4.7 a + 2.6 b + c   –.64 –.06 –3.18 –3.18

+ 8.~~62~~13 = + 41.1 a + ~~6~~8.5 b – c   +5.58 –.14 –3.18 3.19

– 2.09 = + 15.4 a + 44.1 b + c   +2.09 –1.00 –3.18 3.17

–3.18 –3.18

+ 4.~~74~~25 = +36.4 a + ~~9~~11.1 b

+ 6.~~53~~04 = +56.5 a + 5~~0~~2.6 b .

–.57 –.04 –3.27
+5.00 –.13 –3.26
+1.87 –.69 –3.27

c = –3.27

0.67578 = 1.56110 a 0.95904 b

0.81491 = 1.75205 a 1.70415 b

9.11468 = a 9.39794 b 7.75354

8.35560

9.06286 = a 9.95210 b 8.30770

a

.11676   +.13022 = +a +.25000 b –.00567 (.30494, .00480)   +.13589 +.12156

.10690   +.11558 = +a +.89557 b –.02031 (.93116, .01466)   +.13589 +.12156

+.00986   +.01464   –.64557 b

–.62622

7.99388   8.16554

9.79672   9.80994

8.19716 log b   8.35560

–.01575   b = –.022678 √

a = ~~+.136 × .01~~   +.122

b = ~~–.023 × .01~~   –.016

c = ~~–3.2~~   –3.3

suffic 68 ~~69~~ for a c from the solution a b c + a' b' c'

Y

Correct values in red ink

D4915 = A

chk!

$y - y$ + 20.1 =

$\cdot X/100$ ~~+~~ − 16~~9~~5.2 =

$\cdot\cdot y/100$ + 39~~2~~1.~~4~~8 =

June 25/1897 plate 1 recomp with sign of (y−y) X/100 reversed

+ + 1.1~~7~~2 =

− ~~+~~ − 2.9~~1~~7 =

+ + 6.9~~3~~2 =

+12.9 +5.4 +2.0 = +20.3

~~+~~ −225.9 +380.3 +8.1 = +162.5

+482.3 −95.9 +6.2 = +392.6

$a' = +.22\cancel{6}$ ~~44~~ 879

$b' = +.095$ ~~69~~ 716

c′

+.7~~6~~1 +.30 +1.0~~2~~1 + c′

−4.0~~1~~6 +6.~~1~~85 +2.7~~4~~9 + c′

+8.~~42~~51 −1.66 9 +6.~~70~~82 + c′

+.11 .11 .11

+.11 .1~~1~~2 .13

+.11 .1~~1~~1 .10

.11 .11

+.51 −.03 +.48

−2.90 −.71 −3.61

+6.10 +.17 +6.27

C′ = +.64

+.64

+.65

+.64

2−1

−4.09 + 1.7~~4~~9 =

2−3

−9.89 − 4.02 =

0.61172 0.~~24055~~ 25285 = 1.31806

0.99520 0.60423n = 1.73957

9.29366 8.~~92249~~ 93479

9.25563 8.86466

0.51060 9.49810

8.98750

0.20442 9.19192

−.19664 + .08~~365~~ 606 = −a′

−.18015 .07322 = −a′

−.01649 + .15~~687~~ 928

−.03259

+.31485

−.01640

+.15557

+1.63936′

a′

+.22~~644~~ 879 +.1640~~6~~5

+.22~~644~~ 879 +.1640~~6~~5

8.21722 9.~~19554~~ 20216

0.21466n 0.21466

8.00256n 8.98~~088~~ 750

−.010059 b′ +.09~~569~~ 7163

~~a′ = +.22~~6~~9 × 01~~ +.164

~~b′ = +.09~~6~~7 "~~ −.010

~~c′ = +.~~1~~1~~ +.6

Plate A 1st Sol. was recomputed in y because sign of $X/100$ was wrong. see $y - y\,X/100$ p69

1st Solution corrected

$a = +.122$
$b = -.016$
$c = -3.3$

p70

D4915 = A see pp 68–69

	$aX/100$	$bY/100$	c	$\Sigma = C$	p68 $x - X = O$	$O - C$
Dm +89° 1	+.6	.0	−3″.3	−2″.7	−3″.8	−1″.1
2	+3.0	−.2		−.5	—	—
3	+.9	−.1		−2.5	−2.4	+0.1
4	+1.2	−.2		−2.3	−3.2	−0.9
5	+1.9	−.2		−1.6	−0.9	+0.7
6	+2.5	−.3		−1.1	−2.1	−1.0
9	−0.4	−.3		−4.0	−2.4	+1.6
12	−1.2	−.2		−4.7	−4.4	+0.3
16	−2.2	−.1		−5.6	−6.1	−0.5
17	−3.0	−.1		−6.4	−7.2	−0.8
18	−2.2	−.0		−5.5	−4.4	+1.1
23	−3.0	+.1		−6.2	−6.6	−0.4
25	−2.0	+.1		−5.2	−7.0	−1.8
26	−1.3	+0		−4.6	−4.6	0.0
29	−1.0	+.2		−4.1	−3.1	+1.0
31	−0.5	+.2		−3.6	−2.5	+1.1
35	−0.5	+.1		−3.7	−2.3	+1.4
36	+0.4	+.2		−2.7	−2.9	−0.2
						−6.7
						+7.3
						±14.0 ±0.82

	$x - X'' = O$	$aX/100$	$bY/100$	$\Sigma = C$	
37	−2.9	−.32	+.054	−3.6	+0″.6
5a					

a′ = +2|26 +.164
b′ = +.0|96 −.010
c′ = +.″1|7 +.6

p71

D4915 = A

p69 1150d #p36

a′Ψ/100	−b′Ψ/100	c′	Σ = 6	ψ−Ψ = 0	0−6
+.″1	+.″1	+.″6	+0.″8	+0.″4	−0.″4
+2.0	+.2		+2.8	+3.1	+0.3
+1.4	+.1		+2.1	+3.9	+1.8
+1.7	+.1		+2.4	+3.5	+1.1
+2.2	+.2		+3.0	+1.2	−1.8
+3.3	+.2		+4.1	+2.4	−1.7
+3.1	−.0		+3.7	+4.3	+0.6
+2.2	−.1		+2.7	+2.3	−0.4
+1.4	−.2		+1.8	+2.5	+0.7
+1.1	−.2		+1.5	+2.2	+0.7
+0.3	−.2		+0.7	+3.1	+2.4
−1.0	−.2		−0.6	−2.7	−2.1
−1.4	−.2		−1.0	−3.1	−2.1
−0.4	−.1		+0.1	−0.8	−0.9
−1.6	−.1		−1.7	−0.6	+0.5
−2.0	−0		−1.4	−2.0	−0.6
−1.2	−0		−0.6	−1.1	−0.5
−1.9	+0		−1.3	+1.5	+2.8
					−1.05
					+1.09
					±2.14 ±1.19

Ψ−Ψ = 0	a′Ψ/100	b′Ψ/100	= 6	
+0.″4	−0.6	.03	+0.″0	+0.″4

1st Solution

a = +.011
b = −.012
c = +″.8

} 1.76

~~to be corr.~~

D4849 = 6

Residues from c = +.7

(x−X		p37 1st sol.		aX	bY	c	Σ	O−C	(x−X)X/100	x−X ~~(y−Y)~~ Y/100
−.7	Dec 89 1	0″.0	=	+.1	−.0	+.8	+.9	−.9	0.0	0.0
−1.2	2	−0.5	=	+.3	−.1		+1.0	−1.5	−12.4	−6.1
−.4	3	+0.3		+.1	−.1		+.8	−.5	+2.2	+2.6
−.2	4	+0.5		+.1	−.1		+.8	−.3	+5.1	+5.2
+.4	5	+1.1		+.2	−.2		+.8	+.3	+17.2	+14.6
+1.7	6	+2.4		+.2	−.2		+.8	+1.6	+48.5	+48.5
+.4	9	+1.1		−.0	−.2		+.6	+.5	−3.5	+20.7
−.5	12	+0.2		−.1	−.2		+.5	−.3	−2.0	+2.6
−.9	16	−0.2		−.2	−.1		+.5	−.7	+3.6	−1.7
−.7	17	+0.0		−.3	−.1		+.4	−.4	0.0	0.0
+1.0	18	+1.7		−.2	−.0		+.6	+1.1	−31.4	+3.4
+.8	23	+1.5		−.3	+.1		+.6	+.9	−36.4	−9.3
−2.2	25	−1.5		−.2	+.1		+.7	−2.2	+24.8	+13.0
−.4	26	+0.3		−.1	+.0		+.7	∓.4	−3.2	−0.8
+.4	29	+1.1		−.1	+.1		+.8	+.3	−9.5	−10.7
+1.2	31	+1.9		−.0	+.1		+.9	+1.0	−7.4	−23.2
+1.7	35	+2.4		−.0	+.1		+.9	+1.5	−10.3	−17.0
+.2	36	+0.9		+.0	+.1		+.9	.0	+3.2	−10.4
−7.2		−2.2					−7.2	−5.6	−116.0	−79.2
+7.8		+15.4					+7.2	+11.6	∓104.6	+110.6
±15.0		+13.2					±14.4	±13.2	−11.4	+31.4
±0.83								±.89		
	37	+1.4		−.0	+.0		+.8	+.6	−3.6	−4.8
	5a									

a′ = +.004
b′ = −.0~~49~~ 38
c′ = +3.″9
} p 77
~~to be corr~~

Resids from c′ = +3.″8

	y − Y +0		a′y	−b′x	+c	Σ =c	O − C	(y − Y) x/100	(y − Y) y/100	[illegible]
−1.4	+2.″4	=	+ .0	+ .2 ✓	+3.9	+4.1	−1.″7 ✓	+13.″0	+1.9	1
+1.5	+5.3	=	+ .0	+ ~~1.2~~ .9		~~+6.1~~ 4.8	~~−.8~~ +.5	+130.9	+64.7	2
+1.9	+5.7	=	+ .0	+ .~~4~~ 3		+4.~~3~~ 2	+1.~~4~~ 5	~~+140.8~~ 41.6	~~+69.5~~ 49.0	3
+1.3	+5.1	=	+ 0	+ .~~5~~ 4		+4.~~4~~ 3	+.~~7~~ 8	+ ~~37.2~~ 52.0	~~+43.9~~ 52.5	4
−.7	+3.1	=	+ .0	+ .~~8~~ 6		+4.~~7~~ 5	−1.~~6~~ 4	+48.4	+41.2	5
+1.0	+4.8	=	+ .1	+ ~~1.0~~ .8		~~+5.0~~ 4.7	~~.2~~ +.1	+97.0	+97.0	6
−.5	+3.3	=	+ .1	− .~~2~~ 1		+3.~~8~~ 9	−.~~7~~ 6	−10.6	+62.0	9
−1.1	+2.7	=	+ 0	− .~~5~~ 4		+3.~~4~~ 5	−.~~7~~ 8	−27.5	+35.6	12
−1.7	+2.1	=	+ 0	− .~~9~~ 7		+3.~~0~~ 2	−.~~9~~ 1.1	−37.4	+18.1	16
+.9	+4.7	=	+ 0	− ~~1.2~~ .9		+~~2.7~~ 3.0	+~~2.0~~ 1.7	−115.2	+30.6	17
+2.2	+6.0	=	+ 0	− .~~9~~ 7		+3.~~0~~ 2	+~~3.0~~ 2.8	−111.0	+120	18
−1.3	+2.5	=	± 0	− ~~1.2~~ 9		+~~2.7~~ 3.0	−.~~7~~ 5	−60.8	−15.5	23
−2.7	+1.1	=	− 0	− .~~8~~ 6		+3.~~1~~ 3	−2.~~0~~ 2	−18.2	−~~8.9~~ 9.6	25
−1.6	+2.2	=	− 0	− .~~5~~ 4		+3.~~4~~ 5	−1.~~7~~ 3	−23.3	−5.5	26
+.7	+4.5	=	− 0	− .~~4~~ 3		+3.~~5~~ 6	+~~1.0~~ 0.9	−38.7	−43.6	29
−1.5	+2.3	=	− 0	− .~~2~~ 1		+3.~~7~~ 8	−1.~~4~~ 5	−9.0	−28.1	31
−.2	+3.6	=	− 0	− .~~2~~ 1		+3.~~7~~ 8	−.~~1~~ 2	−15.5	−25.6	35
+2.5	+6.3	=	− 0	+ .~~2~~ 1		+4.~~1~~ 0	+2.~~8~~ 3	+220	−72.4	36
−12.7	+67.7 ✓						−11.3	~~+489.3~~ −404.9	+476.6	
+12.0							+10.~~3~~ 6	−467.2 +467.2	−199.6	
±24.7							+21.~~6~~ 9	±1.″2~~8~~ 2 ~~+22.1~~ +62.3	+276.9	
±1.37	+4.1		− .0	− .1 ✓		+3.8 ✓	+.3	−10.7	−13.9	

with sign rev
+62.3 ✓
+ corrections included.

+464.6
−200.3
+264.3

1st Solution corrected

D 48469 = C

Check

x − X. +13.2″ = −.6 −.7 +14.4 = +13.1″

·· X/100 −11.~~4~~5 = +45.6 −12.1 −44.6 = −11.1

·· Y/100 +31.4 = +11.5 −25.9 +45.3 = +30.9

c

+.073 = −.036 −.036 +.81

−.2~~0~~1 = ~~+.822~~ −.22 +.80

+.55 = +.203 −.45 +.80

+.5~~3~~2 −.04 −.04 +.81

+.3~~5~~4 +.81 −.22 +.80

+.20 −.45 +.80

See p152

9.72428 √ = 1.82866

9.54407 √ = 1.94399

7.89562 √ = 9.48940 7.57877

8.08937

7.60008 √ = 9.79558 7.88495

a

.00772 +.007864 = +e | −.0037~~4~~6 ~~+.011655~~ +.01148

.00387 +.003982 = +a | −.0076~~7~~1~~3~~ +.011655 +.01148

.00385 +.003882 = −.3160b

7.58906

9.49969n

8.08937

b = −.0122~~8~~85

b = −.01218

Corrected values in red ink

For 2^d Sol. see p155

Check:

$y-y'$ +67.7″ = +.2 −27 +70.2 = +67.7″

$y-y'-y/100$ ~~+122.1~~ +62.3 = −3.8 − 190.4 +217.2 = +23.0

$y/100$ ~~+276.9~~ +264.3 = +8.2 +48.0 +220.7 = +276.9

Q′

+3.76 = +.01 ~~−.15~~ 3 = ~~−.14~~ 12 ~~+.390~~ 88

+1.12 +.40 = −.07 ~~−3.43~~ 2.68 = ~~−3.50~~ 2.75 ~~+.390~~ 87

+4.67 +4.89 = +.14 ~~+.85~~ 66 = ~~+.99~~ 80 ~~+.390~~ 87

−2.64 −3.36

−3.55 −4.49

0.52634 = 1.31806

0.65225 = 1.73957

9.20828 0.51060 9.19767

8.91268 8.68707 8.89149

0.20442

a′

−.12692 −.16154 = −a′ ~~−.15764~~ 12307 ~~+.00390~~ 85

−.06466 −.08179 = −a′ ~~−.07789~~ .06081 ~~+.00390~~ 85

−.06226 −.07975

8.90173 a′ = +.00385

0.21466 b′ = −.038

8.68707 c′ = +.387

−.03798 b′ = −.0~~4865~~ 1^st Sol. Plate 6 was recomputed in ′7 because sign $b'\frac{x}{100}$ was wrong. see also other errors p75

1st Solution

O-C = Residuals from 5 Plates with constants applied

to be com [illegible]

	pp 68-69			64-65			74-75		
	D4915 = A			D4842 = B			D4849 = C		
	x	y		x	y		x	y	
Dm +89 1	-1.3	+.5	+.6	-.6	-1.8	-.7	-.9	-1.7	-1.7
2		+2.5	+2.6	-2.5	-3.4	-.9	-1.5	-.8	+.5
3	.0	+2.5	+2.5	~~-3.0~~ +0.7	+1.8	+2.7	-.5	+1.4	+1.5
4	-1.2	+2.0	+2.0	-.5	-.7	+.2	-.3	+.7	+.8
5	+.5	-.5	-.4	+.3	-2.8	-1.4	+.3	-1.6	-1.4
5a									
6	-1.1	-.5	-.3	+1.9	-1.0	+.5	+1.6	-.2	+.1
9	+1.6	-.4	-.5	-.1	+1.1	0	+.5	-.5	-.6
12	+.5	-1.9	-1.8	-.1	+.0	-1.4	-.3	-.7	-.8
16	-.3	-1.3	-1.3	+.1	+1.6	-.4	-.7	-.9	-1.1
17	-.6	-1.9	-1.8	-.9 8	+4.0	+1.3	-.4	+2.0	+1.7
18	+1.3	+.7	+.8	+1.1	+4.2	+2.5	+1.1	+3.0	+2.8
23	-.2	-3.8	-3.8	+.4 3	+1.6	-.3	+.9	-.2	-.5
25	-1.8	-2.9	-2.8	-2.5	-1.1	-1.9	-2.2	-2.0	-2.2
26	.0	-1.4	-1.3	-.4 5	-.4	-1.8	∓.4	-1.2	-1.3
29	+1.1	+.6	+.7	+.9	-1.0	+1.1	+.3	+1.0	+0.9
31	+.9	+.2	+.3	+1.1	-2.4	-1.6	+1.0	-1.4	+1.5
35	+1.3	-.1	+.0	+.2	-1.3	-.6	+.5	-.1	-.2
36	-.5	+4.2	+4.3	+.4	+1.1	+2.6	.0	+2.2	+2.3
37	+.6	+.8	+.9	+.6	-1.0	+0.3	+0.6	+0.3	
17 Stars x	±0.84	18 Stars ±1.55	±1.54	18 Stars ±0.~~94~~ 81 ✓	±1.81	±1.22	±.7~~5~~ 9 ✓	±1.2~~0~~ 2	
17 "	±1.55	18 ±1.97		18 " ±1.04	±1.31 ✓		± .83	±1.37	
	68-69			60 - 61			74-75		

See last cols

β

pp 58–59 ~~to be corr in x~~

pp 46-47+66

Corrected see pp 72–73

D4879 = D		~~D~~ 4885 = E			D4915 = A	
x"	y"		x"	y"	x"	y"
−.5	−1.1	−.5	−.7	−1.5	−1.1	−0.4
$\overset{.7}{-.8}$	+.5	−.9	−1.0	+.5	—	+0.3
$\overset{8}{-.9}$	+1.8	−.4	−.6	+1.5	+0.1	+1.8
$\overset{5}{-1.6}$	+.8	−1.7	−1.8	+.5	−0.9	+1.1
+.3	−1.6	+.5	+.3	−1.7	+0.7	−1.8
+1.7	−.5	+1.9	+1.7	−.3	−1.0	−1.7
$\overset{2}{-.4}$	+.4	−.1	−.2	+.3	+1.6	+0.6
$\overset{1}{-.4}$	+.2	−.1	−.3	−1.0	+0.3	−0.4
$\overset{.7}{+.8}$	−.6	+.3	+.1	−.5	−0.5	+0.7
$\overset{.6}{-1.1}$	+1.2	−1.0	−1.0	+1.0	−0.8	+0.7
$\overset{1.0}{+2.8}$	+2.2	+1.7	+1.6	+2.4	+1.1	+2.4
$\overset{1}{-.4}$	−.5	+.6	+.4	−.7	−0.4	−2.1
$\overset{1.9}{-2.1}$	−1.6	−2.2	−2.3	−2.1	−1.8	−2.1
$\overset{6}{+.4}$	−1.6	+.2	0	−1.1	0.0	−0.9
$\overset{5}{+.8}$	+.8	+.3	+.1	+.6	+1.0	+0.5
$\overset{1.1}{+.9}$	−.6	+.8	+.5	+.2	+1.1	−0.6
$\overset{2}{+1.0}$	+.1	+1.0	+.7	.0	+1.4	−0.5
−.2	+1.2	0	−.3	+1.1	−0.2	+2.8
$\overset{3}{-.4}$	$\overset{8}{+.9}$	−0.4	±.4	$\overset{.9}{+.8}$	+0.6	+0.4
					±0.82	±1.19
±.77	$\pm\overset{1.03}{.96}$	±.79	~~±0.76~~	$\pm\overset{4}{0.96}$	±1.55	±1.97
±.97	±1.11		±0.91 ✓	±0.93 ✓		
54–55			p44			

for 2° Sol & substituting meas. see pp 186–195 + Tables ~~III~~ 196–199

Av. Dev. after constants a b c a' b' c' applied

Av. dev before " " applied

approx c = mean x − X

" c' = " y − Y

June 13, 1897

24.15

D 4915 ("A") Additional measures of Standard & Lettered stars

		A. approx	B.	C. approx	D.	A+C	B+D	C-A	B-D	C-A × 2.03	B-D × 2.03
√	+89° 2	14	21	115	109	129	130	+101	-88	+20.5	-17.9
√	3	120	5	10	124	130	129	-110	-119	-22.3	-24.2
√	18	121	79	8	51	129	130	-113	+28	-229	+5.7
√	b	80	100	49	30	129	130	-31	+70	-6.3	+14.2
√	c	61	75	69	~~2~~5 5	130	130	+8	+20	+1.6	+4.1
√	d	121	87	8	42	129	129	-113	+45	-22.9	+9.1
√	e	90	22	40	108	130	130	-50	∓86	-10.2	-17.5
√	f	35	20	94	110	129	130	+59	-90	+12.0	-18.3
√	k	35	11	95	119	130	130	+60	-108	+12.2	-21.9
√	l.	53	50	77	80	130	130	+24	-30	+4.9	-6.1

D 4842 (B)

√	2	~~62~~ 110	15	19	114	129	129	-91	-99	-18.5	-20.1
√	5a	90	55	40	74	130	129	-50	-19	-10.2	-3.9
√	17	59	130	70	129	129	259	+11	+1	+2.2	+0.2

D 4849 (k)

√	5a	90	55	40	74	130	129	-50	-19	-10.2	-3.9
√	23	5	16	125	114	130	130	+120	-98	+24.4	-19.9

24.45

Whole ms Est x × 526 with coords of Cent. applied y

x y
+2471.7 +1225.1
+726.1 +915.8 $y = +863.2''$ -1 div subtracted 1 div because Sep 8 was reduced with 66 mm instead of 65 mm.
-1850.7
-1798.1 +202.1
-289.3 -279.8
-402.4 -111.9
-588.3 ✓
~~-634.1~~ -64.3
-548.4 +120.1
-412.8 +120.9
+7.8 -85.9
-90.1 +3.5

-295.6 -265.6
-400.8 -107.8
-611.2 -55.2
-558.6 +102.6
-400.8 +102.6
-107.8
+20.0 ~~+102.6~~
+852 -2.6

+2473.7
~~+5093.7~~ +1227.3
+1482.6
~~+4092.6~~ +1368.9
-2450.0 ✓
~~+160.0~~ +681.4 0 y 263 +654.7 from 2990 in y.

+1492.8 +1365.0

+1482.6 +1368.9
-2427.8 -613.9

The 3 meas of 8917 are:
654.2
654.2
654.7 not 655.1
Mean 654.4 .. 654.5 See p34
Corrected Dec 22 1900

Notation of Plates
A = Pl I = For 4915 } use -(C-A) and -(B-D)
D IV 4879
B II 4842 } .. +(C-A) .. -(B-A)
C III 4849
E V 4885

June 13, 1897.

24.45 Additional measures of Catalogue ~~Stars~~

√D4915 "A"		A.	B.	C.	D.	A+C	B+D	C−A	B−D	C−A ×2.03	B−D ×2.03	
√ off plate +89	7											
√	19	approx 125	10	5	120	130	130	−120	−110	−24.4	−22.3	
√ on extreme edge	21											
√	24	79	25	51	105	130	130	−28	−80	−5.7	−16.2	
√	28	59	62	71	68	130	130	+12	−06	+2.4	−1.2	
√	32	81	40	49	90	130	130	−32	−50	−6.5	−10.2	
√	33	85	86	45	45	130	131	−40	+41	−8.1	+8.3	
√	34	11	120	119	10	130	130	+108	+110	+21.9	+22.3	
√	38	~~45~~ approx 80	25	~~45~~ approx 50	105	130	130	−30	−80	−6.1	−16.2	
D4842 (B)												
√	33	35	approx. 60	94	approx. 70	129	130	+59	−10	+12.0	−2.0	
√ too near edge of plate to get a measure	34	~~approx 35~~	~~19~~	~~approx 94~~	~~110~~							
√	38	approx 35	19	approx 94	110	129	129	+59	−91	+12.0	−18.5	
D 4849 (C)												
√	21	approx. 110	9	approx 20	121	130	130	−90	−112	−18.3	−22.7	
D 4885 (D)												
√ off plate	7											
√	19	130	129	130	130	260	259	0	−1	0.0	−0.2	from 2 sqs in x + y
√	21	approx 120	9	approx 9	121	129	130	−111	−112	−22.5	−22.7	
√	24	42	11	88	119	130	130	+46	−108	+9.3	−21.9	
√	28	69	50	61	80	130	130	−8	−30	−1.6	−6.1	
√	32	48	30	82	approx 99	130	129	+34	−69	+6.9	−14.0	
√	33	41	75	89	55	130	130	+48	+20	+9.7	+4.1	
√	34	118	110	12	19	130	129	−106	+91	−21.5	+18.5	
√ 25.30	38	44	22	85	108	129	130	+41	−86	+8.3	−17.5	
D 4879 (E)												
√	21	approx 120	10	approx 21	120 →	141	130	−99	−110	−20.1	−22.3	
√ dbl 2		approx 25	120	approx 105	10	130	130	+80	+110	+18.3 16.2	+22.3	

x	y
-2427.8	+387.9

x y" 2480.4 + 335.3 added 1 div x because est + reduced with 3 mm + is meas from 2 mm p8 sec(b-A) = .9

subtracted 1 div y because est + reduced with 56 mm + is meas from 55 mm sec(B-D) = .9

x	y
-2393.9	-1564.4
-1297.4	-2473.6
+289.5	-2579.8
-24.5	-1746.7
+418.9	-2339.3
+2603.5	-565.0
-20.6	$-17\overset{36}{\cancel{40}}.4$
+2609.4	$-5\overset{62}{\cancel{99}}.7$
-2733.5	-505.9

x = -44.6

→ D4885 = E reduced as E. for est. see p9

x	y	x "	
-2478.5	~~+365.8~~ +339.5 ✓	-2478.5 ✓	no change in y
-2692.7	-505.9 ✓	-2737.7 ✓	
-2408.9	-1558.7 ✓	-2390.3 ✓	
-1293.4	-2468.7 ✓	-1296.6 ✓	
+276.1	$-25\overset{66.0}{\cancel{94.0}}$ ✓	+289.9 ✓	
-42.3	-1742.5 ✓	-22.9 ✓	
+462.3	-2335.5 ✓	+419.3 ✓	
+2589.1	-563.7 ✓	+2605.7 ✓	
-~~2695.1~~ 2735.3	-506.3 ✓		

D4879 = D reduced as D +1 div x, est + red. -2 mm + meas. -1 mm p8 sec(b-A) = .9 = 89.21

~~-2695.1~~ -2747.7 ✓ -506.3 → -2747.7

(Jan 1901 both to be remeas)

-2731.4 ✓ - ~~506.3~~ 559.9 -498.3 - 1 div y est + red. 39 + is meas. 40 sec(B-D) = .9

note June 4 1901 Prof. P. said reject the approx meas. of 89 214 + 216

see p211

Examination of Stars for which Resids from Mean of

June 19 1897 12:30

Plate E	Spm +89° Star 31	Reading	B 8.0 not 7.5	Rejected 3d measure Apr 10
	"	"	D 5.0 not 5.7	
E	35	"	A 1.1 not 0.1	Rejected 4th measure Mar 23
	"	"	6 11.9 not 12.9	
B	2	"	A apparently 12.0 time faint	Retain all
	"	"	B 1.5 not 2.0	
	"	"	6 uncertain line wanting	
	"	"	D 11.~~4~~0 not 11.4	
B ~~17~~	~~17~~	"	A 5.9 not 5.1	
	17	"	~~D~~ 6 7.0 not 7.4	Rejected 1st measure Mar 16.
6 6	23	"	A ~~5.1~~ 0.5 not 12.0	Apr. 20. Rejected 2d measure.
	"	"	B 1.5 not 0.6	
	"	"	6 12.4 not 1.0	
	"	"	D 11.6 not 12.4	
6	36	"	B 2.0 not 2.5	Reject 1st measure
	"	"	D 11.0 not 10.7	Mar. 16.
A	18	"	B 7.9 not 7.0	Reject 1st meas
	"	"	D 5.1 all right	May 2.
~~A~~	~~b~~	"	B 10.5 not 10.0	Retain all
	"	"	D 2.4 not 3.0	
	C	"	A 5.8 not 5.0	very faint
	"	"	6 7.8 not 6.9	Retain?
	d	"	A 12.0 not 12.5	Reject 2d meas
	"	"	6 0.9 ~~9.0~~ not 0.4 ~~4.0~~	
	e	"	B 2.9 not ~~2.2~~	Reject 4th meas
	"	"	D 10.1 not 10.8	June 13.
	K	"	A 3.8 not 3.1	Rejected 1st m
	"	"	C ~~8.3~~ 9.3 not 9.9	

measures equalled or exceeded 1.0 Plates A. B. C

Plate A Star C Reading A 5.5 not 5.0 or 6.0 } Retain all.
" " C 7.6 not 7.0 or 8.0

June 24 1897 11:30 am

Plate C Star +84 3 Reading B 13.0 sure Retain all
D 13.0 sure

Notes on Final Measured Values of Mean x and Mean y
Cases which differ from values used in 1st Least Sq Solution
also remeasures of lettered stars.

Plate A

			Remarks } Why a 4th meas. was made or why first value changed.
Dm No +89	2	{ Mean of 4 meas. adopted none equal or exceeding 1.0 } 4th meas. made because	Wanted an approx x, + y was measured also
within 3d of Pole	3*	" 4 " "	Resids from 3 meas. equalled 1.0
medge 3d	18*	" 3 " "	{ Resids from 3 meas exceeded 1.0 Meas. of May 2 rejected,
	b*	" 4 " "	Retain all
	c*	4	June 1901 (Retained all see note p 186 Resids exceed 1.0)
	d*	" 3 " "	Reject 2 meas. May 6 ~~date not in yet [illegible]~~
	e*	" 3 " "	" June 13
	f*	" 4 " "	Retain all
	k*	" 3 " "	Reject 1st meas
	l*	" 4 " "	Retain all.

Plate B

+89 2 { Mean of 4 meas. adopted with resids 6 14 64 in x and 3 3 5 13 in y } Resids from 3 meas exceeded 1.0
outside 3d 5a p { Mean 4. meas. adopted none equal or exceed 1.0 1.0 } Resids from 3 meas equalled 1.0
" 16 p → Mean y should be + 868.8 not 869.1 error in mean, corrected
17* { Mean of 3 meas. adopted none equal or exceed 1.0 } { Resids from 3 meas exceeded 1.0 Meas of Mar. 16 rejected
23 Mean y should be −613.6 not 613.3 error in mean. corrected

Plate D no changes made, same values Mean x and Mean y to be used in 2° Least Sq. Solution as in 1st Solution

Notes on pp 84 85 included

*On G + E a 4th Measure made of stars within 30' of N. Pole

Plate G

+89	1*	{Mean of 4 meas adopted {with resids in y 1.0 2 6 2	*4th meas. made because within 30' of N. Pole
	2	{mean of 4 meas adopted {with resids in y 1.1 1 7 1	Resids from 3 meas equalled 1.0 8 2 in y
‡	3*	{mean of 4 meas adopted {with resids in y 3 5 1.0 1	* Resids from 3 meas exceeded 1.0
	4*	{mean of 4 meas adopted {none equal or exceed 1.0	*
outside 30	5a	" 3 " "	only 2 meas. taken originally
	12*	" 4 " "	*
outside 30	16?	{Mean of 4 meas adopted {with resids in y 1.0 3 7 1	no apparent reason for a 4th. Resids 1 1 1 + 9 8 2
	23	{Mean of 3 meas adopted {none equal or exceed 1.0	{Resids from 3 meas exceeded 1.0 {Meas of Apr 20 rejected in 1st solution also
	26*	{mean of 4 meas. adopted {none equal or exceed 1.0	*
	29*	" 4 " "	*
	31*	" 4 " "	*
	35*	" 4 " "	*
	36*	{Mean of ~~4~~ 3 meas, adopted {none equal or exceed 1.0	*, {Resids from 3 meas exceeded 1.0 {Meas of Mar 16 rejected
	37*	{Mean of 4 meas adopted {none equal or exceed 1.0	*

Plate E

1*	{mean of 4 meas adopted {none equal or exceed 1.0	*
3*	" 5 " "	*retain all 5 meas
4*	" 4 " "	*
6	Mean x should be +20'24".7 not +20'24".6 error in mean, corrected	
12*	{Mean of 4 meas adopted {none equal or exceed 1.0	*
23	{Mean of 4 meas adopted {none equal or exceed 1.0	no apparent reason for a 4th, Resids 4 2 2 + 3 1 3
26*	{mean of 4 meas adopted {none equal or exceed 1.0	*
29*	" 4 " "	*
31*	" 4 " "	*{Resids from 3 meas exceeded 1.0 {has 5 meas Apr 10 rejected
→ 35*	" 3 " "	* meas of Mar 23 rejected in 1st Solution also
36*	" 4 " "	*
37*	" 4 " "	*

1st Solution by Least Squares

	X Equations	Y Equations
A pp70-71	$-65.9'' = -80.4a \overset{(+44.6)\ p142}{+44.4b} +17c$	$+20.1'' = +56.6a' +55.7b' +18c'$
	$+653.6 = +3304.1a \overset{(+685.9)}{+685.6b} -80.4c$	$-165.2 = -986.9a' +3914.2b' +55.7c'$
	$-92.7 = +685.6a \overset{(+1965.0)}{+1959.2b} +44.4c$	$+391.8 = +2108.0a' -986.9b' +56.6c'$
	$a = +.12156$	$a' = +.16405$
	$b = -.01575$	$b' = -.01006$
	$c = -3.27$	$c' = +.64$
B pp62-63	$-2.4 = -55.7a \overset{(56.8)\ p148}{+56.6b} +18c$	$+70.5 =$ same as for A
	$+214.8 = +3914.2a \overset{(987.2)}{+986.9b} -55.7c$	$+166.1 =$ same as for A
	$+41.7 = +986.9a \overset{(2113.8)}{+2108.0b} +56.6c$	$+279.8 =$ same as for A
	$a = +.05828$	$a' = +.02643$
	$b = -.00953$	$b' = -.00579$
	$c = +.08$	$c' = +3.86$
C pp76-77	$+13.2 =$ same as for B	$+67.7 =$ same as for A
	$-11.5 =$ same as for B	$+62.3 =$ same as for A
	$+31.4 =$ same as for B	$+264.3 =$ same as for A
	$a = +.01148$	$a' = +.00385$
	$b = -.01218$	$b' = -.03798$
	$c = +.80$	$c' = +3.87$
D pp56-57	$-43.0 =$ same as for B	$+59.9 =$ same as for A
	$+421.5 =$ same as for B	$+329.6 =$ same as for A
	$+1.2 =$ same as for B	$+222.9 =$ same as for A
	$a = +.06757$	$a' = +.05032$
	$b = +.03006$	$b' = +.05383$
	$c = -2.27$	$c' = +3.00$
E pp52-53	$-40.3 =$ same as for B	$+60.8 =$ same as for A
	$+345.6 =$ same as for B	$+299.5 =$ same as for A
	$-16.8 =$ same as for B	$+242.8 =$ same as for A
	$a = +.05060$	$a' = +.05467$
	$b = +.02645$	$b' = +.04654$
	$c = -2.16$	$c' = +3.07$

Computed values X Y used in Equations

2° Solution by Least Squares

pp180–183 See ~~loose sheets~~ my comps.
also pp148–170 Miss Woods

A pp180-1 −66.0 =	Equations same as on preceding page in both X + Y			+19.7 =			
+655.4 =				−173.4 =			
−92.9 = −93.7				+391.4 = +391.9			
a =	+.12212	+.12245	pp142-3	a′ =	+.16393	+.16362	
b =	−.01578	−.01647		b′ =	−.01172	−.01166	pp142–143
c =	−3.26	−3.26		c′ =	+.62	+.61	
B pp180-1 −3.0 =				+71.1 =			
+239.4 =				+161.2 =			
+38.9 = +39.1				+286.1 = +286.9			
a =	+.06568	+.06595	pp148-9	a′ =	+.02763	+.02806	
b =	−.01427	−.01439		b′ =	−.00720	−.00706	pp148–149
c =	+.08	+.08		c′ =	+3.89	+3.88	
C pp182-3 +13.6 =				+67.9 =			
−11.0 =				+68.1 =			
+34.0 = +34.2				+250.4 = +251.0			
a =	+.01198	+.01205	pp154-5	a′ =	−.00452	−.00459	
b =	−.01190	−.01195		b′ =	−.03923	−.03939	pp154–155
c =	+.83	+.84		c′ =	+3.90	+3.91	

pp 56–57

D I made no 2 Sol; for Miss Woods see pp 158–161

No errors in 1st Sol + no changes by ~~reme~~ eval. no recomputation.

+1.1			+223.5		
a	+.06777	pp160-1	a′	+.05017	
b	+.03004		b′	+.05415	pp160-161
c	−2.27		c′	+3.00	

E pp182-3 −40.2 =				+60.1 =			
+346.7 =				+307.3 =			
−16.1 = −16.2				+245.8 = +246.5			
a =	+.05102	+.05126	pp166-7	a′ =	+.05990	+.06017	
b =	+.02652	+.02616		b′ =	+.05083	+.05116	pp166–167
c =	−2.15	−2.15		c′ =	+3.00	+2.99	

Miss Woods Plates 6 + 16 Y/100 = 243 + 8.7 } respectively

all within
500 both
co-ord

20 sec. to g
20"

Pl. σ
a = +.00012 a' −.00005
b = −.00012 b' −.00039
c = +.84 c' +3.90

Measures of Positions of Stars within 30' of

See p132 for Cat. Stars which precede No. 1

		D4849 = σ		D4885 = ε		σ − ε		σ			ε		
		x	y	x	y	x	y	ax	by	Σ	ax	by	Σ
	1	*(−1835.2	−67.4) →	−1835.0	−68.6						.94	.02	−3.11
	2	(−1825.1	−91.6) →	−1824.5	−90.1						.93	.02	−3.10
	3	(−1800.7	+382.0) →	−1800.7	+381.8						.92	.10	−2.95 7
v. p196–9 +89 16	4	−1784.6	−116.7	−1788.5	−114.5	+3.9	−2.2	.21	.01	+.64	.91	.03	−3.1 09
p210	5	−1781.8 −1782.2	−246.5 −246.7	−1775.7 −1776.3	−241.0 −241.0	−6.1 −5.9	−5.5 −5.7	.21	.03	+.66	.91	.06	−3.12
	6	−1756.8	+96.7	−1759.7	+98.5	+2.9	−1.8	.21	.01	+.62	.90	.03	−3.02
	7	(−1736.1	+349.4) →	−1736.1	+349.4						.89	.09	−2.95
	8	−1693.5	−115.7	−1697.5	−113.7	+4.0	−2.0	.20	.02	+.65	.87	.03	−3.05
	9	−1688.6	−158.4	−1691.4	−157.2	+2.8	−1.2	.20	.02	+.66	.86	.04	−3.05
	10	−1663.4	+201.7	−1665.6	+203.7	+2.2	−2.0	.20	.02	+.62	.85	.05	−2.95
	11	−1664.2	+685.1	−1666.7	+687.5	+2.5	−2.4	.20	.08	+.56	.85	.18	−2.82
p196–9 +89 25	12	−1639.0	−463.2	−1641.9	−461.8	+2.9	−1.4	.20	.06	+.70	.84	.12	−3.11
	13	−1635.4	−381.6	−1638.8	−380.5	+3.4	−1.1	.20	.04 5	+.69	.84	.10	−3.09
	14	−1630.1	+215.5	−1632.7	+217.3	+2.6	−1.8	.20	.03	+.61	.83	.06	−2.92
p206	15	−1584.3	+797.4	−1586.2	+799.4	+1.9	−2.0	.19	.10	+.55	.80 1	.21	−2.74 5
	16	−1582.2	+966.5	−1584.8	+968.6	+2.6	−2.1	.19	.12	+.53	.80 1	.25	−2.78 1
	17	−1567.7	+920.9	−1569.6	+922.1	+1.9	−1.2	.19	.11	+.54	.80	.24	−2.71
	18	−1547.8	+277.5	−1551.5	+278.9	+3.7	−1.3 4	.19	.03	+.62	.79	.07	−2.87
	19	−1546.8	+60.6	−1549.3	+60.2	+2.5	+0.4	.19	.01	+.64	.79	.04 .02	−2.98 2
	20	−1526.9	−469.5	−1529.8	−467.7	+2.9	−1.8	.18	.06	+.60 +.72	.78	.12	−3.05
	21	−1517.8	−441.7	−1519.8	−439.6	+2.0	−2.1	.18	.05	+.71	.78	~~+.12~~ 11	−3.05 4
	22	−1506.8	−295.3	−1508.6	−293.0	+1.8	−2.3	.18	.04	+.70	.78 7	.08	~~−2.99~~ 3.00
	23	−1524.3	−168.6 5	−1527.9	−158.0	+3.6	~~−10.6~~ −0.6	.18	.02	+.68	.78	.04	−2.97
	24	−1527.5	−115.3	−1530.0	−114.3	+2.5	−1.0	.18	.02 1	+.67	.78	.03	−2.96
	25	−1516.0	+548.6	−1519.4	+550.8	+3.4	−2.2	.18	.07	+.59	.78 7	.14	−2.79 8
	26	−1483.1	+943.8	−1485.9	+946.0	+2.8	−2.2	.18	.11	+.55	.75 6	.25	−2.65 6
	27	−1476.3	+88.8	−1480.2	+90.4	+3.9	−1.6	.18	.01	+.65	.75	~~.03~~ .02	−2.87 8

+ p. 2 5ps

*(Remeas. or 2nd meas. of stars on 1 pl. only in this col. are "probably defects" D 2885 see Bk 21 p78)

Pl E
a +0.0051   a' +0.0060
b +0.0026   b' +0.0051
c − 2.15   c' +3.00

(Tabulated Values used See Envelope 2 of Supplementary Sheets.)

North Pole.

	B			E		B	E	B	E	diff B−E		Means
a'y	−b'x	Σ	a'y	−b'x	Σ	corr x	corr x	corr y	corr y	Corr x	Corr y	Chkd on copy Table II
			.04	.94	+3.90	(−1832.1)	−1831.9		−72.5 −71.3			✓
			.05	.93	+3.88	(−1822.0)	−1821.4		−94.0 −95.5			✓
			.23	.92	+4.15	(−1797.7)	−1797.7		+377.6 +377.8			✓
~~.00~~ .01	~~.70~~ .69	+3.21	~~.06~~ .07	.91	+3.84	−1785.2	−1785.4	−119.9	−118.3	+.2	−1.6	
.01	.69	+3.22	~~.15~~ .14	.91	+3.7~~6~~7	−1782.5 −1782.9	−1772.6 −1773.2	−249.7 −249.9	−244.8 −244.8	~~+0.1~~ −9.9 −9.7	−4.9 −5.1	1780.5 865.0 ✓ p134
0.0	~~.68~~ .69	+3.22	.06	~~.89~~ .90	+3.95	−1757.4	−1756.7	+93.5	+94.5	−0.7	−1.0	
~~.01~~			.21	.89	+4.10	(−1733.1)	−1733.1	(+345.3)	+345.3			✓
.01	.66	+3.25	~~.08~~ .07	.87	+3.~~79~~ 80	−1694.1	−1694.5	−118.9	−117.5	+0.4	−1.4	
.01	.66	+3.25	.09	~~.87~~ .86	+3.7~~8~~7	−1689.3	−1688.4	−161.6	−161.0	−0.9	−0.6	
.01	.65	+3.24	.12	.85	+3.97	−1664.0	−1662.6	+198.5	+199.7	−1.4	−1.2	
.03	.65	+3.22	.41	.85	+4.26	−1664.8	−1663.9	+681.9	+683.2	−0.9	−1.3	1649.5 872.9
.02	.64	+3.28	~~.27~~ .28	.84	+3.5~~7~~6	−1639.7	−1638.8	−466.5	−465.4	−0.9	−1.1	
.02	~~.63~~ .64	+3.2~~9~~8	~~.22~~ .23	.84	+3.6~~2~~1	−1636.1	−1635.7	−384.9	−384.1	−0.4	−0.8	
.01	~~.63~~ .64	+3.2~~6~~5	~~.14~~ .13	.83	+3.9~~7~~6	−1630.7	−1629.8	+212.~~2~~3	+213.3	−0.9	~~0.0~~ −1.0	
.04	~~.61~~ .62	+3.2~~5~~4	.48	.8~~2~~1	+4.2~~8~~9	−1584.9	−1583.~~5~~4	+794.2	+795.1	−1.5	−0.9	
.05	~~.61~~ .62	+3.2~~4~~3	.58	.8~~2~~1	+4.3~~8~~9	−1582.7	−1582.1	+963.3	+964.2	−0.6	−0.9	
.05	.61	+3.24	.55	.80	+4.35	−1568.2	−1566.9	+917.7	+917.7	−1.3	0.0	
.01	.60	+3.29	~~.16~~ .17	.79	+3.9~~5~~6	−1548.4	−1548.6	+274.2	+274.9	+0.2	−0.7	
.00	.60	+3.30	~~.03~~ .04	.79	+3.8~~2~~3	−1547.4	−1546.4	+57.3	+56.4	−1.0	+0.9	
.02	.60	+3.32	.28	.78	+3.50	−1527.~~5~~6	−1526.8	−472.8	−471.2	−0.8	−1.6	
.02	.59	+3.3~~2~~3	~~.27~~ .26	.78	+3.5~~1~~2	−1518.5	−1516.8	−445.0	−443.1	−1.7	−1.9	
.0~~2~~1	~~.58~~ .59	+3.3~~4~~2	.18	.77	+3.59	−1507.5	−1505.6	−298.6	−296.6	−1.9	−2.0	
.01	.59	+3.32	.09	.78	+3.69	−1525.0	−1524.9	−161.9	−161.7	−0.1	−0.2	
.01	~~.59~~ .60	+3.3~~2~~1	.07	.78	+3.71	−1528.2	−1527.0	−118.6	−118.0	−1.2	−0.6	
.03	.59	+3.28	.33	.7~~8~~7	+4.1~~7~~9	−1516.6	−1516.6	+545.3	+546.7	0.0	−1.4	
.05	.58	+3.27	.57	.7~~5~~6	+4.3~~2~~3	−1483.7	−1483.~~3~~2	+940.5	+941.7	−0.5	−1.2	
.00	.58	+3.32	~~.06~~ .05	.75	+3.8~~1~~0	−1476.9	−1477.3	+85.5	+86.6	+0.4	−1.1	

		D4849		D4885		𝒞−ℰ		𝒞			ℰ			
		x	y	x	y	x	y	ax+by		Σ	ax+by		Σ	a
	28	-1469.2	-439.4	-1472.3	-438.0	+3.1	-1.4	.18	.05	+.71	.75	.11	-3.01	.0
	29	-1466.6	-38.6	-1468.2	-37.1	+1.6	-1.5	.18	~~.01~~ .00	+.6~~7~~6	.75	.01	-2.91	.0
	30	-1433.9	-1090.4	-1435.5	-1089.1	+1.6	-1.3	.17	.13	+.80	.73	.28	-3.16	.0
	31	-1422.5	-777.0	-1426.4	-774.8	+3.9	-2.2	.17	.09	+.76	.73	.20	-3.08	.0
	31a	-1451.0	+748.8	-1454.8	+750.0	+3.8	-1.2	.17	.09	+.58	.74	.20	-2.69	.0
	32	-1379.7	-454.3	-1382.1	-453.7	+2.4	-0.6	~~.16~~ .17	.05	+.7~~3~~2	.70	.12	-2.97	.0
	33	~~N.S.~~ (-1388.0	-337.1)	-1387.4	-336.7						.71	.09 ~~.08~~	-2.95	
	34	-1382.1	-99.7	-1385.4	-99.1	+3.3	-0.6	~~.16~~ .17	.01	+.6~~9~~8	~~.70~~ .71	~~.09~~ .03	-2.8~~8~~9 2.89	.0
p206	35	-1410.6	+~~496.7~~ 497.1	-1413.4	+498.6	+2.8	~~-1.7~~ -1.5	.17	.06	+.61	.72	.13	-2.74	.0
	36	-138~~2.3~~ 4.4	+552.0	-1388.0	+553.7	~~+5.1~~ +3.6	-1.7	~~.16~~ .17	.07	+.6~~1~~0	.71	.14	-2.72	.0
	37	-1389.4	+1229.1	-1391.1	+1230.3	+1.7	-1.2	.17	.15	+.52	.71	.32	-2.54 ~~3.13~~	.0
	38	-1341.1	-1170.0	-1344.6	-1170.0	+3.5	0.0	.16	.14	+.82	~~.68~~ .69	.30	-3.14	.0
	39	-1325.7	-896.0	-1329.3	-894.8	+3.6	-1.2	.16	.11	+.79	.68	.23	-3.06 2.85	.0
p207	40	-1317.5	-121.6	-1321.2	-121.8	+3.7	+0.2	.0~~2~~1	+.69	~~.68~~ .67	.03	-2.8~~8~~5	.0
	41	-1313.3	+1219.2	-1315.3	+1221.4	+2.0	-2.2	.16	.15	+.53	.67	.32	-2.50	.0
	42	~~N.S.~~ (-1309.2	+458.6)	-1309.0	+458.6						.67	.12	-2.70	
p206	43	-1301.1	+602.5	-1303.9	+603.0	+2.8	-0.5	.16	.07	+.61	.66	.16	-2.65	.0
p196-9 +89 28	44	-1266.2	+432.6	-1268.6	+434.4	+2.4	-1.8	.15	.05	+.64	.65	.11	-2.69	.0
	45	-1250.7	-1275.8	-1254.0	-1275.4	+3.3	-0.4	.15	.15	+.84	.64	.33	-3.12	.0
	46	-1230.0	-1244.7	-1232.7	-1242.9	+2.7	~~+~~-1.8	.15	.15	+.84	~~.62~~ .63	.32	-3.~~09~~10	.0
	47	~~N.S.~~ (-1256.6	-950.4)	-1253.8	-949.4						.64	.25	-3.04	
	48	-1232.2	-954.3	-1234.3	-953.5	+2.1	-0.8	.15	.11	+.80	.63	.25	-3.03	.0
	48a	-1249.1	+234.8	-1252.8	+236.0	+3.7	-1.2	.15	.03	+.66	.64	.06	-2.73	.0
	49	-1211.9	-508.1	-1213.3	-508.3	+1.4	+0.2	~~.14~~ .15	.06	+.7~~6~~5	.62	.13	-2.90	.0
p210	50	-1200.2 -1200.0	-1199.2 -1198.6	-1203.8 -1204.0	-1197.2 -1198.2	+3.6 +4.0	-2.0 -0.4	.14	.14	+.84	.61	.31	-3.07	.0
	51	-1179.4	+167.0	-1181.7	+169.2	+2.3	-2.2	.14	.02	+.68	.60	.04	-~~2.59~~ 2.71	.0
	52	-1185.7	+298.8	-1189.0	+299.2	+3.3	-0.4	.14	.04	+.66	.61	.08	-2.68	.0

+59.7 -25.3 +0.4

1897phae.proj.1669V

	C			E			C	E	C	E	C−E	
	a'y	−b'x	Σ	a'y	−b'x	Σ	Corr. x	Corr. x	Corr. y	Corr. y	Corr. x	Corr. y
01	.02	~~.58~~ .57	+3.35	.26	+.75	+3.49	−1469.9	−1469.3	−442.8	−441.5	−0.6	−1.3
91	.00	.57	+3.33	.02	.75	+3.73	−1467.3	−1465.3	−41.8	−40.8	−2.0	−1.1
16	.05	.56	+3.39	.65	~~.74~~ .73	+3.08	−1434.7	−1432.3	−1093.4	−1092.2	−2.4	−1.6
08	.04	.55	+3.39	.46	.73	+3.27	−1423.3	−1423.3	−780.3	−778.1	0.0	−2.3
69	.04	.57	+3.29	.45	.74	+4.19	−1451.6	−1452.1	+745.5	+745.8	+0.5	−0.3
97	.02	.54	+3.38	.27	.70	+3.43	−1380.4	−1379.1	−457.7	−457.1	−1.3	−0.6
95				.20	.71	+3.51	(−1385.0) →	−1384.4		−340.2 −340.6		
89	.00	.54	+3.36	.06	.71	+3.65	−1382.8	−1382.5	−103.1	−102.7	−0.3	−0.4
74	.02	.55	+3.33	.30	.72	+4.02	−1411.2	−1410.7	+493.8 ~~−500.4~~	+494.6	−0.5	−0.8
72	.03	.54	+3.33	.33	.71	+4.04	−1385.0	−1385.3	+548.7	+549.7	+0.3	−1.0
54	.06	.54	+3.30	.74	.71	+4.45	−1389.9	−1388.6	+1225.8	+1225.9	−1.3	−0.1
14	.06	~~.53~~ .52	+3.44	.70	.69	~~+3.71~~ +2.99	−1341.9	−1341.5	−1173.4	−1173.0	−0.4	−0.4
06	.04	.52	+3.42	.54	~~.67~~ .618	+3.14	−1326.5	−1326.2	−899.4	−897.9	−0.3	−1.5
85	.01	.51	+3.40	.07	.67	+3.60	−1318.2	−1318.4	−125.0	−125.4	+0.2	+0.4
50	.06	.51	+3.33	.73	.67	+4.40	−1313.8	−1312.8	+1215.9	+1217.0	−1.0	−1.1
70				.28	.67	+3.95	(−1306.5) →	−1306.3		+454.6 +454.6		
.65	.03	.51	+3.36	.36	.66	+4.02	−1301.7	−1301.3	+599.1	+599.0	−0.4	+0.1
69	.02	~~.50~~ .49	+3.39	.26	~~.64~~ .65	+3.91	−1266.8	−1265.9	+429.2	+430.5	−0.9	−1.3
12	.06	.49	+3.47	~~.76~~ .77	.64	+2.87	−1251.5	−1250.9	−1279.3	−1278.3	−0.6	−1.0
10	.06	.48	+3.48	.75	.63	+2.88	−1230.8	−1229.6	−1248.2	−1245.8	−1.2	−2.4
3.04				.57	.64	+3.07	(−1253.6) →	−1250.8		−952.5 −953.5		
03	.05	.48	+3.47	.57	.63	+3.06	−1233.0	−1231.3	−957.8	−956.6	−1.7	−1.2
73	.01	.49	+3.40	.14	.64	+3.78	−1249.8	−1250.1	+231.4	+232.2	+0.3	−0.8
90	.03	.47	+3.46	.30	.62	+3.32	−1212.7	−1210.4	−511.6	−511.6	−2.3	0.0
07	.06	.47	+3.49	.72	.61	+2.89	−1201.0 −1200.8	−1200.7 −1200.9	−1202.7 −1202.1	−1200.1 1201.1	−0.3 +0.1	−2.6 −1.0
71	.01	.46	+3.43	.10	.60	+3.70	−1180.1	−1179.0	+163.6	+165.5	−1.1	−1.9
68	.01	.46	+3.43	.18	.61	+3.79	−1186.4	−1186.3	+295.4	+295.4	−0.1	0.0
											+0.4	+0.5
											−18.7	−22.5

1292.9 2470.8

p 134.

Remeas. Ent. from Bk21 pp176-87

		D4849		D4885		C-E		C			E			
						x	y	ax+by		Σ	ax+by		Σ	a'y
p210	53	-1188.8	+782.7	-1186.3	+782.3	-2.5	+0.4	.14	.09	+.61	.6~~0~~ 1	.20	-2.5~~5~~ 6	.0
		-1187.8	+782.5	-1185.7	+782.5	-2.1	0.0							
	54	~~N.S.~~		-1180.3	+794.5						.60	.21	-2.54	
				1181.7	+794.7									
	55	~~N.S.~~		-11~~87~~65.4	+811.8						.59	.21	-2.53	
				-1165.4	+811.2									
	56	~~N.S.~~		-1202.0	+1118.2						.61	.29	-2.47	
				-1202.0	+1118.4									
	57	~~N.S.~~		-1168.1	+1100.2						.60	.29	2.46	
				-1169.5	+1100.0									
	57a	-11~~7~~66.7	+1385.3	-1169.5	+1387.3	+2.8	-2.0	.14	.17	+.53	.			.0
	58	-1134.6	-1368.4	-1138.2	-1368.4	+3.6	0.0	.14	.16	+.86	.58	.36	-3.09	.0
	59	~~N.S.~~		-1134.0	-1218.5						.58	.32	-3.05	
				-1135.2	-1218.5									
	60	-1156.1	-1051.6	-1159.5	-1050.5	+3.4	-1.1	.14	.13	+.83	.59	.27	-3.01	.0
	61	-1130.7	-1043.2	-1135.0	-1042.4	+4.3	-0.8	.14	~~.12~~ 13	+.8~~2~~3	~~.57~~ .58	.27	~~-2.99~~ -3.00	.0
	62	-1135.2	-991.6	-1139.0	-989.8	+3.8	-1.8	.14	.12	+.82	.58	.26	-2.99	.0
	62a	-1133.5	-~~6~~746.1	-1137.2	-745.1	+3.7	-1.0	.14	.09	+.79				.0
	63	-1120.8	-304.0	-1123.2	-303.8	+2.4	-0.2	.13	.04	+.75	.57	.08	-2.80	.0
	64	-1127.5	-263.6	-1130.9	-264.2	+3.4	+0.6	.14	.03	+.73	~~.57~~ .58	.07	-2.~~79~~ 80	.0
	65	-1137.6	+940.5	-1140.4	+942.0	+2.8	-1.5	.14	.11	+.59	.58	.24	-2.~~79~~ 81	.0
	65a	-1138.6	+1124.3	-1141.3	+1126.4	+2.7	-2.1	.14	.13	+.57				.0
	66	-1134.6	+1202.7	-1137.4	+1204.6	+2.8	-1.9	.14	.14	+.56	.58	.31	-2.42	.0
	67	-1076.5	-303.6	-1078.7	-302.0	+2.2	-1.6	.13	.04	+.75	.55	.08	-2.78	.0
	68	-1092.1	-275.8	-1094.5	-274.5	+2.4	-1.3	.13	.03	+.74	.56	.07	-2.78	.0
+89° 26 p196-9	69	-1064.5	-248.5	-1067.8	-248.3	+3.3	-0.2	.13	.03	+.74	~~.55~~ .54	.06	-2.75	.0
	70	-1086.6	+119.0	-1088.9	+119.2	+2.3	-0.2	.13	.01	+.70	~~.55~~ .56	.03	-2.6~~7~~ 8	.0
	71	N.S.		-1088.5	+410.1						.56	.11	-2.60	
				-1088.7	+410.1									
p207	72	-1085.8	+706.0	-1088.7	+707.0	+2.9	-1.0	.13	.08	+.63	~~.55~~ .56	.18	-2.5~~2~~ 3	.0
	73	-1072.2	+768.1	-1074.4	+768.7	+2.2	-0.6	.13	.09	+.62	.55	.20	-2.50	.0
4885	74	N.S.		-1023.9	-1263.4						.52	.33	-3.00	
				-1025.9	-1263.0									
D.y.?	75	N.S.		-1026.1	-490.0						.52	.13	-~~3~~ 2.80	
	76	-1003.8	+49.2	-1007.4	+49.0	+3.6	+0.2	.12	.01	+.71	.57	.01	-2.65	.

v = Ex. compared

	C			E			C	E	C	E	C−E Corr.		
Σ	a'y	-b'x	Σ	a'y	-b'x	Σ	Corr. x	Corr. x	Corr. y	Corr. y	x	y	
·6 .55	.04	.46	+3.40	.47	+.~~60~~ .61	8 +4.07	-1189.4 -1188.4	-1183.7 -1183.1	+779.3 +779.1	+778.2 +778.4	-5.7 -5.3	+1.1 +0.7	p 134
.54				.48	.60	+4.08		-1177.8 -1179.2		+790.4 +790.6			
.53				.49	.59	+4.08		-1162.9 -11,62.9		+807.7 +807.1			
.47				.67	.61	+4.28		-1299.5 -1199.5		+1113.9 +1114.1			
.46				.66	.60	+4.26		-1165.6 -1167.0		+1095.9 +1095.7			
	.07	.46	+3.37				-1167.2	-1167.1	+1381.9	+1382.9	-0.1	-1.0	
.09	.0~~6~~7	.44	+3.53	~~.80~~ .82	.58	.5 +2.76	-1135.5	-1135.1	-1371.9	71.2 -1365.6	-0.4	-0.7	
.05				.73	.58	+2.85		-1131.0 -1132.2		-1221.3 -1221.3			
.01	.0~~6~~5	.45	+3.50	~~.64~~ .63	.59	5 +2.96	-1156.9	-1156.5	-1055.1	-1053.5 4	-0.4	-1.6	
.00 .99	.0~~6~~5	.44	+3.51	~~.64~~ .63	.58	x +2.95	-1131.5	-1132.0	-1046.7	45.3 -1039.5	+0.5	-1.3	
.99	.0~~6~~5	.44	+3.51	~~.60~~ .59	.58	8 +2.99	-1136.0	-1136.0	-995.1	-992.8	0.0	-2.3	
	.04	.44	+3.50				-1134.3 -~~1121.6~~	-1134.3	-749.6	-748.2	0.0	-1.4	
.80	.0~~6~~2	.44	+3.48	.18	.57	+3.39	.16 -112~~8.2~~	-1120.4	-307.5	-307.2	-1.2	-0.3	
80 .79	.0~~6~~1	.44	+3.47	.16	.58 ~~.57~~	2 +3.44	2 -1138.2	-1128.1	-267.1	-267.6	-0.1	+0.5	
.81 .49	.05	.44	+3.41	.57	.58	+4.15	-1138.2	-1137.9	937.1 + 38	+937.8	-0.3	-0.7	
	.06	.44	+3.40				9 -113~~5~~.2	-1138.9	+1120.9	+1122.1	-0.3	-1.2	
.42	.06	.44	+3.40	~~.73~~ .72	.58	x +4.30	-1135.2 -~~1077.3~~	-1135.0	+1199.3	+1200.3	-0.2	-1.0	
.78	.02	.42	+3.50	.18	.55	+3.37	-1077.3 -~~1092.8~~	-1075.9	-307.1	-305.4	-1.4	-1.7	
.78	.01	.43	+3.48	~~.17~~ .16	.56	.39 +3.48	-1092.8	-1091.7	-279.3	-277.9	-1.1	-1.4	
.5 .77	.01	.42 ~~.41~~	+3.49 ~~+3.50~~	.15	.54	+3.39	-1065.2	-1065.0	-252.0	-251.7	-0.2	-0.3	1064.7 252.0
8 .67	~~.00~~ .01	.42	+3.47	.07	.56 ~~.55~~	3 +3.62	-1087.3	-1086.2	+115.5	+115.6	-1.1	-0.1	
.60				.25	.56	+3.81		-1085.9 -1086.1		+406.3 +406.3			
3 .52	.04	.42	+3.44	~~.43~~ .42	.56 ~~.56~~	8 +3.97	-1086.4	-1086.2	+702.6	+703.0	-0.2	-0.4	
.50	.04	.42	+3.44	~~.47~~ .46	.55	2 +4.01	-1072.8	-1071.9	+764.7	+764.7	-0.9	0.0	
3.00				.76	.52	+2.76		-1020.9 -1022.9		-1266.2 -1265.8			
2. .80				.29	.52	+3.23		-1023.3		-493.2			Defect D4885 75
.65	.00	.39	+3.51	.03	.51	+3.54	-1004.5	-1004.8	+45.7	+45.5	+0.3	+0.2	

		D4849		D4885		C-E		C			E		
						x	y	ax+by		Σ	ax+	by	Σ
D4885 Def.?	77	N.S.		-1042.8 -1043.0	+304.9 +304.9						.53	.08	-2.60
	78	N.S.		-1010.1 -1011.7	+909.9 +909.9						.52	.24	-2.43
	79	N.S.		-1009.7 -1009.7	+925.5 +925.9						.51	.24	-2.42
	80	-1047.4	+937.1	-1050.1	+938.1	-2.7	-1.0	×2 .13	.11	+.60	.54	.24	-2.45
	81	-1034.0	+942.2	-1035.2	+944.2	+1.2	-2.0	.12	.11	+.61	3 .5~~2~~	.25	3 -2.4~~2~~
	82	-1038.7	+977.3	-1041.9	+978.5	+3.2	-1.2	.12	.12	+.60	.53	.25	-2.43
p207	83	-1025.9	+1073.6	-1028.8	+1075.4 ~~1128.0~~	+2.9	-1.8	.12	.13	+.59	.52	.28	3 -2.~~7~~9
+89.12 p196-9 Mr Kings dbl see p136	84	-1016.6	+1322.6	-1019.8	+1322.8	+3.2	-0.2	.12	.16	+.56	.52	.34	-2.33
	85	-990.8	-1393.1	-993.6	92 -13~~88~~.5	+2.8	-0.6	.12	.17	+.89	.51	.36	-3.02
	86	-953.4	9 -~~8~~94.7	-955.0	-993.7	+1.6	-1.0	.11	.12	+.85	9 .4~~8~~	.26	90 -2.~~89~~
	87	-956.9	-500.6	-959.3	-500.4	+2.4	-0.2	.11	.06	+.79	9 .4~~8~~	.13	7 -2.7~~6~~
	88	-992.2	-299.3	-996.5	-299.5	+4.3	+0.2	.12	.04	+.76	.51	.08	-2.74
	89	-997.7	+278.7	-1001.9	+278.9	+4.2	-0.2	.12	.03	+.69	.51	.07	-2.59
4885 dbl.? or def.? Br obj a def. It was a star. Mr Wells note.	90	N.S.		-989.3 -989.6	+517.7 +517.3	(-987.5 +519.5 -987.5 +519.3)		faint object			.50	.13	-2.52
	91	-983.7	+546.9	-985.9	+547.8	+2.2	-0.9	.12	.07 ~~.06~~	5 +.6~~8~~	.50	.14	-2.51 ~~79~~ 77
	92	-992.4	+597.1	-994.4	+598.3	+2.0	-1.2	.12	.07	+.65	.51	.16	-2.50
	92a	-969.2	+636.3	-971.3	+636.7			.12	.08	+.64			
	93	-957.1	+651.3	-959.1	+652.8	+2.0	-1.5	.11 ~~.12~~	.08	5 +.6~~4~~	9 .4~~8~~	.17	7 -2.4~~6~~
	94	N.S.		-981.2 -980.8	+1156.0 +1156.6						.50	.30	-2.35
	95	N.S.		-961.1 -961.7	+1144.9 +1144.4						.49	.30	-2.34
p207	96	-949.9	-1329.0	-953.2	-1327.8	+3.3	-1.2	.11	.16	+.89	.49	.35	-2.99
	97	-929.6	-1123.4	-932.9	-1121.8	+3.3	-1.6	.11	.13	+.86	8 .4~~7~~	.29	2 -2.9~~1~~
	98	-941.2	+118.0	-943.2	+118.8	+2.0	-0.8	.11	.01	+.72	.48	.03	-2.60
	99	N.S.		-931.5 -930.9	+363.6 +363.6						.48	.09	-2.54
	100	-917.5	+820.5	-920.7	+821.1	+3.2	-0.6	.11	.10	+.63	.47	.21	-2.41
	101	900.8 -~~848.2~~	+1325.8	-902.4	+1326.8	+1.6	-1.0	.11	.16	+.57	.46	.34	-2.27
	101a	-881.9	-1546.3	-886.0	-1546.3	+4.1	0.0	.11	.19	+.92			

C a'y −	b'x	Σ	E a'y −	b'x	Σ	C Corr. x	E Corr. x	C Corr. y	E Corr. y	C−E Corr. x	y	
			.18	.53	+3.71		−1040.2 −1040.4		+301.2 +301.2			
			.55	.52	+4.07		−1007.7 −1009.3		+905.8 +905.8			
			.56	.51	+4.07		−1007.3 −1007.3		+921.4 +919.8			
.05	.41	+3.44	.56 ~~.57~~	.54	+4.10	−1048.0	−1047.7	+933.7	+934.0	−0.3	−0.3	
.05	.40	+3.45	~~.58~~ ~~.56~~ .57	.53	+4.~~09~~10	−1034.6	−1032.8	+938.8	+940.1	−1.8	−1.3	
.05	~~.40~~ .41	+3.4~~5~~4	~~.60~~ ~~.58~~ .59	.53	+4.~~11~~12 13	−1039.3	−1039.5	+973.9	+974.4	+0.2	−0.5	
.05	.40	+3.45	~~.66~~ ~~.64~~ .65	.52	+4.1~~6~~8 7	−1026.5	−1026.4	+1070.~~8~~2	+1071.2	−0.1	−1.0	
.07	~~.39~~ .40	+3.4~~4~~3	~~.81~~ ~~8~~.79	.52	+4.31	−1017.2	−1017.5	+1319.2	+1318.5	+0.3	+0.7	1017.1 1318.8
.07	.39	+3.58	~~.85~~ .84	.51	+~~3~~2.6~~7~~6	−991.7	−990.6	−1396.7	−139~~6~~5.2	−1.1	−~~0~~1.5	
.05	.37	+3.58	~~.61~~ .60	~~.48~~ .49	+2.~~88~~89	−954.2	−952.1	−998.3	−99~~8~~6.8	−2.1	−1.7	
~~.02~~ .03	.37	+3.5~~5~~6	.30	~~.48~~ .49	+3.1~~8~~9	−957.7	−956.5	−504.2	−503.6	−1.2	−0.6	
~~.02~~ .01	.39	+3.5~~3~~2	.18	.51	+3.33	−993.0	−993.8	−302.8	−302.8	+0.8	0.0	
.01	.39	+3.50	.17	.51	+3.68	−998.4	−999.3	+275.2	+275.2	+0.9	0.0	
			.31	.50	+3.81		−986.8 −987.1		+513.9 +513.5			x. y. Pl.E (−985.0 +515.7 −985.0 +515.5)
.03	.38	+3.49	.33	.50	+3.83	−984.~~4~~3	−983.4	+543.4	+544.0	−0.9	−0.6	7 to obj a Sta
.03	.39	+3.48	.36	.51	+3.87	−993.0	−991.9	+593.6	+594.4	−1.1	−0.8	
.03	.38	+3.49				−969.8	−968.8	+632.8	+632.8	−1.0	0.0	
.03	.37	+3.50	~~.40~~ .39	~~.48~~ .49	+3.8~~7~~8	−957.7	−956.6	+647.8	+~~56.9~~ 648.9	−1.1	−1.1	
			.69	.50	+4.19		−978.8 −978.4		+1151.8 +1152.4			
			.69	.49	+4.18		−958.8 −958.8		+1140.7 +1140.2			
.07	.37	+3.60	.80	~~.46~~ .49	+2.69	−950.8	−950.2	−1332.6	~~+~~1330.5	−0.6	−2.1	
.06	.36	+3.60	~~.68~~ .67	~~.47~~ .48	+2.80	−930.5	−930.0	−1127.0	−1124.6	−0.5	−2.4	
~~.00~~ .01	.37	+3.5~~2~~3	.07	.48	+3.55	−941.9	−940.6	+1~~2~~14.5	+115.~~4~~2	−1.3	−0.7	
			.22	.48	+3.70		−929.0 −92154		+359.9 +359.9			
.04	.36	+3.50	~~.50~~ .49	.47	+3.9~~6~~7	−918.1	−918.3	+817.0	+817.1	+0.2	−0.1	
.07	.35	+3.48	~~.81~~ .80	.46	+4.2~~6~~7	−901.4	−900.1	+1322.3	+1322.5	−1.3	−0.2	
.08	.34	+3.64				−882.8	−883.0	−1549.9	−1548.8	+0.2	−1.1	

	D4849		D4885		C−E		C			E		
					x	y		ax+by	Σ		ax+by	Σ
102	~~−795.8~~ 848.4	−1218.1	−851.9	−1216.9	+3.5	−1.2	.10	.15	+.89	.43	.32	−2.90
+89 29 p196-9 103	−859.6	−969.3	−863.6	−970.5	+4.0	+1.2	.10	.12	+.86	.44	.25	−2.84
104	−894.7	−741.0	−897.7	−740.6	+3.0	−0.4	.11	.09	+.82	.46	.19	−2.80
105	−880.3	−663.9	−883.3	−663.5	+3.0	−0.4	.11	.08	+.81	.45	.17	−2.77
106	−856.7	+1140.8	−860.0	+1142.4	+3.3	−1.6	.10	.14	+.60	.4~~3~~4	.30	−2.~~82~~89
107	−859.8	+1358.9	−861.2	+1359.5	+1.4	−0.6	.10	.16	+.58	.4~~3~~4	.35	−2.2~~3~~4
108	N.S. .32		−851.9	+1447.5						.43	.38	−2.20
			−851.9	+1447.5								
all x 109	~~−937.2~~ −8~~4~~8.0	−1486.8	−835.6	−1486.6	~~+2.4~~	−0.2	.10	.18	+.92	.4~~2~~3	.39	−2.97
110	−817.3	−656.1	−819.4	−656.1	+2.1	0.0	.10	.08	+.82	.42	.17	−2.74
111	−821.0	−43~~5.5~~ 3.3	−824.0	−433.1	+3.0	−0.2	.10	.05	+.79	.42	.11	−2.~~6~~7 8
p210 112	−811.4	+402.4	−811.9	+403.8	+0.5	−1.4	.10	.05	+.69	.41	.10	−2.46
	−811.4	+402.0	−813.5	+402.0	+2.1	0.0						
113	−832.2	+472.8	−835.6	+473.2	+3.4	−0.4	.10	.06	+.68	.4~~2~~3	.12	−2.4~~5~~6
114	−806.0	+550.4	−809.2	+551.6	+3.2	−1.2	.10	.07	+.67	.41	.14	−2.42
115	N.S.		−826.9	+645.2						.42	.17	−2.40
			−826.9	+644.8								
116	−799.3	+842.9	−802.9	+844.7	+3.6	−1.8	.10	.10	+.64	.41	.22	−2.34
117	−824.0	+1079.7	−826.7	+1080.3	+2.7	−0.~~7~~6	.10	.13	+.61	.42	.28	−2.29
118	−783.0	−1345.0	−785.2	−1345.6	+2.2	+0.6	.09	.16	+.91	.40	.35	−2.90
119	−774.9	−1013.0	−777.5	−1011.7	+2.6	−1.3	.09	.12	+.87	.40	.26	−2.81
120	−763.1	−945.7	−766.8	−945.3	+3.7	−0.4	.09	.11	+.86	.39	.25	−2.79
121	−779.4	−533.9	−783.2	−532.9	+3.8	−1.0	.09	.06	+.81	.40	.14	−2.69
122	−771.0	−161.0	−773.3	−159.0	+2.3	−2.0	.09	.02	+.77	.39	.04	−2.5~~7~~8
122a	−793.4	+38.2	−795.5	+38.2			.10	.00	+.74			
123	−743.2	+638.5	−745.5	+638.5	+2.3	0.0	.09	.08	+.6~~8~~7	.38	.17	−2.36
124	−754.6	+1169.4	−756.8	+1170.6	+2.2	−1.2	.09	.14	+.61	.3~~8~~9	.30	−2.2~~3~~4
125	−787.3	+915.8	−790.5	+916.6	+3.2	−0.8	.09	.11	+.64	.4~~1~~0	.24	−2.3~~2~~1
126	~~N.S.~~ −777.1	+917.9	−779.2	+918.6	+2.1	−0.7				.40	.24	−2.31
127	~~−752.6~~ −700.0	−1594.8	−702.4	−1595.2	+2.4	+0.4	N .0~~9~~8	.19	+.9~~2~~4 .95	.36	.4~~2~~1	−2.92

C aiy	C b'x	Σ	E aiy	E b'x	Σ	C Corr. x	E Corr. x	C Corr. y	E Corr. y	C-E Corr. x	C-E Corr. y	
~~.04~~ .06	.33	+3.63	~~.74~~ .73	+.43	+2.~~69~~ 70	-849.3	-849.0	-1221.7	-1219.6	-0.3	-2.1	
~~.04~~ .05	~~.33~~ .34	+3.6~~2~~ 1	~~.59~~ .58	.44	+2.86	-860.5	-860.8	-972.9	-973.~~3~~ 4	+0.3	+0.5	860.4 973.4
.04	.35	+3.59	~~.45~~ .44	.46	+3.0~~1~~ 2	-895.5	-894.9	-744.6	-743.6	-0.6	-1.0	
.03	~~.34~~ .33	+3.59	.40	.45	+3.05	-881.1	-880.5	-667.5	-66~~8~~ 6.5	-0.6	-1.0	
.06	.33	+3.51	~~.70~~ .69	.44	+4.13	-857.3	-857.7	+1137.3	+1138.3	+0.4	-1.0	
.07	~~.34~~ .33	+3.~~50~~ 49	~~.85~~ ~~.84~~ ~~.88~~ .82	.44	+4.2~~5~~ 6	-860.4	-85~~8.9~~ 9.0	+1355.4	+1355.~~3~~ 2	-1.4	+0.2	
			.8~~9~~ 7	.43	+4.30		-849.7 -849.7		+1443.2 +1443.2			
.07	.32	+3.65	.89	.43	+2.5~~4~~ 2	-832.9	-832.6	-1490.4	-1489.1	-0.3	-1.3	
.03	.32	+3.61	~~.40~~ .39	.42	+3.0~~3~~ 2	-818.1	-816.7	-659.7	-659.1	-1.4	-0.6	
.02	.32	+3.60	.26	.42	+3.16	-821.8	-821.3	-436.9	-436.3	-0.5	-0.6	
.02	.32	+3.56	~~.25~~ .24	.41	+3.6~~5~~ 6	-812.1 -812.1	-809.4 -811.0	+398.8 +398.4	+400.~~1~~ 2 +398.4	-2.7 -1.1	-1.4 0.0	p 134
.02	.32	+3.56	~~.29~~ .28	~~.42~~ .43	+3.~~70~~ 72	-832.9	-833.~~2~~	+469.2	+469.5	+0.2	-0.3	
.03	.31	+3.56	~~.34~~ .33	.41	+3.7~~4~~ 5	-806.7	-806.8	+546.8	+547.~~8~~ 9	+0.1	-1.1	
			.39	.42	+3.81		-824.5 -824.5		+641.4 +641.0			
.04	~~.30~~ .31	+3.5~~5~~ 4	.51	.41	+3.92	-799.9	-800.6	+839.~~4~~ 3	+840.8	+0.7	-1.5	
.05	.32	+3.53	~~.66~~ .65	.42	+4.0~~7~~ 8	-824.6	-824.4	+1076.2	+1076.2	-0.2	0.0	
.07	~~.30~~ .31	+3.6~~7~~ 6	~~.82~~ .81	.40	+2.5~~9~~ 8	-783.9	-782.3	-1348.7	-1348.2	-1.6	-0.5	
.05	.30	+3.65	~~.62~~ .61	.40	+2.7~~9~~ 8	-775.8	-774.7	-1016.6	-1014.5	-1.1	-2.1	
.05	.30	+3.65	~~.58~~ .57	~~.40~~ .39	+2.82	-764.0	-764.0	-949.3	-948.1	0.0	-1.2	
.03	~~.31~~ .30	+3.6~~3~~ 2	.32	.40	+3.08 2.92	-780.~~3~~ 2	-780.5	-537.5	-536.0	+0.~~2~~ 3	-1.5	
.01	.30	+3.61	~~.10~~ .09	.39	+3.~~30~~ 29	-771.8	-770.7	-164.6	-162.3	-1.1	-2.3	
.00	.31	+3.59				-794.1	-792.9	+34.6	+34.8	-1.2	-0.2	
.03	.29	+3.58	~~.39~~ .38	.38	+3.7~~6~~ 7	-743.9	-743.1	+634.9	+634.7	-0.8	+0.2	
.06	~~.30~~ .29	+3.5~~5~~ 4	~~.71~~ .70	~~.38~~ .39	+4.0~~8~~ 9	-755.2	-754.6	+1165.~~9~~ 8	+1166.5	-0.6	-0.7	
.05	.31	+3.54	~~.56~~ .55	~~.41~~ .40	+3.9~~6~~ 5	-787.9	-788.2	+912.3	+912.6	+0.3	-0.3	
			.55	.40	+3.95	-777.7	-776.9	+914.3	+914.6	-0.8	-0.3	
.08	.27	+3.71	~~.97~~ .96	.36	+2.40	-701.0	-699.5	-1598.5	-1597.6	-1.5	-0.9	

		D4849		D4885		C-ε		b			ε		
		"	"	"	"	x "	y "	ax+by "	Σ "		ax+by "	Σ "	
p206-10 ? To be rem.?	128	~~-663.6~~ -689.9	-1651.9	-692.0	-1611.1	+2.1	-40.8	.08	.20	+.96	.35	.42	-2.92
		-689.8	-1611.3	-692.0	-1612.9	+3.2	+1.6						
	129	-722.7	-447.8	-726.3	-447.8	+3.6	0.0	.09	.05	+.80	.37	.12	-2.64
	130	-716.2	-449.0	-718.8	-448.8	+2.6	-0.2	.09	.05	+.80	.37	.12	-2.64
	131	-722.5	-396.6	-725.7	-395.4	+3.2	-1.2	.09	.05	+.80	.37	.10	-2.62
	132	-700.4	-339.7	-703.6	-338.9	+3.2	-0.8	.08	.04	+.80	.36	.09	-2.60
	133	-726.6	-158.6	-730.4	-158.6	+3.8	0.0	.09	.02	+.77	.37	.04	-2.56
p210	134	-719.2	-118.4	-718.6	-118.4	-0.6	0.0	.09	.01	+~~.66~~ 7	.37	.03	-2.55
		-720.5	-120.0	-722.5	-120.0	+2.0	0.0						
	135	-718.4	+408.9	-721.9	+410.1	+3.5	-1.2	.09	.05	+.70	.37	.11	-2.41
	136	-707.5	+654.6	-710.3	+655.6	+~~1~~2.8	-1.0	.08	.08	+.68	.36	.17	-2.34
	137	-733.7	+679.8	-736.1	+68~~0.8~~ 1.6	+2.4	-1.8	.09	.08	+.67	.3~~7~~8	.18	-2.3~~4~~5
	138	-712.3	+722.4	-714.8	+72~~1~~2.4	+2.5	0.0	.09	.09	+.66	.36	.19	-2.32
	139	-718.4	+1641.8	-720.7	+1642.8	+2.3	-1.0	.09	.20	+.55	.37	.43	-2.09
	140	-706.0	+1662.3	-709.1	+1663.8	+3.1	-1.5	~~.09~~ .08	.20	+.5~~5~~6	.36	.43	-2.08
p210 ? To be rem.	141	-678.4	-1530.2	-661.8	-1529.8	-16.6	-0.4	.08	.18	+.94	.33 .4?	.40	-2.89
		-678.4	-1530.0	-682.1	-1530.0	+3.7	0.0						
	142	-644.5	-1505.9	-647.6	-1505.7	+3.1	-0.2	.08	.18	+.94	.33	.39	-2.87
	143	-667.9	-648.0	-671.1	-648.0	+3.2	0.0	.08	.08	+.84	.34	.17	-2.66
	144	-641.5	-615.5	-64~~8~~5.3	-615.1	+3.8	-0.4	.08	.07	+.83	.33	.16	-2.64
	145	-657.7	-587.1	-661.6	-586.9	+3.9	-0.2	.08	.07	+.83	.3~~3~~4	.15	-2.6~~3~~4
	146	-651.8	-164.7	-655.5	-164.3	+3.7	-0.4	.08	.02	+.78	.33	.04	-2.52
	147	-661.4	+571.3	-663.6	+571.9	+2.2	-0.6	.08	.07	+.69	.34	.15	-2.34
	148	-645.1	+775.0	-645.9	+776.2	+0.8	-1.2	.08	.09	+.67	.33	.20	-2.28
	149	-678.2	+800.2	-681.1	+802.6	+2.9	-2.4	.08	.10	+.66	.35	.21	-2.29
	150	-661.6	+1551.4	-662.4	+1553.3	+0.8	-1.9	.08	.19	+.57	.34	.40	-2.09
	151	-581.5	-205.3	-585.8	-204.9	+4.3	-0.4	.07	.02	+.79	.30	.05	-2.50
d v. p200-1	152	-583.2	-62.1	-585.8	-62.1	+2.6	0.0	.07	.01	+.78	.30	.02	-2.47
	153	-588.9	+508.4	-591.7	+509.2	+2.8	-0.~~6~~8	.07	.06	+.71	.3~~1~~0	.13	-2.3~~3~~2
〃	154	-606.5	+824.8	-609.4	+825.2	+2.9	-0.4	.07	.10	+.67	.31	.21	-2.25

C			E			C	E	C	E	C−E. Corr.		
a'y"	−b'x"	Σ"	a'y"	−b'x"	Σ"	Corr. x "	Corr. x "	Corr. y "	Corr. y "	x "	y "	
.08	.27	+3.71	.97	.35	+2.38	−690.9 −690.8	−689.1 −689.1	−1655.6 −1615.0	−1613.5 −1615.3	−1.8 −1.7	−42.1 +0.3	✓ p134.
.02	.28	+3.64	.27	+.37	+3.10	−723.5	−723.7	−451.4	−450.9	+0.2	−0.5	
.02	.28	+3.64	.27	~~.36~~ .37	~~+3.09~~ .10	−717.0	−716.2	−452.6	−451.9	−0.8	−0.7	
.02	.28	+3.64	.24	.37	~~+3.07~~ 13	−723.3	−723.1	−400.2	−398.5	−0.2	−1.7	
.02	.27	+3.65	~~.21~~ .20	.36	+3.16	−701.2	−701.0	−343.3	~~−342.7~~ 1	−0.2	−1.2	
.01	.28	+3.63	~~.09~~ .10	.37	~~+3.28~~ 7	−727.4	−727.8	−162.2	−161.9	+0.4	−0.3	
~~.00~~ .01	.28	~~+3.63~~ 2	.07	.37	+3.30	~~−719.9~~ 20.8 −721.3	−716.0 −719.9	−122.0 −123.6	−121.7 −123.3	~~−3.9~~ 4.0 −1.4	−0.3 −0.3	✓ p134
.02	.28	+3.60	~~.24~~ .25	.37	~~+3.61~~ 2	−719.1	−719.5	+405.3	+406.5	+0.4	−1.2	
.03	~~.27~~ .28	~~+3.60~~ 59	~~.40~~ .39	.36	~~+3.75~~ 6	−708.2	−708.0	+651.0	+651.8	−0.2	−0.8	
.03	~~.28~~ .29	~~+3.59~~ 8	.41	~~.37~~ .38	~~+3.78~~ 9	−734.4	~~−733.8~~ 7	+676.2	+677.8	−0.7	−1.6	
.04	.28	+3.58	~~.44~~ .43	.36	~~+3.79~~ 80	−713.0	−712.5	+728.8	+718.6	−0.5	+0.2	
.08	.28	+3.54	~~1.00~~ .99	.37	+4.36	−719.0	−718.6	+1638.3	+1638.4	−0.4	−0.1	
.08	~~.27~~ .28	~~+3.55~~ 4	~~1.01~~ 1.00	.36	~~+4.36~~ 7	−706.6	−707.0	~~+1668.8~~ 5	+1659.4	+0.4	−0.6	
.08	.26	+3.72	.92	.34	+2.42	−679.3 −679.3	−658.9 −678.2	−1533.9 −1533.7	−1532.2 −1532.4	−20.4 −0.1	−1.7 −1.3	✓ p134
.08	.25	+3.73	~~.92~~ .90	.33	+2.43	−645.4	−643.7	−1509.2	−1508.1	−0.7	−1.5	
.03	.26	+3.67	~~1.40~~ .39	.34	+2.95	−668.7	−668.4	−651.7	~~−650.9~~ 1.0	−0.3	−0.7	
.03	.25	+3.68	~~.38~~ .37	.33	~~+2.96~~ 5	−642.3	−642.7	−619.2	−618.1	+0.4	−1.1	
.03	~~.25~~ .26	~~+3.68~~ 7	~~.36~~ .35	~~.33~~ .34	~~+2.98~~ 9	−658.5	−659.0	−590.8	−589.9	+0.5	−0.9	
.01	~~.26~~ .25	~~+3.66~~ 5	.10	.33	+3.23	−652.6	−653.0	~~−168.3~~ 4	−167.5	+0.4	−0.9	
.03	~~.25~~ .26	~~+3.62~~ 1	~~.35~~ .34	.34	~~+3.68~~ 7	−662.1	−661.3	+567.7	+568.2	−0.8	−0.5	
.04	.25	+3.61	.47	.33	+3.80	−645.8	−643.6	+771.4	+772.4	−2.2	−1.0	
.04	.26	+3.60	~~.49~~ .48	.35	~~+3.83~~ 4	−678.9	−678.8	+796.6	+798.8	−0.1	−2.2	
.08	~~.25~~ .26	~~+3.57~~ 6	~~.78~~ .93	.34	~~+4.27~~ 8	−662.2	−660.3	+1547.8	+1549.0	−1.9	−1.2	
.01	.23	~~+3.78~~ 68	.12	.30	+3.18	−582.3	−583.3	−209.0	−208.1	+1.0	−0.9	
.00	.23	~~+3.77~~ 67	.04	.30	+3.26	−584.0	−583.3	−65.8	−65.4	−0.7	−0.4	583.9 65.0
.03	~~.22~~ .23	~~+3.62~~ 4	~~.30~~ .31	.30	~~+3.60~~ 1	−589.6	−589.4	+504.8	+505.6	−0.2	−0.8	
.04	~~.23~~ .24	+3.62	.50	.31	+3.81	−607.2	−607.2	+821.2	+821.4	0.0	−0.2	

		D 4849		D 4885		C-E		C			E		
						x	y	ax+by		Σ	ax+by		Σ
	154a	-628.9	+1375.6	-629.5	+1377.0	+0.6	-1.4	.08	.17	+.59			
p210	155	-629.5	+1401.4	-629.7	+1402.4	+0.2	-1.0	.08	.17	+.59	.32	.36	-2.11
		-629.5	+1400.3	-631.5	+1403.0	+2.0	-2.7						
p210	156	-569.2	-1670.8	-573.0	-1669.6	+3.8	-1.2	.07	.20	+.97	.29	.43	-2.87
		-568.8	-1669.6	-573.0	-1669.6	+4.2	0.0						
p210	157	-532.6	-1564.4	-536.5	-1563.1	+3.9	-1.3	.06	.19	+.97	.27	.4~~0~~1	-2.8~~2~~3
		-534.2	-1564.4	-536.3	-1564.4	+2.1	0.0						
p206	158	-532.5*	-1218.5	-536.3	-1218.9	+3.8	+0.4	.06	.15	+.93	.27	.3~~1~~2	-2.7~~8~~4
	159	-569.4	-543.4	-573.2	-543.2	+3.8	-0.2	.07	~~.06~~ .07	+.8~~3~~4	.29	.14	-2.58
	160	-544.2	-295.9	-54~~6~~7.2	-295.7	+3.0	-0.2	.07	.04	+.81	.28	.08	-2.51
	161	-533.2	+24.4	-536.5	+25.6	+3.3	-1.2	.06	.00	+.90	.27	.01	-2.41
e p200-1	162	-542.6	+120.9	-545.6	+120.7	+3.0	+0.2	.07	.01	+.76	.28	.03	-2.40
	162a	-577.1	+298.8	-579.1	+298.8	+2.0	0.0	.07	.04	+.73			
	163	N.S.		-557.8	+553.1						.28	.14	-2.29
				-558.4	+551.2								
	164	N.S. -562.7 -562.~~8~~7	 +1494.8 +1495.0	-565.9 -562.7	+1497.0 +1497.2						.29	.39	-2.05
	165	-550.7	+1528.9	-552.3	+1529.3	+1.6	-0.4	.07	.18	+.59	.28	.40	-2.03
	166	-520.2	-226.8	-522.4	-226.4	+2.2	-0.4	.06	.03	+.81	.27	.06	-2.48
	167	-488.3	-28.2	-489.8	-28.6	+1.5	+0.4	.06	.00	+.78	.25	.01	-2.41
	168	-524.7	+633.9	-528.1	+634.3	+3.4	-0.4	.06	.08	+.70	.27	.16	-2.26
	169	~~Defect~~ -517.4	+637.1	-519.4	+638.3						.26	.17	-2.24
p207	170	-476.3	+792.3	-~~427.0~~ -479.6	+789.9	+3.3	+2.4	.06	.10	+.68	.24	.2~~0~~1	-2.18
	171	-477.8	+873.7	-480.0	+875.4	+2.2	-1.7	.06	.10	+.68	.24	.23	-2.16
	172	-499.7	+1039.2	-500.1	+1039.5	+0.4	-0.3	.06	.12	+.66	.26	.27	-2.14
	173	-499.9	+1286.4	-501.9	+1288.9	+2.0	-2.5	.06	.15	+.63	.26	.3~~3~~4	-2.0~~8~~7
	174	~~Defect~~ -479.9	+1318.5	-480.0	+1319.7						.24	.34	-2.05
	175	-516.4	+1730.2	-518.2	+1731.2	+1.8	-1.0	.06	.21	+.57	.2~~7~~6	.45	-1.9~~7~~6
	176	-472.3	-1704.1	-477.8	-1703.9	+5.5	-0.2	.06	.20	+.~~8~~98	.24	.44	-2.83
	177	-425.4	-1687.2	-429.6	-1687.2	+4.2	0.0	.05	.20	+.99	.22	.44	-2.81
p210	178	-455.4	-988.6	-455.0	-995.7	-0.4	+7.1	.05	.12	+.91	.23	.26	-2.64
		-455.4	-989.6	-454.6	-995.9	-0.8	+6.3						
	179	~~N.S.~~ -455.4	-989.8	-459.5	-989.8	+4.1	0.0				.23	.26	-2.64

	ℭ			ℰ			ℭ.	ℰ	ℭ	ℰ	ℭ−ℰ Corr.		
	a'y	−b'x	Σ	a'y	−b'x	Σ	Corr. x	Corr. x	Corr. y	Corr. y	x	y	
	.07	.25	+3.58				−629.5	−627.4	+1372.0	+1372.8	−2.1	−0.8	
.11	.07	~~.24~~ .25	+3.58	~~.86~~ .84	.32	+3.16	−630.1	−627.6	+1397.8	+1399.2	−2.5	−1.4	p134
							−630.1	−629.4	+1396.7	+1398.8	−0.7	−2.1	
.87	.08	.22	+3.76	~~1.02~~ 1.00	.29	+2.29	−570.2	−570.1	−1674.6	−1671.9	−0.1	−2.7	p134
							−569.8	−570.1	−1673.4	−1671.9	+0.3	−1.5	
.82	.08	~~.20~~ .21	+3.78	~~.95~~ .94	.27	+2.33	−533.6	−533.7	−1568.2	−1565.4	+0.1	−2.8	p134
							−535.2	−533.5	−1568.2	−1566.7	−1.7	−1.5	
.73	.06	~~.20~~ .21	+3.78	~~.74~~ .73	.27	+2.54	−533.4	−533.6	−1222.3	−1221.4	+0.2	−0.9	
.58	.03	.22	+3.71	.33	.29	+2.96	−570.2	−570.6	−547.1	−546.2	+0.4	−0.9	
.51	.01	.21	+3.70	.18	.28	+3.10	−545.0	−544.7	−299.6	−298.8	−0.3	−0.8	
.41	.00	.21	+3.69	.02	.27	+3.29	−534.1	−534.1	+20.7	+22.3	0.0	−1.6	
.40	.01	.21	+3.68	.07	.28	+3.35	−543.4	−543.2	+117.2	+117.3	−0.2	−0.1	543.4 117.2
	.01	.23	+3.66				−577.8	−576.7	+295.1	+295.3	−1.1	−0.2	
.29				.33	.28	+3.61		−555.5 −556.1		+549.5 +547.6			
2.05				.90	.29	+4.19	−563.3 −563.3	−563.9 −560.7	+1491.2 +1491.4	+1492.8 +1493.0			
2.03	.08	~~.22~~ .21	+3.61	~~.93~~ .92	.28	+4.20	−551.3	−550.3	+1525.3	+1525.1	−1.0	+0.2	
.48	.01	.20	+3.71	.14	.27	+3.13	−521.0	−519.9	−230.5	−229.5	−1.1	−1.0	
.41	.00	.19	+3.71	.02	.25	+3.23	−489.1	−487.4	−31.9	−31.8	−1.7	−0.1	
.26	.03	.20	+3.67	~~.37~~ .38	.27	+3.65	−525.4	−525.8	+630.2	+630.2	+0.4	−0.5	
2.24				.38	.26	+3.64	−518.1	−517.2	+633.4	+634.7	−0.9	−1.3	
2.18	.04	~~.17~~ .19	+3.67	~~.48~~ .47	.24	+3.71	−477.0	−477.4	+788.6	+786.2	+0.4	+2.4	
2.16	.04	.19	+3.67	.52	.24	+3.76	−478.5	−477.8	+870.0	+871.6	−0.7	−1.6	
2.14	.05	~~.20~~ .19	+3.66	~~.63~~ .62	.26	+3.88	−500.4	−498.0	+1035.6	+1035.6	−2.4	−0.1	
2.08	.06	.19	+3.65	.77	.26	+4.03	−500.5	−499.8	+1282.8	+1284.9	−0.7	−2.1	
2.05				.79	.24	+4.03	−479.6	−478.0	+1314.9	+1315.7	−1.6	−0.8	
.97	.09	.20	+3.61	~~1.06~~ 1.04	.26	+4.30	−517.0	−516.2	+1726.6	+1726.9	−0.8	−0.3	
.83	.09	~~.19~~ .18	+3.81	~~1.04~~ 1.02	.24	+2.22	−473.3	−475.0	−1707.9	−1706.1	+1.7	−1.8	
.81	.08	.17	+3.81	~~1.03~~ 1.01	.22	+2.21	−426.4	−426.8	−1691.0	−1689.4	+0.4	−1.6	
.64	.05	.18	+3.77	~~.61~~ .60	.23	+2.63	−456.3	−452.4	−992.4	−998.3	−3.9	+5.9	p134
							−456.3	−452.0	−993.6	−998.5	−4.3	+4.9	
2.64				.59	.23	+2.64	−456.3	−456.9	−993.6	−992.4	+0.6	−1.2	

		D4849		D1885		C-E		b			E		
						x	y	ax +	by	Σ	ax +	by	Σ
	180	-471.7	-974.3	-476.1	-973.8	+4.4	-0.5	.06	.12	+.90	.24	.25	-2.64
	181	-468.2	-899.6	-471.7	-900.3	+3.5	+0.7	.06	.11	+.89	.24	.23	-2.62
	182	~~-473.7~~ -433.1	-905.3	-435.5	-904.5	+2.4	-0.8	.05	.11	+.90	.22	~~.23~~ .24	~~-2.62~~ -2.61
89 35 p146-9	183	-427.8	-704.3	-427.4	-704.7	-0.4	+0.4	.05	.08	+.87	.22	.18	-2.55
p206 ?	184	-461.9	~~-212.8~~ -239.1	-464.0	-239.0	+2.1	-0.1	.06	~~.02~~ .03	+.81	.24	.06	-2.45
4849 Defect ?	185	-431.1	-83.6	-433.7	-83.4	+2.6	-0.2	.05	.01	+.80	.22	.02	-2.39
	186	-439.0	+630.0	-442.8	+629.8	+3.8	+0.2	.05	.08	+.71	.23	.16	-2.22
	187	-449.3	+1278.1	-451.4	+1278.3	+2.1	-0.2	.05	.15	+.64	.23	.33	-2.05
	188	-453.4	+1757.0	-455.2	+1758.0	+1.8	-1.0	.05	.21	+.58	.23	.46	-1.92
	189	-370.5	-1404.7	-374.4	-1406.6	+3.9	+1.9	.04	.17	~~+.63~~ +.97	.19	~~.36~~ .37	~~-2.72~~ -2.71
.89 31 p146-9	190	-386.6	-1218.1	-390.4	-1218.1	~~+2.8~~ +3.8	0.0	.05	.15	+.94	.20	.32	-2.67
p.206-10 To be rem..	191	~~-348.0~~ 374.3	-1177.9	-377.9	~~-1159.8~~	+3.6	-18.1	.04	.14	+.94	.19	.30	-2.64
	n.s.	374.5	-1177.7	-376.6	-1176.2	+2.1	-1.5						
	192	~~-402.8~~	~~-109.8~~	-386.6	-925.0						.20	.24	-2.59
				-386.6	-925.2								
C prov-1 ≡	193	~~-406.9~~ -403.0	~~-44.8~~ -109.8	-403.4	-109.8	~~+0.6~~ +0.4	0.0	.05	.01	+.80	.20	.03	~~-2.38~~ -2.39
	194	~~-421.4~~ -406.9	~~-16.8~~ -44.8	-408.3	-44.8	+1.4	0.0	.05	.01	+.80	.21	.01	-2.37
	195	-421.1	-16.8	-423.1	-16.8	+2.0	0.0	.05	.00	+.79	.22	~~.01~~ .00	~~-2.38~~ -2.37
	196	-402.8	+93.3	-406.5	+93.3	+3.7	0.0	.05	.01	+.78	.21	~~.03~~ .02	~~-2.33~~ -2.34
f prov-1	197	-402.6	+127.8	-404.9	+127.2	+2.3	+0.6	.05	.02	+.77	.21	.03	-2.33
	198	-395.3	+348.1	-398.8	~~+348.6~~ +348.5	+3.5	-0.4	.05	.04	+.75	.20	.09	-2.26
	199	-386.4	+363.4	-388.6	+363.6	+2.2	-0.2	.05	.04	+.75	.20	.09	-2.26
4849 Defect ?	200	-414.4	+574.8	-416.8	+576.0	+2.4	-1.2	.05	.07	+.72	.21	.15	-2.21
	201	-382.9	+798.4	-386.0	+800.0	+3.1	-1.6	.05	.10	+.69	.20	.21	-2.14
	202	-391.3	+1119.7	-394.7	+1119.9	+3.4	-0.2	.05	.13	+.66	.20	.29	-2.06
	203	-390.6	+1268.3	~~-395.7~~ -392.7	+1266.9	+2.1	~~+1.6~~ +1.4	.05	.15	+.64	.20	.33	-2.02
	204	-378.9	+1326.2	-382.3	+1326.8	+3.4	-0.6	.05	.16	+.63	.19	.34	-2.00
	205	-358.6	-1254.8	-362.0	-1255.1	+3.4	+0.3	.04	.15	+.95	.18	.33	-2.66
	206	-354.9	-1173.6	-358.4	-1173.6	+3.5	0.0	.04	.14	+.94	.18	.31	-2.64

	C			E			C	E	C	E	C-E		
	a'y	− b'x	Σ.	a'y	− b'x	Σ	Corr. x	Corr. x	Corr. y	Corr. y	Corr x	Corr y	
64	$.0\cancel{2}^{5}$	.18	+3.77	.58	.24	+2.66	−472.6	−473.5	−978.1	−976.5	+0.9	−1.6	
62	.04	.18	+3.76	.54	.24	+2.70	−469.1	−469.1	−903.4	−903.0	0.0	−0.4	
$6\cancel{8}^{1}$	.05	.17	+3.78	.54	.22	+2.68	−434.0	−432.9	−909.1	−907.2	−1.1	−1.9	
55	.04	.17	$+3.7\cancel{6}^{7}$	.42	.22	+2.80	−428.7	$-42\cancel{3}^{4}.8$	−708.1	−707.5	−3.9	−0.6	428.7 707.5
.45	.01	.18	+3.73	.14	$.2\cancel{3}^{4}$	+3.10	−462.7	−461.6	−242.8	−242.1	−1.1	−0.7	
.39	.00	.17	+3.73	.05	.22	+3.17	−431.9	−431.3	−87.3	$-8\cancel{5}^{6}.6$	−0.6	−0.7	
.22	.03	.17	+3.70	.38	.23	+3.61	−439.7	−440.6	+626.3	+626.2	+0.9	+0.1	
2.05	.06	$.1\cancel{7}^{8}$	$+3.6\cancel{7}^{6}$	.77	.23	+4.00	−449.9	−449.4	+1274.4	+1274.3	−0.5	+0.1	
.92	.09	.18	+3.63	$1.0\cancel{8}^{5}$	.23	$+4.2\cancel{9}^{8}$	−454.0	−453.3	+1753.4	+1753.7	−0.7	−0.3	
$.7\cancel{8}^{1}$	.07	$\cancel{.15}^{.14}$	$+3.8\cancel{2}^{3}$	.84	.19	+2.35	−371.5	−371.7	−1408.5	−1409.0	+0.2	+0.5	
.67	.06	.15	+3.81	.73	.20	+2.47	−387.5	−387.7	$-12\cancel{4}^{2}1.9$	−1220.6	+0.2	−1.3	387.7 1221.4
.64	.06	.15	+3.81	.70	.19	+2.49	−375.2 −375.4	−375.3 −374.0	−1181.7 −1181.5	−1162.3 −1178.7	+0.1 −1.4	−19.4 −2.8	p134
.59				$.5\cancel{5}^{6}$	.20	+2.64		−384.0 −384.0		−927.6 −927.8			
$.3\cancel{8}^{9}$	.01	.16	$+3.\cancel{8}^{7}5$	$\cancel{.06}^{.07}$	$.2\cancel{0}^{1}$	+3.14	$-403.\cancel{6}^{8}$	−401.0	−113.6	−112.9	$-2.\cancel{6}^{8}$	−0.7	402.2 113.0
.37	.00	.16	$+3.\cancel{8}^{7}4$	.03	$.2\cancel{0}^{1}$	$+3.1\cancel{7}^{8}$	−407.7	−405.9	−48.5	−48.0	−1.8	−0.5	
$.3\cancel{8}^{7}$	.00	.16	$+3.\cancel{8}^{7}4$	.01	.22	+3.21	−421.9	−420.7	−20.5	−20.0	−1.2	−0.5	
$.3\cancel{3}^{4}$	.00	.16	$+3.\cancel{8}^{7}4$	.06	.21	+3.27	−403.6	−404.2	+89.6	+90.0	$+\cancel{7}^{0.6}$	−0.4	
.33	.01	.16	$+3.\cancel{8}^{7}3$	.08	.21	+3.29	−403.4	−402.6	+124.1	+123.9	−0.8	+0.2	402.6 124.3 4 plts only see p 301
.26	.02	$\cancel{.16}^{.15}$	$+3.\cancel{8}^{7}\cancel{2}^{3}$	.21	.20	+3.41	−396.1	−396.5	+344.4	+345.1	+0.4	−0.7	
.26	.02	$.1\cancel{6}^{5}$	$+3.\cancel{8}^{7}3$	.22	$\cancel{.19}^{20}$	+3.42	−387.2	−386.3	+359.7	+360.2	−0.9	−0.5	
.21	.03	.16	$+3.\cancel{8}^{7}1$	.35	.21	+3.56	−415.1	−414.6	+571.1	+572.4	−0.5	−1.3	
.14	.04	.15	$+3.\cancel{8}^{7}1$	.48	.20	+3.68	−383.6	−383.9	+794.7	+796.3	+0.3	−1.6	
.06	.06	.15	+3.69	.67	.20	+3.87	−392.0	−392.6	+1116.0	+1116.0	+0.6	0.0	
2.02	.06	.15	+3.69	.76	.20	+3.96	−391.2	−390.7	+1264.6	+1262.9	−0.5	+1.7	
2.00	.07	.15	+3.68	.80	.19	+3.99	−379.5	−380.3	+1322.5	+1322.8	+0.8	−0.3	
66	.06	.14	+3.82	.75	.18	+2.43	−359.6	−359.3	−1258.6	$-125\cancel{2.7}^{7.5}$	−0.3	−1.1	
64	.06	.14	+3.82	.70	.18	+2.48	−355.8	−355.8	−1177.4	−1176.1	0.0	−1.3	

		D4849		D4885		C − E		C			E		
						x	y	ax+by		Σ	ax+by		Σ
	207	−329.7	−1061.9	−332.0	−10~~3~~62.5	+2.3	+0.6	.04	.13	+.93	.17	~~.27~~ .28	−2.~~59~~60
	208	−354.1	−637.7	−358.1	−637.9	+4.0	+0.2	.04	.08	+.88	.18	.17	−2.50
see y Bk.5, p.142 ?	209	−334.4	~~−823.7~~ 560.9	−338.3	−560.9	+3.9	0.0	.04	~~.10~~ .07	~~+.90~~ .87	.17	.15	−2.47
	210	−329.9	−522.5	−332.8	−522.9	+2.9	+0.4	.04	.06	+.86	.17	.14	−2.46
* assumed val. Readings incomplete (see note p.142 Bk 5)	211	* 358.8	− 8.3	−361.8	− 8.5	+3.0	+0.2	.04	.00	+.80	.18	.00	−2.33
	212	−326.5	+566.3	−329.7	+566.3	+3.2	0.0	.04	.07	+.73	.17	.15	−2.17
	213	−359.8	+1161.1	−362.2	+1161.3	+2.4	−0.2	.04	.14	+.66	.18	.30	−2.03
	214	−342.1	+1711.3	−343.5	+1713.1	+1.4	−1.8	.04	~~.25~~ .21	+.5~~5~~9	.18	.45	−1.88
+89 9	215	−275.5	−1252.8	−278.1	−1252.8	+2.6	0.0	.03	.15	+.96	.14	.33	−2.62
	216	−285.2	−1234.7	−288.1	−1235.5	+2.9	+0.8	.03	.15	+.96	.15	.32	−2.62
rem E 3	217	−271.2 −271.2	−1181.7 1182.1	275.3 −273.9	1182.1 −1165.7	+4.1 +2.7	+0.4 −16.0	.03	.14	+.95	14 .14	.31 .30	−2.60 −2.59
	218	−309.8	−757.3	−312.7	−757.3	+2.9	0.0	.04	.09	+.89	.16	.20	−2.51
	218a	−289.3	−708.7	−291.5	−708.7	+2.2	0.0	.03	.09	+.90			
	219	−287.5	−542.0	−289.9	−542.0	+2.4	0.0	.03	~~.06~~ .07	+.8~~7~~8	.15	.14	−2.44
b p202-1	220	−285.2	−279.0	−289.3	−279.0	+4.1	0.0	.03	.03	+.84	.15	.07	−2.37
D4849 Defect? p206	221	−311.8	~~+102.8~~ +76.5	−313.9	+76.4	+2.1	+0.1	.04	.01	+~~.84~~ 79	.16	.0~~6~~2	−2.29
p207	222	−318.3	+152.8	−321.8	+152.8	+~~2~~3.5	0.0	.04	.02	+.78	.16	.04	−2.27
	223	−2~~7~~67.4	+477.5	−270.0	+477.1	+2.6	+0.4	.03	.06	+.75	.14	.12	−2.17
	224	−305.3	+540.9	−307.0	+541.3	+1.7	−0.4	.04	.06	+.74	.16	.14	−2.17
	225	−289.7	+1779.7	−291.5	+1779.7	+1.8	0.0	.03	.21	+.60	.15	.46	−1.84
	226	−236.7	−1250.8	−240.4	−1250.6	+3.7	−0.2	.03	.15	+.96	.1~~3~~2	~~.32~~ .33	−2.60
4849 Defect?	227	−236.7	−1044.4	−239.8	−1045.1	+3.1	+0.7	.03	~~.12~~ .13	+.9~~8~~4	.12	.27	−2.54
89 37 p196-9	228	−261.3	−336.3	−265.1	−336.5	+3.8	+0.2	.03	.04	+.85	.1~~3~~4	.09	−2.3~~7~~8
a p200-1 = Component of 89 37	229	−265.3	−324.3	−268.6	−324.5	+3.3	+0.2	.03	.04	+.85	.14	.08	−2.37
g p200-1	230	−257.4	+53.9	−260.7	+54.1	+3.3	−0.2	.03	.01	+.80	.13	.01	−2.27
p207	231	−265.3	+88.4	−269.2	+88.6	+3.9	−0.2	.03	.01	+.80	.13	.02	−2.26
	232	−261.7	+221.6	−264.9	+222.0	+3.2	−0.4	.03	.03	+.78	.14	.06	−2.23
						+57.6	+3.5 −3.2						

	C			E			C	E	C	E	C-E Corr. x	Corr y	
Σ	a'y	b'x	Σ	a'y	b'x	Σ	Corr. x	Corr. x	Corr. y	Corr. y			
~~.59~~ .60	.05	.13	+3.82	.64	+.17	+2.53	-330.6	-329.4	-1065.7	-1065.0	-1.2	-0.7	
2.50	.03	.14	+3.79	.38	.18	+2.80	-355.0	-355.6	-641.5	-640.7	+0.6	-0.8	
2.47	.03	.13	+3.80	.34	.17	+2.83	-335.3	-335.8	-564.7	-563.7	+0.5	-1.0	
2.46	.03	.13	+3.80	.31	.17	+2.86	-330.8	-330.3	-526.~~7~~3	-525.8	-0.5	-0.5	
2.33	.00	ass. x → ~~.13~~ .14	+3.76	~~.00~~ .01	.18	+3.17	-359.6	-359.5	-12.1	-11.7	-0.1	-0.4	
2.17	.03	.13	+3.74	.34	.17	+3.51	-327.2	-327.5	+562.6	+562.8	+0.3	-0.2	
2.03	.06	~~.14~~	+3.70	~~.69~~ .70	.18	+3.8~~7~~8	-360.5	-360.2	+1157.4	+1157.4	-0.3	0.0	
1.88	.09	~~.14~~ .13	+3.6~~7~~8	1.03	.18	+4.21	-342.7	-341.6	+1707.6	+1708.9	-1.1	-1.3	
2.62	.06	.11	+3.85	.75	.14	+2.39	-276.5	-275.5	-1256.6	-12~~37.9~~ 55.2	-1.0	-1.4	323.5 1884.6
.62	.06	.11	+3.85	.74	.15	+2.41	-286.2	-285.5	-1238.5	-1237.9	-0.7	-0.6	
~~.59~~ .60	.06	.11	+3.85	.71 .70	.14 .14	+2.43 +2.44	-272.2 -272.2	-271.3 -272.7	-1185.5 -1185.9	-1168.1 -1184.5	-0.~~8~~9 +0.5	~~-27.4~~ -1.4 Rem	p209 p134
2.51	.04	.12	+3.82	.45	.16	+2.71	-310.7	-310.2	-761.1	-760.0	-0.5	-1.1	
	.04	.11	+3.83	~~.33~~			-290.2	-289.0	-712.5	-711.4	-1.2	-1.1	
2.44	.03	.11	+3.82	.33	.15	+2.82	-288.4	-287.5	-545.8	-544.8	-0.9	-1.0	
2.37	.01	.11	+3.80	.17	.15	+~~3~~2.98	-286.0	-286.9	-282.8	-28~~3~~2.0	+0.9	~~+0.2~~ -0.8	286.2 281.8
2.29	.00	.12	+3.78	.05	.16	+3.21	-312.6	-311.6	+72.7	+73.2	-1.0	-0.5	
2.27	.01	.12	+3.77	.09	.16	+3.25	-319.1	-319.5	+149.0	+149.6	+0.4	-0.6	
2.17	.02	.10	+3.78	.29	.14	+3.~~5~~43	-268.2	-267.8	+473.7	+473.~~6~~7	-0.4	~~+0.1~~ 0.0	
2.17	.03	.12	+3.75	~~.33~~ .32	.16	+3.4~~9~~8	-306.0	-304.8	+537.1	+537.8	-1.2	-0.7	
1.84	.09	.11	+3.70	1.07	.15	+4.22	-290.3	-289.7	+1776.0	+1775.5	-0.6	+0.5	
2.60	.06	.09	+3.87	.75	~~.13~~ .12	+2.3~~8~~7	-237.7	-237.8	-1254.7	-1253.0	+0.1	-1.7	
2.54	.05	.09	+3.86	.63	.12	+2.49	-237.6	-237.3	-1048.3	-1047.6	-0.3	-0.7	
2.3~~7~~8	.02	.10	+3.82	.20	~~.13~~ .14	+2.9~~3~~4	-262.1	-262.7	-340.1	-339.4	+0.6	-0.7	262.2 340.0
2.37	.02	.10	+3.82	.19	.14	+2.95	-266.1	-266.2	-328.1	-327.5	+0.1	-0.6	265.9 327.9
2.27	.00	.10	+3.80	.03	.13	+3.16	-258.2	-258.4	+50.1	+50.9	+0.2	-0.8	257.9 50.8
2.26	.00	.10	+3.80	~~.06~~ .05	.14	+3.19	-266.1	-266.9	+84.6	+85.4	+0.8	-0.8	
2.23	.01	.10	+3.79	.13	.14	+3.27	-262.5	-262.7	+217.8	+218.7	+0.2	-0.9	
											-8.6 +2.5	-13.7 +0.8	

106a

		D4849		D4885		B-E		B			E		
						x	y	ax+by		Σ	ax+by		Σ
	233	-261.1	+1114.2	-263.3	+1115.6	+2.2	-1.4	.03	.13	+.68	.13	.29	-1.99
	234	-247.5	+1124.9	-249.5	+1126.6	+2.0	-1.7	.03	.13	+.68	.13	.29	-1.99
	235	-229.2	+1272.2	-232.2	+1271.8	+3.0	+0.4	.03	.15	+.66	.12	.33	-1.94
4849 Defect.	236	-214.8	+1327.2	-217.0	+1328.6						.11	.35	-1.9~~4~~ 1
	237	-232.8	+1593.3	-235.5	+1593.7	+2.7	-0.4	.03	.19	+.62	.12	~~.42~~ 41	-1.8~~5~~ 6
p206	238	-176.4	-17~~38.2~~ 64.5+	-180.0	-1764.4	+3.6	-0.1	.02	.21	+1.03	.09	.46	-2.70
	239	-191.8	-1622.6	-194.5	-1622.0	+2.7	-0.6	.02	.19	+1.01	.10	.42	-2.67
	240	-207.5	-1570.2	-210.9	-1570.4	+3.4	+0.2	.02	~~.18~~ .19	+1.0~~2~~ 1	~~.10~~ .11	.41	-2.6~~8~~ 7
D4849 Defect? p210	241	-186.5	-1214.0	-184.3	-1210.2	-2.2	-3.8	.02	.15	+.97	.09	.31	-2.55
		-186.3	-1212.6	-184.3	-1210.4	-2.0	-2.2						
	242	-197.1	-1157.8	-201.0	-1157.8	+3.9	0.0	.02	.14	+.96	.10	.30	-2.55
	243	-176.4	-1147.6	-180.0	-1148.2	+3.6	+0.6	.02	.14	+.96	.09	.30	-2.54
A.S.	244	A.S.		-195.1	-1100.9						.10	.29	-2.54
				-194.5	-1101.1								
p207	245	-172.3	-659.2	-176.2	-660.4	+3.9	+1.2	.02	.08	+.90	.09	.17	-2.41
	246	-192.8	+531.5	-196.3	+531.5	+3.5	0.0	.02	.06	+.76	.10	.14	-2.11
A.S.	247	~~A.S.~~ -168.1	+828.8	-168.7	~~+1039.2~~ 828.8	+0.6	0.0				.09	.2~~7~~ 2	-~~1.97~~ 2.02
	248	-200.8	+1294.1	-203.2	+1294.3	+2.4	-0.2	.02	.16	+.66	.10	.34	-1.91
	249	-166.9	+1360.7	-168.7	+1362.0	+1.8	-1.3	.02	.16	+.66	~~.08~~ .09	.35	-1.88 9
	250	-206.0	+1774.8	-208.5	+1775.6	+2.5	-0.8	.02	.21	+.61	.11	.46	-1.80
	251	-127.9	-1696.2	-131.5	-1696.8	+3.6	+0.6	.02	.20	+1.02	.07	.44	-2.66
	252	-145.1	-1675.6	-148.2	-1675.9	+3.1	+0.3	.02	.20	+1.02	.08	.44	-2.67
	253	-140.0	-1097.3	-142.7	-1097.3	+2.7	0.0	.02	.13	+.95	.07	.29	-2.51
	254	-152.6	-907.0	-156.3	-907.4	+3.7	+0.4	.02	.11	+.93	.08	.24	-2.47
	255	-123.8	-798.5	-127.2	-799.7	+3.4	+1.2	.01	.10	+.93	.06	.21	-2.42
	256	-131.7	-259.5	-133.9	-259.7	+2.2	+0.2	.02	.03	+.85	.07	.07	-2.29
	257	-123.6	-211.0	-127.6	-212.0	+4.0	+1.0	.01	~~.02~~ .03	+.8~~5~~ 6	~~.06~~ .07	~~.05~~ .06	-2.2~~6~~ 8
A.S.	258	A.S.		-155.7	-122.0						.08	.03	-2.26
				-156.1	-122.0								
	259	-123.4	-77.5	-124.2	-77.9	+0.8	+0.4	.01	.01	+.84	.06	.02	-2.23

107a

	C			E			C	E	C	E	C-E		
Σ	a'y	−b'x	Σ	a'y	−b'x	Σ	Ccorr. x	Ecorr. x	Ccorr. y	Ecorr. y	Corr. x	Corr. y	
1.99	.06	.10	+3.74	.67	+.13	+3.80	−261.8	−261.3	+1110.5	+1111.8	−0.5	−1.3	
1.99	.06	.10	+3.74	.68	.13	+3.81	−248.2	−247.5	+1121.2	+1122.8	−0.7	−1.6	
1.94	.06	.09	+3.75	.76	.12	+3.88	−229.9	−230.3	+1268.4	+1267.9	+0.4	+0.5	
1.9~~7~~ 1				.80	.11	+3.91	−215.4 ✓	−215.1	+1323.4	+1324.7	−0.3	−1.3	✓
1.8~~5~~ 6	.08	.09	+3.73	.96	.12	+4.08	−233.4	−233.~~7~~ 6	+1589.6	+1589.6	+0.~~4~~ 2	0.0	
2.70	.09	.07	+3.92	1.06	.09	+2.03	−177.4	−177.3	−1768.4	−1766.4	−0.1	−2.0	
2.67	.08	~~.08~~ .07	+3.9~~0~~ 1	.97	.10	+2.13	−192.8	−191.8	−1626.5	−1624.1	−1.0	−2.4	
2.6~~8~~ 7	.08	.08	+3.90	.94	~~.10~~ .11	+2.1~~6~~ 7	−208.5	−208.2	−1574.1	−1572.6	−0.3	∓1.5	
2.55	.06	.07	+3.89	~~.72~~ .73	.09	+2.3~~7~~ 6	−187.5	−181.7	−1217.9	−1212.6	−5.8	−5.3	✓p134.
							−187.3	−181.7	−1216.5	−1212.8	−5.6	−3.7	
2.55	.06	.08	+3.88	.69	.10	+2.41	−198.1	−198.4	−1161.7	−1160.2	+0.3	−1.5	
2.54	.06	.07	+3.89	.69	.09	+2.40	−177.4	−177.5	−1151.5	−1150.6	+0.1	−0.9	
2.54				.66	.10	+2.44		−192.6		−1103.3			✓
								−182.0		−1103.5			
2.41	.03	.07	+3.86	.40	.09	+2.69	−173.2	−173.8	−663.1	−663.1	+0.6	0.0	
2.11	.03	.08	+3.79	.32	.10	+3.42	−193.6	−194.2	+527.7	+528.1	+0.6	−0.4	
~~1.97~~ 2.02				~~.62~~ .50	.09	+3.~~71~~ 59	−168.8 ✓	−166.7 ✓	+825.0 ✓	+~~1036.5~~ 825.2	−2.1	−0.2 ✓	
1.91	.06	.08	+3.76	.78	.10	+3.88	−201.5	−201.3	+1290.3	+1290.4	−0.2	−0.1	
1.8~~8~~ 9	.07	~~.06~~ .07	+3.7~~7~~ 6	.82	~~.08~~ .09	+3.9~~0~~ 1	−167.6	−166.8	+1356.9	+1358.1	−0.8	−1.2	
1.80	.09	.08	+3.73	1.0~~8~~ 7	.11	+4.1~~7~~ 8	−206.6	−206.7	+1771.1	+1771.4	+0.1	−0.3	
2.66	.08	.05	+3.93	1.02	.07	+2.05	−128.9	−128.8	−1700.1	−1698.8	−0.1	−1.3	
2.67	.08	.06	+3.92	1.01	.08	+2.0~~8~~ 7	−146.1	−145.5	−1679.5	−1678.0	−0.6	−1.5	
2.51	.05	.05	+3.90	.66	.07	+2.41	−141.0	−140.2	−1101.2	−1099.7	−0.8	−1.5	
2.47	.05	.06	+3.89	.54	.08	+2.54	−153.5	−153.8	−910.9	−909.9	+0.3	−1.0	
2.42	.04	.05	+3.89	.48	.06	+2.58	−124.7	−124.8	−802.4	−802.3	+0.1	−0.1	
2.29	.01	.05	+3.86	~~.15~~ .16	.07	+2.9~~2~~ 1	−132.5	−131.6	−263.4	−262.6	−0.9	−0.8	
2.2~~6~~ 8	.01	.05	+3.86	.13	~~.06~~ .07	+2.9~~3~~ 4	−124.~~4~~ 5	−125.3	−214.9	−214.9	+0.~~9~~ 8	0.0	
2.26				.07	.08	+3.01		−153.4		−125.0			✓
								−153.8		−125.0			
2.23	.00	.05	+3.85	~~.07~~ .05	.06	+~~2.99~~ 3.01	−124.2	−122.0	−81.3	−80.9	−2.2	−0.4	

		D4849		D4885		C-E		C			E		
						x	y	ax +	by	Σ	ax +	by	Σ
4849 Defect?	260	-132.1	+ 77.0	-134.6	+ 76.8	+2.5	+0.2	.02	.01	+.81	.07	.02	-2.20
p210	261	-127.4	+335.3	-125.6	+335.3	-1.8	0.0	.02	.04	+.78	.06	.09	-2.12
		-127.6	+335.3	-129.7	+335.3	+2.1	0.0						
4849 Defect? p210	261a	-159.3 -160.1	+367.6 +367.6	plate cracked not seen				.02	.04	+.78			
	262	-115.7	+720.0	-118.5	+721.0	+2.8	-1.0	.01	.09	+.74	.06	~~.18~~ .19	-2.0~~3~~2
	263	-135.6	+1366.6	-136.2	+1367.0	+0.6	-0.4	.02	.16	+.66	.07	.3~~5~~6	-1.8~~7~~6
4849 Def.? p210	264	-143.9	+1745.2	-145.1	+1738.5	+1.2	+6.7	.02	.21	+.6~~2~~1	.07	.45	-1.77
		-143.9	+1736.9	-145.9	+1739.3	+2.0	-2.4						
	265	- 99.0	-1218.1	-102.3	-1218.3	+3.3	+0.2	.01	.15	+.98	.05	.32	-2.52
	266	- 83.4	-946.6	- 86.8	- 947.4	+3.4	+0.8	.01	.11	+.94	~~.05~~ .04	.25	-2.4~~5~~4
	267	- 95.4	-485.9	- 98.2	- 486.2	+2.8	+0.3	.01	.06	+.89	.05	.13	-2.33
l p200-1	268	- 87.0	+ 4.3	- 90.3	+ 4.3	+3.3	0.0	.01	.00	+.83	.05	.00	-2.20
	269	- 73.0	+622.1	- 74.6	+620.5	+1.6	+1.6	.01	.07	+.76	.04	.16	-2.03
	270	- 87.4	+821.5	- 90.1	+822.8	+2.7	-1.3	.01	.10	+.73	.05	.21	-1.99
	271	-103.5	+1613.8	-105.3	+1614.2	+1.8	-0.4	.01	.19	+.64	.05	.42	-1.78
89 33 =	272	- 19.2	-1740.2	- 23.1	-1742.5	+3.9	+2.3	.00	.21	+1.05	.01	.45	-2.61
p196-9 ~~+89/33~~	273	- 39.3	-1514.0	- 43.2	-1513.8	+3.9	-0.2	.00	.18	+1.02	.02	.39	-2.56
	274	- 39.1	-1263.0	- 42.8	-1263.0	+3.7	0.0	.00	.15	+.99	.02	.33	-2.50
4849 Def.?	274a	- 42.3	-1100.9	-45.2	-1100.9	+2.9	0.0	.01	.13	+.96			
	275	~~+ 46.0~~ - 6.6	- 623.0	- 10.1	-622.4	+3.5	- 0.6	.00	.07	+.91	.0~~0~~1	.16	-2.3~~1~~2
	276	- 20.4	-536.9	- 22.7	-537.3	+2.3	+0.4	.00	.06	+.90	.01	.14	-2.30
	277	- 53.1	-462.6	- 56.1	- 463.8	+3.0	+1.2	.01	.06	+.89	.03	.12	-2.30
p206	278	- 38.7	+642.4	- 39.3	+ 642.8	+0.6	- 0.4	.00	.08	+.76	.02	.17	-2.~~34~~50
4849 Def.? p206	278a	- 4~~9~~8.8	~~+733.8~~ + 707.5*	-57.3	+708.2	+2.5	-0.7	.01	~~.09~~ .08	+.7~~4~~5			
	278b	- 53.1	+~~1233.2~~ 1180.6	-55.1	+1180.9	+2.0	- 0.3	.01	.1~~5~~4	+~~70~~ .689			
	279	- 18.4	+1491.7	- 18.8	+14~~48.3~~92.1	+0.4	-0.4	.00	.18	+.66	.01	~~.38~~ .39	- 1.78
	280	- 30.6	+1557.5	- 31.2	+1558.1	+0.6	-0.6	.00	.19	+.65	~~.01~~ .02	.4~~0~~1	-1.76
	281	+ 13.3	-1586.7	+ 9.4	-1586.9	+3.9	+0.2	.00	.19	+1.03	.00	.41	-2.56
p210	282	+ 2.5	-1253.2	+ 1.5	-1252.8	+1.0	-0.4	.00	.15	+.99	.00	.33	-2.48
		+ 3.8	-1253.0	- 0.3	-1254.8	+4.1	+ 1.8						

	𝒞 a'y	-b'x	Σ	ℰ a'y	-b'x	Σ	𝒞 Corr. x	ℰ Corr. x	𝒞 Corr. y	ℰ Corr. y	𝒞-ℰ Corr. x	y	
.20	.00	.05	+3.85	.05	+.07	+3.12	-132.9	-132.4	+73.2	+73.7	-0.5	-0.5	
.12	.02	.05	+3.83	.20	.06	+3.26	-128.2 -128.4	-123.5 -127.6	+331.5 +331.5	+332.0 +332.0	-4.7 -0.8	-0.5 -0.5	✓ p134
	.02	.06	+3.82				-160.1 -160.9 ✓		+363.8 +363.8 ✓				✓
2.0$\overset{2}{\cancel{3}}$	.04	~~.04~~ .05	+3.8$\overset{1}{2}$	.43	.06	+3.49	-116.4	-116.5	+716.2	+717.5	+0.1	-1.3	
.8$\overset{6}{\cancel{7}}$	.07	.05	+3.78	.82	.07	+3.89	-136.3	-134.3	+1362.8	+1363.1	-2.0	-0.3	
.77	.09	.06	+3.75	1.04	.07	+4.11	-144.5 -144.5	-143.3 -144.1	+1741.4 +1733.1	+1734.4 +1735.2	-1.2 -0.4	+$\overset{7.0}{\cancel{3.0}}$ -2.1	✓ p134
.52	.06	.04	+3.92	.73	.05	+2.32	-100.0	-99.8	-1222.0	-1220.6	-0.2	-1.4	
.4$\overset{4}{\cancel{5}}$	.05	.03	+3.92	.57	$\overset{.04}{\cancel{.05}}$	+2.4$\overset{7}{\cancel{8}}$	-84.3	-84.4	-950.5	-949.9	+0.1	-0.6	
.33	.02	.04	+3.88	.29	.05	+2.76	-96.3	-95.9	-489.8	-489.0	-0.4	-0.8	
.20	.00	.03	+3.87	.00	.05	+3.05	-87.8	-88.1	+0.4	+1.3	+0.3	-0.9	87.4 1.5
.03	.03	.03	+3.84	.37	.04	+3.41	-73.8	-72.6	+618.3	+617.1	-1.2	+1.2	
.99	.04	.03	+3.83	.49	.05	+3.54	-88.1	-88.1	+817.7	+819.3	0.0	-1.6	
.78	.08	.04	+3.78	.97	.05	+4.02	-104.1	-103.5	+1610.0	+1610.2	-0.6	-0.2	
.61	.09	.01	+3.98	1.05	.01	+1.96	-20.2	-20.5	-1744.2	-1744.5	+0.3	+0.3	20.8 174$\overset{4}{3}$.6 [illegible]
.56	.08	.02	+3.96	.91	.02	+2.11	-40.3	-40.6	-1518.0	-1515.9	+0.3	-2.1	
.50	.06	.02	+3.94	.76	.02	+2.26	-40.1	-40.3	-1266.9	-1265.3	+0.2	-1.6	
	.06	.02	+3.94				-43.3	-42.7	-1104.8	-1103.3	-0.6	-1.5	✓
.3$\overset{2}{\cancel{1}}$	.03	.00	+3.93	.37	.0$\overset{1}{\cancel{2}}$	+2.6$\overset{4}{\cancel{3}}$	-7.5	-7.8	-626.9	-625.0	+0.3	-1.9	
.30	.03	.01	+3.92	~~.33~~ .32	.01	+2.6$\overset{9}{\cancel{8}}$	-21.3	-20.4	-540.8	-540.0	-0.9	-0.8	
.30	.02	.02	+3.90	.28	.03	+2.75	-54.0	-53.8	-466.5	-466.6	-0.2	+0.1	
$\overset{.50}{\cancel{.34}}$	$\overset{.04}{\cancel{.03}}$	.02	+3.85	.39	.02	+3.41	-39.5	-37.3	+638.6	+639.4	-2.2	-0.8	
	.04	.02	+3.84				-49.$\overset{6}{\cancel{5}}$	-49.3	+$\overset{703.7}{730.0}$	+704.8	-0.3	-1.1	✓
	.06 ✓	.02	+3.82				-53.8	-53.2	+~~1289.4~~ +1172.6.8	+1177.2	-0.6	-0.4	✓
.7$\overset{7}{\cancel{8}}$	.07	.01	+3.82	.90	.01	+3.91	-19.1	-17.0	+1487.9	+1488.2	-2.1	-0.3	
.76	.08	.01	+3.81	.93	.0$\overset{2}{\cancel{1}}$	+3.9$\overset{5}{\cancel{4}}$	-31.2 ~~-19.1~~	-29.4	+1553.7	+1554.2	-1.8	-0.4	
.56	.08	.00+.01	+3.9$\overset{9}{8}$	.95	.00	+2.05	+12.3	+12.0	-1590.7	-1588.9	+0.3	-1.8	
.48	.06	.00	+3.96	.75	.00	+2.25	+1.5 +2.8	+4.0 +2.2	-1257.2 -1257.0	-1255.0 -1257.0	-2.5 +0.6	-2.2 0.0	✓ p134

		b D4849		ε D4885		b − ε		b			ε		
						x	y	ax + by		Σ	ax + by		Σ
	283	+ 6.0	−1181.9	+ 3.6	−1184.2	+2.4	+2.3	+.00	.14	+.98	+.00	.31	−2.46
	284	+ 47.0	−1068.8	+42.5	−1069.2	+4.5	+0.4	.01	.13	+.98	.02	.28	−2.41
	285	+ 5.8	−1061.1	+ 3.8	−1062.7	+2.0	+1.6	.00	.13	+.97	.00	.28	−2.43
	286	+ 15.3	− 801.3	+12.1	− 801.3	+3.2	0.0	.00	.10	+.94	.01	.21	−2.35
	287	+ 25.9	− 327.7	+22.6	− 327.9	+3.~~7~~3	+0.2	.00	.04	+.88	.01	.~~08~~ 09	−2.2~~2~~3
k prov=1	288	+ 11.7	− 82.2	+ 9.6	− 82.4	+2.1	+0.2	.00	.01	+.85	.00	.02	−2.17
p210	289	+ 30.4	+145.0	+ 28.1	+140.8	+2.3	+4.2	.00	.02	+.82	.01	.04	−2.10
		+ 30.2	+141.4	+28.1	+140.8	+2.1	+ 0.6						
	290	+ 11.7	+649.1	+ 9.4	+650.1	+2.3	− 1.0	.00	.08	+.7~~8~~6	.00	.17	−1.98
	291	+ 21.4	+1818.3	+ 20.0	+1820.1	+1.4	− 1.8	.00	.22	+.62	.01	.47	−1.67
	292	+ 53.7	−1555.0	+ 50.3	−1555.8	+3.4	+0.8	.01	.19	+1.04	.03	.40	~~−1.78~~ −2.52
	293	+ 58.2	− 822.1	+ 54.3	− 822.1	+3.9	0.0	.01	.10	+.95	.03	.21	−2.33
	294	+ 94.9	− 514.0	+ 93.1	− 514.2	+1.8	+ 0.2	.01	.06	+.91	.05	.13	−2.~~07~~23
	295	+ 73.4	+768.1	+ 70.6	+767.9	+2.8	+ 0.2	.01	.09	+.~~92~~76	.04	.20	−1.91
	296	+ 97.0	+1106.3	+ 94.7	+1106.9	+2.3	− 0.6	.01	.13	+.72	.05	.29	−1.81
	297	+ 86.8	+1334.7	+ 86.4	+1334.9	+0.4	− 0.2	.01	.16	+.69	.04	.35	−1.76
A.S.	298	A.S.		+123.2	−1675.0						.06	.44	−2.53
				+123.2	−1673.6								
	299	+103.1	− 918.7	+101.7	− 918.9	+1.4	+ 0.2	.01	.11	+.96	.05	.24	−2.34
	300	+131.3	− 454.1	+127.6	− 454.9	+3.7	+0.8	.02	.05	+.91	.~~06~~07	.12	−2.2~~1~~0
h prov-1 =	301	+135.4	− 263.2	+131.7	− 263.8	+3.7	+ 0.6	.02	.03	+.89	.07	.07	−2.15
	302	+123.2	+157.4	+121.5	+157.2	+1.7	+ 0.2	.01	.02	+.83	.06	.04	−2.05
	303	+133.3	+167.8	+129.9	+167.2	+3.4	+ 0.6	.02	.02	+.84	.~~06~~07	.04	−2.0~~5~~4
	304	+148.1	+480.5	+147.1	+479.5	+1.0	+ 1.0	.02	.06	+.80	.08	.12	−1.95
p207	305	+122.6	~~+811.8~~ +759.2	+119.9	+758.6	+2.7	+0.6	.01	.~~10~~ 09	+.7~~5~~6	.06	.20	−1.89
	306	+145.3	+1071.7	+143.5	+1073.2	+1.8	− 1.5	.02	.13	+.73	.07	.28	−1.80
	307	+179.8	−1605.0	+176.6	−1605.4	+3.2	+ 0.4	.02	.19	+.67 1.05	.09	.42	−2.48
p206	308	+174.8	−13~~70.0~~ 96.3+	+171.3	−1397.0	+3.5	+ 0.7	.02	.~~16~~ 17	+.~~70~~ 1.0~~2~~3	.09	.36	−2.42
	309	+196.3	−1397.4	+193.8	−1397.8	+2.5	+ 0.4	.02	.17	+.69 1.03	.10	.36	−2.41

	C a'y	C -b'x	C Σ	E a'y	E -b'x	E Σ	C Corr. x	E Corr. x	C Corr. y	E Corr. y	C-E Corr. x	C-E Corr. y	
.46	.06	+.00	+3.96	.71	+.00	+2.29	+ 5.0	+ 6.1	-1185.9	-1186.5	-1.1	+0.6	
.41	.05	.02	+3.97	.64	.02	+2.34	+ 46.0	+ 44.9	-1072.8	-1071.5	+1.1	-1.3	
.43	.05	.00	+3.95	.64	.00	+2.36	+ 4.8	+ 6.2	-1065.1	-1065.1	-1.4	0.0	
.35	.04	.01	+3.95	.48	.01	+2.51	+ 14.4	+ 14.5	- 805.3	- 803.8	-0.1	-1.5	
.2~~2~~3	.02	.01	+3.93	.20	.01	+2.79	+ 25.0	+ 24.8	- 331.6	- 3~~2~~30.7	+0.2	-0.9	
.17	.00	.00	+3.90	.05	.00	+2.95	+ 10.9	+ 11.8	- 86.1	- 85.4	-0.9	-0.7	11.5 86.0
10	.01	.01	+3.90	.08	.01	+3.07	+ 29.6 + 29.4	+ 30.2 +30.2	+141.1 +137.5	+ 137.7 +137.7	-0.6 -0.8	+3.4 -0.2	✓ p134
98	.03	.00	+3.87	.39	.00	+3.39	+ 10.9	+ 11.4	+645.2	+646.7	-0.5	-1.5	
67	.09	.01	+3.82	1.09	.01	+4.08	+ ~~22.0~~ 20.8	+ 21.7	+1814.5	+1816.0	-0.9	-1.5	
~~78~~ 52	.08	.02	+4.00	.93	.03	+2.04	+ 5~~4~~2.7	+ 52.8	-1559.0	-1557.8	-0.1	-1.2	
33	.04	.02	+3.96	.49	.03	+2.48	+ 57.2	+ 56.6	- 826.1	- 824.6	+0.6	-1.5	
~~07~~ 23	.03	.04	+3.97	.31	.05	+2.64	+ 94.0	+ 95.3	- 518.0	- 516.8	-1.3	-1.2	
1	.04	.03	+3.89	.46	.04	+3.42	+ 72.6	+ 72.5	+ 764.2	+ 764.5	+0.1	-0.3	
1	.06	.04	+3.88	.66	.05	+3.61	+ 96.3	+ 96.5	+1102.4	+1103.3	-0.2	-0.9	
76	.07	.03	+3.86	.80	.04	+3.76	+ 86.1	+ 88.2	+1330.8	+1331.1	-2.1	-0.3	
53				1.00	.06	+1.94		+ 125.7 + 125.7		-1676.9 -1675.5			✓
34	.05	.04	+3.99	.55	.05	+2.40	+ 102.1	+104.0	- 922.7	- 921.3	-1.9	-1.4	
2~~X~~0	.02	.05	+3.97	.27	~~.06~~ .07	+2.6~~7~~6	+ 130.4	+129.8	- 458.1	- 457.6	+0.6	-0.5	
15	.01	.05	+3.96	.16	.07	+2.77	+ 134.5	+133.9	- 267.2	- 266.6	+0.6	-0.6	134.4 266.7
05	.01	.05	+3.94	.09	.06	+3.03	+ 122.4	+123.5	+ 153.5	+ 154.2	-1.1	-0.7	
~~5~~4	.01	.05	+3.94	.10	~~.06~~ .07	+3.0~~4~~3	+ 132.5	+131.9	+ 163.9	+ 164.2	+0.6	-0.3	
5	.02	.06	+3.94	.29	.08	+3.21	+ 147.3	+149.1	+ 476.6	+476.3	-1.8	+0.3	
9	.04	.05	+3.91	.46	.06	+3.40	+ 121.8	+121.8	+ 755.3	+755.2	0.0	+0.1	
0	.05	.06	+3.91	.64	.07	+3.57	+ 144.6	+145.3	+1067.8	+1069.6	-0.7	-1.8	
8	.08	.07	+4.05	.96	.09	+2.95	+ 178.8	+179.1	-1609.0	-1607.4	-0.3	-1.6	
42	.07	.07	+4.04	.84	.09	+2.07	+ 173.8	+173.7	-1400.3	-1399.1	+0.1	-1.2	
1	.07	.08	+4.05	.84	.10	+2.06	+ 195.3	+196.2	-1401.4	-1399.9	-0.9	-1.5	

//6

		D4849		D4885		C-E		6			E		
		x	y			x	y	ax	by	Σ	ax +	by	Σ
	310	+197.7	-1102.3	+195.5	-1103.7	+2.2	+1.4	+.02	.13	+.99	+.10	.29	-2.34
	311	+186.9	-961.6	+183.1	-963.6	+3.8	+2.0	.02	.12	+.98	.09	.25	-2.31
	312	+165.6	-615.5	+163.8x	-616.1	+1.8	+0.6	.02	.07	+.93	.08	.16	-2.23
	313	+180.0	+480.3	+178.6	+478.5	+1.4	+1.8	.02	.06	+.80	.09	.12	-1.94
	314	+157.7	+861.3	+156.3	+861.1	+1.4	+0.2	.02	.10	+.76	.08	.22	-1.85
	315	+173.3	+909.$\overset{5}{8}$	+171.9	+908.9	+1.4	+0.6	.02	.11	+.75	.09	.24	-1.82
	316	+163.4	+1174.7	+162.0	+1174.1	+1.4	+0.6	.02	.14	+.72	.08	.31	-1.76
	317	+165.2	+1460.0	+163.2	+1460.$\overset{9}{\cancel{7}}$	+2.0	-0.7	.02	.18	+.68	.08	.38	-1.69
	318	+161.6	+1605.9	+160.5	+1606.7	+1.1	-0.8	.02	.19	+.67	.08	.42	-1.65
	319	+175.8	+1618.5	+173.5	+1619.7	+2.3	-1.2	.02	.19	+.67	.09	.42	-1.64
	320	+175.6	+1673.9	+174.8	+1674.3	+0.8	-0.4	.02	.20	+.66	.09	.44	-1.62
	321	+176.2	+1739.5	+175.0	+1739.9	+1.2	-0.4	.02	.21	+.65	.09	.45	-1.61
	322	+155.5	+1751.1	+154.3	+1749.8	+1.2	+1.3	.02	.21	+.65	.08	.45	-1.62
p211	323	+159.3	+~~1811.2~~ 1758.6	+157.7	+~~1811.0~~ 1758.4	+1.6	+0.2	.02	.2$\overset{1}{\cancel{2}}$	+.6$\overset{3}{\cancel{4}}$	.08	.4$\overset{6}{\cancel{7}}$	-1.6$\overset{1}{\cancel{0}}$
√2 meas Pl.E. meas of 2 p206+209	324	+177.4 +177.8	+1787.2 +1786.0	+1754 +175.8	+1785.9 +1785.8	+2.0 +2.0	+1.$\overset{3}{\cancel{4}}$ +0.2	.02	.21	+.65	.09 .09	.46 46	-1.60 -1.60
	325	+220.2	-1254.6	+217.6	-1254.2	+2.6	-0.4	.0$\overset{2}{\cancel{3}}$ .03	.15	+1.02	.11	.33	-2.37
p206	326	+~~283.2~~ 256.9x	-858.4	+254.2	-859.6	+2.7	+1.2	.03	.10	+.97	.13	.22	-2.24
	327	+250.5	-599.7	+247.5	-601.1	+3.0	+1.4	.03	.07	+.94	.13	.16	-2.18
	328	+247.2	-392.9	+244.6	-394.8	+2.6	+1.9	.03	.05	+.92	.12	.10	-2.13
	329	+215.8	-8.7	+212.3	-8.7	+3.5	0.0	.03	.00	+.87	.11	.00	-2.04
	330	+207.9	+258.4	+206.0	+258.2	+1.9	+0.2	.02	.03	+.83	.11	.07	-1.97
	331	+228.4	+498.4	+225.7	+498.4	+2.7	0.0	.03	.06	+.81	.12	.13	-1.90
	332	+242.4	+736.0	+240.3	+736.0	+2.1	0.0	.03	.09	+.78	.12	.19	-1.84
	333	+224.5	+984.2	+222.5	+984.2	+2.0	0.0	.0$\overset{2}{\cancel{3}}$ .03	.12	+.75	.11	.26	-1.78
	334	+243.0	+1076.6	+241.6	+1077.0	+1.4	-0.4	.03	.13	+.74	.12	.28	-1.75
Not meas. 4885	334a	+224.9	+1172.7	+224.1	+1172.5	+0.8	+0.2	.03	.14	+.73			
	335	+236.7	+1281.5	+233.9	+1280.3	+2.8	+1.2	.03	.15	+.72	.12	.33	-1.70

~~b'x~~ ~~a'y~~	𝒞 a'y + ~~b'x~~	−b'x	Σ	ℰ a'y	b'x	Σ	𝒞 Corr. x	ℰ	𝒞 Corr. y	ℰ	𝒞−ℰ Corr. x	y	
~~.06~~	.06	+.08	+4.04	.66	.10	+2.24	+196.7	+197.8	−1106.3	−1105.9	−1.1	−0.4	
~~.05~~	.05	.07	+4.02	.58	.09	+2.33	+185.9	+185.4	−965.6	−965.9	+0.5	+0.3	
	.03	.06	+3.99	.37	.08	+2.55	+164.7	+166.0	−619.5	−618.7	−1.3	−0.8	
	.02	.07	+3.95	.29	.09	+3.20	+179.2	+180.5	+476.3	+475.3	−1.3	+1.0	
	.04	.06	+3.92	.52	.08	+3.44	+156.9	+158.1	+857.4	+857.7	−1.2	−0.3	
	.05	.07	+3.92	.55	.09	+3.46	+172.5	+173.7	+905.6	+905.4	−1.2	+0.2	
	.06	.06	+3.90	.70	.08	+3.62	+162.7	+163.8	+1170.8	+1170.5	−1.1	+0.3	
	.07	.06	+3.89	.88	.08	+3.80	+164.5	+164.9	+1456.1	7.1 +145~~6.9~~	−0.4	−1.0 ~~−0.8~~	
	.08	.06	+3.88	.96	.08	+3.88	+160.9	+162.1	+1602.0	+1602.8	−1.2	−0.8	
	.08	.07	+3.89	.97	.09	+3.88	+175.1	+175.1	+1614.6	+1615.8	0.0	−1.2	
	.08	.07	+3.89	1.00	.09	+3.91	+174.9	+176.4	+1670.0	+1670.4	−1.5	−0.4	
	.09	.07	+3.88	1.04	.09	+3.95	+175.6	+176.6	+1735.6	+1735.9	−1.0	−0.3	
	.09	.06	+3.87	1.05	.08	+3.97	+154.9	+155.9	+1747.2	+1745.8	−1.0	+1.4	
	.09 ✓	.06	+3.87	6 1.0~~9~~	.08	4.04 +~~3.94~~ 3.98	+158.7	+159.3	1754.7 +~~1807.3~~	1754.4 +~~1807.0~~	−0.6	+0.3	
	.09	.07	+3.88	1.07	.09	+3.98	+176.8	0 +177.~~2~~	+1783.3	9 +1781.~~8~~	−0.4	+1.5	v. p 209 p 134 struck out mean of ΣΣ
				1.07	.09	+3.98	+177.2	+177.4	+1782.1	+1781.8	−0.2	+0.3	
	.06	.09	+4.05	.75	.11	+2.14	+219.2	+220.0	−1258.6	−1256.3	−0.8	−2.3	
	.04	.10	+4.04	.52	.13	+2.35	+255.9	+256.4	−862.4	−862.0	−0.5	−0.4	
	.03	.10	+4.03	.36	.13 ~~.12~~	+2.51	+249.6	+249.7	−603.7	−603.6	−0.1	−0.1	
	.02	.10	+4.02	.24	.12 ~~.11~~	+2.64	+246.3	+246.7	−396.9	−397.4	−0.4	+0.5	
	.00	.08	+3.98 ~~+4.0~~	.01	.11	+2.88	+214.9	+214.3	−12.7	−11.6	+0.6	−1.1	
	.01	.08	+3.97	.15	.11	+3.04	+207.1	+208.0	+254.4	+255.2	−0.9	−0.8	
	.02	.09	+3.97	.30	.12	+3.18	+227.6	+227.6	+494.4	+495.2	0.0	−0.8	
	.04	.09	+3.95	.44	.12	+3.32	+241.6	+242.1	+732.0	+732.7	−0.5	−0.7	
	.05	.09	+3.94	.59	.11	+3.48	+223.7	+224.3	+980.3	+980.7	−0.6	−0.4	
	.05	.09	+3.94	.65	.12	+3.53	+242.3	+243.4	+1072.7	+1073.5	−1.1	−0.8	
	.06	.09	+3.93				+224.2	+225.8	6 +1178.8	+1168.9	−1.6	−0.1	
	.06	.09	+3.93	.77	.12	+3.65	+236.0	+235.6	+1277.6	+1276.7	+0.4	+0.9	

		D4849		D4885		C-E		C			E			
						x	y	ax	by	Σ	ax	by	Σ	f
	336	+219.2	+1516.5	+217.0	+1516.7	+2.2	−0.2	~~+.02~~ .03	.18	+.69	+.11	.39	−1.65	
p210	337	+232.4	+1745.2	+231.4	+1748.6	+1.0	−3.4	.03	.21	+.66	.12	.45	−1.58	
		+232.4	+1747.4	+230.4	+1749.4	+2.0	−2.0							
	338	+276.5	−1564.4	+273.3	−1566.4	+3.2	+2.0	.03	.19	~~+.68~~ 1.06	.14	.41	−2.42	
Defect D4885	339	A. S.		+279.5 +278.9	−1602.9 −1600.3						.14 .14	.42 .42	−2.43 −2.43	
	340	A. S.		+305.3 +305.3	−1029.4 −1029.0						.16	.27	−2.26	
	341	+282.8	−902.7	+279.3	−903.3	+3.5	+0.6	.03	.11	+.98	.14	.23	−2.24	
	342	+301.3	* ~~−906.5~~ −643.15	+297.6	−643.5	+3.7	0.0	~~.03~~ .04	~~.11~~ .08	+.96	.15	.17	−2.17	
+89 32	343	+292.1	* −467.9	+289.3	−469.9	+2.8	+2.0	.04	.06	+.94	.15	.12	−2.12	
4849 Def.?	343a	+264.9	−118.4	+262.7	−120.2	+2.2	+1.8	.03	.03	+.88				
	344	+272.8	+298.6	+270.2	+298.8	+2.6	∓0.2	.03	.04	+.8~~5~~3	.14	.08	−1.93	
	345	+277.5	+443.6	+276.7	+443.0	+0.8	+0.6	.03	.05	+.82	.14	.12	−1.89	
	346	+272.2	+623.1	+269.6	+622.7	+2.6	+0.4	.03	.07	+.80	.14	.16	−1.85	
	347	+305.3	+1188.7	+303.7	+1188.7	+1.6	0.0	.04	.14	+.74	.15	.31	−1.69	
	347a	+346.0	−1703.7	+343.7	−1704.5	+2.3	+0.8	.04	.20	+1.08				
	348	+365.3	−1469.3	+359.8	−1472.8	+5.5	+3.5	.04	.18	+1.06	.18	.38	−2.35	
	349	+357.9	−1461.0	+355.5	−1462.0	+2.4	+1.0	.04	.18	+1.06	.18	.38	−2.35	
89 36 p196-9	350	+354.3	−1141.5	+351.0	−1144.8	+3.3	+3.3	.04	.14	+1.02	.18	.30	−2.27	
	351	+349.8	−1077.3	+346.8	−1079.4	+3.0	+2.1	.04	.13	+1.01	.18	.28	−2.25	
	352	+321.6	−635.8	+318.1	−637.5	+3.5	+1.7	.04	.08	+.96	.16	.17	−2.1~~7~~6	
p207	353	~~+414.0~~ 361.4	+380.8	+358.9	+380.2	+2.5	+0.6	~~.05~~ .04	.05	+.8~~4~~3	.18	.10	−1.87	
	354	+316.9	+460.6	+313.3	+460.0	+3.6	+0.6	.04	.06	+.82	.16	.12	−1.87	
	355	+317.5	+932.0	+316.1	+930.4	+1.4	+1.6	~~.03~~ .04	.11	+.77	.16	.24	−1.75	
	356	+333.6	+1419.8	+332.1	+1420.0	+1.5	−0.2	.04	.17	+.71	.17	.37	−1.61	
	357	+351.8	+1439.5	+350.0	+1438.7	+1.8	+0.8	.04	.17	+.71	.18	.37	−1.60	
	358	+321.0	+1638.6	+318.5	+1639.6	+2.5	−1.0	.04	.20	+.68	.16	.43	−1.56	
	359	+346.2	+1663.1	+345.1	+1664.8	+1.1	−1.7	.04	.20	+.68	.18	.43	−1.54	
	360	+402.8	−1640.1	+400.6	−1641.9	+2.2	+1.8	.05	.20	+1.09	.20	.43	−2.38	

C.			E			C	E	C	E	C-E Corr.		
a'y ~~b'x~~	-b'x	Σ	a'y	-b'x	Σ	C corr. x	E	C corr. y	E	x	y	
.08	+.09	+3.91	.91	.11	+3.80	+218.5	+218.6	+1512.6	+1512.9	-0.1	-0.3	
.09	.09	+3.90	1.05	.12	+3.93	+231.7	+233.0	+1741.3	+1744.7	-1.3	-3.4	p134
						+231.7	+232.0	+1743.5	+1745.5	-0.3	-2.0	
.08	.11	+4.09	.94	.14	+1.92	+275.4	+275.7	-1568.5	-1568.3	-0.3	-0.2	
			.96	.14	+1.90		+281.9		-1604.8			
			.96	.14	+1.90		+281.3		-1602.2			
			.62	.16	+2.22		+307.6		-1031.6			
							+307.6		-1031.2			
.05	.11	+4.06	.54	.14	+2.32	+281.8	+281.5	-906.8	-905.6	+0.3	-1.2	
.03 ~~.05~~	.12	+4.05	.39	.15	+2.46	+300.3	+299.8	-647.5	-646.0	+0.5	-1.5	292.8 ~~2567.0~~ 6.8
.02	.11	+4.03	.28	.15	+2.57	+291.2	+291.4	-471.9	-472.5	-0.2	+0.6	[illegible]
.01	.10	+4.01				+264.0	+264.7	-122.4	-123.0	-0.7	+0.6	
.01	.11	+4.00	.18	.14	+3.04	+272.0	+272.1	+294.6	+295.8	-0.1	-1.2	
.02	.11	+3.99	.27	.14	+3.13	+276.7	+278.6	+439.6	+439.9	-1.9	-0.3	
.03	.11	+3.98	.37	.14	+3.23	+271.4	+271.4	+619.1	+619.5	0.0	-0.4	
.06	.12	+3.96	.71	.15	+3.56	+304.6	+305.4	+1184.7	+1185.1	-0.8	-0.4	
.09	.13	+4.12				+344.9	+346.1	-1707.8	-1706.3	-1.2	-1.5	
.07	.14	+4.11	.88	.18	+1.94	+364.2	+362.2	-1473.4	-1474.7	+2.0	+1.3	
.07	.14	+4.11	.88	.18	+1.94	+356.8	+357.9	-1465.1	-1463.9	-1.1	-1.2	
.06	.14	+4.10	.69	.18	+2.13	+353.3	+353.3	-1145.6	-1146.9	0.0	+1.3	353.0 1146.1
.05	.14	+4.09	.65	.18	+2.17	+348.8	+349.0	-1081.4	-1081.6	-0.2	+0.2	
.03	.13	+4.06	.38	.16	+2.46	+320.6	+320.3	-639.9	-640.0	+0.3	+0.1	
.02	.14	+4.02	.23	.18	+3.05	+360.6	+360.8	+376.8	+377.2	-0.2	-0.4	
.02	.12	+4.00	.28	.16	+3.12	+316.1	+315.2	+456.6	+456.9	+0.9	-0.3	
.05	.12	+3.97	.56	.16	+3.40	+316.7	+317.9	+928.0	+927.0	-1.2	+1.0	
.07	.13	+3.96	.85	.17	+3.68	+332.9	+333.7	+1415.8	+1416.3	-0.8	-0.5	
.07	.14	+3.97	.86	.18	+3.68	+351.1	+351.6	+1435.5	+1435.0	-0.5	+0.5	
.08	.13	+3.95	.98	.16	+3.82	+320.3	+320.1	+1634.6	+1635.8	+0.2	-1.2	
.08	.14	+3.96	1.00	.18	+3.82	+345.5	+346.6	+1659.1	+1661.0	-1.1	-1.9	
.08	.16	+4.14	.99	.20	+1.81	+401.7	+403.0	-1644.2	-1643.7	-1.3	-0.5	

		D4849		D4885		C-E		b			E		
						x	y	ax	by	Σ	ax	by	Σ
	361	+402.6	-1214.2	+400.0	-1214.4	+2.6	+0.2	+.05	.15	+1.04	+.20	.32	-2.27
	362	+410.3	-793.2	+406.9	-793.4	+3.4	+0.2	.05	.10	+.99	.21	.21	-2.15
	363	+389.6	-452.9	+386.2	-453.5	+3.4	+0.6	.05	.05	+.94	.20	.12	-2.07
	364	+376.0	-215.2	+373.6	-216.2	+2.4	+1.0	~~.04~~ .05	.03	+.92	.19	.06	-2.02
	365	+398.4	-44.2	+395.9	-44.8	+2.5	+0.6	.05	.01	+.90	.20	.01	-1.96
	366	+386.2	+35.2	+383.3	+33.6	+2.9	+1.6	.05	.00	+.89	.20	.01	-1.94
	367	+417.9	+302.8	+413.2	+302.6	+4.7	+0.2	.05	.04	+.85	.21	.08	-1.86
	368	+417.9	+837.0	+413.8	+837.2	+4.1	-0.2	.05	.10	+.79	.21	.22	-1.72
	369	+410.9	+873.7	+409.3	+874.8	+1.6	-1.1	.05	.10	+.79	.21	.23	-1.71
	370	+365.3	+1052.2	+363.2	+1052.2	+2.1	0.0	.04	.13	+.75	.19	.27	-1.69
	371	+365.9	+1718.0	+362.8	+1718.8	+3.1	-0.8	.04	.21	+.67	.19	.45	-1.51
	372	+434.9	-1457.5	+432.9	-1457.7	+2.0	+0.2	.05	.17	+1.06	.22	.38	-2.31
	373	+443.8	-821.7	+442.2	-821.9	+1.6	+0.2	.05	.10	+.99	.23	.21	-2.13
p196-9 +89	374	+420.1	-654.3	+417.7	-655.7	+2.4	+1.4	.05	.08	+.97	.21	.17	-2.11
34	375	A.S.		+452.4 +452.8	-606.4 -605.8						.23	.16	-2.08
	376	+440.6	+1251.9	+438.6	+1251.3	+2.0	+0.6	.05	.15	+.74	.22	.33	-1.60
	377	A.S.		+442.4 +442.4	+1311.0 +1311.2						.23	.34	-1.58
D 4849 Def ?	378	+425.8	+1735.2	+423.5	+1734.6	+2.3	+0.6	.05	.21	+.68	.22	.45	-1.48
	379	+520.2	-1525.2	+517.6	-1526.2	+2.6	+1.0	.06	.18	+1.08	.26	.40	-2.29
	380	+484.1	-1254.6	+481.8	-1255.7	+2.3	+1.1	.06	.15	+1.05	.25	.33	-2.23
4849 Def ?	381	+481.0	-1135.4	+477.4	-1137.1	+3.6	+1.7	.06	.14	+1.04	.24	.30	-2.21
p206	382	~~+545.8~~ 519.5*	-884.8	+516.7	-886.4	+2.8	+1.6	.06	.11	+1.01	.26	.23	-2.12
	383	+472.9	+165.8	+470.5	+165.1	+2.4	+0.7	.06	.02	+.88	.24	.04	-1.87
4849 Defect.	384	+499.5	+527.1	+497.7	+525.8						.25	.14	-1.76
	385	+509.4	+1464.1	+507.8	+1462.9	+1.6	+1.2	.06	.18	+.72	.26	.38	-1.51
	386	+492.0	+1674.9	+491.6	+1676.1	+0.4	-1.2	.06	.20	+.70	.25	.44	-1.46
	387	+548.6	-1660.6	+545.6	-1661.6	+3.0	+1.0	.07	.20	+1.11	.28	.43	-2.30

	~~b'x~~	b a'y' ~~b'x~~	-b'x	Σ.	E a'y	-b'x	Σ	b Corr. x	E Corr. x	b Corr. y	E Corr. y	b-E Corr. x	b-E Corr. y	
27		.06	+.16	+4.12	.73	.20	+2.07	+401.6	+402.3	-1218.3	-1216.5	-0.7	-1.8	
.15		.04	.16	+4.10	.48	.21	+2.31	+409.3	+409.1	-~~789.1~~ 797.3	-795.7	+0.2	-1.6	
07		.02	.15	+4.07	.27	.20	+2.53	+388.7	+388.3	-457.0	-456.0	+0.4	-1.0	
02		.01	.15	+4.06	.13	.19	+2.68	+375.1	+375.6	-219.3	-218.9	-0.5	-0.4	
96		.00	.16	+4.06	.03	.20	+2.77	+397.5	+397.9	-48.3	-47.6	-0.4	-0.7	
74		.00	.15	+4.05	.02	.20	+2.82	+385.3	+385.2	+31.2	+30.8	+0.1	+0.4	
56		.02	.16	+4.04	.18	.21	+2.97	+417.1	+415.1	+298.8	+299.6	+2.0	-0.8	
12		.04	.16	+4.02	.50	.21	+3.29	+417.1	+415.5	+833.0	+833.9	+1.6	-0.9	
71		.04	.16	+4.02	.52	.21	+3.31	+410.1	+411.0	+869.7	+871.5	-0.9	-1.8	
69		.05	.14	+3.99	.63	.19	+3.44	+364.5	+364.9	+1048.2	+1048.8	-0.4	-0.6	
51		.09	.14	+3.95	1.03	.19	+3.84	+365.2	+364.3	+1714.0	+1715.0	+0.9	-1.0	
31		.07	.17	+4.14	.87	.22	+1.91	+433.8	+435.2	-1461.6	-1459.6	-1.4	-2.0	
13		.04	.17	+4.11	.49	.23	+2.28	+442.8	+444.3	-825.8	-824.2	-1.5	-1.6	
11		.03	.16	+4.09	.39	.21	+2.40	+419.1	+419.8	-658.4	-658.1	-0.7	-0.3	~~42~~ 422.5 2336.9
08					.36	.23	+2.41		+454.5 +454.9		-608.8 -608.2			✓
60		.06	.17	+4.01	.75	.22	+3.53	+439.9	+440.2	+1247.9	+1247.8	-0.3	+0.1	
58					.79	.23	+3.56		+444.0 +444.0		+1307.4 +1307.6			✓
48		.09	.17	+3.98	1.04	.22	+3.82	+425.1	+425.0	+1731.2	+1730.8	+0.1	+0.4	
29		.08	.20	+4.18	.92	.26	+1.82	+519.1	+519.9	-1529.4	-1528.0	-0.8	-1.4	
23		.06	.19	+4.15	.75	.25	+2.00	+483.1	+484.0	-1258.8	-1257.7	-0.9	-1.1	
21		.06	.19	+4.15	.68	.24	+2.08	+480.0	+479.6	-1139.6	-1139.2	+0.4	-0.4	
2		.04	.20	+4.14	.53	.26	+2.21	+518.5	+518.8	-888.9	-888.6	-0.3	-0.3	
87		.01	.18	+4.07	.10	.24	+2.86	+472.0	+472.4	+161.7	+162.2	-0.4	-0.5	
76					.32	.25	+3.07	+498.7	+499.5	+523.0	+522.7	-0.8	+0.3	✓
51		.07	.20	+4.03	.88	.26	+3.62	+508.7	+509.3	+1460.1	+1459.3	-0.6	+0.8	
46		.08	.19	+4.01	1.01	.25	+3.76	+491.3	+493.1	+1670.9	+1672.3	-1.8	-1.4	
30		.08	.21	+4.19	1.00	.28	+1.72	+547.5	+547.9	-1664.8	-1663.3	-0.4	-1.5	

		D4849		D4885		C-E		C			E		
						x	y	ax	by	Σ	ax	by	
	387a	+547.8	-1053.4	+547.2	-1056.4	+0.6	+3.0	+.07	.13	+1.04			
	388	+556.6	-728.8	+555.9	-728.8	+0.7	0.0	.07	.09	+1.00	+.28	.19	-2.06
	389	+539.9	-598.5	+536.9	-599.5	+3.0	+1.0	.06	.07	+.97	.27	.16	-2.04
	390	+535.8	-591.1	+533.4	-591.8	+2.4	+0.7	.06	.07	+.97	.27	.15	-2.03
89 1 p196-9	391	+523.7	+81.1	+521.6	+80.3	+2.1	+0.8	.06	~~.08~~ .01	+.89	.27	.02	-1.86
	392	+543.2	+108.1	+540.9	+106.1	+2.3	+2.0	.07	~~.00~~ .01	+.90	.28	.03	-1.84
	393	+528.1	+1245.2	+526.5	+1244.2	+1.6	+1.0	.06	.15	+.75	.27	.32	-1.56
	394	+527.3	+1331.1	+524.7	+1331.3	+2.6	-0.2	.06	.16	+.74	.27	.35	-1.53
	395	+539.5	+1395.7	+536.5	+1395.7	+3.0	0.0	.06	.17	+.73	.27	.36	-1.52
	396	+547.0	+1669.8	+544.2	+1670.2	+2.8	-~~1~~0.4	.07	.20	+.71	.28	.43	-1.44
	397	+604.7	-1363.7	+600.8	-1364.7	+3.9	+1.0	.07	.16	+1.07	.31	.35	-2.19
	397a	+616.1 +615.0	+206.6 +207.8	not seen				.07	.02	+.89			
	398	~~d. x5~~ +576.5 +576.7	+946.4 +946.4	+574.4 +574.2	+946.6 +845.5 at meas.						.29	.25	-1.61
rem Σ	399	+642.9 +643.1	+35.6 +35.8	641.3 +641.3	53.9 +34.4	+1.6	+1.2	.08	.00	+.92	.33	.01	-1.81
	400	+649.4	+116.2	+647.3	+113.4	+2.1	+2.8	.08	~~.05~~ .01	+.91	.33	.03	-1.79
	401	+641.0	+238.3	+639.8	+237.1	+1.2	+1.2	.08	.03	+.89	.33	.06	-1.76
	402	+665.4	+311.4	+663.0	+310.8	+2.4	+0.6	.08	.04	+.88	.34	.08	-1.73
	403	+677.8	+889.6	+676.4	+889.6	+1.4	0.0	.08	.11	+.81	.34	.23	-1.58
	404	+657.7	+1104.0	+656.9	+1103.4	+0.8	+0.6	.08	.13	+.79	.34	.29	-1.52
	405	+631.7	+1439.9	+629.7	+1439.5	+2.0	+0.4	.08	.17	+.75	.32	.37	-1.46
	406	+634.1	+1721.0	+632.9	+1720.8	+1.2	+0.2	.08	~~.20~~ .21	+.71	.32	.45	-1.38
?	407	+699.7	-1218.5	+696.1	-1221.1	+3.6	~~7.4~~ +2.6	.08	.15	+~~.61~~ 1.07	.36	.32	-2.11
	408	+682.3	-1135.6	+681.3	-1136.7	+1.0	+1.1	.08	.14	+1.06	.35	.30	-2.10
p206-7	409	+721.1	-~~1054.6~~ 1080.9	+717.8	-1081.6	+3.3	+0.7	.09	.13	+1.06	.37	.28	-2.06
	410	+727.6	-942.9	+724.9	-944.3	+2.7	+1.4	.09	.11	+1.04	.37	.25	-2.03
	411	+697.7	-721.1	+693.9	-723.2	+3.8	+2.1	.08	.09	+1.01	.35	.19	-1.99
	412	+718.0	-652.5	+714.8	-654.9	+3.2	+2.4	.09	.08	+1.01	.36	.17	-1.96

~~b'x~~ b aiy ~~bx~~	−b'x.	Σ,	E aiy−b'x		Σ	b corr. x	E	b corr. y	E	b−E Corr. x	y	
.05	+.21	+4.16				+546.8	+549.3	−1057.6	−1058.5	−2.5	+0.9	
.04	.22	+4.16	.44	.28	+2.28	+555.6	+558.0	−733.0	−731.1	−2.4	−1.9	
.03	.21	+4.14	.36	.27	+2.37	+538.9	+538.9	−602.6	−601.9	0.0	−0.7	
.03	.21	+4.14	.36	.27	+2.37	+534.8	+53~~8~~5.4	−595.2	−594.2	−0.6	−1.0	
.00	.20	+4.10	.05	.27	+2.78	+522.8	+523.5	+77.0	+77.5	−0.7	−0.5	523.1 77.9
.01	.21	+4.10	.06	.28	+2.78	+542.3	+542.7	+104.0	+103.3	−0.4	+0.7	
.06	.21	+4.05	.75	.27	+3.48	+527.3	+528.1	+1241.2	+1240.7	−0.8	+0.5	
.07	.21	+4.04	.80	.27	+3.53	+526.6	+526.2	+1327.1	+1327.8	+0.4	−0.7	
.07	.21	+4.04	.84	.27	+3.57	+538.8	+538.0	+1391.7	+1392.1	+0.8	−0.4	
.08	.21	+4.03	1.00	.28	+3.72	+546.3	+545.6	+1665.8	+1666.5	+0.7	−0.7	
.07	.24	+4.21	.82	.31	+1.87	+603.6	+603.0	−1367.9	−1366.6	+0.6	−1.3	
~~.02~~ .01	.24	+4.13				+615.2 +614.1		+202.5 +203.7				✓
			.57	.29	+3.28	+575.7 +575.9	+576.0 +575.8	+942.3 +942.5	+943.3 +942.9	51.7	−19.8	
.00	.25	+4.15	.02	.33	+2.69	+642.0 +642.2	+643.1 +643.1	+31.4 +31.6	~~+31.7~~ +31.7	−1.1 −0.9	~~−0.3~~ −0.1	p209 p134
.01	.25	+4.14	.07	.33	+2.74	+648.5	+649.1	+112.1	+110.7	−0.6	+1.4	
.01	.25	+4.14	.14	.33	+2.81	+640.1	+641.6	+234.2	+234.3	−1.5	−0.1	
.02	.26	+4.14	.19	.34	+2.85	+664.5	+664.7	+307.3	+308.0	−0.2	−0.7	
.04	.26	+4.12	.53	.34	+3.19	+677.0	+678.0	+885.5	+886.4	−1.0	−0.9	
.06	.26	+4.10	.66	.34	+3.32	+656.9	+658.4	+1099.9	+1100.1	−1.5	−0.2	
.07	.25	+4.08	.86	.32	+3.54	+630.9	+631.2	+1435.8	+1436.0	−0.3	−0.2	
.09	.25	+4.06	1.03	.32	+3.71	+633.4	+634.3	+1716.9	+1717.1	−0.9	−0.2	
.06	.27	+4.23	.73	.36	+1.91	+698.6	+698.2	−1222.7	−1223.0	+0.4	+0.3	
.06	.27	+4.23	.68	.35	+1.97	+681.2	+683.4	−1139.8	−1138.7	−2.2	−1.1	
.05	.28	+4.23	.65	.37	+1.98	+720.0	+719.9	−1085.1	−1083.6	+0.1	−1.5	
.05	.28	+4.23	.57	.37	+2.06	+726.6	+726.9	−947.1	−946.4	−0.3	−0.7	
.04	.27	+4.21	.43	.35	+2.22	+696.7	+695.9	−725.3	−725.4	+0.8	+0.1	
.03	.28	+4.21	.39	.36	+2.25	+717.0	+716.8	−656.7	−657.1	+0.2	+0.4	

		D4849		D4885		C-E		C			E		
						x	y	ax	by	Σ	ax	by	Σ
	413	+705.0	-124.6	+701.6	-125.9	+3.4	+1.3	+.08	.01	+.93	+.36	.03	-1.82
	414	+718.2	+466.9	+717.4	+465.9	+0.8	+1.0	.09	.06	+.87	.37	.12	-1.66
	415	+715.8	+770.2	+714.2	+769.6	+1.6	+0.6	.09	.09	+.84	.36	.20	-1.59
89 3 pl.96-9	416	+729.8	+864.2	+726.7	+862.3	+3.1	+1.9	.09	.10	+.83	.37	.22	-1.56
	417	+710.7	+1156.4	+709.7	+1155.2	+1.0	+1.2	.09	.14	+.79	.36	.30	-1.49
	418	+711.7	+1403.0	+709.7	+1402.0	+2.0	+1.0	.09	.17	+.76	.36	.36	-1.43
	419	+709.7	+1439.9	+707.5	+1439.9	+2.2	0.0	~~.08~~ .09	.17	+.76	.36	.37	-1.42
	419a	+707.7	+1675.3	+705.8	+1674.5	+1.9	+0.8	.08	.20	+.72			
	420	+758.2	-1210.4	+755.2	-1211.8	+3.0	+1.4	.09	.13	+1.08	.39	.32	-2.08
4849 Def.?	420a	+772.4	-1068.4	+770.6	-1068.8	+1.8	+0.4	.09	.13	+1.06			
	421	+761.5	-603.5	+758.2	-605.0	+3.3	+1.5	.09	.07	+1.00	.39	.16	-1.92
	422	+738.9	-577.3	+736.9	-579.2	+2.0	+1.9	.09	.07	+1.00	.38	.15	-1.92
	423	+746.2	-469.5	+744.4	-470.1	+1.8	+0.6	.09	.06	+.99	.38	.12	-1.89
	424	+761.9	-408.4	+758.4	-408.8	+3.5	+0.4	.09	.05	+.98	.39	.11	-1.87
	425	+769.8	-108.8	+766.6	-110.2	+3.2	+1.4	.09	.07	+.94	.39	.03	-1.79
	426	+777.9	+692.2	+774.9	+691.6	+3.0	+0.6	.09	.08	+.8~~3~~5	.40	.18	-1.57
	427	+734.3	+974.9	+733.3	+974.1	+1.0	+0.8	.09	.12	+.81	.37	.25	-1.53
	428	+741.4	+991.5	+738.5	+990.7	+2.9	+0.8	.09	.12	+.81	.38	.26	-1.51
	429	+775.3	+1007.0	+773.7	+1005.5	+1.6	+1.5	.09	.12	+.81	.39	.26	-1.50
	430	+783.0	+1316.3	+781.4	+131~~6.3~~5.6	+1.6	+0.7	.09	.16	+.77	.40	.34	-1.41
	431	+815.3	-1578.4	+811.6	-1579.0	+3.7	+0.6	.10	.19	+1.13	.41	.41	-2.15
	432	+822.6	-1477.4	+818.5	-1478.9	+4.1	+1.5	.10	.18	+1.12	.42	.38	-2.11
	433	+802.9	-664.3	+800.1	-666.1	+2.8	+1.8	.10	.08	+1.02	.41	.17	-1.91
	434	+815.3	-469.3	+812.5	-469.9	+2.8	+0.6	.10	.06	+1.00	.41	.12	-1.86
	435	+790.5	+98.3	+786.7	+96.5	+3.8	+1.~~2~~8	.09	.01	+.92	.40	.03	-1.72
	436	+791.3	+161.3	+790.3	+160.1	+1.0	+1.2	.09	.02	+.91	.40	.04	-1.71
	437	+786.1	+489.5	+783.6	+489.1	+2.5	+0.4	.09	.06	+.87	.40	.13	-1.62

		C			E			C	E	C	E	C-E		
Σ	~~b'x~~	a'y, ~~b'x~~	-b'x	Σ	a'y	- b'x	Σ	Corr.x		Corr.y		Corr.x	Corr.y	
1.82		.01	+.27	+4.18	.08	.36	+2.56	+ 704.1	+ 703.4	-128.8	-128.5	+ 0.7	-0.3	
1.66		.02	.28	+4.16	.28	.37	+2.91	+ 717.3	+ 719.1	+462.7	+463.0	-1.8	-0.3	
1.59		.04	.28	+4.14	.46	.36	+ 3.10	+ 715.0	+ 715.8	+ 766.1	+ 766.5	-0.8	-0.4	
1.56		.04	.28	+4.14	.52	.37	+3.15	+ 729.0	+ 728.3	+ 860.1	+ 859.1	+0.7	+1.0	728.~~5~~4 860.5
1.49		.06	.28	+4.12	.69	.36	+3.33	+ 709.9	+ 711.2	+1152.3	+1151.9	-1.3	+0.4	
1.43		.07	.28	+ 4.11	.84	.36	+3.48	+ 710.9	+ 711.1	+1398.9	+1398.5	-0.2	+0.4	
1.42		.07	.28	+ 4.11	.86	.36	+3.50	+ 708.9	+ 708.9	+1435.8	+1436.4	0.0	-0.6	
		.08	.28	+4.10				+ 707.0	+707.2	+1671.2	+1670.9	-0.2	+0.3	
2.08		.06	.30	+4.26	.73	.39	+ 1.88	+ 757.1	+ 757.3	-1214.7	-1213.7	-0.2	-1.0	
		.05	.30	+4.25				+ 771.3	+772.6	-1072.6	-1070.8	-1.3	-1.8	
1.92		.03	.30	+4.23	.36	.39	+2.25	+ 760.5	+ 760.1	-607.7	- 607.2	+0.4	-0.5	
1.92		.03	.29	+4.22	.35	.38	+2.27	+ 737.9	+ 738.8	- 581.5	- 5~~76.9~~ 81.5	-0.9	0.0	
1.89		.02	.29	+4.21	.28	.38	+2.34	+745.2	+ 746.3	- 473.7	- 472.4	-1.1	-1.3	
1.87		.02	.30	+4.22	.25	.39	+2.36	+ 760.9	+ 760.3	- 412.6	-411.2	+0.6	-1.4	
1.79		.01	.30	+4.21	.07	.39	+2.54	+768.9	+ 768.4	- 113.0	- 112.7	+0.5	-0.3	
1.57		.03	.30	+4.17	.41	.40	+3.01	+ 777.1	+ 776.5	+ 688.0	+ 688.6	+0.6	-0.6	
1.53		.05	.29	+4.14	.58	.37	+3.21	+ 733.5	+ 734.8	+ 970.8	+ 970.9	-1.3	-0.1	
1.51		.05	.29	+4.14	.59	.38	+3.21	+ 740.6	+ 740.0	+ 987.4	+ 987.5	+0.6	-0.1	
1.50		.05	.30	+4.15	.60	.39	+3.21	+774.5	+ 775.2	+1002.8	+1002.3	-0.7	+0.5	
1.41		.07	.31	+4.14	.79	.40	+3.39	+782.2	+ 782.8	+1312.2	+1312.2	-0.6	0.0	
2.15		.08	.32	+4.30	.95	.41	+1.64	+814.2	+ 813.8	-1582.7	-1580.6	+0.4	-2.1	
2.11		.07	.32	+4.29	.89	.42	+1.69	+821.5	+ 820.6	-1481.7	-1480.6	+0.9	-1.1	
1.91		.03	.31	+4.24	.40	.41	+2.19	+801.9	+ 802.0	- 668.5	- 668.3	-0.1	-0.2	
1.86		.02	.32	+4.24	.28	.41	+2.31	+814.3	+ 814.4	- 473.5	- 472.2	-0.1	-1.3	
.72		.00	.31	+4.21	.06	.40	+2.66	+789.6	+ 788.4	+ 94.1	+ 93.8	+1.2	+0.3	
1.71		.01	.31	+4.20	.10	.40	+2.70	+790.4	+ 792.0	+ 157.1	+ 1~~6~~57.4	-1.6	-0.3	
1.62		.02	.31	+4.19	.29	.40	+2.89	+785.2	+ 785.2	+ 485.3	+ 486.2	0.0	-0.9	

		D4849		D4885.		C − E		b			E		
						x	y	ax	by	Σ	ax	by	Σ
	438	+802.1	+779.7	+799.1	+778.7	+3.0	+1.0	.10 +.02	.09	+.85	+.41	.20	−1.54
	439	+830.9	+1585.6	+828.1	+1585.1	+2.8	+0.5	.10 .02	.19	+.75	.42	.41	−1.32
	440	+879.5	−1293.4	+875.4	−1295.3	+4.1	+1.9	.11	.16	+1.11	.45	.34	−2.04
	441	+879.5	−1112.9	+876.0	−1114.9	+3.5	+2.0	.11	.13	+1.08	.45	.29	−1.99
p206	442	+839.9	−765.5* ~~739.2~~	+836.8	−766.6	+3.1	+1.1	.10	.09	+1.03	.43	.20	−1.92
p206-7	443	+887.9* ~~+914.2~~	−1397.8* ~~−345.2~~	+886.0	−398.2	+1.9	+0.4	.11	.05 ~~.04~~	1.00 ~~+.99~~	.45	.10	−1.80
4849	444	+868.3	+246.2	+867.3	+245.2	+1.0	+1.0	.10	.03	+.91	.44	.06	−1.65
Defect.	445			+855.3	+843.1						.44	.22	−1.49
	446	+877.8	+1225.5	+876.2	+1224.7	+1.6	+0.8	.11	.15	+.80	.45	.32	−1.38
	447	+847.4	+1573.2	+847.0	+1571.1	+0.4	+2.1	.10	.19	+.75	.43	.41	−1.31
	447a	+916.4	−1263.6	+914.2	−1267.0	+2.2	+3.4	.11	.15	+1.10			
	448	+892.1	−1074.7	+889.4	−1076.5	+2.7	+1.8	.11	.13	+1.08	.45	.28	−1.98
	449	+932.5	−1056.6	+929.0	−1058.3	+3.5	+1.7	.11	.13	+1.08	.47	.28	−1.96
	450	+926.6	−785.5	+924.1	−787.3	+2.5	+1.8	.11	.09	+1.04	.47	.20	−1.88
	451	+901.8	−720.3	+900.0	−720.7	+1.8	+0.4	.11	.09	+1.04	.46	.19	−1.88
	452	+937.1	−178.3	+935.5	−178.7	+1.6	+0.4	.11	.02	+.97	.48	.05	−1.72
	453	+900.6	+307.7	+898.6	+307.1	+2.0	+0.6	.11	.04	+.91	.46	.08	−1.61
	454	+893.7	+988.5	+891.5	+987.7	+2.2	+0.8	.11	.12	+.83	.45	.26	−1.44
	455	+920.3	+1083.9	+917.0	+1083.1	+3.3	+0.8	.11	.13	+.82	.47	.28	−1.40
	456	+901.4	+1322.6	+900.2	+1322.1	+1.2	+0.5	.11	.16	+.79	.46	.34	−1.35
	457	+957.1	−1194.1	+954.6	−1195.1	+2.5	+1.0	.11	.14	+1.09	.49	.31	−1.97
	458	+972.7	−1139.7	+969.4	−1141.3	+3.3	+1.6	.12	.14	+1.10	.49	.30	−1.96
	459	+946.7	−763.4	+944.3	−765.0	+2.4	+1.6	.11	.09	+1.04	.48	.20	8 −1.97
	460	+984.9	−743.1	+982.8	−744.9	+2.1	+1.8	.12	.09	+1.05	.50	.19	−1.84
	461	+978.8	−25.1	+977.0	−27.4	+1.8	+2.3	.12	.00	+.96	.50	.01	−1.66
	462	+984.3	+27.7	+981.0	+26.7	+3.3	+1.0	.12	.00	+.96	.50	.01	−1.64
	463	+973.1	+35.4	+972.3	+32.5	+0.8	2 +1.9	.12	.00	+.96	.50	.01	−1.64

- ~~b'x~~

b			ε			b	ε	b	ε	b - ε	
a'y, ~~b'x~~	- b'x	Σ	a'y	- b'x	Σ	corr. x		corr. y		Corr. x	y
.04	+.31	+4.17	.47	.41	+3.06	+801.3	+800.6	+775.5	+775.6	+0.7	-0.1
.08	.32	+4.14	.95	.42	+3.53	+830.1	+829.4	+1581.5	+1581.6	+0.7	-0.1
.06	.34	+4.30	.78	.45	+1.77	+878.4	+877.$\overset{4}{3}$	-1297.7	-1297.1	+1.0	-0.6
.06	.34	+4.30	.67	.45	+1.88	+878.4	+878.0	-1117.2	-1116.8	+0.4	-0.4
.04	.33	+4.27	.46	.43	+2.11	+838.9	+838.7	-769.8	-768.7	+0.2	-1.1
.02	.35	+4.27	.24	.45	+2.31	+886.9	+887.8	-402.1	-40$\overset{0}{1}$.5	-0.9	-$\overset{1}{0}$.6
.01	.34	+4.23	.15	.44	+2.71	+867.4	+868.9	+242.0	+242.5	-1.5	-0.5
			.51	.44	+3.07		+856.8		+840.0		
.06	.34	+4.18	.73	.45	+3.28	+877.0	+877.6	+1221.3	+1221.4	-0.6	-0.1
.08	.33	+4.15	.94	.43	+3.51	+846.6	+848.3	+1569.0	+1567.6	-1.7	+1.4
.06	.36	+4.32				+915.3	+916.2	-1267.9	-1268.8	-0.9	+0.9 ✓
.05	.35	+4.30	.65	.45	+1.90	+891.0	+891.4	-1079.0	-1078.4	-0.4	-0.6
.05	.36	+4.31	.63	.47	+1.90	+931.4	+931.0	-1060.9	-1060.2	+0.4	-0.7
.04	.36	+4.30	.47	.47	+2.06	+925.6	+926.0	-789.8	-789.4	-0.4	-0.4
.04	.35	+4.29	.43	.46	+2.11	+900.8	+901.9	-724.6	-722.8	-1.1	-1.8
.01	.37	+4.28	.11	.48	+2.41	+936.1	+937.2	-182.6	-181.1	-1.1	-1.5
.02	.35	+4.23	.18	.46	+2.72	+899.7	+900.2	+303.5	+304.4	-0.5	-0.9
.05	.35	+4.20	.59	.45	+3.14	+892.9	+892.9	+984.3	+984.6	0.0	-0.3
.05	.36	+4.21	.65	.47	+3.18	+919.5	+918.4	+1079.7	+1079.9	+1.1	-0.2
.07	.35	+4.18	.79	.46	+3.33	+900.6	+901.6	+1318.4	+1318.8	-1.0	-0.4
.06	.37	+4.33	.72	.49	+1.79	+956.0	+956.6	-1198.4	-1196.9	-0.6	-1.5
.06	.38	+4.34	.68	.49	+1.83	+971.6	+971.4	-1144.0	-1143.1	+0.2	-0.9
.04	.37	+4.31	.46	.48	+2.06	+945.7	+946.2	-767.7	-767.1	-0.5	-0.6
.04	.38	+4.32	.45	.50	+2.05	+983.9	+984.6	-747.4	-746.9	-0.7	-0.5
.00	.38	+4.28	.02	.50	+2.48	+977.8	+978.7	-29.4	-29.9	-0.9	+0.5
.00	.38	+4.28	.02	.50	+2.52	+983.3	+982.6	+23.4	+24.2	+0.7	-0.8
.00	.38	+4.28	.02	.50	+2.52	+972.1	+973.9	+31.1	+30.0	-1.8	+1.1

		D4849		D4885				c			ε		
								ax	by	Σ	ax	by	Σ
	464	+945.3	+124.9	+943.0	+123.1	+2.3	+1.8	+.11	.01	+.94	+.48	.03	-1.64
4849 Def.?	464a	+969.0	+308.9	+968.8	+308.9	+0.2	0.0	.12	.04	+.92	x		
	465	+972.1	+456.4	+968.8	+454.2	+3.3	+2.2	.12	.05	+.91	.49	.12	-1.54
	~~465a~~ 466	+969.0	+752.5	+968.0	+752.1	+1.0	+0.4	.12	.09	+.87	.49	.20	-1.46
4849 Def.?	466a	+986.9	+801.0	+985.1	+801.0	+1.8	0.0	.12	.10	+.86			
	467	+1004.8	-1449.8	+1001.1	-1451.0	+3.7	+1.2	.12	.17	+1.13	.51	.38	-2.02
	468	+1017.8	-1055.8	+1015.7	-1056.0	+2.1	+0.2	.12	.13	+1.09	.52	.27	-1.90
	469	+1009.5	-988.0	+1007.0	-989.8	+2.5	+1.8	.12	.12	+1.08	.51	.26	-1.90
	470	+1029.1	-876.3	+1025.5	-877.3	+3.6	+1.0	.12	.11	+1.07	.52	.23	-1.86
	471	+997.1	-296.3	+994.8	-299.7	+2.3	+3.4	.12	.04	+1.00	.51	.08	-1.72
	472	+1041.7	-290.0	+1039.5	-291.6	+2.2	+1.6	~~.12~~ .13	.03	+1.00	.53	.08	-1.70
	473	A.S.		+1024.7 +1024.7	-231.3 -231.3						.52	.06	-1.69
	474	+1034.2	-102.1	+1032.2	-104.6	+2.0	+2.5	.12	.01	+.97	.53	.03	-1.65
	475	+1039.7	-67.8	+1037.7	-69.2	+2.0	+1.3 4	.12	.01	+.97	.53	.02	-1.64
	476	+998.9	+917.2	+996.9	+916.0	+2.0	+1.2	.12	.11	+.85	.51	.24	-1.40
89 4p196-9	477	+1025.1	+1036.0	+1022.2	+1034.8	+2.9	+1.2	.12	.12	+.84	.52	.27	-1.36
	478	+1003.0	+1386.5	+1000.9	+1385.5	+2.1	+1.0	.12	.17	+.79	.51	.36	-1.28
p207	479	+~~1150.0~~ 1097.4	-1363.3	+1093.9	-1364.1	+3.5	+0.8	.13 ~~.14~~	.16	+1.1~~4~~ 3	.56	.35	-1.94
	480	+1094.3	-1232.9	+1093.3	-1234.9	+1.0	+2.0	.13	.15	+1.12	.56	.32	-1.91
	481	+1096.4	-408.4	+1093.9	-409.2	+2.5	+0.8	.13	.05	+1.02	.56	.11	-1.70
	482	+1053.7	-287.5	+1051.1	-287.9	+2.6	+0.4	.13	.03	+1.00	.54	.07	-1.68
p207	483	+~~1150.6~~ 1098.0	-178.7	+1096.2	-180.7	+1.8	+2.0	.13 ~~.14~~	.02	+.99 6	.56	.05	-1.64
	484	+1062.1	+113.0	+1060.6	+111.7	+1.5	+1.3	.13	.01	+.98	.54	.03	-1.58
p206	485	~~+1124.8~~ +1098.5+	+347.3	+1096.0	+346.5	+2.2 5	+0.~~6~~ 8	.13	.04	+.93	.56	.09	-1.50
	486	+1057.0	+496.4	+1053.9	+493.3	+3.1	+3.1	.13	.06	+.91	.54	.13	-1.48
	487	+1095.1	+561.8	+1094.3	+561.0	+0.8	+0.8	.13	~~.06~~ .07	+.90	.56	.15	-1.44
	488	+1057.0	+1344.3	+1055.4	+1344.3	+1.6	0.0	.13	.16	+.81	.54	.35	-1.26

~~b'y~~	b a'y ~~a'x~~	b'x	Σ	ε a'y	− b'x	Σ	b corr. x	ε	b corr. y	ε	b−ε Corr. δx	δy	
.64	.01	+.37	+4.26	.67	.48	+2.59	+944.4	+944.6	+120.6	+120.5	−0.2	+0.1	
	.02	.38	+4.26				+968.1	+970.4	+304.6	+306.2	−2.3	−1.6 ✓	
.54	.02	.38	+4.26	.27	.49	+2.78	+971.2	+970.3	+452.1	+451.4	+0.9	+0.7	
.46	.04	.38	+4.24	.45	.49	+2.96	+968.1	+969.5	+748.3	+749.1	−1.4	−0.8	
	.04	.38	+4.24				+986.0	+986.5	+796.8	+798.0	−0.5	−1.2 ✓	
.02	.07	.39	+4.36	.87	.51	+1.62	+1003.7	+1003.1	−1454.2	−1452.6	+0.6	−1.6	
.90	.05	.40	+4.35	.63	.52	+1.85	+1016.7	+1017.6	−1060.2	−1057.8	−0.9	−2.4	
.90	.05	.39	~~+~~+4.34	.59	.51	+1.90	+1008.4	+1008.9	−992.3	−991.7	−0.5	−0.6	
.86	.04	.40	+4.34	.53	.52	+1.95	+1028.0	+1027.4	−880.6	−879.3	+0.6	−1.3	
.72	.01	.39	+4.20 $\overset{3}{}$	.18	.51	+2.31	+996.1	+996.5	−300.6	−302.0	−0.4	+1.4	
.70	.01	.41	+4.32	.17	.53	+2.30	+1040.7	+1041.2	−294.3	−293.9	−0.5	−0.4	
.69				.14	.52	+2.34		+1026.4 +1026.4		−233.6 −233.6		✓	
.65	.01	.40	+4.31	.06	.53	+2.41	+1033.2	+1033.8	−106.4	−107.0	−0.6	+0.6	
.64	.05	.41	+4.31	.04	.53	+2.43	+1038.7	+1039.3	−72.1	−71.6	−0.6	−0.5	
1.40	.05	.39	+4.24	.55	.51	+3.04	+998.1	+998.3	+913.0	+913.0	−0.2	0.0	
.36	.05	.40	+4.25	.62	.52	+3.10	+1024.3	+1023.6	+1031.8	+1031.7	+0.7	+0.1	1023.7 1032.3
.28	.07	.39	+4.22	.83	.51	+3.32	+1002.2	+1002.2	+1382.3	+1382.2	0.0	+0.1	
1.94	.07	.43	+4.40	.82	.56	+2.74	+1096.3	+1095.8	−1367.7	−1366.8	+0.5	−0.9	
1.91	.06	.43	+4.39	.74	.56	+1.70	+1093.2	+1095.2	−1237.3	−1236.6	−2.0	−0.7	
1.70	.02	.43	+4.35	.25	.56	+2.19	+1095.4	+1095.6	−412.8	−411.4	−0.2	−1.4	
1.68	.01	.41	+4.32	.17	.54	+2.29	+1052.7	+1052.8	−291.8	−290.2	−0.1	−1.6	
.64	.01	.43	+4.34	.11	.56	+2.33	+1097.0	+1097.8	−183.0	−183.0	−0.8	0.0	
.58	.01	.41	+4.30	.07	.54	+2.53	+1061.1	+1062.2	+108.7	+109.2	−1.1	−0.5	
.50	.02	.43	+4.31	.21	.56	+2.65	+1097.6	+1097.5	+343.0	+343.9	+0.1	−0.9	
.48	.02	.41	+4.29	.30	.54	+2.76	+1056.1	+1055.4	+492.1	+490.5	+0.7	+1.6	
.44	.03	.43	+4.30	.34	.56	+2.78	+1094.2	+1095.7	+557.5	+558.2	−1.5	−0.7	
.26	.07	.41	+4.24	.81	.54	+3.27	+1056.2	+1056.7	+1340.1	+1341.0	−0.5	−0.9	

		D4849		D4885		C-E.		C			E		
						x	y	ax	by	Σ	ax	by	Σ
	489	+1082.2	+1395.3	+1080.3	+1395.5	+1.9	−0.2	+.13	.17	+.80	+.55	.36	−1.24
	490	+1102.3	−1146.0	+1100.0	−1148.6	+2.3	+2.6	.13	~~.13~~ .14	+1.11	.56	.30	−1.89
	491	+1134.5	−1138.1	+1131.1	−1141.1	+3.4	+3.0	.14	~~.13~~ .14	+1.12	.58	.30	−1.87
	492	+1131.1	−1056.2	+1129.3	−1057.0	+1.8	+0.8	.14	.13	+1.11	.58	.27	−1.84
p206	493	+1126.6	−~~265.4~~ 291.7+	+1124.2	−293.6	+2.4	+1.9	~~.13~~ .14	~~.03~~ .04	~~+1.01~~ +1.02	.57	.08	−1.66
	494	+1127.2	−283.7	+1126.4	−284.5	+0.8	+0.8	.14	.03	+1.01	.57	.07	−1.65
	495	+1144.7	−181.9	+1143.1	−182.7	+1.6	+0.8	.14	.02	+1.00	.58	.05	−1.62
	496	+1112.4	+98.1	+1110.4	+96.5	+2.0	+1.6	.13	.01	~~+.72~~ .96	.57	.03	−1.55
	497	+1134.5	+306.3	+1132.5	+304.5	+2.0	+1.8	.14	.04	+.94	.58	.08	−1.49
	498	+1116.5	+526.2	+1114.9	+525.8	+1.6	+0.4	.13	.06	+.91	.57	.14	−1.44
	499	+1113.6	+683.4	+1110.4	+682.6	+3.2	+0.8	.13	~~.13~~ .08	+.89	.57	.18	−1.40
p210	500	+1113.4	+828.6	+1110.8	+831.1	+2.6	−2.5	.13	.10	+.87	.57	.22	−1.36
		+1112.4	+828.8	+1111.0	+826.8	+1.4	+2.0						
	501	Ot. S.		+1129.1	+954.6						.58	.25	~~−1.82~~ −1.32
	502	+1142.1	+1206.4	+1139.4	+1206.0	+2.7	+0.4	.14	.14	+.84	.58	.31	−1.26
	503	+1158.7	−1335.5	+1154.9	−1335.9	+3.8	+0.4	.14	.16	+1.14	.59	.35	−1.91
	504	+1156.7	−1242.9	+1154.1	−1244.3	+2.6	+1.4	.14	.15	+1.13	.59	.32	−1.88
	505	+1171.1	−575.3	+1168.7	−576.9	+2.4	+1.6	.14	.07	+1.05	.60	.15	−1.70
	506	+1201.8	+276.4	+1199.9	+274.6	+1.9	+1.8	.14	.03	+.95	.61	.07	−1.47
	507	+1179.2	+526.2	+1177.0	+525.8	+2.2	+0.4	.14	.06	+.92	.60	.14	−1.41
p206	508	+1180.0	+~~681.0~~ 654.7+	+1179.2	+653.4	+0.8	+1.3	.14	.08	+.90	.60	.17	−1.38
	509	+1197.7	+1188.5	+1195.9	+1186.7	+1.8	+1.8	.14	.14	+.84	.61	.31	−1.23
	510	+1212.3	−742.7	+1210.7	−744.7	+1.6	+2.0	.15	.09	+1.08	.62	.19	−1.72
	511	+1249.1	−32.5	+1247.3	−33.3	+1.8	+0.8	.15	.00	+.99	.64	.01	−1.52
	512	+1217.8	+582.1	+1216.4	+581.3	+1.4	+0.8	.15	.07	+.92	.62	.15	−1.38
	513	+1207.3	+804.7	+1205.2	+803.7	+2.1	+1.0	.14	.10	+.88	.61	.21	−1.33
	514	+1306.8	−1153.3	+1304.5	−1154.1	+2.3	+0.8	.16	.14	+1.14	.67	.30	−1.78
Dbl.?	515	+1288.5	−892.5	+1285.0	−894.8	+3.5	+2.3	.15	.11	+1.10	.66	.23	−1.72
		+1292.1	−890.9	+1289.1	−893.8	+3.0	+2.9	~~.15~~ .16	.11	+1.11	.66	.23	−1.72

		C			E			C	E	C	E	C-E		
	b'x	a'y, ~~ab'x~~	-b'x	Σ	a'y	-b'x	Σ	Corr.x		Corr.y		Corr x	y	
24		.07	+.42	+4.25	.84	.55	+3.29	+1081.4	+1081.5	+1391.1	+1392.2	-0.1	-1.1	
39		.06	.43	+4.39	.69	.56	+1.75	+1101.2	+1101.9	-1150.4	-1150.4	-0.7	0.0	
87		.06	.44	+4.40	.68	.58	+1.74	+1133.4	+1133.0	-1142.5	-1142.8	+0.4	+0.3	
54		.05	.44	+4.39	.63	.58	+1.79	+1130.0	+1131.1	-1060.6	-1058.8	-1.1	-1.8	
66		.01	.44	+4.35	.18	.57	+2.25	+1125.6	+1125.9	-296.1	-295.8	-0.3	-0.3	
65		.01	.44	+4.35	.17	.57	+2.26	+1126.2	+1128.0	-288.1	-286.8	-1.8	-1.3	
62		.01	.45	+4.36	.11	.58	+2.31	+1143.7	+1144.7	-186.3	-185.0	-1.0	-1.3	
55		.00	.43	+4.33	.06	.57	+2.49	+1111.4	+1112.0	+93.8	+94.0	-0.6	-0.2	
49		.02	.44	+4.32	.18	.58	+2.60	+1133.6	+1134.0	+302.0	+301.9	-0.4	+0.1	
44		.03	.44	+4.31	.32	.57	+2.75	+1115.6	+1116.3	+521.9	+523.0	-0.7	-1.1	
40		.03	.43	+4.30	.41	.57	+2.84	+1112.7	+1111.8	+679.1	+679.8	+0.9	-0.7	
36		.04	.43	+4.29	.50	.57	+2.93	+1112.5	+1112.2	+824.3	+828.2	+0.3	-3.9	p134
								+1111.5	+1112.4	+824.5	+823.9	-0.9	+0.6	
35 82					.57	.58	+2.99		+1130.4		+951.6			✓
26		.06	.45	+4.29	.72	.58	+3.14	+1141.3	+1140.7	+1202.1	+1202.9	+0.6	-0.8	
91		.07	.45	+4.42	.80	.59	+1.61	+1157.6	+1156.8	-1339.9	-1337.5	+0.8	-2.4	
88		.06	.45	+4.41	.75	.59	+1.66	+1155.6	+1156.0	-1247.3	-1246.0	-0.4	-1.3	
70		.03	.46	+4.39	.35	.60	+2.05	+1170.1	+1170.4	-579.7	-578.9	-0.3	-0.8	
47		.01	.47	+4.36	.16	.61	+2.55	+1200.8	+1201.4	+272.0	+272.0	-0.6	0.0	
41		.03	.46	+4.33	.32	.60	+2.72	+1178.3	+1178.4	+521.9	+523.1	-0.1	-1.2	
38		.03	.46	+4.33	.39	.60	+2.79	+1179.1	+1180.6	+650.4	+650.6	-1.5	-0.2	
23		.06	.47	+4.31	.71	.61	+3.10	+1196.9	+1197.1	+1184.2	+1183.6	-0.2	+0.6	
72		.04	.47	+4.41	.45	.62	+1.93	+1211.2	+1212.4	-747.1	-746.6	-1.2	-0.5	
52		.00	.49	+4.39	.02	.64	+2.34	+1248.1	+1248.8	-36.9	-35.6	-0.7	-1.3	
38		.03	.47	+4.34	.35	.62	+2.73	+1216.9	+1217.8	+577.8	+578.6	-0.9	-0.8	
33		.04	.47	+4.33	.48	.61	+2.87	+1206.4	+1206.5	+800.4	+800.8	-0.1	-0.4	
18		.06	.51	+4.47	.69	.67	+1.64	+1305.7	+1306.3	-1157.8	-1155.7	-0.6	-2.1	
72		.04	.50	+4.44	.54	.66	+1.80	+1287.4	+1286.7	-896.9	-896.6	+0.7	-0.3	
72		.04	.50	+4.44	.54	.66	+1.80	+1291.0	+1290.8	-895.3	-895.6	+0.2	+0.3	

		D4849		D4885		C-E		b			E		
						x	y	ax	by	Σ	ax	by	Σ
	516	+1300.7	−882.4	+1297.0	−882.8	+3.7	+0.4	+.16	.11	+1.11	+.66	.23	−1.72
	516a	+1290.3	−229.4	+1288.5	−231.5	+1.8	+2.1	.15	.03	+1.02			
	517	+1272.9	−45.5	+1271.8	−48.1	+1.1	+2.6	.15	.01	+1.00	.65	.01	−1.51
	518	+1279.6	+561.6	+1277.9	+558.9	+1.7	+2.7	.15	.07	+.92	.65	.15	−1.35
	519	H.S.		+1296.8 +1296.6	+586.6 +586.6						.66	.15	−1.34
	520	+1296.4	+707.8	+1294.2	+706.8	+2.2	+1.0	.16	.08	+.92	.66	.1$\overset{8}{9}$	−1.3$\overset{1}{0}$
	521	+1288.1	+1115.8	+1285.4	+1113.8	+2.7	+2.0	.15	.13	+.86	.66	.29	−1.$\overset{2}{3}$0
p196-9 +89 7	522	+1352.9	−1129.5	+1349.6	−1131.8	+3.3	+2.3	.16	$\overset{.14}{.13}$	+1.14	.69	.29	−1.75
	523	+1320.8	−1112.5	+1317.1	−1114.1	+3.7	+1.6	.16	.13	+1.13	.67	.29	−1.77
	524	+1333.8	−987.0	+1332.6	−987.8	+1.2	+0.8	.16	.12	+1.12	.68	.26	−1.73
	525	+1317.5	−846.6	+1316.3	−850.3	+1.2	+3.7	.16	.10	+1.10	.67	.22	−1.70
	526	+1352.7	−348.7	+1349.8	−351.9	+2.9	+3.2	.16	.04	+1.04	.69	.09	−1.55
	527	+1351.0	+7.6	+1348.8	+5.9	+2.2	+1.7	.16	.00	+1.00	.69	.00	−1.46
* Readings incomplete assumed values	528	+1353.3	* +832.9	+1352.5	+835.1	+0.8	−2.2	.16	.10	+.90	.69	.22	−1.24
* " "	529	+1317.5	* +852.8	+1316.3	+851.0	+1.2	+1.8	.16	.10	+.90	.67	.22	−1.26
* (see " Bk. 5, p. 164)	530	+1324.8	* +905.8	+1323.8	+904.8	+1.0	+1.0	.16	.11	+.89	.68	.24	−1.23
	531	+1416.0	−906.3	+1412.8	−907.0	+3.2	+0.7	.17	.11	+1.12	.72	.24	−1.$\overset{6}{7}$7
	532	+1377.9	−469.9	+1376.8	−470.9	+1.1	+1.0	.17	.06	+1.07	.70	.12	−1.57
	533	+1385.8	−433.1	+1383.3	−434.4	+2.5	+1.3	.17	.05	+1.06	.71	.11	−1.55
	534	+1399.6	−111.9	+1397.8	−113.9	+1.8	+2.0	.17	.01	+1.02	.71	.03	−1.47
	535	+1384.6	+383.7	+1381.9	+381.2	+2.7	+2.5	.17	.05	+.96	.70	.10	−1.35
	536	+1377.7	+440.3	+1375.6	+438.1	+2.1	+2.2	.17	.05	+.96	.70	.11	−1.34
	537	+1382.1	+524.6	+1381.1	+522.0	+1.0	+2.6	.17	.06	+.95	.70	.14	−1.31
	538	+1377.2	+581.3	+1375.4	+579.7	+1.8	+1.6	.17	.07	+.94	.70	.15	−1.30
	539	+1371.4	+849.2	+1369.3	+847.5	+2.1	+1.7	.16	.10	+.90	.70	.22	−1.23
	540	+1384.8	+922.3	+1382.5	+921.9	+2.3	+0.4	.17	.11	+.90	.71	.24	−1.20
	541	+1464.6	−866.1	+1462.3	−867.3	+2.3	+1.2	.18	.10	+1.12	.75	.23	−1.63

		C			E			C	E	C	E	C−E		
ε'	~~b'x~~	a'y' ~~+b'x~~	b'x	Σ	a'y	b'x	Σ	corr. x		corr. y		corr. x	y	
1.72		.04	+.51	+4.45	.53	.66	+1.81	+1299.6	+1298.7	−886.8	−884.6	+0.9	−2.2	
		.01	.50	+4.41				+1289.3	+1290.1	−233.8	−233.7	−0.8	−0.1	✓
1.51		.00	.50	+4.40	.03	.65	+2.32	+1271.9	+1273.3	−49.9	−50.4	−1.4	+0.5	
1.35		.03	.50	+4.37	.34	.65	+2.69	+1278.7	+1279.3	+557.2	+556.2	−0.6	+1.0	
1.34					.35	.66	+2.69		+1298.1 +1297.9		+583.9 +583.9			✓
1.3$\overset{1}{0}$		.04	.51	+4.37	.42	.66	+2.76	+1295.5	+1295.5	+703.4	+704.0	0.0	−0.6	
1.$\overset{2}{3}$0		.06	.50	+4.34	.67	.66	+3.01	+1287.2	+1286.6	+1111.5	+1110.8	+0.6	+0.7	
1.75		.06	.53	+4.49	.68	.69	+1.63	+1351.8	+1351.4	−1134.0	−1133.4	+0.4	−0.6	13163 24940
1.77		.06	.52	+4.48	.67	.67	+1.66	+1319.7	+1318.9	−1117.0	−1115.8	+0.8	−1.2	
1.73		.05	.52	+4.47	.59	.68	+1.73	+1332.7	+1334.3	−991.5	−989.5	−1.6	−2.0	
1.70		.04	.51	+4.45	.51	.67	+1.82	+1316.4	+1318.0	−851.0	−852.1	−1.6	+1.1	
1.55		.02	.53	+4.45	.21	.69	+2.10	+1351.7	+1351.4	−353.1	−354.0	+0.3	+0.9	
1.46		.00	.53	+4.43	.00	.69	+2.31	+1350.0	+1350.3	+3.2	+3.6	−0.3	−0.4	
1.24		.0$\overset{4}{5}$	.53	+4.4$\overset{7}{8}$	.50	.69	+2.81	+1352.4	+1353.7	+828.4	+832.3	−1.3	−3.9	
1.26	with assumed y	.0$\overset{4}{5}$	.51	+4.4$\overset{5}{6}$	.51	.67	+2.84	+1316.6	+1317.6	+848.3	+848.2	−1.0	+0.1	
1.23		.05	.52	+4.47	.54	.68	+2.86	1323.9	+1325.0	+901.3	+901.9	−1.1	−0.6	
1.$\overset{6}{7}$7		.05	.55	+4.50	.54	.72	+1.74	+1414.9	+1414.5	−910.8	−908.7	+0.4	−2.1	
1.57		.02	.54	+4.46	.28	.70	+2.02	+1376.8	+1378.4	−474.4	−472.9	−1.6	−1.5	
1.55		.02	.54	+4.46	.26	.71	+2.03	+1384.7	+1384.9	−437.6	−436.4	−0.2	−1.2	
1.47		.01	.55	+4.46	.07	.71	+2.22	+1398.6	+1399.3	−116.4	−116.1	−0.7	−0.3	
1.35		.02	.54	+4.42	.23	.70	+2.53	+1383.6	+1383.3	+379.3	+378.7	+0.3	+0.6	
1.34		.02	.54	+4.42	.26	.70	+2.56	+1376.7	+1376.9	+435.9	+435.5	−0.2	+0.4	
1.31		.03	.54	+4.41	.31	.70	+2.61	+1381.1	+1382.4	+520.2	+519.4	−1.3	+0.8	
1.30		.03	.54	+4.41	.35	.70	+2.65	+1376.3	+1376.7	+576.9	+577.1	−0.4	−0.2	
1.23		.04	.53	+4.39	.51	.70	+2.81	+1370.5	+1370.5	+844.8	+844.7	0.0	+0.1	
1.20		.05	.54	+4.39	.55	.71	+2.84	+1383.9	+1383.7	+917.9	+919.1	+0.2	−1.2	
1.63		.04	.57	+4.51	.52	.75	+1.73	+1463.5	+1463.9	−870.6	−869.0	−0.4	−1.6	

	No.	D4849		D4885		C−E		C			E		
						x	y	ax	by	Σ	ax	by	Σ
	542	+1462.1	−805.4	+1458.5	−807.8	+3.6	+2.4	+.18	.10	+1.12	+.74	.21	−1.62
	543	+1468.6	−570.2	+1466.2	−571.0	+2.4	+0.8	.18	.07	+1.09	.75	.15	−1.55
				+1452.6	−208.1 Thomas								
recom Σ p209	544	+1455.0	−226.8	+1452.4 2	−229.2	+2.4	+2.4	.17	.03	+1.04	.74	.06	−1.47
		+1454.4	−227.0										
	545	+1452.2	+75.8	+1450.1	+74.2	+2.1	+1.6	.17	.01	+1.00	.74	.02	−1.39
		1454.4											
	546	+1421.3	+120.9	+1418.3	+118.4	+3.0	+2.5	.17	.01	+1.00	.72	.03	−1.40
Same star	547	+1461.5	+674.7	+1459.1	+671.7	+2.4	+3.0	.18	.08	+.94	.74	.17	−1.24
	547a	+1454.0	+683.2	+1452.2	+681.4	+1.8	+1.8	.17	.08	+.93			
	548	+1460.5	+992.9	+1458.5	+990.9	+2.0	+2.0	.18	.12	+.90	.74	.26	−1.15
	549	+1454.6	+1065.4	+1452.2	+1063.6	+2.4	+1.8	.17	.13	+.88	.74	.28	−1.13
		+1494.8	−692.5	+1492.6	−694.5	+2.2	+2.0						
p210 p206	550	+1494.6	−692.5	+1491.2	−692.7	+3.4	+0.2	.18	.08	+1.10	.76	.18	−1.57
	550a	+1469.7	−570.2	+1466.7	−571.0	+3.0	+0.8	.18	.07	+1.09	.75	.15	−1.55
	551	+1478.0	−453.7	+1474.5	−454.1	+3.5	+0.4	.18	.05	+1.07	.75	.12	−1.52
	552	+1507.0	−445.7	+1504.4	−447.4	+2.6	+1.7	.18	.05	+1.07	.77	.12	−1.50
	553	+1490.8	−223.2	+1488.9	−224.8	+1.9	+1.6	.18	.03	+1.05	.76	.06	−1.45
	554	+1505.0	−150.5	+1503.0	−153.1	+2.0	+2.6	.18	.02	+1.04	.77	.04	−1.42
	555	+1511.3	+3.5	+1510.7	+2.5	+0.6	+1.0	.18	.00	+1.02	.77	.00	−1.38
	556	+1490.8	+121.7	+1487.9	+120.7	+2.9	+1.0	.18	.01	+1.01	.76	.03	−1.36
	557	+1482.6	+144.8	+1480.0	+142.6	+2.6	+2.2	.18	.02	+1.00	.75	.04	−1.36
p200-1 +89 5a	558	+1511.1	+262.0	+1509.0	+259.0	+2.1	+3.0	.18	.03	+.99	.77	.07	−1.31
D4849 ?	559	+1478.6	+509.6	+1476.6	+508.4	+2.0	+1.2	.18	.06	+.96	.75	.13	−1.27
	560	+1514.9	+515.3	+1512.7	+513.2	+2.2	+2.1	.18	.06	+.96	.77	.13	−1.25
	561	+1542.6	−246.7	+1540.1	−247.7	+2.5	+1.0	~~.18~~ .19	.03	+1.06	.79	.06	−1.42
p196-9 +89 5	562	+1618.1	−466.9	+1616.3	−469.9	+1.8	+3.0	.19	.06 ~~.05~~	+1.09	.82	.12	−1.45
	563	+1610.0	−458.1	+1608.2	−461.2	+1.8	+3.1	.19	.05	+1.08	.82	.12	−1.45
	564	+1596.2	−203.3	+1595.2	−205.3	+1.0	+2.0	.19	.02	+1.05	.81	.05	−1.39
	565	+1522.7	−148.4	+1520.2	−150.2	+2.5	+1.8	.18	.02	+1.04	.78	.04	−1.41
	566	+1607.3	−0.6	+1605.3	−2.4	+2.0	+1.8	.19	.00	+1.03	.82	.00	−1.33
	567	A. S.		+1612.2	+610.5						.82	.16	−1.17
				+1612.2	+610.5	~~+57.7~~							

		C			E			C	E	C	E	C-E		
Σ	~~b'x~~	a'y' ~~ab'x~~	-b'x	Σ	a'y	-b'x	Σ	Corr.x		Corr.y		Corr. x	y	
1.62		.04	+.57	+4.51	.48	.74	+1.78	+1461.0	+1460.1	-809.9	-809.6	+0.9	-0.3	
1.55		.03	.57	+4.50	.34	.75	+1.91	+1467.5	+1467.8	-574.7	-572.9	-0.3	-1.8	
-1.47		.01	.57	+4.48	.14	.74	+2.12	+1454.0 +1453.4	+1454.1 +1453.9	-231.3 -231.5	-210.12 -231.3	~~-0.1~~	~~0.0~~	√ √ p209 p134
1.39		.00	.57	+4.47	.04	.74	+2.30	+1451.2	+1451.5	+71.3	+71.9	-0.3	-0.6	
1.40		.01	.55	+4.44	.07	.72	+2.35	+1420.3	+1419.7	+116.5	+116.0	+0.6	+0.5	
1.24		.03	.57	+4.44	.40	.74	+2.66	+1460.6	+1460.3	+670.3	+669.0	+0.3	+1.3	
		.03	.57	+4.44				+1453.1	+1453.4	+678.8	+678.7	-0.3	+0.1	✓
1.15		.05	.57	+4.42	.59	.74	+2.85	+1459.6	+1459.7	+988.5	+988.1	-0.1	+0.4	
1.13		.05	.57	+4.42	.64	.74	+2.90	+1453.7	+1453.3	+1061.0	+1060.7	+0.4	+0.3	
								+1493.7	+1494.2	-697.0	-696.3	-0.5	-0.7	
1.57		.03	.58	+4.51	.42	.76	+1.82	+1493.5	+1492.8	-697.0	-694.5	+0.7	-2.5	p134
1.55		.03	.57	+4.50	.34	.75	+1.91	+1468.6	+1468.3	-574.7	-572.9	+0.3	-1.8	1468.0 573.8 5623 9999
1.52		.02	.58	+4.50	.27	.75	+1.98	+1476.9	+1476.0	-458.2	-456.1	+0.9	-2.1	
1.50		.02	.59	+4.51	.27	.77	+1.96	+1505.9	+1505.9	-450.2	-449.4	0.0	-0.8	
1.45		.01	.58	+4.49	.13	.76	+2.11	+1489.8	+1490.3	-227.7	-226.9	-0.5	-0.8	
1.42		.01	.59	+4.50	.09	.77	+2.14	+1504.0	+1504.4	-155.0	-155.2	-0.4	+0.2	
1.38		.00	.59	+4.49	.00	.77	+2.23	+1510.3	+1512.1	-1.0	+0.3	-1.8	-1.3	
-1.36		.01	.58	+4.47	.07	.76	+2.31	+1489.8	+1489.3	+117.2	+118.4	+0.5	-1.2	
1.36		.01	.58	+4.47	.09	.75	+2.34	+1481.6	+1481.4	+140.3	+140.3	+0.2	0.0	1482.1 1363.4
-1.31		.01	.59	+4.48	.16	.77	+2.39	+1510.1	+1510.3	+257.5	+256.6	-0.2	+0.9	
-1.27		.03	.58	+4.45	.31	.75	+2.56	+1477.6	+1477.9	+505.2	+505.8	-0.3	-0.6	
-1.25		.03	.59	+4.46	.31	.77	+2.54	+1513.9	+1513.9	+510.8	+510.7	0.0	+0.1	
-1.42		.01	.60	+4.51	.15	.79	+2.06	+1541.5	+1541.5	-251.2	-249.8	0.0	-1.4	
-1.45		.02	~~.59~~ 63	+4.5~~7~~5	.28	.82	+1.90	+1617.0	+1617.7	-471.~~4~~5	-471.8	-0.7	+0.~~4~~3	
1.45		.02	~~.59~~ 63	+4.5~~7~~5	.28	.82	+1.90	+1608.9	+1609.6	-462.~~6~~7	-463.1	-0.7	+0.~~5~~4	1556.5 1332.~~4~~5
-1.39		.01	.62	+4.53	.12	.81	+2.07	+1595.2	+1596.6	-207.8	-207.4	-1.4	-0.4	
-1.41		.01	.59	+4.50	.09	.78	+2.13	+1521.7	+1521.6	-152.9	-152.3	+0.1	-0.6	
-1.33		.00	.63	+4.53	.00	.82	+2.18	+1606.3	+1606.6	-5.1	-4.6	-0.3	-0.5	
-1.17					.37	.82	+2.55		+1613.4 +1613.4		+607.9 +607.9			✓

		D4849 C		D4885 E		C−E		C			E		
						x	y	ax	by	Σ	ax	by	Σ
	568	+1661.2	−222.5	+1659.7	−224.2	+1.5	+1.7	+.20	.03	+1.07	+.85	.06	−1.36
p206	569	+1644.7	+~~260.4~~ 234.1	+1644.1	+232.4	+0.6	+1.7	.20	.03	+1.07	+.84	.06	−1.25
	570	+1685.5	−500.6	+1684.5	−503.4	+1.0	+2.8	.20	.06	+1.10	.86	.13	−1.42
	571	+1727.8	+66.2	+1725.7	+64.4	+2.1	+1.8	.21	.01	+1.04	.88	.02	−1.25
	572	+1721.5	+125.7	+1718.8	+124.9	+2.7	+0.8	.21	.02	+1.03	.88	.03	−1.24
	573	+1712.7	+369.5	+1709.7	+367.6	+3.0	+1.9	.21	.04	+1.01	.87	.10	−1.18
	574	+1685.7	+496.0	+1684.9	+493.3	+0.8	+2.7	.20	.06	+.98	.86	.13	−1.16
	575	+1765.7	−182.7	+1762.3	−185.8	+3.4	+3.1	.21	.02	+1.07	.90	.05	−1.30
	576	+1763.7	−174.6	+1761.9	−176.4	+1.8	+1.8	.21	.02	+1.07	.90	.05	−1.30
	577	+1771.8	−118.8	+1769.8	−122.0	+2.0	+3.2	.21	.01	+1.06	.90	.03	−1.28
	578	+1748.9	−16.8	+1745.6	−19.2	+3.3	+2.4	.21	.00	+1.05	.89	.00	−1.26
	579	+1772.0	+15.5	+1770.0	+12.8	+2.0	+2.7	.21	.00	+1.05	.90	.00	−1.25
Bk 21 p90	579a	+1759.7 +1757.8	+28.7 +27.7	not seen				.21	.00	+1.05			
p207	580	+1747.5	+342.3	+1745.6	+339.0	+1.9	+3.3	.21	.04	+1.01	.89	.09	−1.17
p196-9 +89	6												
	2												
	38												

The foll. precede No 1 on p90 = 12ⁿ

p196-9 +89	21												
"	19												
"	17												
"	23												
"	24												
" p206 see Bk5 p176	16a Miss Furness's Star	−2053.7	+877.6	−2057.7	+879.4	+4.0	−1.8	−.25	−.11	+.48	−1.05	+.23	−2.97
p196-9	18												

Dec. 31 1900 Finished all checking on ft. stars pp 90–132

	C				E		C	E	C	E	C-E Corr.	
~~b'x~~	a'y ~~b'x~~	-b'x	Σ	,a'y	-b'x	Σ	Corr. x		Corr. y		x	y
36	.01	+.65	+4.56	.13	.85	+2.02	+1660.1	+1661.1	-227.1	- 226.2	-1.0	-0.9
25	.01	.64	+4.53	.14	.84	+2.30	+1643.7	+1645.3	+229.6	+ 230.1	-1.6	+0.5
42	.03	.66	+4.59	.30	.86	+1.84	+1684.4	+1685.9	-505.2	- 505.2	-1.5	0.0
.25	.00	.67	+4.57	.04	.88	+2.16	+1726.8	+1726.9	+ 61.6	+ 62.2	-0.1	-0.6
.24	.01	.67	+4.56	.07	.88	+2.19	+1720.5	+1720.0	+ 121.1	+122.7	+0.5	-1.6
.18	.02	.67	+4.55	.22	.87	+2.35	+1711.7	+1710.9	+ 364.9	+ 365.2	+0.8	-0.3
.16	.02	.66	+4.54	.30	.86	+2.44	+1684.7	+1686.1	+ 491.5	+ 490.9	-1.4	+0.6
30	.01	.69	+4.60	.11	.90	+1.99	+1764.6	+1763.6	- 187.3	- 187.8	+1.0	+0.5
.30	.01	.69	+4.60	.11	.90	+1.99	+1762.6	+1763.2	- 179.2	- 178.4	-0.6	-0.8
28	.01	.69	+4.60	.07	.90	+2.03	+1770.7	+1771.1	-123.4	-124.0	-0.4	+0.6
26	.00	.68	+4.58	.01	.89	+2.10	+1747.9	+1746.9	- 21.4	- 21.3	+1.0	-0.1
25	.00	.69	+4.59	.01	.90	+2.11	+1771.0	+1771.2	+ 10.9	+ 10.7	-0.2	+0.2
	.00	.69	+4.59				+1758.7 +1756.17 8		+ 24.1 + 23.1			
17	02	.68	+4.56	.20	.89	+2.31	+1746.5	+1746.8	+337.7	+ 336.7	-0.3	+1.0
7	-.04	-.80	+3.06	+.53	+1.05	+4.58	-2054.2	-2054.7	+874.5	+874.8	+0.5	-0.3

chkd Dec 31/00

2024.6 2025.0

2472.9 1222.4

omitting pls I & II = 2607.1

2606.5 566.3

omitting pl III + V 2734.4

21a
21b dbl

2734.2 508.9
2727.1 503.6 4.8

omitting pl I 2474.9

2474.7 334.5

2447.3 650.3

2429.0 617.4

2387.0 1562.4

1844.7 201.8

Corrected Values: Remeasures of 24 faint stars. New means

		x	x	x	x		x	Resid x				
		D4849 = III		D4885 = V		No. Meas.	Mean.	4849		4885		
		Orig.	Remeas.		Remeas.							
	5	-1782.5	-1782.9	-1772.6	-1773.2	4	-1777.8	-4.7	-5.1	5.2	4.6	
	50	-1201.0	-1200.8	-1200.7	-1200.9	4	-1200.8	+0.2	0.0	0.1	0.1	✓
Defect	53	-1189.4	-1188.4	-1183.7	-1183.1	4	-1186.2	3.2	2.2	2.5	3.1	Retain all ✓
	112	-812.1	-812.1	-809.4	-811.0	4	-811.2	0.9	0.9	1.8	0.2	✓
	126	-690.9	-690.8	-689.1	-689.1	4	-690.0	0.9	0.8	0.9	0.9	✓
	134	-720.0	-721.3	[-716.0]	-719.9	3	-720.4	0.4	0.9	..	0.5	Reject 1st V
	141	-679.3	-679.3	[-658.9]	-679.2	3	-679.3	0.0	0.0	..	0.1	Rej. 1st V
	155	-630.1	-630.1	-627.6	-629.4	4	-629.3	0.8	0.8	1.7	0.1	✓
	156	-570.2	-569.8	-570.1	-570.1	4	-570.0	0.2	0.2	0.1	0.1	✓
	157	-533.6	-535.2	-533.7	-533.5	4	-534.0	0.4	1.2	0.3	0.5	✓
	178	-456.3	-456.3	-452.4	452.0	4	-454.2	2.1	2.1	1.8	2.2	✓
	191	-375.2	-375.4	-375.3	-374.0	4	-375.0	0.2	0.4	0.3	1.0	✓
	× 217	-272.2	-272.2	-271.3	-272.7	4	-272.1	0.1	0.1	0.8	0.6	✓
Defect.	241	-187.5	-187.3	-181.7	-181.7	4	-184.6	2.9	2.7	2.9	2.9	Retain all. ✓
	261	-128.2	-128.4	[-123.5]	-127.6	~~4~~ 3	-128.1	0.1	0.3	..	0.5	Rej. 1st V
	264	-144.5	-144.5	-143.3	-144.1	4	-144.1	0.4	0.4	0.8	0.0	✓
	282	+ 1.5	+ 2.8	+ 4.0	+ 2.2	4	+ 2.6	~~0.9~~ 1.1	0.2	1.4	0.4	✓
	289	+ 29.6	+ 29.4	+ 30.2	+ 30.2	4	+ 29.8	0.2	0.4	0.4	0.4	✓
	× 324	+ 176.8	+ 177.2	+ 177.0	+ 177.4	4	+ 177.1	0.3	0.1	0.1	0.3	✓
	337	+ 231.7	+ 231.7	+ 233.0	+ 232.0	4	+ 232.1	0.4	0.4	0.9	0.1	✓
	× 399	+ 642.0	+ 642.2	+ 643.1	+ 643.1	4	+ 642.6	0.6	0.4	0.5	0.5	✓
	500	+ 1112.5	+ 1111.5	+ 1112.2	+ 1112.4	4	+ 1112.2	0.3	0.7	0.0	0.2	✓
	× 544	+ 1454.0	+ 1453.4	+ 1454.1	+ 1453.$\overset{7}{9}$	4	+ 1453.8	0.2	0.4	0.3	0.1	✓
	550	+ 1493.5	+ 1493.7	+ 1492.8	+ 1494.2	4	+ 1493.6	0.1	0.1	0.8	0.6	✓

× Remeas made in Bk 5, V, see p 209 this book. Other 20 stars rem. Bk 21 see p 210 this.

✓ = approved by Prof. P. Apr 3 1901

adopted. April 1901. ✓ = Retain all resids ≤ 2.″5 or less.

	y III	y III	y V	y V	No. Meas.	y Mean.	Resid. y III	Resid. y III	Resid. y V	Resid. y V	
5	−249.7	−249.9	−244.8	−244.8	4	−247.3	2.4	2.6	2.5	2.5	
50	−1202.7	−1202.1	−1200.1	−1201.1	4	−1201.5	1.2	0.6	1.4	0.4	✓
53	+779.3	+779.1	+778.2	+778.4	4	+778.8	0.5	0.3	0.6	0.4	✓
112	+398.8	+398.4	+400.2	+398.4	4	+399.0	0.2	0.6	1.2	0.6	✓
128	[−1655.9]	−1615.0	−1613.5	−1615.3	3	−1614.6	··	0.4	1.1	0.7	Rej. 1st III
134	−122.0	−123.6	−121.7	−123.3	4	−122.6	0.6	1.0	0.9	0.7	✓
141	−1533.9	−1533.7	−1532.2	−1532.4	4	−1533.0	0.9	0.7	0.8	0.6	✓
155	+1397.8	+1396.7	+1398.2	+1398.8	4	+1397.9	0.1	1.2	0.3	0.9	✓
156	−1674.6	−1673.4	−1671.9	−1671.9	4	−1673.0	1.6	0.4	1.1	1.1	✓
157	−1568.2	−1568.2	−1565.4	−1566.7	4	−1567.1	1.1	1.1	1.7	0.4	✓
178	−992.4	−993.6	−998.3	−998.5	4	−995.7	3.3	2.1	2.6	2.8	Retain all ✓
191	−1181.7	−1181.5	[−1162.3]	−1178.7	$\overset{3}{4}$	−1180.6	1.1	0.9	··	1.9	Rej. 1st V
217	−1185.5	−1185.9	[−1168.1]	−1184.5	3	−1185.3	0.2	0.6	··	0.8	Rej. 1st V
241	−1217.9	−1216.5	−1212.6	−1212.8	4	−1215.0	2.9	1.5	2.4	2.2	Retain all ✓
261	+331.5	+331.5	+332.0	+332.0	4	+331.8	0.3	0.3	0.2	0.2	✓
264	[+1741.4]	+1733.1	+1734.4	+1735.2	$\overset{3}{4}$	+1734.2	··	1.1	0.2	1.0	Rej. 1st III
282	−1257.2	−1257.0	−1255.0	−1257.0	4	−1256.6	0.6	0.4	1.6	0.4	✓
289	[+141.1]	+137.5	+137.7	+137.7	3	+137.6	··	0.1	0.1	0.1	Rej. 1st III
324	+1783.3	+1782.1	+1781.9	+1781.8	4	+1782.3	1.0	0.2	0.4	0.5	✓
337	+1741.3	+1743.5	+1744.7	+1745.5	4	+1743.8	2.5	0.3	0.9	1.7	✓
399	+31.4	+31.6	[+51.2]	+31.7	3	+31.6	0.2	0.0	··	0.1	Rej. 1st V
500	+824.3	+824.5	[+828.2]	+823.9	3	+824.2	0.1	0.3	··	0.3	Rej. 1st V
544	−231.3	−231.5	[−210.2]	−231.3	3	−231.4	0.1	0.1	··	0.1	Rej. 1st V
550	−697.0	−697.0	−694.5	−696.3	4	−696.2	0.8	0.8	1.7	0.1	✓

	D 4849 = б		D 4885 = ε		= б − ε		б		ε	
	x	y	x	y	x	y	ax + by	Σ	ax + by	Σ
Mr. King's dbl	−1007.6"	−332.0"	−1010.3"	−331.6"	+2.7"	−0.4"				
see BK 21 p86	−1003.8	−326.3	−1007.6	−325.3	−3.8	−1.0				

C $a'y - b'x$	Σ		Σ $a'y - b'x$	Σ	C Corr x	Σ Corr x	C Corr y	Σ Corr y	C − Σ Corr x	 y
					−1008″.4	−1007″.5	−335″.5	−334″.9	−0″.9	−0″.6
					−1004.6	−1004.9	−329.8	−328.6	+0.3	−1.2

$x' = aX + bY + c$

Final Least Square Solution

Plate A = D4915

/154

Dm No.	1 $x-X$		2 $\frac{X}{100}a$	3 4 $\frac{Y}{100}b+c$	5 $(x-X)\frac{X}{100}$		6 $(\frac{X}{100})^2 a$	7 $(\frac{XY}{100})b$	8 $\frac{X}{100}c$	9 $(x-X)\frac{Y}{100}$		10 $\frac{XY}{100}$	11 $(\frac{Y}{100})^2$	12 $\frac{Y}{100}$
+89° 1	−3.8	=	+5.2a	+0.86+c	−19.8	=	+27.0a	+4.2b	+5.2c	+3.X	=	+4.2a	+0.6b	+0.8c
2	—	=	~~+24.7~~	~~+12.2~~	—	=	~~+610.1~~	~~+301.3~~	~~+24.7~~	—		See col 7	~~+148.8~~	col 3
3	−2.4	=	+7.3	+8.6	−17.5	=	+53.3	+62.8	+7.3	−20.6	=	62.8	+74.0	8.6
4	−3.2	=	+10.2	+10.3	−32.6		+104.0	+105.1	+10.2	−33.0		105.1	+106.1	10.3
5	−0.9	=	+15.6	+13.3	−14.0		+243.4	+207.5	+15.6	−12.0		207.5	+176.9	13.3
6	−2.1	=	+20.2	+20.3	−42.4		+408.0	+410.1	+20.2	−42.6		410.1	+412.1	20.3
9	−2.4	=	−3.2	+18.8	+7.7		+10.2	−60.2	−3.2	−45.1		60.2	+353.4	18.8
12	−4.4	=	−10.2	+13.2	+44.9		+104.0	−134.6	−10.2	−58.1		134.6	+174.2	13.2
16	−6.1	=	−17.8	+8.7	+108.6		+316.8	−154.9	−17.8	−53.1		154.9	+75.7	8.7
17	−7.2	=	−24.5	+6.5	+176.4		+600.2	−159.2	−24.5	−46.8		159.2	+42.2	6.5
18	−4.5	=	−18.5	+2.0	+83.2		+342.2	−37.0	−18.5	−9.0		37.0	+4.0	2.0
23	−6.6	=	−24.3	−6.2	+160.4		+590.5	+150.7	−24.3	+40.9		150.7	+38.4	6.2
25	−7.0	=	−16.5	−8.7	+115.5		+272.2	+143.6	−16.5	+60.9		143.6	+75.7	8.7
26	−4.6	=	−10.6	−2.5	+48.8		+112.4	+26.5	−10.6	+11.5		26.5	+6.2	2.5
29	−3.1	=	−8.6	−9.7	+26.7		+74.0	+83.4	−8.6	+30.1		83.4	+94.1	9.7
31	−2.5	=	−3.9	−12.2	+9.8		+15.2	+47.6	−3.9	+30.5		47.6	+148.8	12.2
35	−2.3	=	−4.3	−7.1	+9.9		+18.5	+30.5	−4.3	+16.3		30.5	+50.4	7.1
36	−2.9	=	+3.5	−11.5	−10.2		+12.2	−40.2	+3.5	+33.4		40.2	+132.2	11.5
	−66.0		+62.0	+102.5	+791.9		+3304.1	+1272.0		+226.6			+1965.0	
			−142.4	−57.9	−136.5			−586.1		−320.3				
	−66.0	=	−80.4	+44.6+17c	+655.4	=	+3304.1	+685.9	−80.4	−93.7	=	+685.9	+1965.0	+44.6

$y' = a'Y - b'X + c'$

[illegible]

13	14	15	16	17	18	19	20	21	22	23	24
$y-Y =$	$Y/100\,a'$	$-X/100\,b'$	$+c'$	$(y-Y)X/100 =$	$XY/100\,a'$	$(X/100)^2\,b'$	$X/100\,c'$	$y-Y\,Y/100 =$	$(Y/100)^2\,a'$	$XY/100\,b'$	$Y/100\,c'$
+0.4 =	+0.8	− 5.2		− +2.1 =	− 4.2	+27.0	− +5.2	+0.3 =	+0.6	− 4.2	+0.8
+3.0 =	+12.2	−24.7		− +74.1 =	−301.3	+610.1	∓24.7	+36.6 =	~~+12.2~~ +148.8	−301.3	+12.2
+4.1 =	+8.6	− 7.3		− +29.9 =	∓ 628	+53.3	∓ 7.3	+ 35.3 =	~~+8.6~~ +74.0	−62.8	+8.6
+3.5 =	+10.3	−10.2		∓ +35.7 =	−105.1	+104.0	− 10.2	+36.0	+106.1	−105.1	+10.3
+1.2 =	+13.3	−15.6		− +18.7 =	−207.5	+243.4	−15.6	+16.0	+176.9	−207.5	+13.3
+2.4 =	+20.3	−20.2		− +48.5 =	−410.1	+408.0	−20.2	+48.7	+412.1	−410.1	+20.3
+4.3 =	+18.8	+3.2		+ +13.8 =	+60.2	+10.2	+3.2	+80.8	+353.4	+60.2	+18.8
+2.3 =	+13.2	+10.2		+ +23.5 =	+134.6	+104.0	+10.2	+30.4	+174.2	+134.6	+13.2
+2.5 =	+8.7	+17.8		+ +44.5 =	+154.9	+316.8	+17.8	+21.8	+75.7	+154.9	+8.7
+2.2 =	+6.5	+24.5		+ +53.9 =	+159.2	+600.2	+24.5	+14.3	+42.2	+159.2	+6.5
+2.6 =	+2.0	+18.5		+ +48.1 =	+37.0	+342.2	+18.5	+5.2	+4.0	+37.0	+2.0
−2.7 =	−6.2	+24.3		− +65.6 =	−150.7	+590.5	+24.3	+16.7	+38.4	−150.7	−6.2
−3.1 =	−8.7	+16.5		− +51.2 =	−143.6	+272.2	+16.5	+27.0	+75.7	−143.6	−8.7
−0.8 =	−2.5	+10.6		− +8.5 =	−26.5	+112.4	+10.6	+2.0	+6.2	−26.5	−2.5
−0.6 =	−9.7	+8.6		− +5.2 =	−83.4	+74.0	+8.6	+5.8	+94.1	−83.4	−9.7
−2.0 =	−12.2	+3.9		− +7.8 =	−47.6	+15.2	+3.9	+24.4	+148.8	−47.6	−12.2
−1.1 =	−7.1	+4.3		− +4.7 =	−30.5	+18.5	+4.3	+7.8	+50.4	−30.5	−7.1
+1.5 =	−11.5	−3.5		− +5.2 =	+40.2	+12.2	−3.5	−17.2	+132.2	+40.2	−11.5
+30.0	+114.7	+142.4		∓357.2	~~+1272.0~~ −1573.3	+3914.2		+409.1			
−10.3	−57.9	−86.7		+ −183.8	~~−887.4~~ +586.1			−17.2			
+19.7 =	+56.8	+55.7	+ 18c	∓173.4 =	~~+384.6~~	+3914.2	+55.7	+391.9 =	+2113.8	~~+384.6~~	+56.8
				−	−987.2		+			−987.2	

or $a'Y + b'X + c'$

+ =	+	−	+	+ =	+	+	−	+ =	+	+	+

Plate A   Equations for a, b, c ; m, n, p notation adopted in Vol XXVI

X

$\Sigma\, x \cdot X \quad -66.0'' = -80.4''a + 44.6''b + 17''c = -9.8088 - .7136 - .5542 = -65.94$

$\text{"} \quad \text{"} \quad X/100 \quad +655.4 = +3304.1a + 685.9b - 80.4c = +403.1002 - 10.9744 + 262104 = +654.23$

$\text{"} \quad \text{"} \quad Y/100 \quad -93.7 = +685.9a + 1965.0b + 446c = +83.6798 - 31.440 - 145.396 = -93.16$

Equation 1 $\quad -3.88 = -4.73a + 2.62b + c$

" 2 $\quad +8.15 = +41.10a + 8.53b - c$

" 3 $\quad -\overset{2.10}{\cancel{93.7}} = +15.\overset{38}{\cancel{7}}a + 44.06b + c$

~~1 + 2~~

1 + 2 ~~+ 3~~ $\quad +4.27 = +36.37a + 11.15b$

2 + 3 $\quad +6.05 = +56.48a + 52.59b$

~~+063043~~ =

$\frac{1+2}{36.37} \quad +.117404 = +a + .306571b$

$\frac{2+3}{56.48} \quad +.107118 = +a + .931126b$

$+.010286 = -.624555b \qquad b = -.01647$

$+.117404 = +a - .005049$

$+.117404 + .005049 = a = \qquad a = +.122453$

$+.107118 = +a - .015336$

$+.107118 + .015336 = a = \qquad a = +.12245\cancel{4}$

$-3.88 = -(4.73 \times +.12245) + (2.62 \times -.01647) + c$

$-3.88 + .57919 + .04315 = c = \qquad c = -3.25766$

$+8.15 = +(41.1 \times +.12245) + (8.53 - .01647) - c$

$c = -8.15 + 5.03270 - .14049 = \qquad c = -3.25779$

$-2.10 = +(15.38 \times +.12245) + (44.06 \times -.01647) + c$

$-2.10 - .188328 + .72567 = c = \qquad c = -3.25761$

Equations for a', b', c' ; m', n', p' notation Vol ~~XXVI~~

$\Sigma\ y-Y$ $+19''.7\,v = +56''.8\,a' + 55''.7\,b' + 18''\,c'$

" $y-Y\frac{X}{100}$ $-173.4\,v = -987.2\,a' + 3914.2\,b' + 55.7\,c'$

" $y-Y\frac{Y}{100}$ $+391.9\,v = +2113.8\,a' - 987.2\,b' + 56.8\,c'$

Eq. 4 $+1.09 = +3.16a' + 3.09\,b' + c'$

5 $-3.11 = -17.72a' + 70.27\,b' + c'$

6 $+6.90 = +37.21a' - 17.38\,b' + c'$

~~o –~~(4-5) $+4.20 = +20.88a' - 67.18\,b'$

~~o = 6~~(5-6) $-10.01 = -54.93a' + 87.65\,b'$

$+.062519 = +.310807\,a' - b'$

$-.114204 = -.626697\,a' + b'$

$-.051685 = -.315890\,a'$

$+.163617 = +a'$ $a' = +.163617$

$+.062519 = +.310807 \times +.16362 - b'$

$+.062519 - .050854 = -b' = +.011665$ $b' = -.011665$

$-.114204 = -.626697 \times + .16362 + b'$

$-.114204 + .102540 = +b' = -.011664$ $b' = -.011664$

4) $+1.09 = +3.16 \times +.16362 + 3.09 \times -.01166 + c'$

$+1.09 - .517 + .036 = +c' = +.609$ $c' = +.609$

5) $-3.11 = -17.72 \times +.16362 + 70.27 \times -.01166 + c'$

$-3.11 \mp 2.899 + .819 = +c' = +.608$ $c' = +.608$

6) $+6.90 = +37.21 \times +.16362 - 17.38 \times -.01166 + c'$

$+6.90 - 6.088 \mp 2.03 = +c' = +.609$ $c' = +.609$

adopted constants see p89

a = +1.22 ×.01
b = −.016 ×.01
c = −3.26

Plate A

Final Residuals

subtract from mean x A. p34 (+520''.1) −26 +522.7

x comp 6 is same for all plates

see p

see p170 Dm no	Results substituting X/100 + Y/100 O–C	Results substituting Obs. values ax p34	+ by p34	c	Σ	Corr. Obs. x	O–C
+89° 1	−1''.2	+.63	− .01	−3.26	−2.6	+522''.7	−1''.2
2	—	—	− .20				
3	+.1	+.89	− .14 ~~.20~~		−2.5	+728.7	+0.1
4	−1.0	+1.25	− .17 ~~.14~~		−2.2	+1023.7	−1.0
5	+.7	+1.90	−.21		−1.6	+1556.8	+0.7
6	−1.0	+2.47	−.32		−1.1	+2022.4	−1.0
9	+1.6	−.40	−.30		−4.0	−322.2	+1.6
12	+.3	−1.25	−.21		−4.7	−1026.8	+0.3
16	−.5	−2.18	−.14		−5.6	−1781.0	−0.5
17	−.8	−2.99	−.10 ✓		−6.4 ✓	−2447.2	−0.8
18	+1.1	−2.26	−.03		−5.6	−1844.8	+1.1
23	−.5	−2.97	+.10		−6.1	−2429.8	−0.5
25	−1.9	−2.02	+.14		−5.1	−1649.3	−1.9
26	−.1	−1.30	+.04		−4.5	−1064.8	−0.1
29	+1.1	−1.05	+.16		−4.2	−859.9	+1.1
31	+1.0	−.48	+.20		−3.5	−387.7	+1.0
35	+1.4	−.53	+.11		−3.7	−428.4	+1.4
36	−.3	+.43	+.18		−2.6	+352.7	−0.3

−.73
+.73
±1.46
÷17
=±.86

+73
−73
±146

±.86

a' = +164 × 01
b' = −.012 × 01
c' = +.62

Feb. 20 1901 a' should have the approx. value x read Table I MSS. for mean x see p 87 from the other plates.

Subtract from +79.4

Y in p6 same for acc plate.

see p 171

Resids Substituting X/100 + Σ/100 O−C	a'y p34	−b'x p34	c	Σ	Corr Os.y		O−C
−.4	+.13	+.06	+.62	+.81	+78.6		−0.4
+.~~2~~1	see red value +2.01	+.30	"	+2.93	+1222.3		+0.1
~~+1.8~~ 2.0 see red value p36	+1.41	+.09		+2.12	+864.9	860.7	+2.0
+1.1	+1.70	+.12		+2.44	+1037.5	1032.7	+1.1
−1.8	+2.19	+.19		+3.00	+1338.2	1332.2	−1.8
−1.~~7~~8	+3.33	+.24		+4.19	+2032.0	2023.6	−1.8
+.6	+3.10	−.04		+3.68	+1892.4	1885.0	+0.6
−.4	+2.17	−.12		+2.67		+13~~21.7~~19.3	−0.4
+.7	+1.42	−.21		+1.83		+886.2	+0.7
+.8	+1.07	−.29		+1.40		+649.8	+0.8
~~+2.6~~ 1.9 "	+.33	−.22		+.73		+201.4	+1.9
−2.0	−1.0~~6~~2	−.29		−.~~73~~69		−618.6	−2.0
−2.1	−1.43	−.20		−1.01		−873.1	−2.1
−.9	−.41	−.13		+.08		−251.6	−0.9
+.5	−1.60	−.10		−1.08		−973.8	+0.5
−.6	−2.00	−.05		−1.43		−1221.1	−0.6
−.5	−1.16	−.05		−.59		−707.8	−0.5
+2.7	−1.88	+.04		−1.22		−1145.6	+2.7

~~fill in~~ no measured x for Star 2

+10.85
−10.~~9~~5
±21.~~7~~0 ÷ 18
± 1.1~~8~~7

−105
+103
±20.8 ÷ 17
±1.22

−105
+103
±208
17

±1.22

Plate B = D 4842

No.	$x-X$	$=\left(\frac{X}{100}\right)a$	$\frac{Y}{100}b+c$	$(x-X)\frac{X}{100}$	$=\left(\frac{X}{100}\right)^2a+\frac{XY}{100}b+\frac{X}{100}c$	$(x-X)\frac{Y}{100}$	$=\frac{XY}{100}+\frac{Y^2}{100}+\frac{Y}{100}$
1	−0.2	+5.2a	+08	− 1.0		− 0.2	
2	−0.9	+24.7	+12.2	− 22.2		−11.0	
3	+1.1	+ 7.3	+8.6	+ 8.0		+ 9.5	
4	+0.1	+10.2	+10.3	+ 1.0		+ 1.0	
5	+1.2	+15.6	+13.3	+18.7		+16.0	
6	+3.0	+20.2	+20.3	+60.6		+60.9	
9	−0.4	−3.2	+18.8	+ 1.3		− 7.5	
12	−0.7	−10.2	+13.2	+ 7.1		− 9.2	
16	−0.9	−17.8	+8.7	+16.0		− 7.8	
17	−3.0	−24.5	+6.5	+73.5		−19.5	
18	+0.1	−18.5	+2.0	− 1.8		+ 0.2	
23	−0.9	−24.3	−6.2	+21.9		+ 5.6	
25	−3.3	−16.5	−8.7	+54.4		+28.7	
26	−0.9	−10.6	−2.5	+ 9.5		+ 2.2	
29	+0.6	−8.6	−9.7	− 5.2		− 5.8	
31	+1.1	−3.9	−12.2	− 4.3		−13.4	
35	+0.2	−4.3	−7.1	− 0.9		− 1.4	
36	+0.8	+3.5	−11.6	+2.8		− 9.2	
	+ 8.2	+86.7	+114.7	+274.8		+124.1	
	−11.2	−142.4	−57.9	−35.4		−85.0	

$-3.0 = -55.7a + 56.8b + 18c + 239.4 = +3914.2a + 987.2b - 55.7c + 39.1 = +987.2a + 2113.8b + 56.8c$

$y-Y$	$\frac{Y}{100}a'$	$\frac{X}{100}b'$	$+c'$	$(y-Y)\frac{X}{100}=\frac{XY}{100}a'\left(\frac{X}{100}\right)^2 b'$	$\frac{X}{100}c'$	$(y-Y)\frac{Y}{100}=\left(\frac{Y}{100}\right)^2 a$
+3.2	+0.8	∓5.2		−16.6		+2.6
+3.8	+12.2	∓24.7		−93.9		+46.4
+6.8	+8.6	∓7.3		−49.6		+58.5
+4.5	+10.3	∓10.2		−45.9		+46.4
+2.9	+13.3	∓15.6		−45.2		+38.6
+5.0	+20.3	∓20.2		−101.0		+101.5
+4.4	+18.8	+3.2		+14.1		+82.7
+2.7	+13.2	+10.2		+27.5		+35.6
+3.3	+8.7	+17.8		+58.7		+28.7
+5.5	+6.5	+24.5		+134.8		+35.8
+6.3	+2.0	+18.5		+116.6		+12.6
+3.0	−6.2	+24.3		+72.9		−18.6
+1.7	−8.7	+16.5		+28.0		−14.8
+1.9	−2.5	+10.6		+20.1		−4.8
+4.8	−9.7	+8.6		+41.3		−46.6
+2.0	−12.2	+3.9		+7.8		−24.4
+3.1	−7.1	+4.3		+13.3		−22.0
+6.2	−11.5	∓3.5		−21.7		−71.3
+71.1				+535.1 −373.9		+489.4 −202.5

c +71.1 $+56.8a' + 55.7b'$ $18c'$ $+161.2 = -987.2a' + 3914.2b' + 55.7c'$ $+286.9 = +21138a' - 987.2b' + 56.8c'$

Plate B = D4842

$x-\bar{X}$ $-3.0''$ $= -55.7a+56.8b+18c = -3.085 = (55.7\times+.066)+(56.8\times-.014)+(18\times+.07)$

$x-\bar{X}\frac{X}{100}$ $+239.4 = +3914.2a+987.2b \cancel{+} -55.7c = +3914.2a+987.2b-55.7c = +241.2$

$x-\bar{X}\frac{Y}{100}$ $+39.1 = +987.2a+2113.8b+56.8c$ $+39.93$

1) $-.17 = -3.09a+3.16b+c$

2) $+4.30 = +70.27a+17.72b-c$

3) $+.69 = +17.38a+37.21b+c$

(1+2) $+4.13 = +67.18a+20.88b$

(2+3) $+4.99 = +87.65a+54.93b$

4) $+.197797 = +3.217433a+b$

5) $+.090843 = +1.595667a+b$

(4−5) $+.106954 = +1.621766a$

$+.06595 = a$

4) $+.197797 = +3.217433\times+.06595+b$

$+.197797-.212190 = +b = -.014393$

5) $+.090843 = +1.595667\times+.06595+b$

$+.090843-.105234 = +b = -.014391$

1) $-.17 = -3.09\times+.06595+3.16\times-.01439+c$

$-.17+.20+.05 = c = +.08$

2) $+4.30 = +70.27\times+.06595+37.72\times-.01439-c$

$+4.30-4.63+.25 = -c = -.08$ $c = +.08$

3) $+.69 = +17.38\times+.06595+37.21\times-.01439+c$

$+.69-1.16+.54 = +c = +.07$

a	b	c
+.06595	−.01439	+.08
	−.01439	+.08
		+.0

y-Y $+71.1 = +56.8a' + 55.7b' + 18c'$

.. $\frac{X}{100}$ $+161.2 = -987.2a' + 3914.2b' + 55.7c'$

.. $\frac{Y}{100}$ $+286.9 = +2113.8a' - 987.2b' + 56.8c'$

4) $+3.95 = +3.16a' + 3.09b' + c'$

5) $+2.89 = -17.72a' + 70.27b' + c'$

6) $+5.05 = +37.21a' - 17.38b' + c'$

(4-5) $+1.06 = +20.88a' - 67.18b'$

(5-6) $-2.16 = -54.93a' + 87.65b'$

$+.015778 = +.310807a' - b'$

$-.024643 = -.626697a' + b$

$-.008865 = -.315890a'$

$+.028064 = +a'$ $a' = +.028064$

$+.015778 = +.310807 \times +.02806 - b'$

$+.015778 - .008721 = -b' = +.007057$ $b' = -.007057$

$-.024643 = -.626697 \times +.02806 + b'$

$-.024643 + .017585 = +b' =$ $b' = -.007058$

4) $+3.95 = +3.16 \times +.02806 + 3.09 \times -.00706 + c'$

$+3.95 - .089 + .022 = +c' = +3.883$ $c' = +3883$

5) $+2.89 = -17.72 \times +.02806 + 70.27 \times -.00706 + c'$

$+2.89 + .497 + .496 = +c' = +3.883$ $c' = +3.883$

6) $+5.05 = +37.21 \times +.02806 - 17.38 \times -.00706 + c'$

$+5.05 - 1.044 + .123 = +c' = +3.883$ $c' = +3.883$

m × a = +.066 × .01
b = −.014 × .01
c = +.08

Plate B

Dm No	Resids O-C	ax	+by	c	Σ	sub. Σ from meas t Corr. Obs. x	O-C
+89° 1	−″.6	+.35	− .01	+.08	+.42	+523.3	−0.6
2	−2.4	+1.63	− .17		+1.54	+2471.9	−2.4
3	+.7	+.48	− .12		+.44	+729.3	+0.7
4	−.5	+.68	$-\overset{14}{.15}$		+.61	+1024.2	−0.5
5	+.3	+1.03	− .19		+.92	+1556.4	+0.3
6	+1.9	+1.34	− .28		+1.14	+2025.3	+1.9
9	0	−.21	− .26		−.39	−323.8	0.0
12	+.1	−.67	− .19		−.78	−1017.0	+0.1
16	+.3	−1.18	− .12		−1.22	−1780.2	+0.3
17	−1.4	−1.62	− .09 ✓		−1.63	✓ −2447.8	−1.4
18	$+1.x^{3}$	−1.22	− .03		−1.17	−1844.6	+1.3
23	+.5	−1.60	+.09		−1.43	−2428.8	+0.5
25	−2.4	−1.09	+.12		−.89	−1649.8 −~~1841.7~~	−2.4
26	−.3	−.70	+.03		−.59	−1965.9 −~~2429.6~~	−0.3
29	+1.0	−.57	+.14		−.35	−860.0	+1.0
31	+1.1	−.26	+.17		−.01	−387.6	+1.1
35	+.3	−.28	+.10		−.10	−429.5	+0.3
36	+.3	+.23	+.16		+.47	+353.3	+0.3
	−7.6 $\pm 7.\overset{8}{8}$ $\pm 1\overset{4}{5.7}$ $\pm .8\overset{6}{4}$						−7.6 +7.8 ±15.4

±.86

m ∫ a', +.028 ×.01
b', −.007 ×.01
c +3.88

(X & Y subst. p173)
c' = 3″.89 used

adopted

O-C	a'y	−b'x	c'	Σ	Corr. Obs. y	O-C	
−″.7	+.02	+.04	+3.88	+3.94	~~75.1~~ +78.3	−0.7	
−.6	+.34	+.17		+4.39	+1221.6	−0.6 ✓	
+2.6	+.24	+.05		+4.17	+861.3	+2.6	
+.3	+.29	+.07		+4.24	+1031.9	+0.3	
−1.5	+.37	+.11		+4.36	+1332.5	−1.5	
+.4	+.57	+.14		+4.69^{5}	+2025.8	+0.4	
.0	+.53	−.02		+4.39	+1884.4	0.0	
−1.5	+.37	−.07		+4.18	+1318.2	−1.5	
−.7	+.24	−.12		+4.00	+864.8	−0.7	
mean y. −654″.4 +1.6	+.18 ✓	−.17		+389 ✓	+650.6^{5}	+1.6^{5}	Corr. Jan 1901
+2.5	+.06	−.13		+3.81	+202.0	+2.5	
−.6 ✓	−.17	−.17 ✓		~~4.22~~ +~~3.88~~ +3.54	−617.1	−0.5 ✓	P
−1.8	−.24	−.12		+3.52	−872.8	−1.8 −1.8 ✓	
−1.9 ✓	−.07 ✓	−.07 ✓		+3.74 ✓	−252.5	−2.2	P
+1.2	−.27	−.06		+3.55	−973.1	+1.2	
−1.5 ✓	−.34	−.03		+3.51	−1222.0 ✓	∓1.5	
−.6 ✓	−.20 ✓	−.03 ✓		+3.65 ✓	−707.8	−0.5 ✓	P
+2.6	−.32	+.02		+3.58	−1145.7	+2.6	

−11.4
+11.2

± 22.6
± 1.26

−9.6 −11.1
+11.8
±22.6^{2}

±1.2~~4~~^{3}

Plate C = D 4849

No.	$x-X=\frac{X}{100}a+\frac{Y}{100}b+c$			$(x-X)\frac{X}{100}=\left(\frac{X}{100}\right)^2a+\frac{XY}{100}b+\frac{X}{100}c$	$(x-X)\frac{Y}{100}=\frac{XY}{100}a+\left(\frac{Y}{100}\right)^2b+\frac{Y}{100}c$
1	−0.1	+5.2	+0.8	−0.5	−0.1
2	−0.5	+24.7	+12.2	−12.4	−6.1
3	+0.6	+7.3	+8.6	+4.4	+5.2
4	+0.5	+10.2	+10.3	+5.1	+5.2
5	+1.1	+15.6	+13.3	+17.2	+14.6
6	+2.4	+20.2	+20.3	+48.5	+48.7
9	+1.1	−3.2	+18.8	−3.5	+20.7
12	+0.3	−10.2	+13.2	−3.1	+4.0
16	−0.2	−17.8	+8.7	+3.6	−1.7
17	0.0	−24.5	+6.5	0.0	0.0
18	+1.7	−18.5	+2.0	−31.4	+3.4
23	+1.5	−24.3	−6.2	−36.4	−9.3
25	−1.5	−16.5	−8.7	+24.8	+13.0
26	+0.3	−10.6	−2.5	−3.2	−0.8
29	+1.2	−8.6	−9.7	−10.3	−11.6
31	+1.9	−3.9	−12.2	−7.4	−23.2
35	+2.3	−4.3	−7.1	−9.9	−16.3
36	+1.0	+3.5	−11.5	+3.5	−11.5
	+15.9			+107.1	+114.8
	−2.3			−118.1	−80.6

$+13.6=-55.7a+56.8b+18c \quad | \quad -11.0=+3914.2a+987.2b-55.7c \quad + 34.2+987.2a+2113.8b+56.8c$

$y-Y$	$\frac{Y}{100}a'$	$\frac{X}{100}b'$	c'	$(y-Y)\frac{X}{100}=\frac{XY}{100}a'\left(\frac{X}{100}\right)^2b'\frac{X}{100}c'$	$(y-Y)\frac{Y}{100}=\left(\frac{Y}{100}\right)^2a'\frac{XY}{100}b'\frac{Y}{100}c'$	
+2.3	+0.8	−5.2		−12.0	+1.8	
+5.2	+12.2	−24.7		−128.4	+63.4	
+5.6	+8.6	−7.3		$-40.\overset{9}{2}$	+48.2	
+4.9	+10.3	−10.2		$-\overset{50.0}{\cancel{48.4}}$	+50.5	
+3.1	+13.3	−15.6		−48.4	+41.2	
+4.8	+20.3	−20.2		−97.0	+97.4	6
+3.3	+18.8	+3.2		+10.6	+62.0	
+2.7	+13.2	+10.2		+27.5	+35.6	
+2.0	+8.7	+17.8		+35.6	+17.4	16
+4.7	+6.5	+24.5		+115.2	+30.6	
+6.0	+2.0	+18.5		+111.0	+12.0	
+2.6	−6.2	+24.3		+63.2	−16.1	
+1.1	−8.7	+16.5		+18.2	−9.6	25
+2.2	−2.5	+10.6		+23.3	−5.5	
+4.7	−9.7	+8.6		+40.4	−45.6	
+2.3	−12.2	+3.9		+9.0	$-\overset{28.1}{\cancel{45.6}}$	
+3.5	−7.1	+4.3		+15.0	−24.8	
+6.9	−11.5	−3.5		−24.2	−79.4	
+67.9				+469.0 −400.9	+460.1 −209.1	

$+67.9 \quad +56.8a' +55.7b' +18c \qquad +68.1 = -987.2a' +3914.2b' +55.7c' \qquad +251.0 = 2113.8a' -987.2b' +56.8c'$

Plate C.

x-X 1) $+13.6 = -55.7a + 56.8b + 18c$ $= -.6684 - .6816 + 15.12 = +13.77$

" X/100 2) $-11.0 = +3914.2a + 987.2b - 55.7c$ $= +46.9704 - 11.8464 - 46.788 = -11.66$

" Y/100 3) $+34.2 = +987.2a + 2113.8b + 56.8c$ $= +11.8464 - 25.3656 + 47.712 = +34.1$

1) $+.76 = -3.09a + 3.16b + c$

2) $-.20 = +70.27a + 17.72b - c$

3) $+.60 = +17.38a + 37.21b + c$

(1+2) $+.56 = +67.18a + 20.88b$

(2+3) $+.40 = +87.65a + 54.93b$

4) $+.026820 = +3.217433a + b$

5) $+.007282 = +1.595667a + b$

(4-5) $+.019538 = +1.621766a$

$+.012047 = a$

4) $+.026820 = +3.217433 \times +.01205 + b$

$+.026820 - .038770 = b = -.011950$

5) $+.007282 = +1.595667 \times +.01205 + b$

$+.007282 - .019228 = b = -.011946$

1) $+.76 = -3.09 \times +.01205 + 3.16 \times -.01195 + c$

$+.76 + .037 + .038 = c = +.845$

2) $-.20 = +70.27 \times .01205 + 17.72 \times -.01195 - c$

$-.20 - .847 + .212 = -c = -.835$ $c = +.835$

3) $+.60 = +17.38 \times .01205 + 37.21 \times -.01195 + c$

$+.60 - .209 + .445 = +.836$

a	b	c
+.01205	-.01195	+.84
	-.01195	+.84
		+.84

y-V $+67.9 = +56.8a' + 55.7b' + 18c'$

" $\frac{X}{100}$ $+68.1 = -987.2a' + 3914.2b' + 55.7c'$

" $\frac{V}{100}$ $+251.0 = +2113.8a' - 987.2b' + 56.8c'$

4) $+3.77 = +3.16a' + 30.9b' + c'$

5) $+1.22 = -17.72a' + 70.27b' + c'$

6) $+4.42 = +37.21a' - 17.38b' + c'$

4-5) $+2.55 = +20.88a' - 67.18b'$

5-6) $-3.20 = -54.93a' + 87.65b'$

$+.037958 = +.310807a' - b'$

$-.036509 = -.626697a' + b'$

$+.001449 = -.315890a'$

$+.004587 = -a'$ $a' = -.004587$

$+.037958 = +.310807 \times -.00459 - b'$

$+.037958 + .001427 = -b' = +.039385$ $b' = -.039385$

$-.036509 = -.626697 \times -.00459 + b'$

$-.036509 - .002877 = +b' = -.039386$ $b' = -.039386$

4) $+3.77 = +3.16 \times -.00459 + 3.09 \times -.03939 + c'$

$\cancel{5)}$ $+3.77 + .015 + .122 = +c' = +3.907$ $c' = +3.907$

5) $+1.22 = -17.72 \times -.00459 + 70.27 \times -.03939 + c'$

$+1.22 - .081 + 2.768 = +c' = +3.907$ $c' = +3.907$

6) $+4.42 = +37.21 \times -.00459 - 17.38 \times -.03939 + c'$

$+4.42 + .171 - .685 = +c' = +3.906$ $c' = +3.906$

2ᵈ Solution.

a = +012 × .01
b = −.012 × .01
c = +84 ← adopted

Plate C

X + Y substituted p 174
C = +.83 used

	O−C	ax	+by	c	Σ	Corr. Obs. x	O−C
+89° 1	−1.″0	+.06	−.01	+.84	+.89	+522.9	−1.0
2	−1.5	+.30	−.15		+.99	+2472.8	−1.5
3	−.2	+.09	−.10		+.83	+728.4	−0.2
4	−.3	+.12	−.12		+.84	+1024.4	−0.3
5	+.2	+.19	−.16		+.87	+1556.3	+0.2
6	+1.6	+.24	−.24		+.84	+2025.0	+1.6
9	+.5	−.04	−.23		+.57	−323.3	+0.5
	−.3	−.12	−.16		+.56	−1017.4	−0.3
	−.7	−.21	−.10		+.53	−1781.~~8~~2	−0.7
	−.5	−.29	−.08		+.47	−2446.9	−0.5
	+1.1	−.22	−.02		+.60	−184~~6.0~~4.8	+1.1
23	~~+1.0~~ 0.9	−.29	+.07		+.62	−242~~9.9~~8.4	+0.9
25	−2.~~0~~2	−.20	+.10		+.74	−164~~8.1~~9.6	−2.2
	−.4	−.13	+.03		~~+.68~~ .74	−1065.~~4~~1	−0.4
29	+.4	−.10	+.12		+.86	−86~~1.9~~0.7	+0.3
	+1.0	−.05	+.15		+.94	−38~~9.6~~7.7	+1.0
	+1.4	−.05	+.08		+.87	−4~~30.7~~28.4	+1.4
	.0	+.04	+.14		+1.02	−35~~2~~3.0	0.0
	~~−6.9~~ 7						−7.1
	+7.1						+7.0
	±14.2						±14.1
	±.7~~8~~9						±.78

For 1ˢᵗ Sol see pp 74–75

$a' = -.00\overset{5}{\cancel{46}} \times 01$
$b' = -.039 \times 01$
$c = +3.90$

6c	a'y	-b'x	c'	Σ	Corr. Obs. y.	O-C
-1.~~4~~8	+.00	+.20	+3.90	+4.10	+74.2	-1.8
+.4	-.06	+.96		+4.80	+1222.6	+0.4
+1.~~4~~5	-.04	+.28		+4.14	+860.2	+1.5
+.~~6~~7	-.05	+.40		+4.25	+1032.3	+0.7
-1.~~4~~3	-.07	+.61		$+4.\overset{4}{6}4$	+1332.7	-1.3
+.2	-.10	+.79		+4.59	+2025.6	+0.2
-.4	-.09	-.13		+3.68	+1884.0	-0.4
-.~~6~~7	-.07	-.40		+3.43 +3.17	+1319.0	-0.7
-1.2	-.04	-.69			+864.3	-1.2
+1.8	-.03	-.95		+2.92	+650.8	+1.8
+2.8	-.01	-.72		+3.17	+202.3	+2.8
-.4	+.03	-.95		+2.98	-617.0	∓0.4
-2.2	+.04	-.64		+3.30	-873.2	-2.2
-1.3	+.01	-.42		+3.49	-252.0	-1.3
+1.1	+.05	-.34		+3.61	-973.2	+1.1
-1.5	+.06	-.15		+3.81	-1222.0	-21.5
-.3	+.04	-.16		+3.78	-707.6	-0.3
+2.8	+.06	+.14		+4.10	-1145.5	+2.8

Checked +0.65 (retaining .5 to last) ?

-~~10.7~~ 11
+11.~~1~~3
±2~~2.8~~4

±1.2~~4~~

-11.1
+11.3
±22.4

±1.24

Plate D = D 4879

No.	$x-\bar{X}=\frac{X}{100}a+\frac{Y}{100}b+c$			$(x-\bar{X})\frac{X}{100}=\left(\frac{X}{100}\right)^2a+\frac{XY}{100}b+\frac{X}{100}c$	$(x-\bar{X})\frac{Y}{100}=\frac{XY}{100}a+\left(\frac{Y}{100}\right)^2b+\frac{Y}{100}c$	y−
1	−2.4	+5.2	+0.8	−12.5	−1.9 ✓	41.
2	−0.9	+24.7	+12.2	−22.2	−12.0 ✓	+2
3	−2.4	+7.3	+8.6	−17.5	−20.6 ✓	+4.
4	−2.8	+10.2	+10.3	−28.6	−28.8 ✓	+3
5	−0.5	+15.6	+13.3	−7.8	$-6.\overset{6}{\cancel{7}}$	+1.
6	+1.4	+20.2	+20.3	+28.3	+28.4	+2
9	−2.1	−3.2	+18.8	+6.7	−39.5 ✓	+4.
12	−2.7	−10.2	+13.2	+27.5	−35.6 ✓	+3.
16	−2.6	−17.8	+8.7	+46.3	−22.6	+3.
17	−4.4	−24.5	+6.5	+107.8	−28.6 ✓	+5.
18	−2.4	−18.5	+2.0	+44.4	−4.8 ✓	+6.
23	−4.2	−24.3	−6.2	+102.1	+26.0 ✓	+3.
25	−5.6	−16.5	−8.7	+92.4	+48.7 ✓	+1.9
26	−2.5	−10.6	−2.5	+26.5	+6.2 ✓	+1.
29	−2.7	−8.6	−9.7	+23.2	+26.2 ✓	+3
31	−1.9	−3.9	−12.2	+7.4	+23.2 ✓	+2
35	−1.6	−4.3	−7.1	+6.9	+11.4 ✓	+2.9
36	−2.7	+3.5	−11.5	−9.4	+31.0 ✓	+3.8
	+1.4			$\overset{519.}{\cancel{+422}}.5$	+201.1	+59
	−44.4			−98.0	−200.0	

$-43.0 \quad -55.7a+56.8b+18c+\overset{4}{\cancel{3}}2\overset{1}{\cancel{4}}.5=+391\overset{4.2}{\cancel{2.4}}a+987.2b\underset{-55.7c}{+} \quad +0,1.1 \quad =+987.2a+2113.8b+56.8c \quad +59$

$y-Y$	$\frac{Y}{100}a'$	$\frac{X}{100}b'$	c'	$(y-Y)\frac{X}{100} = \frac{XY}{100}a' \left(\frac{X}{100}\right)^2 b' \frac{X}{100}c'$	$(y-Y)\frac{Y}{100} = \left(\frac{Y}{100}\right)^2 a' \frac{XY}{100} b' \frac{Y}{100} c'$
+1.6	+0.8	−5.2		−8.3	+1.3
+2.8	+12.2	−24.7		−69.2	+34.2
+4.8	+8.6	−7.3		−35.0	+41.3
+3.7	+10.3	−10.2		−37.7	+38.1
+1.3	+13.3	−15.6		−20.3	+17.3
+2.4	+20.3	−20.2		−48.5	+48.7
+4.5	+18.8	+3.2		+14.4	+84.6
+3.2	+13.2	+10.2		+32.6	+42.2
+3.8	+8.7	+17.8		+67.6	+33.1
+5.8	+6.5	+24.5		+142.1	+37.7
+6.3	+2.0	+18.5		+116.6	+12.6
+3.5	−6.2	+24.3		+85.0	−21.7
+1.9	−8.7	+16.5		+31.4	−16.5
+1.9	−2.5	+10.6		+20.1	−4.8
+3.7	−9.7	+8.6		+31.8	−35.9
+2.0	−12.2	+3.9		+7.8	−24.4
+2.9	−7.1	+4.3		+12.5	−20.6
+3.8	−11.5	−3.5		−13.3	−43.7
+59.9				+561.9	+391.1
				−232.3	−167.6

.8c $+59.9 = +56.8\,\overset{\cancel{b'}}{a'} + 55.7b' + 18.c'$ $+329.6 = -987.2a' + 3914.2b' + 55.7c'$ $+223.5 = +2113.8a' - 987.2b' + 56.8c'$

Plate D

$a = +068$
$b = +030$
$c = -2.27$

$x-X$ $\quad -43.0 = -55.7a + 56.8b + 18c$ $\quad = -3.7876 + 1.7040 - 40.86 = -42.9436$

〃 $\frac{X}{100}$ $\quad +421.5 = +3914.2a + 987.2b * -55.7c$ $\quad = +266.1656 + 29.6160 + 126.439 = +422.2206$

〃 $\frac{Y}{100}$ $\quad +01.\overset{1}{8} = +987.2a + 2113.8b + 56.8c$ $\quad = +67.1296 + 63.414 - 128.936 = +1.6076$

1) $-2.39 = -3.09a + 3.16b + c$

2) $+7.57 = +70.27a + 17.72b - c$

3) $+.0\overset{2}{0} = +17.38a + 37.21b + c$

(1+2) $\quad +5.18 = +67.18a + 20.88b$

(2+3) $\quad +7.5\overset{9}{\cancel{7}} = +87.65a + 54.93b$

4) $+.248084 = +3.217433a + b$

5) $+.\overset{138176}{\cancel{108138}} = +1.595667a + b$

(4∓5) $\quad +.\overset{109908}{\cancel{083433}} = +1.621766a$

$+.06\overset{777}{\cancel{800}} = a$

4) $+.248084 = +3.217433 \times +.068 + b$

$+.248084 - .218785 = +b = +.02930$

5) $+.13\overset{8176}{\cancel{7812}} = +1.595667 \times +.068 + b$

$+.137812 - .108505 = +b = +.02931$

1) $-2.39 = -3.09 \times +.0680 + 3.16 \times +.0293 + c$

$-2.39 + .21 - .09 = +c = -2.27$

2) $+7.57 = +70.27 \times +.0680 + 17.72 \times +.0293 - c$

$+7.57 - 4.78 - .52 = -c\,; \quad c = -2.27$

3) $+.00 = +17.38\overset{\times +.0680}{\cancel{a}} + 37.21\overset{\times +.0293}{\cancel{b}} + c$

$+.00 - 1.18 - 1.09 = +c = -2.27$

a	b	c
$+.06\overset{777}{\cancel{800}}$	$+.\overset{03004}{\cancel{02930}}$	-2.27
	$+.\overset{03004}{\cancel{02931}}$	-2.27
		-2.27

$\times .06777$

$+.248084 - .218045 = b = +.030039$

$+.138176 = +1.595667 \times +.06777 + b$

$+.138176 - .108138 = b = +.030038$

$-2.39 = -3.09 \times +.0678 + 3.16 \times +.0300$

$-2.39 + .21 - .09 = c = -2.27$

$+.02 = .$

$+.02 - 1.178 - 1.116 = c = -2.27$

7 V $+59.9\surd = +56.8a' + 55.7b' + 18c'$

" $\frac{IV}{100}$ $+329.6\surd = -987.2a' + 3914.2b' + 55.7c'$

" $\frac{V}{100}$ $+2235\surd = +2113.8a' - 987.2b' + 56.8c'$

4) $+3.33 = +3.16a' + 3.09b' + c'$

5) $+5.92 = -17.72a' + 70.27b' + c'$

6) $+3.93 = +37.21a' - 17.38b' + c'$

$-2.59 = +20.88a' - 67.18b'$

$+1.99 = -54.93a' + 87.65b'$

$-.038553 = +.310807a' - b'$

$+.022704 = -.626697a' + b'$

$-.015849 = -.315890a'$

$+.050173 = +a'$ $a' = +.05017$

$-.038553 = +.310807 \times +.05017 - b'$

$-.038553 - .015593 = -b' = -.054146$ $b' = +.054146$

$+.022704 = -.626697 \times +.05017 + b'$

$+.022704 + .031441 = +b' = +.054145$ $b' = +.054145$

$+3.33 = +3.16 \times +.05017 + 3.09 \times +.05415 + c'$

$+3.33 - .159 - .167 = +c' = +3.004$ $c' = +3.004$

$+5.92 = -17.72 \times +.05017 + 70.27 \times +.05415 + c'$

$+5.92 + .889 - 3.805 = +c' = +3.004$ $c' = +3.004$

$+3.93 = +37.21 \times +.05017 - 17.38 \times +.05415 + c'$

$+3.93 - 1.867 + .941 = +c' = +3.004$ $c' = +3.004$

a = +.068 x.01
b = +.030 x.01
c = -2.27

Plate D

[illegible] the use here.

adopted

Sec/p58 O–C		ax	+by	c	Σ	Corr. Obs. x	O–C	
1891	-0.5	+.35	+0.02	-2.27	-1.90	+523.4	-0.5	
2	-0.7	+1.68	+.37		-.22	+2473.6	-0.7	
3	-0.8	+.49	+.26		-1.52	+727.7	-0.9	?
4	-1.5	+.69	+.31		-127	+1023.2	-1.5	
5	+0.3	+1.06	+.40		-.81	+1556.4	+0.3	
6	+1.7	+1.38	+.61		-.28	+2025.1	+1.7	
9	-0.2	-.22	+.57		-1.92	-324.0	-0.2	
12	-0.1	-.69	+.40		-2.56	-1017.2	-0.1	
16	+0.7	-1.21	+.26		-3.22	-1779.9	+0.6	?
17	-0.6	-1.67	+.20		-3.74	-2447.1	-0.7	?
18	+1.0	-1.26	+.06		-3.47	-1844.8	+1.1	?
23	-0.1	-1.65	-.18		-4.10	-2429.4	-0.1	
25	-1.9	-1.12	-.26		-3.65	-1649.4	-2.0	?
26	+0.6	-.73	-.07		-3.07	-1064.1	+0.6	
29	+0.5	-.59	-.29		-3.15	-860.5	+0.5	
31	+1.1	-.27	-.37		-2.91	-387.7	+1.0	?
35	+1.2	-.29	-.21		-2.77	-428.6	+1.2	
36	-0.3	+.24	-.34		-2.37	+352.7	-0.3	
	-6.7						-7.0	
	+7.1						+7.0	
	±13.8						±14.0	
	±.77						±.78	

$a' = +0.050 \times 0.1$ ✓
$b' = +0.054 \times 0.1$ ✓
$c' = +3.00$ ✓

~~Queries to be checked here~~

Sep/59 ω-6 tenths used	a′y	−b′x	c′	Σ	Corr. Obs. y	O-C adopted	
-1.1	+.04 ✓	-.28 ✓	+3.00	+2.76	+77.8 ✓	-1.2 ✓	?
+.5	+.61	-1.34		+2.27	+1222.7	+0.5	
+1.8	+.43	-.39		+3.04	+860.5	+1.8	
+.8	+.52 ✓	-.55 ✓		+2.97	+1032.3 ✓	+0.7 ✓	?
-1.6	+.67 ✓	-.84 ✓		+2.83	+1332.5 ✓	-1.5 ✓	?
-.5	+1.01	-1.09		+2.92	+202$\overset{4}{2}$.9	-0.5	
+.4	+.94	+.18		+4.12	+1884.8	+0.4	
~~+.2~~ -1.0	+.66	+.55		+4.21	+1318.7	-1.0	
-.6	+.43	+.96		+4.39	+864.9	-0.6	
+1.2	+.33	+1.32		+4.65	+650.2	+1.2	
+2.2	+.10	+1.00		+4.10	+201.7	+2.2	
-.5	-.31	+1.31		+4.00	∓617.1	-0.5	
-1.6	-.43	+.89		+3.46	∓872.6	-1.6	
-1.6	-.12	+.58		+3.46	∓252.3	-1.6	
+.8	-.49 ✓	+.47 ✓		+2.98	∓973.6 ✓	+0.7 ✓	?
-.6	-.61	+.21		+2.60	∓1221.1 ✓	-0.6	
+.1	-.35 ✓	+.23 ✓		+2.88	-707.3 ✓	0.0 ✓	?
+1.~~8~~6	-.57	∓.19		+2.24	-1146.7	+1.6 ✓	
+9.1						∓9.1	
+9.4						±9.1	
±16.5						±18.2	
±1.03						±1.01	

Plate E = D4885

No. +89	$x - X = \frac{X}{100}a + \frac{Y}{100}b + c$			$(x-X)\frac{X}{100} = \left(\frac{X}{100}\right)^2 a + \frac{XY}{100}b + \frac{X}{100}c$	$(x-X)\frac{Y}{100} = \frac{XY}{100}a + \left(\frac{Y}{100}\right)^2 b + \frac{Y}{100}c$
1	−2.4	+5.2	+0.8	−12.5	−1.9
2	−1.5	+24.7	+12.2	−37.0	−18.3
3	−2.1	+7.3	+8.6	−15.3	−18.5
4	−2.9	+10.2	+10.3	−29.6	−29.9
5	−0.6	+15.6	+13.3	−9.4	−8.0
6	+1.3	+20.2	+20.3	$+26.\overset{3}{4}$	+26.4
9	−2.0	−3.2	+18.8	+6.4	−37.6
12	−2.5	−10.2	+13.2	+25.5	−33.0
16	−2.6	−17.8	+8.7	+46.3	−22.6
17	−4.2	−24.5	+6.5	+102.9	−27.3
18	−1.4	−18.5	+2.0	+25.9	−2.8
23	−2.9	−24.3	−6.2	+70.5	+18.0
25	−5.4	−16.5	−8.7	+89.1	+47.0
26	−2.7	−10.6	−2.5	+28.6	+6.8
29	−2.6	−8.6	−9.7	+22.4	+25.2
31	−1.9	−3.9	−12.2	+7.4	+23.2
35	−1.6	−4.3	−7.1	+6.9	+11.4
36	−2.2	+3.5	+11.5	−7.7	+25.3
	+1.3			$+458.\overset{2}{3}$	+183.3
	−41.5			−111.5	−199.5
	−40.2	−55.7a+56.8b+18c		$+346.\overset{7}{8}$ = +3914.2a+98.7b−55.7c	−16.2 = +987.2a+2113.8b+56.8c

$y-Y$	$\frac{Y}{100}a'$	$\frac{X}{100}b'$ c'	$(y-Y)\frac{X}{100} = \frac{XY}{100}a' \left(\frac{X}{100}\right)^2 b' \frac{X}{100}c'$	$(y-Y)\frac{Y}{100} = \left(\frac{Y}{100}\right)^2 a' \frac{XY}{100} b' \frac{Y}{100} c'$
+1.4	+0.8	−5.2	−7.3	+1.1
+3.2	+12.2	−24.7	−79.0	+39.0
+4.5	+8.6	−7.3	−32.8	+38.7
+3.6	+10.3	−10.2	−36.7	+37.1
+1.4	+13.3	−15.6	−21.8	+18.6
+3.0	+20.3	−20.2	−60.6	+60.9
+4.5	+18.8	+3.2	+14.4	+84.6
+3.3	+13.2	+10.2	+33.7	+43.6
+3.9	+8.7	+17.8	+69.4	+33.9
+5.6	+6.5	+24.5	+137.2	+36.4
+6.4	+2.0	+18.5	+118.4	+12.8
+3.5	−6.2	+24.3	+85.0	−21.7
+1.3	−8.7	+16.5	+21.4	−11.3
+2.4	−2.5	+10.6	+26.4	−6.0
+3.7	−9.7	+8.6	+31.8	−35.9
+2.1	−12.2	+3.9	+8.2	−25.6
+2.9	−7.1	+4.3	+12.5	−20.6
+3.4	−11.5	−3.5	−11.9	−39.1
+60.1			+557.4 −250.1	+406.7 −160.2

56.8c $+60.1 = +56.8a' + 55.7b' + 18c'$ $+307.3 = -987.2a' + 3914.2b' + 55.7c'$ $+246.5 = 2113.8a' - 987.2b' + 56.8c'$

Plate E

$x-\overline{X}$ $\quad -40.2 = -55.7a + 56.8b + 18c$ $= -2.8407 + 1.4768 - 38.70 = -40.06$

$\frac{\overline{X}}{100}$ $\quad +346.\overset{7}{\cancel{8}} = +3914.2a + 987.2b - 55.7c$ $= +199.6242 + 25.6672 + 119.755 = +345.05$

$\frac{\overline{Y}}{100}$ $\quad -16.2 = +987.2a + 2113.8b + 56.8c$ $= +50.3472 + 54.9588 - 122.120 = -16.81$

1) $-2.23 = -3.09a + 3.16b + c$

2) $+6.2\overset{2}{\cancel{3}} = +70.27a + 17.72b - c$

3) $-0.29 = +17.38a + 37.21b + c$

(1+2) $+\overset{3.99}{\cancel{4.00}} = +67.18a + 20.88b$

(2+3) $+5.9\overset{3}{\cancel{4}} = +87.65a + 54.93b$

4) $+.191\overset{092}{\cancel{571}} = +3.217433a + b$

5 $+.10\overset{7956}{\cancel{8138}} = +1.595667a + b$

(4-5) $+.083\overset{136}{\cancel{433}} = +1.621766a$

$+.051\overset{26}{\cancel{45}} = a$

4) $+.191\overset{092}{\cancel{571}} = +3.217433 \times +.051\overset{26}{\cancel{45}} + b$

$+.191\overset{092}{\cancel{571}} - .16\overset{4926}{\cancel{5537}} = +b = +.026\overset{166}{\cancel{034}}$

5) $+.10\overset{7956}{\cancel{8138}} = +1.595667 \times +.051\overset{26}{\cancel{45}} + b$

$+.10\overset{7956}{\cancel{8138}} - .08\overset{1794}{\cancel{2097}} = +b = +.026\overset{162}{\cancel{041}}$

1) $-2.23 = -3.09 \times +.051\overset{3}{\cancel{4}}\cancel{5} + 3.16 \times +.026\overset{2}{\cancel{0}} + c$

$-2.23 + .16 - .08 = +c = -2.15$

2) $+6.2\overset{2}{\cancel{3}} = +70.27 \times +.051\overset{3}{\cancel{4}} + 17.72 \times +.026\overset{2}{\cancel{0}} - c$

$-6.2\overset{2}{\cancel{3}} + 3.6\overset{05}{\cancel{2}} + .46\overset{4}{\wedge} = c = -2.151$

3) $-0.29 = +17.38 \times +.0514 + 37.21 \times +.0260 + c$

$-0.\overset{\checkmark}{2}9 - .\overset{\checkmark}{8}9 - .9\overset{\checkmark}{7} = +c = -2.15$

a	b	c
$+.051\overset{26}{\cancel{45}}$	$+.026\overset{17}{\cancel{03}}$	-2.15
	$+.026\overset{16}{\cancel{04}}$	-2.15
		-2.15

7-V $+60.1 = +56.8a' + 55.7b' + 18c'$

" $\frac{V}{100}$ $+307.3 = -987.2a' + 3914.2b' + 55.7c'$

" $\frac{V}{100}$ $+246.5 = +2113.8a' - 987.2b' + 56.8c'$

$+3.34 = +3.16a' + 3.09b' + c'$

$+5.52 = -17.72a' + 70.27b' + c'$

$+4.34 = +37.21a' - 17.38b' + c'$

(4-5) $-2.18 = +20.88a' - 67.18b'$

(5-6) $+1.18 = +54.93a' + 87.65b'$

$-.032450 = +.310807a' - b'$

$+.013463 = -.626697a' + b'$

$-.018987 = -.315890a'$

$+.060167 = +a'$ $a' = +.060167$

~~$-2.18 = +20.88 \times +.06017$~~

$-.032450 = +.310807 \times +.06017 - b'$ ~~$b =$~~

$-.032450 - .018701 = -b' = -.051151$ $b' = +.05115$

$+.013463 = -.626697 \times +.06017 + b'$ $+.05116$

$+.013463 + .037708 = +b' = +.051171$ $b' = +.05117$

$+3.34 = +3.16 \times +.06017 + 3.09 \times +.05116 + c'$

$+3.34 - .190 - .158 = c' = +2.992$ $c' = +2.992$

$+5.52 = -17.72 \times +.06017 + 70.27 \times +.05116 + c'$

$+5.52 + 1.066 - 3.595 = c' = +2.991$ $c' = +2.991$ $+2.991$

$+4.34 = +37.21 \times +.06017 - 17.38 \times +.05116 + c'$

$+4.34 - 2.239 + .889 = c' = +2.990$ $c' = +2.990$

a = +.051 x.01
b = +.026 x.01
c = −2.15

Plate E

See p 117

	Resids ~~substituting~~ O−C	ax	+by	c	Σ	Corr. Obs. x	O−C
+89° 1	−0.5″	+.27	+.62	−2.15	−1.86	+523.4	−0.5
2	−.9	+1.26	+.32		−.57	+2473.4	−0.9
3	−.5	+.37	+.22		−1.56	+72~~4.9~~8.1	−0.5
4	−1.5	+.52	+.27		−1.36	+102~~0.4~~3.2	−1.5
5	+.4	+.~~79~~80	+.35		−1.0~~7~~0	+1556.5 ✓	+0.4
6	~~+.7~~ +1.9	+1.03	+.53		−.59	+2025.3	+1.9
9	−.2	−.1~~7~~6	+.49		−1.8~~3~~2	−324.0 ✓	−0.2
12	−.2	−.52	+.34		−2.33	−1017.3	−0.2
16	+.2	−.91	+.23		−~~1.47~~2.83	−1780.3	+0.2
17	−1.0	−1.25	+.17		−3.23	−2447.4	−1.0
18	~~+2.0?~~ +1.6	−.94	+.05		−3.04	−1844.~~2~~3	+1.6
23	+.7	−1.24	−.16		−3.55	−2428.6	+0.7
25	−2.2	−.84	−.23		−3.22	−1649.6	−2.2
26	+.1	−.54	−.06		−2.75	−106~~3~~4.6	+0.1
29	+.2	−.44	−.25		−2.84	−860.8	+0.2
31	+.8	−.20	−.32		−2.67	−387.9	+0.8
35	+1.0	−.22	−.18		−2.55	−428.8	+1.0
36	+.1	+.18	−.30		−2.27	+353.1	+0.1
	−7.0 ~~+6.2~~ 7.0 14.0 ±13.2 ±.78						−7.0 +7.0 ±14.0 ±.78

v. p. 46 is +1.9 abs.

for 1st Sol E see p 66 all plates pp 78−79

(x − X) −2.3
(y − Y) +3.4
p 44

a' = +060 ×01
b' = +051 ×01
c' = +3.00

O-C	a'y	-b'x	c'	Σ	Corr. Obs. y	O-C.
-1.4"	+.05	-.27	+3.00	+2.78	+77.6	-1.4
+.8^{7}	+.74	-1.26		+2.48	+1222.9	+0.7
+1.3	+.52	-.37		+3.15	+860.0	+1.3
+.5	+.62	-.52		+3.10	+1032.1	+0.5
-1.6	+.80	-.79		+3.01	+1332.4	-1.6
-.2	+1.22	-1.03		+3.19	+2025.2	-0.2
+.2	+1.13	+.17		+4.30	+1884.6	+0.2
-1.0	+.79	+.52		+4.31	+$\overset{1}{2}$318.$\overset{7}{6}$	-1.0
-.5	+.52	+.91		+4.43	+865.0	-0.5
+1.0	+.39	+1.25		+4.64	+650.0	+1.0
+2.3	+.12	+.94		+4.06	+201.8	+2.3
-.4	-.37	+1.24		+3.87	-$\overset{170}{609.2}$	-0.4
-2.0	-.52	+.84		+3.32	-873.0	-2.0
-1.0	-.15	+.54		+3.39	-251.7	-1.0
+.8	-.58	+.44		+2.86	-973.5	+0.8
-.4	-.73	+.20		+2.47	-1220.9	-0.4
+.1	-.42	+.22		+2.80	-707.2	+0.1
+1.3	-.69	-.18		+2.13	-1147.0	+1.3
+8.3^{2}						-8.5
-8.5						+8.2
±16.87						±16.7
±.93						±.93

See p 144
Obs x + y substituted

a = +1.22
b = −.016
c = −3.26

Plate A   2^d Solution by Least Squares Residuals

Dec		Computed X/100	aX/100	bY/100	c	aX/100+bY/100+c Σ=C	x−X see p36 O	O−C	1st Sol. see pp 72−73 O−C
+89°	1	+5.2″	+.63	−.01	−3.26″	−2.65″	−3.8″	−1.2″	−1.1″
	2	+24.7	+3.01	−.19		−.44	—		
	3	+7.3	+.89	−.14		−2.51	−2.4	+.1	+.1
	4	+10.2	+1.24	−.17		−2.19	−3.2	−1.0	−.9
	5	+15.6	+1.90	−.21		−1.57	−0.9	+.7	+.7
	6	+20.2	+2.46	−.32		−1.12	−2.1	−1.0	−1.0
	9	−3.2	−.39	−.30		−3.95	−2.4	+1.6	+1.6
	12	−10.2	−1.24	−.21		−4.71	−4.4	+.3	+.3
	16	−17.8	−2.17	−.14		−5.57	−6.1	−.5	−.5
	17	−24.5	−2.99	−.10		−6.35	−7.2	−.8	−.8
	18	−18.5	−2.26	−.03		−5.55	−4.5	+1.0^{1}	+1.1
	23	−24.3	−2.96	+.10		−6.12	−6.6	−.5	−.4
	25	−16.5	−2.01	+.14		−5.13	−7.0	−1.9	−1.8
	26	−10.6	−1.29	+.04		−4.51	−4.6	−.1	−.0
	29	−8.6	−1.0$\overset{5}{4}$	+.16		−4.1$\overset{5}{4}$	−3.1	+1.0^{1}	+1.0
	31	−3.9	−.48	+.20		−3.54	−2.5	+1.0	+1.1
	35	−4.3	−.52	+.11		−3.67	−2.3	+1.4	+1.4
	36	+3.5	+.43	+.18		−2.65	−2.9	−.3	−.2
								−7.3	−6.7
								+7.13	+7.3
								±14.46	±14.0
	37	−2.6							
								±.85^{6}	±.82

$a' = +1.64$
$b' = -.012$
$e' = +.62$

Substitution of Computed Values X/100 & Y/100

Computed Y/100	a' Y/100	$-b'$ X/100	e'	$a'X/100 - b'Y/100 + e' = \Sigma = C$	$y - Y$ p36 2nd sol O	O−C	M 72-73 1st sol O−C
+0.8″	+.13	+.06	+.62	+.81	+.04	−0.4″	−.4
+12.2	+2.50	+.30		+2.92	+3.0	+0.~~2~~ 1	+.3
+8.6	+1.41	+.09		+2.12	~~+3.9~~ 4.1	+~~1.8~~ 2.0	+1.8
+10.3	+1.69	+.12		+2.43	+3.5	+1.1	+1.1
+13.3	+2.18	+.19		+2.99	+1.2	−1.8	−1.8
+20.2 20.3	+3.31	+.24		+4.17	+2.4	−1.~~7~~ 8	−1.7
+18.8	+3.08	−.04		+3.66	+4.3	+.6	+.6
+13.2	+2.16	−.12		+2.66	+2.3	−.4	−.4
+8.6 8.7	+1.41	−.21		+1.82	+2.5	+.7	+.7
+6.5	+1.07	−.29		+1.40	+2.2	+.8	+.7
+2.0	+.33	−.2~~8~~ 2		~~+.69~~ .73	~~+3.1~~ 2.6	~~+2.4~~ 1.9	+2.4
−6.2	−1.02	−.29		−.69	−2.7	−2.0	−2.1
−8.7	−1.43	−.20		−1.01	−3.1	−2.1	−2.1
−2.5	−.41	−.13		+.08	−0.8	−.9	−.9
−9.7	−1.59	−.10		−1.07	−0.6	+.5	+.5
−12.2	−2.00	−.05		−1.43	−2.0	−.6	−.6
−7.1	−1.16	−.05		−.59	−1.1	−.5	−.5
−11.5	−1.89	+.04		−1.23	+1.5	+2.7 5	+2.8
						−10.~~4~~ 5	−1.05
						+10.8	+1.09
						±21.10	±2.14
−3.4							
						±1.17	±1.19

See p150
Obs x + y substituted
Plate B

a = +.066
b = −.014
c = +.08

2d Solution

	a X/100	a Y/100	Σ−C		For O see p36 2 Sol O−C	see p64 1st Sol O−C
+89° 1	+.34	−.01	+.41		−.6	−.6
	+1.63	−.17	+1.54		−2.4	−2.5
	+.48	−.12	+.44		+.7	+.7
	+.67	−.14	+.61		−.5	−.5
	+1.03	−.19	+.92		+.3	+.3
	+1.33	−.28	+1.13		+1.9	+1.9
	−.21	−.26	−.39		.0	−.1
12	−.67	−.18	−.77	−.7	+.1	−.1 ✓
	−1.17	−.12	−1.21		+.3	+.1
	−1.62	−.09	−1.63		−1.4	−.8
18	−1.22	−.03	−1.17 ✓	+0.1	+1.~~x~~3	+1.1
	−1.60	+.09	−1.43		+.5	+.3
	−1.09	+.12	−.89		−2.4	−2.5
	−.70	+.04	−.58		−.3	−.5
	−.57	+.14	−.35		+1.0	+.9
	−.26	+.17	−.01		+1.1	+1.1
	−.28	+.10	−.10		+.3	+.2
36	+.23	+.16	+.47		+.3	+.4
					−7.6	−7.6
					+7.~~4~~8	+7.0
					4	±4.6
					$\pm.5\overset{4}{7}$	
					$\pm.8\overset{6}{4}$	±.81

a' = +.028
b' = −.007
c' = +3.89

for final values see p 151
3.88 Obs x r y substituted
adopted c'

			for O see p36		see p65	
					2d Sol.	1st Sol
a' Y/100	−b' X/100	c'	Σ = C		O − C	O − C	Star +89
+.02	+.04	+3.89	+3.93		−.7	−.7	
+.34	+.17		+4.40		−.6	−.9	
+.24	+.02		+4.15		+2.6	+2.7	
+.29	+.07		+4.25		+.3	+.2	
+.37	+.11		+4.37		−.5	−1.4	
+.56	+.14		+4.59		+.4	+.5	
+.53	−.02		+4.40		.0	0	
+.37	−.07		+4.19		−1.5	−1.4	
+.24	−.12		+4.01		−.7	−.4	
+.18	−.17		+3.90		+1.6	+1.3	
+.06	−.12		+3.83	6	+2.5	+2.5	
−.17	−.17 ✓		+3.55 ✓	+3.0	−.6 ✓	−.3	23
−.24	−.12		+3.53		−1.8	−1.9	
−.07	−.07 ✓		+3.75 ✓	+1.9	−1.9 ✓	−1.8	26
−.27	−.06		+3.56		+1.2	+1.1	
−.34	−.03		+3.52	+2.0	−1.5	−1.6	31
−.20	−.03 ✓		+3.66 ✓	+3.1	−.6	−.6	35
−.32	+.03		+3.60		+26	+2.1	
					−16.4	−11.0	
					+11.2	+10.9	
					±22.6	±21.9	
					±1.26	± 1.22	
					✓	✓	

2° Solution

a = +.012
b = −.012
c = +.83 +.84 adopted c see p156

see p156
Os x & y substituted

Plate 6

		a X/100	b Y/100	c	Σ = C	for O see p37 2° Sol	O − C	p174 1st Sol O−C
+89 1		+.06	−.01	+.83	+.88	−0.1	−1.0 ✓	−.~~1~~9
2		+.30	−.15		+.9~~7~~8	−0.5	−1.5 ✓	−1.5
3	+0.6	+.09	−.10		+.82	+0.6	−.2 ✓	−.5 ✓
4		+.12	−.12		+.83	+0.5	−.3 ✓	−.3
5		+.19	−.16		+.86	+1.1	+.2 ✓	+.3
6		+.24	−.24		+.83	+2.4	+1.6 ✓	+1.6
9		−.04	−.22		+.57	+1.1	+.5 ✓	+.5
12		−.12	−.16		+.55	+0.3	−.3 ✓	−.3
16		−.21	−.10		+.52	−0.2	−.7 ✓	−.7
17		−.29	−.08		+.46	00	−.5 ✓	−.4
18		−.26	−.02		+.59	+1.7	+1.1 ✓	+1.1
23		−.29	+.07		+.61	+1.5	+0.9 ✓	+.9
25		−.20	+.10		+.73	−1.5	−2.2 ✓	−2.2
26		−.13	+.03		+.73	+0.3	−.4 ✓	−.4
29		−.10	+.12		+.85	+1.2	+.4 ✓	+.3
31		−.05	+.15		+.93	+1.9	+1.0 ✓	+1.0
35		−.05	+.08		+.86	+2.3	+1.4 ✓	+1.5
36		+.04	+.14		+1.04	+1.0	0 ✓	0
~~36~~ 31							−7.1 +7.1 ±14.2	−7.0 +7.2 ±14.2
37		−.03	+.04				~~80~~ ±.79	80 ±.~~79~~

a′ −.00~~4~~5
b′, −.039
e′ +3.90

a′τ/100	−b′x/100	e′	Σ = C	for Comp p 37 ↓	O−C	1st Sol p 75 O−C
+.00	+.″20	+3.″90	+4.″10	+2.3	−1.8	−″1.7
−.06	+.96		+4.80	+5.2	+.4	+.5
−.04	+.28		+4.14	+5.6	+1.5	+1.5
−.05	+.40		+4.25	+4.9	+0.7	+.8
−.07	+.61		+4.44	+3.1	−1.3	−1.4
−.10	+.79		+4.59	+4.8	+.2	+.1
−.09	−.12		+3.69	+3.3	−.4	−.6
−.07	−.40		+3.43	+2.7	−.7	−.8
−.04	−.69		+3.17	+2.0	−1.2	−1.1
−.03	−.96		+2.91	+4.7	+1.8	+1.7
−.01	−.72		+3.17	+6.0	+2.8	+2.8
+.03	−.95		+2.98	+2.6	−.4	−.5
+.04	−.64		+3.30	+1.1	−2.2	−2.2
+.01	−.41		+3.50	+2.2	−1.3	−1.3
+.05	−.34		+3.61	+4.7	+1.1	+.9
+.06	+.15		+3.81	+2.3	−1.5	−1.5
+.04	−.17		+3.77	+3.5	−0.3	−.2
+.06	+.14		+4.10	+6.9	+2.8	+2.3
					−11.1	−11.3
					+11.3	+10.6
					±22.4	±21.9
					±1.24	±1.22

See p162 as x + y substituted

Plate D no 2d Solution; for 1st Solution see pp58–59

1st Sol + final with X/100 + Y/100 substituted

+891

O–C p58

−.5
−.7
−.8
−1.5
+.3
+1.7
−.2
−.1
+.7
−.6
+1.0
−.1
−1.9
+.6
+.5
+1.1
+1.2
−.3

−6.7
+7.1

±13.8

±.77

Reductions of 1st Sol to tenths only

1st Ser.
0–6 p59
−1.1
+.5
+1.8
+.8
−1.6
−.5
+.4
−1.0
−.6
+1.2
+2.2
−.5
−1.6
−1.6
+.8
−.6
+.1
+1.6
−9.1
+9.4
±18.5
± 1.03

see p168
Os x + y substituted

a +.051
b +.026
c −2.15

Plate E 2' Solution

for O see p37

see p.166
ASoc

	aX/100	bY/100	c	Σ = C	O-C	O-C
+89 1	+0.26	+.02	−2″.15	−1.87	−.5	−.5
	+1.26	+.32		−.57	−.9	−.9
	+.37	+.22		−1.56	−.5	−.4
	+.52	+.27		−1.36	−1.5	−1.7
	+.80	+.35		−1.00	+.4	+.5
	+1.03	+.52		−.60 +1.3	+1.9	+1.9
	−.16	+.49		−1.82	−.2	−.1
	−.52	+.34		−2.33	−.2	−.1
	−.91	+.22		−2.84	+.2	+.3
	−1.25	+.17		−3.23	−1.0	−1.0
	−.94	+.05		−3.04	+1.6	+1.7
	−1.24	−.16		−3.55	+.7	+.6
	−.84	−.23		−3.22	−2.2	−2.2
	−.59	−.06		−2.80	+.1	+.2
	−.44	−.25		−2.84	+.2	+.3
	−.20	−.32		−2.67	+.8	+.8
	−.22	−.18		−2.55	+1.0	+1.0
36	+.18	−.30		−2.27	+.1	0
					−7.0	−6.9
					+7.0	+7.3
					±14.0	±14.2
					±.78	±.79

$a' = +.060$
$b' = +.051$
$c' = +3.00$

$a'y/100$	$-b'x/100$	c'	$\Sigma = b$	O−C	sup 67 1st Sol O−C
+.05	−.26	+3.00	+2.79	−1.4	−1.5
+.73	−1.26		+2.47	+.7	+.5
+.52	−.37		+3.15	+1.3	+1.5
+.62	−.52		+3.10	+.5	+.5
+.80	−.80		+3.00	−1.6	−1.7
+1.21	−1.03		+3.18	−.2	−.3
+1.13	+.16		+4.29	+.2	+.3
+.79	+.52		+4.31	−1.0	−1.0
+.52	+.91		+4.43	−.5	−.5
+.39	+1.25		+4.64	+1.0	+1.0
+.12	+.94		+4.06	+2.3	+2.4
−.37	+1.24		+3.87	−.4	−.7
−.52	+.84		+3.32	−2.0	−2.1
−.15	+.54		+3.39	−1.0	−1.1
−.58	+.44		+2.86	+.8	+.6
−.73	+.20		+2.47	−.4	+.2
−.43	+.22		+2.79	+.1	.0
−.69	−.18		+2.13	+1.3	+1.1
				−8.5	−8.9
				+8.2	+8.1
				±16.7	±17.0
				±.93	±.94

Σ of changes made in data by including remeasures.

2° Solutions of Equations for a b c re Remeasures included
Plate A Star #84 2 omitted, no scale in x ∴ 17 stars used in x + 18 in y

Plate A

-65.9 - 0.1 ✓ -66.0" = ✓

+653.6 +1.8 ✓ +655.4 = ✓ see p 70

-92.7 -.2 ✓ -92.9 = ✓

2°Sd - 1°Sd

c =

-3.88 = -4.7a +2.6b +c   -.57 -.04 -.61 -3.27

+8.15 = +41.1 +8.5 -c   +5.02 -.13 +4.89 -3.26

-2.08 = +15.4 +44.1 +c   +1.88 -.70 +1.18 -3.26

-3.26

+4.27 = +36.4 a +11.1b

+6.07 = +56.5 +52.6c

+.11731 = +.30494b ✓   -.00481   a = +.12212

+.10743 = +.93116b   -.01469   +.12212

+.00988 = -.62622b

b = -.01578

For stars changed by Remeas. see pp 36-37 all plates.

18 stars used in x + y

Plate B

-2.4 -.6 ✓ -"3.0 = ✓

+214.8 +24.6 ✓ +239.4 = ✓ see p62

+41.7 -2.8 ✓ +38.9 = ✓

c =

-.17 =   -.20 ✓ -.04   +.07"

+4.30 =   +4.63 ✓ -.25   +.08

+.69 =   +1.14 ✓ -.53   +.08

+4.13 =

+4.99 =

a =

+.016128 =   -.00430   +.06568

+.05677 =   -.00891   +.06568

+.00451 =

b = -.01427

pp 180–183 used Star 6 Y = +20.2″ + Star 16 Y = +8.6″ also in 1st S.Ls pp 52–79
" 142–179 " " " " +20.3 " " " " +8.7

A

+20.1 − .4 → +19.7″ = ✓

−165.2 − 8.2 → 173.4 ✓ = see p 53 + p 71

+391.8 + .4 → +391.4 = ✓

									c′ =
+1.09	=	+3.1 a′	+3.1 b′	+c′	+.51	−.04	+.47+c′		+.62
−3.11	=	−17.7 ✓	+70.5	+c′	−2.90	−.83	−3.73+c′		+.62
+6.92	=	+37.2	−17.4	+c′	+6.10	+.20	+6.30+c′		+.62

2−1 −4.20 = −20.8 +67.4

2−3 −10.03 = −54.9 +87.9

				a′ =
−.20192	=	+a′ + 3.2404 b′	+.03799	+.16393
−.18270	=	+a′ + 1.6011 b′	+.01877	+.16393

−.01922 =

b′ = −.01172

B

+70.5 + .6 → +71.1″ = ✓

+166.1 − 4.9 → +161.2 = ✓ see p 63

+279.8 + 6.3 → +286.1 =

			c′ =
+3.95 = ✓	+.08	−.02	+3.89
+2.89 =	−.49	−.51	+3.89
+5.05 = ✓	+1.03	+.12	+3.90
			+3.89

−1.06 =

−2.16 =

			a′
−.05096 =	−a′ −.02333	=	+.02763
−.03916 =	−a′ −.01153		+.02763

−.01180

b′ = −.00720

Plate C +13.6″ = √
+13.2 +.4 √

−11.5 +.5 √ −11.0 = √ see p 76 + p 52 right hand eq.

+31.4 +2.6 √ +34.0 = √

e =

+.76 = √ −.04 √ −.04 + c −.08 +.84 √

−.20 = √ +.84 √ −.21 − c +.63 √ +.83

+.60 = +.21 √ −.44 + c −.23 √ +.83

+.56 = √ +.83

+.40 = √

a =

+.00831 = √ −.00367 +.01198 √

+.00455 = √ −.00743 +.01198 √

+.00376

b = −.01190 √

Plate D see pp 56−57 no remeasures made Pl. D.

Plate E

−40.3 +.1 √ −40.2 = √

+345.6 +1.1 +346.7 = √ see p 52

−16.8 +.7 − 16.1 = √

e =

−2.23 = √ −.16 √ +.08 √ −.08 + c √ −2.15

+6.22 = √ +3.60 +.47 +4.07 − c √ −2.15

−.28 = √ +.89 +.99 +1.88 + c −2.16

−2.15 √

+3.99 = √

+5.94 = √

a =

+.05920 = √ +.00818 √ +.05102 √

+.06758 = √ +.01656 √ +.05102 √

−.00838 = √

b = +.02652 √

+67.7+.2 ✓ +67.9 = ✓

+62.3+5.8 ✓ +68.1 = ✓ sec p77 + p53 Right hand eq. ✓

+264.3−13.9 ✓ +250.4 = ✓

c′ =

+3.77 −.01 −.12 ✓ −.13+c′ ✓ +3.90 ✓

+1.22 ✓ +.08 ✓ −2.76 −2.68+c′ ✓ +3.90 ✓

+4.42 ✓ .17 ✓ +.68 ✓ +.51+c′ +3.91 ✓

+3.90

2−1 −2.55 ✓

2−3 −3.20 ✓

a′ =

−.12260 ✓ −a′−.12712 ✓ −.00452 ✓

−.05829 ✓ −a′−.06281 ✓ −.00452

−.06431 = ✓

b′ = −.03923 ✓

+60.8−.7 ✓ +60.1 = ✓

+299.5+7.8 ✓ +307.3 = ✓ sec p53

+242.8+3.0 ✓ +245.8 = ✓

c′ =

+3.34 ✓ +.18 +.16 +.34+c′ +3.00

+5.52 ✓ −1.06 +3.58 +2.52+c′ +3.00

+4.34 ✓ +2.23 ✓ −.88 ✓ +1.35+c′ +2.99

+3.00 ✓

2−1 +2.18

2−3 +1.18

a′ =

+.10481 ✓ −a′+.16471 +.05990

+.02149 −a′+.08138 +.05989 ✓

+.08332

b′ = +.05083

Adopted Constants 2d Solution by Least Squares pp184-5

Values of a b c a' b' c' = Scale, orient &c

and Adopted Values

for p184 N-Pole Book

Σ's of corrections for Scale orientation &c to be subtracted from measured values x + y

2 Solutions by Least Sqs

Results from p 89

		A.W's	Miss Woods	Mean	adopt	
A	a	+.12212	+.12245	+.12228	+.122 ×.01	for 2500". will not vary .01 if full value used
	b	−.01578	−.01647	−.01612	−.016 ×.01	same note
	c	−3.26	−3.26	−3.26		
B	a =	+.06568	+.06595	+.06582	+.066×.01	will not vary
	b =	−.01427	−.01439	−.01433	−.014×.01	will vary .01 to
	c =	+.08	+.08	+.08		
C	a =	+.01198	+.01205	+.01202	+.012 ×.01	will not vary
	b =	−.01190	−.01195	−.01192	−.012 "	for 2800" will vary .01 if full value used
	c =	+83	+84	+.84		

1st Solution no 2d made

D	a =	+.06757	+.06777	+.06768	+.068×.01	will not vary to
	b =	+.03006	+.03004	+.03005	+.030×.01	" not "
	c =	−2.27	−2.27	−2.27		
E	a =	+.05102	+.05126	+.05114	+.051×.01	for 2800. will vary .01 if full value used
	b =	+.02652	+.02616	+.02634	+.026×.01	will not vary
	c =	−2.15	−2.15	−2.15		

Note July 27 Adopt. 3 decimals places for constants a b a' b' not 3 significant figures.

2 Sols. by Least Sq.
Results in X

	A.W.'s	Miss Words	Mean		
A a' =	+16393	+.16362	+.16378	+.164 × .01	will not vary
b' =	-.01172	-.01166	-.01169	-.012 × .01	" not "
c' =	+.62	+.61	+.62		
B a' =	+.02763	+.02806	$+.02\overset{7}{8}84$	$+.02\overset{8}{\cancel{9}}\times.01$	will not vary ✓
b' =	-.00720	-.00706	-.00713	-.007 × .01	" not "
c' =	+3.89	+3.88	+3.88		
C a' =	-.00452	-.00459	-.00456	5 adopt. $-.00\cancel{46}\times.01$	
b' =	-.03923	-.03939	-.03931	-.039 × .01	for 25cv. will vary .01 of full value used
c' =	+3.90	+3.91	+3.90		
D a' =	+.05032	+.05017	+.05024	+.050 × .01	will not vary
b' =	+.05383	+.05415	+.05399	+.054 × .01	" not "
c' =	+3.00	+3.00	+3.00		
E a' =	+.05990	+.06017	+.06004	+.060 × .01	
b' =	+.05083	-.05116	+.05100	+.051 × .01	
c' =	+3.00	+2.99	+3.00		

Plate A = I Lettered Stars = Comparison Stars for Magnitude

	Mean x (no. meas)	a x	b y	c	Σ	Corr x = C	Ref.
a	−269.2 (3)	−0.33	+0.05	−3.26	−3.54	−265.7	
b	−289.6 (4)	−0.35	+.04		−3.57	−286.0	
c	−405.2 (4) +	−.49	+.02		−3.73	−401.5	+ Resids x 1.5 17 5 28, y. 3 1 1 1 retain as approved Nov. 15 1900. see p84
d	−588.4 (3)	−.72	+.01		−3.97	−584.4	2 meas (May 6) rejected (see p84) in x + y
e	−548.5 (3)	−.67	−.02		−3.95	−544.5	4th " (June 13) " " " "
f	−412.2 (4)	−.50	−.02		−3.78	−408.4	
g	not seen						
h	+131.6 (3)	+.16	+.04		−3.06	+134.7	
k	+8.6 (3)	+.01	+.01		−3.24	+11.8	1st " (May 2 '97) " " " "
l	−89.4 (4)	−.11	−.00		−3.37	−86.0	

Star with suspected proper motion, found by Miss Wells, near Dm +89 5

+89 5a	+1480.9 (3)	+1.81	−0.22	−3.26	−1.67	+1482.6

Dm Stars not adopted as Standards, in general Single Obs

+89	Mean x	a x	b y	c	Σ	Corr x	Ref.	C = X C.p6	C−C
7	not on plate								
19	−2480.4 (1)	−3.03	−.05	−3.26	−6.34	−2474.1	p82		
21	on extreme edge								
24	−2393.9 (1)	−2.92	+.25		−5.93	−2388.0	"		
28	−1297.4 (1)	−1.58	+.40		−4.44	−1293.0	"	−1291.8	−1.2
32	+289.5 (1)	+.35	+.41		−2.50	+292.0	"		
33	−24.5 (1)	−.03	+.28		−3.01	−21.5	"		
34	+418.9 (1)	+.51	+.37		−2.38	+421.3	"		
38	+2603.5 (1)	+3.18	+.09		+.01	+2603.5	"		

Triple Star

37	−265.3 (3)	−.32	+.05		−3.53	−261.8		−262.4	+0.6

Mean y	a'y	−b'x	c'	Σ	corr y				Estimates reduced uncorr. for scale &c x	 y
−328.1 (3)	−0.54	−0.03	+0.62	+0.05	−328.1				−269.3	−323.5
−280.4 (4)	−.46	−.03		+.13	−280.5				−290.3	−276.1
−112.0 (4)	−.18	−.05		+.39	−112.4				−406.1	−113.1
−64.2 (3)	−.11	−.07		+.44	−64.6				−590.2	−65.7
+117.7 (3)	+.19	−.07		+.74	+117.0	"Very faint"			−548.1	+118.4
+121.0 (4)	+.20	−.05		+.77	+120.2	"Very faint"			−418.3	+118.4
[illegible]	[illegible]	[illegible]		[illegible]	[illegible]			Pl.B=	−253.5	+50.0
−266.2 (3)	−.44	+.02		+.20	−266.4				+130.5	−265.6
−85.7 (3)	−.14	+.00		+.48	−86.2				+90.5	−86.8
+3.4 (4)	+.01	−.01		+.62	+2.8				−90.5	+2.7
+1364.7 (3)	+2.24	+.18	+0.62	+3.04	+1361.7				+1482.3	+1365.0
									see MSS Table I for Est. also p30 orig. meas. + Minds Bks 5 + 7	
						V vp6	O-C			
								PlB=	+1319.2	+2495.9
+335.3 (1)	+.55	−.30	+0.62	+.87	+334.4			" =	+2478.5	+339.3
						−2737.6		" =	−2736.2	−507.6
−1564.4 (1)	−2.57	−.29		−2.24	−1562.2			" =	−2394.3	−1564.8
−2473.6 (1)	−4.06	−.16		−3.60	−2470.0	−2471.0	+1.0	Σ=	−1295.0	−2469.5
−2569.8 (1)	−4.21	+.03		−3.56	−2566.2			Σ=	+288.3	−2564.2
−1746.7 (1)	−2.86	−.00		−2.24	−1744.5			B=	−16.8	−1738.4
−2339.3 (1)	−3.84	+.05		−3.17	−2336.1			6	+425.0	−2332.8
−565.0 (1)	−.93	+.31		.00	−565.0			6	+2607.9	−565.4
−340.1 (3)	−.56	−.03		+.03	−340.1	−340.5	+0.4		−258.8	−334.0

see p8 + p211 for Est. of Cat. #s

Plate B = II Lettered Stars

	Mean x	ax	by	c	Σ	Corr x	Ref.	O-C	
	"	"	"	"	"	"			
a	−265.6 (3)	−0.18	+0.05	+0.08	−0.05	−265.6			
b	−285.8 (3)	−.19	+.04	+.08	−.07	−285.7			
c	−402.6 (3)	−.27	+.02	+.08	−.17	−402.4			
d	−584.3 (3)	−.39	+.01	+.08	−.30	−584.0			
e	−542.5 (3)	−.36	−.02		−.30	−542.2			
f	−402.1 (3)	−.27	−.02		−.21	−401.9			has proper motion (Nov. 15 1900)
g	−257.5 (3)	−.17	−.01		−.10	−257.4			
h	+135.0 (3)	+.09	+.04		+.21	+134.8			
k	+11.4 (3)	+.01	+.01		+.10	+11.3			
l	−87.2 (3)	−.06	.00		+.02	−87.2			
5a	+1482.8 (4)	+0.98	−0.19	+0.08	+.87	+1481.9			
7	+1316.9 (1)	+.87	−.35	+0.08	+.60	+1316.3	p10		
19	−2476.0 (1)	−1.63	−.05		−1.60	−2474.4	"		
21	−2737.3 (1)	−1.81	+.07		−1.66	−2735.6	"		
24	−2389.4 (1)	−1.58	+.22		−1.28	−2388.1	"		
28	not on plate								
32	not on plate								
33	−20.6 (2)	−.01	+.24		+.31	−20.9	"		
34	Too near edge						"		
38	+2609.4 (1)	+1.72	+.08		+1.88	+2607.5	"		Pr. mot. in x about .4 ?
37	−261.9 (3)	−.17	+.05		−.04	−261.9		+0.5	

Mean y	a′y	−b′x	c′	Σ	Corr y	
−324.6 (3)	+0.09	−0.02	+3.88	+3.77	−328.4	
−278.1 (3)	−.08	−.02		+3.78	−281.9	
−109.5 (3)	−.03	−.03		+3.82	−113.3	
−61.6 (3)	−.02	−.04		+3.82	−65.4	
+120.9 (3)	+.03	−.04		+3.87	+117.0	
+128.2 (3)	+.04	−.03		+3.89	+124.3	
+54.1 (3)	+.02	−.02		+3.88	+50.2	
−263.1 (3)	−.07	+.01		+3.82	−266.9	
−82.0 (3)	−.02	+.00		+3.86	−85.9	
+5.1 (3)	+.00	−.01		+3.87	+1.2	
+1368.3 (4)	+.38	+.10	+3.88	+4.36	+1363.9	
						0.6
+2498.7 (1)	+.70	+.09	+3.88	+4.67	+2494.0	
+337.4 (1)	+.09	−.17		+3.80	+333.6	
−503.6 (1)	−.14	−.19		+3.55	−507.2	
−1559.7 (1)	−.44	−.17		+3.27	−1563.0	
−1736.4 (1)	−.49	.00		+3.39	−1739.8	
~~−562.6 (2)~~	~~−.16~~	~~+.18~~		~~+3.90~~	~~−566.5~~	
−562.6 (2)	−.16	+.18		+3.90	−566.5	
−336.4 (3)	−.09	−.02		+3.77	−340.2	+0.3

Plate C = III Lettered Stars

	Mean x	ax	by	c	Σ	Corr x	Ref.	0-6
a	−265″.2 (3)	−0″.03	+0″.04	+0″.84	+0″.85	−266″.0		
b	−285.3 (3)	−.03	+.03		+.84	−286.1		
c	−402.9 (3)	−.05	+.01		+.80	−403.7		
d	−583.2 (3)	−.07	+.01		+.78	−584.0	7 p4 Est. x recorded $40^{mm}.1$ should be $39^{mm}.1$ 2^{d} meas	
e	−543.1 (3)	−.07	−.01		+.76	−543.9		
f	−402.4 (3)	−.05	−.02		+.77	−403.2		
g	−257.3 (3)	−.03	−.01		+.80	−258.1		
h	+135.5 (3)	+.02	+.03		+.89	+134.6		
k	+11.8 (3)	.00	+.01		+.85	+11.0		
l	−87.1 (3)	−.01	−.00		+.83	−87.9		
5a	+1482.5 (3)	+.18	−.16	+.84	+.86	+1481.6		
7	"not in plate"							
19	−2474.7 (1)	−0.30	−.04	+0.84	+.50	−2475.2	p12	
21	−2733.5 (1)	−.33	+.06		+.57	−2734.1	"	
24	−2385.4 (1)	−.29	+.19		+.74	−2386.1	"	
28	"not in plate"							
32	"not in plate"							
33	−~~20.4~~ 19.8 (~~1~~ 2)	−.00	+.21		+1.05	−2~~1.4~~ 0.8	"	
34	+424.6 (2)	+.05	+.28		+1.17	+423.4	"	
38	+2607.8 (1)	+.31	+.07		+1.22	+2606.6	"	
37	−261.0 (4)	−.03	+.04		+.85	−261.8		+0.6

Mean y	a′y	−b′x	c′	Σ	Corr y	O−C
−323.9″ (3)	+0.″02	−0.″10	+3.″90	+3.″82	−327.″7	
−279.0 (3)	+.01	−0.11		+3.80	−282.8	
−109.8 (3)	+.01	−.16		+3.75	−113.6	
−61.6 (3)	+.00	−.23		+3.67	−65.3	
+120.8 (3)	−.01	−.21		+3.68	+117.1	
+127.9 (3)	−.01	−.16		+3.73	+124.2	
+54.6 (3)	−.00	−.10		+3.80	+50.8	
−263.1 (3)	+.01	+.05		+3.96	−267.1	
−82.5 (3)	.00	.00		+3.90	−86.4	
+4.3 (3)	−.00	−.03		+3.87	+0.4	
+1368.0 (3)	−.07	+.58	+3.90	+4.41	+1363.6	
+338.0 (1)	−.02	−.97	+3.90	+2.91	+335.1	
−505.5 (2)	+.03	−1.07		+2.86	−508.4	
−1560.3 (1)	+.08	−.93		+3.05	−1563.3	
−1740.~~4~~3 (~~1~~2)	+.09 ✓	−.01 ✓		+3.98	−1744.~~4~~3	
−2333.4 (2)	+.12	+.17		+4.19	−2337.6	
−561.9 (1)	+.03	+.02		+4.95	−566.9	
−336.4 (4)	+.02	−.10		+3.82	−340.2	+0.3

Plate D-IV Lettered Stars

	Mean x	ax	by	c	Σ	Corr x	Ref.		O–C
a	−268.5 (3)	−0.18	−0.10	−2.27	−2.55	−265.9			
b	−289.3 (3)	−.20	−.08		−2.55	−286.7			
c	−404.5 (3)	−.28	−.03		−2.58	−401.9			
d	−586.2 (3)	−.40	−.02		−2.69	−583.5			
e	−545.6 (3)	−.37	+.04		−2.60	−543.0			
f	−405.0 (3)	−.28	+.04		−2.51	−402.5			
g	−260.2 (3)	−.18	+.02		−2.43	−257.8			
h	+131.7 (3)	+.09	−.08		−2.26	+134.0			
k	+ 9.5 (3)	+.01	−.02		−2.28	+ 11.8			
l	−90.2 (3)	−.06	+.00		−2.33	−87.9			
5a	+1481.3 (3)	+1.01	+.41	−2.27	−.85	+1482.1			
7	not on plate								
19	−24~~52.2~~ 78.5 (1)	−1.6~~7~~ 9	+.1~~1~~ 0		−~~4.05~~ 3.8~~3~~ 6	−24~~48.4~~ 74.6	mean d's Bk21 p82		
dbl 21 b	~~−2731.4 (1)~~	~~−1.86~~	~~−.15~~		~~−4.28~~	~~−2727.1~~	p82 this Reject		
21a 1st	~~−2747.7 (1)~~	~~−1.87~~	~~−.15~~		~~−4.29~~	~~−2743.4~~	Bk21 p82 Reject		
a 2d	−2737.5 (1)	−1.86	−.15		−4.28	−2733.2	"		
b 2	−2731.4 (1)	−1.86	−.15		−4.28	−2727.1			
24	−2391.1 (1)	−1.63	−.47		−4.37	−2386.7			
28	−1296.8 (1)	−.88	−.74		−3.89	−1292.9			
32	+291.1 (1)	+.20	−.77		−2.84	+293.9			
33	−22.9 (1)	−.02	−.52		−2.81	−20.1			
34	+420.5 (1)	+.~~03~~ 29	−.70		−2.~~44~~ 68	+423.~~4~~ 2			
38	+2607.1 (1)	+1.77	−.17		−.67	+2607.8			
37	−265.3 (3)	−.18	−.10		−2.55	−262.7			−0.3

chked by independent comp. p 82 BK21 Feb 17 1901

Mean y	a'y	-b'x	c'	Σ	Corr y
−324.7 (3)	−0.16	+0.14	+3.00	+2.98	−327.7
−279.1 (3)	−.14	+.16		+3.02	−282.1
−109.8 (3)	−.05	+.22		+3.17	−113.0
−61.6 (3)	−.03	+.32		+3.29	−64.9
+120.9 (3)	+.06	+.29		+3.35	+117.5
+127.8 (3)	+.06	+.22		+3.28	+124.5
+54.4 (3)	+.03	+.14		+3.17	+51.2
−263.6 (3)	−.13	−.07		+2.80	−266.4
−82.7 (3)	−.04	−.01		+2.95	−85.7
+4.4 (3)	+.00	+.05		+3.05	+1.4
+1367.0 (3)	+.68	−.80	+3.00	+2.88	+1364.1

	Mean y	a'y	-b'x	c'	Σ	Corr y		O-C
pp83	+3~~65.4~~ 39.1 (1)	+.18 7	+1.32 4		+4.50 1	+360.9 3.4.6		
	~~−506.3~~ 498.3 (1)	~~−.25~~	~~+1.47~~		~~+4.22~~	~~−510.5~~ ~~502.5~~	~~To be remeas see p 21~~	star mean Σ1717
	~~−506.3 (1)~~	~~−.25~~	~~+1.48~~		~~+4.23~~	~~−510.5~~	~~error of 1.0 in mean x p82~~	= Σ1717
	−506.3 (1)	−.25	+1.47 8		+4.22 3	−510.5		
	−500.6 (1)	−.25	+1.47		+4.22	−504.8		
	−1558.3 (1)	−.78	+1.29		+3.51	−1561.8		
	−2468.7 (1)	−1.23	+.70		+2.47	−2471.2		
	−2565.8 (1)	−1.28	−.16		+1.56	−2567.4		
	−1742.5 (1)	−.87	+.01		+2.14	−1744.6		
	−2335.3 (1)	−1.17	−.23		+1.60	−2336.9		
	−565.0 (1)	−.28	−1.41		+1.31	−566.3		
	−336.8 (3)	−.17	+.14		+2.97	−339.8		+0.7

Plate Σ = V Lettered Stars

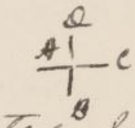
	Mean x		ax	by	c	Σ	Corr x	Ref.	a.b
a	−268.~~7~~8	(~~3~~4)	−0.14 ✓	−0.08 ✓	−2.15	−2.37	−266.~~3~~4		
b	−289.0	(3)	−.15	−.07		−2.37	−286.6		
c	−404.1	(3)	−.21	−.03		−2.39	−401.7		
d	−586.2	(3)	−.30	−.02		−2.47	−583.7		
e	−545.6	(3)	−.28	+.03		−2.40	−543.2		
f	−405.0	(3)	−.21	+.03		−2.33	−402.7		
g	−260.5	(3)	−.13	+.01		−2.27	−258.2		
h	+131.6	(3)	+.07	−.07		−2.15	+133.8		
k	+9.5	(3)	+.00	−.02		−2.17	+11.7		
l	−90.0	(3)	−.05	+.00		−2.20	−87.8		
5a	+1481.3	(3)	+.76	+.36	−2.15	−1.03	+1482.3		
7 not on plate									
19	−2478.6	(2)	−1.26	+.09		−3.32	−2475.3	pp. 82 + 16	
21	−2737.7	(1)	−1.40	−.13		−3.68	−2734.0	" "	
24	−2390.1	(2)	−1.22	−.41		−3.78	−2386.3	" "	
28	−1296.3	(2)	−.66	−.64		−3.45	−1292.9	" "	
32	+289.9	(1)	+.15	−.67		−2.67	+292.6	" "	
33	−23.~~3~~2	(~~2~~3)	−.01	−.45 ✓		−2.61	−20.~~7~~6 ✓	" "	
34	+419.4	(2)	+.21	−.61		−2.55	+422.0	" "	
38	+2606.0	(2)	+1.33	−.15		−.97	+2607.0	" "	
37	−265.2	(4)	−.14	−.09		−2.38	−262.8	p16 + Bk5 122 124 & p96	−0.4
p16..	−269.0	(1)	−.14	−.08		−2.37	−266.6		

May 1901 a fourth meas. p16 found to be this star = also component 37

= Star a above = component of 37
= No 229

Ledger N. Pole Catalogue and
Lettered Stars.
Measured Coordinates corrected
for scale orientation &c.

Table I of MSS contains the uncorrected values.

1. Design of Star
2. No. of Plate
3. Measures on the 4 scales A B C D 

4. Measures reduced to arc, uncorrected for scale &c for Catalogue and Lettered Stars.

Table VI of MSS contains the same for the faint (580) stars with the additional columns 1. Mean x + mean y of the 2 plates III + V corrected for scale orient. &c 2. residuals x and y see pp 90–136 for corr vals from 2 pls.

✓ compared with Table VI
" " pp 196–201 N.P. Book

Means of the measured values of x and y, corrected for scale orientation &c = chk on col 7 of Table V p197

Star DM		+89° 1				+89° 2				+89° 3				+89° 4				+89° 5				+89° 6				+89° 9			
		x		y		x		y		x		y		x		y		x		y		x		y		x		y	
Pl. I	f. 144	+522″.7	-.4	+78″.6	+.7	—		+1222.3	-.1	+728″.7	+.3	+860″.7	+.2	+1023″.7	.0	+1032″.7	+.4	+1556″.8	+.3	+1332″.2	-.3	+2022″.4	-2.2	+2023″.6	+1.4	-322″.2	+1.3	+1885″.0	+.4
II	150	+523.3	+.2	+78.3	+.4	+2471″.9	-1.0	+1221″.6	-0.8	+729.3	+.9	+861.3	+.8	+1024.2	+.5	+1031.9	-.4	+1556.4	-.1	+1332.5	.0	+2025.3	+.7	+2025.8	+.8	-323.8	-.3	+1884.4	-.2
III	156	+522.9	-.2	+77.2	-.7	+2472.8	-.1	+1222.6	+.2	+728.4	.0	+860.2	-.3	+1024.4	+.7	+1032.3	.0	+1556.3	-.2	+1332.7	+.2	+2025.0	+.4	+2025.6	+.6	-323.3	+.2	+1884.0	-.6
IV	162	+523.4	+.3	+77.8	-.1	+2473.6	+.7	+1222.7	+.3	+727.7	-.7	+860.5	.0	+1023.2	-.5	+1032.3	.0	+1556.4	-.1	+1332.5	0	+2025.1	+.5	+2024.9	-.1	-324.0	-.5	+1884.8	+.2
V	168	+523.4	+.3	+77.6	-.3	+2473.4	+.5	+1222.9	+.5	+728.1	-.3	+860.0	-.5	+1023.2	-.5	+1032.1	-.2	+1556.5	.0	+1332.4	-.1	+2025.3	+.7	+2025.2	+.2	-324.0	-.5	+1884.6	.0
		+523.1	+.8 -.6	+77.9	+1.1 -1.1	+2472.9	+1.2 -1.1	+1222.4	+1.0 -.8	+728.4	+1.2 -1.0	+860.5	+1.0 -.8	+1023.7	+1.2 -1.0	+1032.3	+.4 -.6	+1556.5	+.3 -.4	+1332.5	+.2 -.4	+2024.6	+2.3 -2.2	+2025.0	+1.6 -1.5	-323.5	+1.5 -1.3	+1884.6	+.6 -.8

Star DM		+89° 12				+89° 16				+89° 17				+89° 18				+89° 23				+89° 25				+89° 26			
		x		y		x		y																					
Pl. I	144	-1016.8	+.3	+1319.3	+.5	-1781.0	-.5	+866.2	+1.2	-2447.2	+.1	+649.8	-0.5	-1844.8	-.1	+201.4	-.4	-2429.8	-.8	-618.6	-1.2	-1649.3	+.2	-873.1	-.2	-1064.8	-.1	-251.6	+.4
II	150	-1017.0	+.1	+1318.2	-.6	-1780.2	+.3	+864.8	-0.2	-2447.8	-.5	+650.5	+.2	-1844.6	+.1	+202.0	+.2	-2428.8	+.2	-617.1	+.3	-1649.8	-.3	-872.8	+.1	-1065.0	-.3	-252.5	-.5
III	156	-1017.4	-.3	+1319.0	+.2	-1781.2	-.7	+864.3	-.7	-2446.9	+.4	+650.8	+.5	-1844.8	-.1	+202.3	+.5	-2428.4	+.6	-617.0	+.4	-1649.6	-.1	-873.2	-.3	-1065.1	-.4	-252.0	0
IV	162	-1017.2	-.1	+1318.7	-.1	-1779.9	+.6	+864.9	-.1	-2447.1	+.2	+650.2	-.1	-1844.8	-.1	+201.7	-.1	-2429.4	+.4	-617.1	+.3	-1649.4	+.1	-872.6	+.3	-1064.1	+.6	-252.3	-.3
V	168	-1017.3	-.2	+1318.7	-.1	-1780.3	+.2	+865.0	0	-2447.4	-.1	+650.0	-.3	-1844.3	+.4	+201.8	0	-2428.6	-.4	-617.0	+.4	-1649.6	-.1	-873.0	-.1	-1064.6	+.1	-251.7	+.3
		-1017.1	+.4 -.6	+1318.8	+.7 -.8	-1780.5	+1.1 -1.2	+865.0	+1.2 -1.0	-2447.3	+.7 -.6	+650.3	+.7 -.9	-1844.7	+.5 -.3	+201.8	+.7 -.5	-2429.0	+1.2 -1.2	-617.4	+1.4 -1.2	-1649.5	+.3 -.5	-872.9	+.4 -.6	-1064.7	+.7 -.8	-252.0	+.7 -.8

		+89° 29				+89° 31				+89° 35				+89° 36				5, a p186				a				b			
Pl. I	144	-859.9	+.5	-973.8	-.4	-387.7	0	-1221.1	+.3	-428.4	+.3	-707.8	-.3	+352.7	-.3	-1145.6	+.5	+1482.6	+.5	+1361.7	-1.7	-265.7	+.2	-328.1	-.2	-286.0	+.2	-280.5	+1.3
II	150	-860.0	+.4	-973.1	+.3	-387.6	+.1	-1222.0	-.6	-429.5	-.8	-707.8	-.3	+353.3	+.3	-1145.7	+.4	+1481.9	-.2	+1363.9	+.5	-265.6	+.3	-328.4	-.5	-285.7	+.5	-281.9	-.1
III	156	-860.7	-.3	-973.2	+.2	-387.7	.0	-1222.0	-.6	-428.4	+.3	-707.6	-.1	+353.0	.0	-1145.5	+.6	+1481.6	-.5	+1363.6	+.2	-266.0	-.1	-327.7	+.2	-286.1	+.1	-282.8	-1.0
IV	162	-860.5	-.1	-973.6	-.2	-387.7	.0	-1221.1	+.3	-428.6	+.1	-707.3	+.2	+352.7	-.3	-1146.7	-.6	+1482.1	0	+1364.1	+.7	-265.9	.0	-327.7	+.2	-286.7	-.5	-282.1	-.3
V	168	-860.8	-.4	-973.5	-.1	-387.9	-.2	-1220.9	+.5	-428.8	-.1	-707.2	+.3	+353.1	+.1	-1147.0	-.9	+1482.3	+.2	+1363.9	+.5	-266.8 4	-.4 -5	-327.~~7~~6	+.~~2~~3	-286.6	-.4	-281.9	-.1
		-860.4	+.9 -.8	-973.4	+.5 -.5	-387.7	+.1 -.2	-1221.4	+1.1 -1.2	-428.7	+.7 -.9	-707.5	+.5 -.7	+353.0	+.4 -.6	-1146.1	+1.5 -1.5	+1482.1	+.7 -.7	+1363.4	+1.9 -1.7	-266.9 5	+.5 -.5 6	-327.9	+.6 7 -.7	-286.2	+.8 ~~-.4~~ -.9	-281.8	+1.3 -1.5

Ledger N. Pole Stars

Corrected measured coordinates.

√

Star		c ✓				d				e				f ✓				g				h ✓				k			
Pl. I	p. 186	-401″.5	+.7	-112″.4	+.6	-584″.4	-.5	-64″.6	+.4	-544″.5	-1.1	+117″.0	-.2	-408″.4 -5.8	-4.7	+120″.2 -4.1	-3.3	—		—		+134.7	+.3	-266″.4	+.3	+11″.8	+.3	-86″.2	-.2
II	188	-402.4	-.2	-113.3	-.3	-584.0	-.1	-65.4	-.4	-542.2	+1.2	+117.0	-.2	-401.9 +0.7	+1.8	+124.3 0	+0.8	-257″.4	+.5	+50″.2	-.6	+134.8	+.4	-266.9	-.2	+11.3	-.2	-85.9	+.1
III	190	-403.7	-1.5	-113.6	-.6	-584.0	-.1	-65.3	-.3	-543.9	-0.5	+117.1	-.1	-403.2 -.6	+0.5	+124.2 -.1	+0.7	-258.1	-.2	+50.8	0	+134.6	+.2	-267.1	-.4	+11.0	-.5	-86.4	-.4
IV	192	-401.9	+.3	-113.0	0	-583.5	+.4	-64.9	+.1	-543.0	+0.4	+117.5	+.3	-402.5 +.1	+1.2	+124.5 +.2	+1.0	-257.8	+.1	+51.2	+.4	+134.0	-.4	-266.4	+.3	+11.8	+.3	-85.7	+.3
V	194	-401.7	+.5	-112.9	+.1	-583.7	+.2	-64.9	+.1	-543.2	+0.2	+117.4	+.2	-402.7 -1	+1.0	+124.2 -1	+0.7	-258.2	-.3	+50.9	+.1	+133.8	-.6	-266.5	+.2	+11.7	+.2	-85.7	+.3
		-402.2 ✓	+1.5 -1.7	-113.0 ✓	+.7 -.9	-583.9 ✓	+.6 -.7	-65.0 ✓	+.6 -.7	-543.4 ✓	+1.8 -1.6	+117.2 ✓	+.5 -.5	-403.7 ✓ Pls. II III IV V = -402.6 ✓	+4.5 -4.7	+123.5 ✓ = +124.3 ✓ in Table VI	+3.2 -3.3	-257.9 ✓	+.6 -.5	+50.8 ✓	+.5 -.6	+134.4 ✓	+0.9 -1.0	-266.7 ✓	+.8 -.6	+11.5 ✓	+.8 -.7	-86.0 ✓	+.7 -.6

Star		l ✓				D.M. +89° 7 ✓				+89° 19 ✓				+89° 21 Dbl.				+89° 24 ✓				+89° 28 ✓				+89° 32 ✓			
Pl. I	p. 186	-86.0	+1.4	+2.8	+1.3	—		—		-2474.1 ✓	+.6	+334.4 ✓	-.1	—		—		-2388.0	-1.0	-1562.2	+.2	-1293.0	-.1	-2470.0	+.8	+292.0	-.8	-2566.2	+.8
II	188	-87.2	+0.2	+1.2	-0.3	+1316.3 ✓		+2494.0 ✓		-2474.4 ✓	+.3	+333.6 ✓	-.9	-2735.6	-1.4	-507.2	+1.7	-2388.1	-1.1	-1563.0	-.6	—		—		—		—	
III	190	-87.9	-.5	+0.4	-1.1	—		—		-2475.2 ✓	-.5	+335.1 ✓	+.6	-2734.1	+0.1	-508.4	+0.5	-2386.1	+.9	-1563.3	-.9	—		—		—		—	
IV	192	-87.9	-.5	+1.4	-.1	—		—		-2474.~~7~~ 6	~~.2~~ +1	+334.6 ✓	+.1	-2733.2 -2727.1	+1.0	-510.5 -504.8 component.	-1.6	-2386.7	+.3	-1561.8	+.6	-1292.9	0	-2471.2	~~.2~~ -4	+293.9	+1.1	-2567.4	-.4
V	194	-87.8	-.4	+1.5	0	—		—		-2475.3 ✓	-.6	+334.9 ✓	+.4	-2734.0	+.2	-509.6	-.7	-2386.3	+.7	-1561.9	+.5	-1292.9	0	-2471.1	~~.2~~ -3	+292.6	-.2	-2567.3	-.3
		-87.4 ✓	+1.6 -1.4	+1.5 ✓	+1.3 -1.5	+1316.3 ✓		+2494.0 ✓		-2474.7	+~~0.9~~ 1.8 -1.1	+334.5 ✓	+1.1 -1.0	-2734.2 ✓ -2727.1	+1.3 -1.4	-508.9 ✓ =21a -504.8 = 21b ✓	+2.2 -2.3	-2387.0 ✓	+1.9 -2.1	-1562.4 ✓	+1.3 -1.5	-1292.9 ✓		-247~~1.1~~ 0.8 ✓		+292.8 ✓	+1.1 -1.0	-2567.0 ✓	+.8 -.7

Star D.M.		+89° 33				+89° 34 ✓				+89° 38				+89° 37 ✓			
Pl. I	p. 186	-21.5 ✓	-.~~6~~ 7	-1744.5 ✓	-.~~8~~ 9	+421.3	-1.2	-2336.1	+.8	+2603.5	-3.0	-565.0	+1.3	-261.8 ✓	+.4	-340.1 ✓	-.1
II	188	-20.9 ✓	~~.2~~ -1	-1739.8	+3.~~9~~ 8	—		—		+2607.5	+1.0	-566.5	-0.2	-261.9 ✓	+.3	-340.2 ✓	-.2
III	190	-2~~1.4~~ 0.8	~~-.5~~ 0	-1744.~~4~~ 3	-0.7	+423.4	+.9	-2337.6	-.7	+2606.6	+.1	-566.9	-0.6	-261.8 ✓	+.4	-340.2 ✓	-.2
IV	192	-20.1 ✓	+.~~8~~ 7	-1744.6 ✓	-.9 1.0	+423.2	+.7	-2336.9	0	+2607.8	+1.3	-566.3	0	-262.7	-.5	-339.8	+.2
V	194	-20.~~7~~ 6	+.2	-174~~5.1~~ 4.9	-1.~~4~~ 3	+422.0	-.5	-2337.0	-.1	+2607.0	+.5	-566.7	-.4	-262.8 ✓	-.6	-339.5 ✓	+.5
		-20.~~9~~ 8 ✓	+1.~~6~~ 9 -1.~~1~~ 8	-1743.~~7~~ 6 ✓	+3.9 -3.8	+422.5 ✓	+1.6 -1.7	-2336.6 9	+.8 -.8	+2606.5 ✓	+2.9 -3.0	-566.3 ✓	+1.3 -1.2	-262.2 ✓	+1.1 -1.1	-340.0 ✓	+.7 -.6

Means y	a'y	-b'x	c'	Σ	Corr y	
-324.~~7~~6 (~~3~~4)	-0.19	+0.14	+3.00	+2.95	-327.~~7~~6	
-278.9 (3)	-.17	+.15		+2.98	-281.9	
-109.8 (3)	-.07	+.21		+3.14	-112.9	
-61.6 (3)	-.04	+.30		+3.26	-64.9	
+120.8 (3)	+.07	+.28		+3.35	+117.4	
+127.5 (3)	+.08	+.21		+3.29	+124.2	
+54.1 (3)	+.03	+.13		+3.16	+50.9	
-263.7 (3)	-.16	-.07		+2.77	-266.5	
-82.7 (3)	-.05	-.00		+2.95	-85.7	
+4.5 (3)	+.00	+.05		+3.05	+1.5	
+1367.0 (3)	+.82	-.76	+3.00	+3.06	+1363.9	
						0-6
+339.4 (2)	+.20	+1.26		+4.46	+334.9	
-505.5 (2)	-.30	+1.40		+4.10	-509.6	
-1558.6 (2)	-.94	+1.22		+3.28	-1561.9	
-2468.9 (2)	-1.48	+.66		+2.18	-2471.1	
-2566.0 (1)	-1.54	-.15		+1.31	-2567.3	
-174~~3.1~~2.9 (~~1~~3)	-1.05	+.01		+1.96	-174~~5.1~~4.9	
-2335.6 (2)	-1.40	-.21		+1.39	-2337.0	
-564.4 (2)	-.34	-1.33		+1.33	-566.7	
-336.6 (4)	-.20	+.14		+2.94	-339.5	+1.0
-324.3 (1)	-.19	+.14		+2.95	-327.3	

Results for Standard Stars in X

Table II of Mss		X	Residuals from means of each plate					x − X, uncorr.				
			I	II	III	IV	V	I	II	III	IV	V
+89°	1	+523.9″	111	000	3111	113	3131	3.8″	0.2″	0.1″	2.4″	2.4″
	2	+2474.3	—	R 51553	1111	131	131	—	0.9	0.5	0.9	1.5
	3	+728.6	1111	331	2862	111	462R02	2.4	1.1	0.6	2.4	2.1
	4	+1024.7	111	513	1111	353	2422	3.2	0.1	0.5	2.8	2.9
	5	+1556.1	111	533	462	000	211	0.9	1.2	1.1	0.5	0.6
	6	+2023.4	111	533	793	111	220	2.1	3.0	2.4	1.4	1.3
	9	−323.8	313	522	313	202	313	2.4	0.4	1.1	2.1	2.0
	12	−1017.1	111	000	2206	642	2220	4.4	0.7	0.3	2.7	2.5
	16	−1780.5	131	224	1111	111	111	6.1	0.9	0.2	2.6	2.6
Red R's see p 203	17	−2446.4	000	R 726	133	426	202	7.2	3.0	0.0	4.4	4.2
	18	−1845.9	R 633	448	311	718	102	4.5	0.1	1.7	2.4	1.4
	23	−2429.3	111	335	R 000	000	3511	6.6	0.9	1.5	4.2	2.9
	25	−1647.4	715	337	111	000	852	7.0	3.3	1.5	5.6	5.4
	26	−1064.7	955	571	1111	633	5411	4.6	0.9	0.3	2.5	2.7
	29	−861.0	121	220	2020	131	2026	3.1	0.6	1.2	2.7	2.6
	31	−388.7	111	422	0222	000	322R0	2.5	1.1	1.9	1.9	1.9
	35	−429.8	448	267	3231	133	3R31	2.3	0.2	2.3	1.6	1.6
	36	+353.0	111	113	R 131	351	2240	2.9	0.8	1.0	2.7	2.2
			+51 −53 ±104 52	+91 −92 ±183 55	+63 −64 ±127 64	+51 −56 ±107 54	+68 −68 ±136 64					
av. dev			±20	±33	±20	±20	±21	mean of av. dev = ±23				
	37	−262.4	000	422	7333	000	1111 A	2.9	0.5	1.4	2.9	2.8 6.6
Component	37 = Star a see pp 194 + 200											
A = 1 meas.	7	+1316.2″	R off	A	R off	R off	R off		0.7			
R = not meas. is off or on edge of pl.	19	−2491.9	A	A	A	A	01	11.5	15.9	17.2	13.4	13.3
See p 212	21 a dbl 21 b	−2737.6	R edge pl.	A	A	R dbl A A 00 Component	A		0.3	4.1	0.1 6.2 Component	0.1
+ p 53 of MSS.	24	−2380.2	A	A	A	A	22	13.7	9.2	5.2	10.9	9.9
	28	−1291.8	A	R off	R off	A	33	5.6			5.0	4.5
	32	+293.4	A	R off	R off	A	A	3.9			2.3	3.5
	33	−21.3	A	00	66 ~~A~~	A	531 ~~44~~	3.2	0.7	1.5 ~~0.9~~	1.6	1.9 ~~2.0~~
	34	+423.6	A	R edge pl	00	A	21	4.7		1.0	3.1	4.2
	38	+2607.6	A	~~A~~	A	A	33	4.1	1.8	0.2	0.5	1.6

x – X Corr. for scale etc

I	II	III	IV	V	Mean	x	I II III IV V	← Col 7 & 8 ch. with Led.	Remarks	
v.p. 144	150	156	162	168	I II III IV V				R = resids 1.0" or over.	
1.2"	0.6"	1.0"	0.5"	0.5"	0.8"	+523.1"	.4" .2" .2" .3" .3"			1
–	2.4	1.5	0.7	0.9	1.4	+2472.9	– 1.0 R 0.1 7 5		√ One edge plate, squares distorted	2
0.1	0.7	0.2							= a 4" + 5" resid	3
1.0	0.5	0.3								4
0.7	0.3	0.2								5
1.0	1.9	1.6								6
1.6	0.0	0.5								9
0.3	0.1	0.3								12
0.5	0.3	0.								16
0.8	1.4	0.								17
1.1	1.3	1.1								18
0.5	0.5	0.9								23
1.9	2.4	2.2								25
0.1	0.3	0.4								26
1.1	1.0	0.4 3							0.4 p174 X + Y substituted.	29
1.0	1.1	1.0								31
1.4	0.3	1.4								35
0.3	0.3									36
									Mean = ±.35 √	
									mean do not need.	
p 186	188	190								
0.6	0.5	0.								37
	0.1									7
17.9 8	17.5	16.							24749" √ = Pls II III IV + V	19
	2.0	3.							27344.4 √ = Pls II + IV see p203	21
									meas. 10 out. rej in both coord	
									ponent. See p 153 of n.P.	
7.8	7.9	5.								24
1.2			1.1	1.1	–1.1	–12929	1 0 0			28
1.4			0.5	0.8	–0.6	+2928.8	8 1.1 2			32
0.2	0.4	9.1 +0.5	1.2	0.6 7	+0.4 5	– 20.9 8	6 7 0 1 5 0 8 7 2 √			33
2.3		0.2	0.4	1.6	– 1.1	+4225	12 9 7 5			34
4.1	0.1	1.0	0.2	0.6	–1.1 –0.5 omitting I + II	+26065	3.0 36 1.0 4 1 5 13 7 5 1		–2607.1 = Pls III IV + V	38

6 7 8

See Ledger for ch'k on Col 7

89 33 rej pl II in y {for p199 in P.Bk

Five mean gives

I +1.9
II [6.6]
III 2.1
IV 1.8
V 1.5

7.3 √
+1.8
–1746.4 √
–1744.6 = mean y
89 32

I +0.5
II —
III
IV —0.7
V [–0.6]

–0.1 √
–2566.7
–2566.8 √

Take out of III IV & VI

&

x – X Corr. for scale etc I v. p. 144	II 150	III 156	IV 162	V 168	Mean I II III IV V	x	I	II	III	IV	V	Col. 7 & 8 ch. with Led. Remarks. R = resids 1.0 or over.	
1.2	0.6	1.0	0.5	0.5	0.8	+523.1	.4	.2	.2	.3	.3		1
–	2.4	15	0.7	0.9	1.4	+2472.9	–	$\overset{R}{1.0}$	0.1	7	5	One edge pl II, squares [illegible]	2
0.1	0.7	0										R = a 4th + 5th resid	3
1.0	0.5	0											4
0.7	0.3	0											5
1.0	1.9	1											6
1.6	0.0	0											9
0.3	0.1	0											12
0.5	0.3	0											16
0.8	1.4	0											17
1.1	1.3	1											18
0.5	0.5	0											23
1.9	2.4	2											25
0.1	0.3	0											26
1.1	1.0	0										I 0.4 p174 X + Y substituted.	29
1.0	1.1	1											31
1.4	0.3	1											35
0.3	0.3	0											36
												$\overset{8}{9}$ Mean = ±.35	
												Mean do not need.	
p 186	188												
0.6	0.5	0											37
	0.1												7
$\overset{8}{17.9}$	17.5	1										–2474.9 = Pls II III IV + V	19
												–2734.4 = Pls II + IV see p203	21
	2.0											1 meas. 10 out. neg in both coords	
												component. See β 830 [illegible]	
7.8	7.9												24
1.2			1.1	1.1	–1.1	–1292.9	1			0	0		28
1.4			0.5	0.8	–0.6	+292.8	8			1.1	2		32
0.2	0.4	$\overset{+0.5}{1.1}$	1.2	$\overset{7}{0.6}$	$\overset{5}{+0.4}$	$\overset{8}{–20.9}$	$\overset{7}{6}$	$\overset{2}{0}$	$\overset{0}{5}$	$\overset{7}{8}$	2 ✓		33
2.3		0.2	0.4	1.6	–1.1	+4225	12		9	7	5		34
4.1	0.1	1.0	0.2	0.6	$\overset{-0.5 \text{ omitting I + II}}{–1.1}$	+2606.5	$\overset{36}{3.0}$	$\overset{4}{1.0}$	$\overset{5}{1}$	$\overset{7}{13}$	$\overset{1}{5}$	–2607.1 = Pls III IV + V	38

See Ledger for ch. on Col 7

p197

x

89 19

I [17.8]
II 17.5
III 16.7
IV 17.3
V 16.6
1
+17.0 ✓
–2491.9
–2474.9 ✓

89 21

I –
II 2.0 –12
III [3.5] 3
IV 4.4 12
V [3.6] 4
64
+3.2 ✓
–2737.6
–2734.4 ✓ ? 0.1

89 38

[–4.1] –3.6
[–0.1] 4
–1.0 –5
+0.2 7
–0.6 –1
–1.4
–0.5 ✓
+2607.6
+2607.1 ✓

Changes made June 29
Excluded the approx
meas. of bat stars in
II & III been made
[illegible] tables
in meas
II + III + VI

not changed yet on pp 196–7

x − X Corr. for scale etc

I v.p. 144	II 150	III 156	IV 162	V 168	Mean I II III IV V	x	I	II	III	IV	V	Col. 7 & 8 ch. with Led.	Remarks. R = resids 1.0" or over.	
1.2"	0.6"	1.0"	0.5"	0.5"	0.8"	+523.1"	.4"	.2"	.2"	.3"	.3"	←		1
—	2.4	1.5	0.7	0.9	1.4	+2472.9	—	R 1.0	0.1	7	5	✓	On edge plate II, squares [illegible]	2
0.1	0.7	0.2	0.8→9	0.5	0.7→2	+728.5→4 ✓	2→3	8→9	1→0	7	4→3	✓ ✓	IV R = a 4" + 5" resid	3
1.0	0.5	0.3	1.5	1.5	1.0	+1023.7	0	5	7	5	5	✓		4
0.7	0.3	0.2	0.3	0.4	0.4	+1556.5	3	1	2	1	0	✓		5
1.0	1.9	1.6	1.7	1.9	1.2	+2024.6	R 2.2	7	4	5	7	✓		6
1.6	0.0	0.5	0.2	0.2	0.3	−323.5	R 1.3	3	2	5	5	✓		9
0.3	0.1	0.3	0.1	0.2	0.0	−1017.1	3	1	3	1	2	✓		12
0.5	0.3	0.7	0.7→6	0.2	0.0	−1780.5 ✓	5	3	7	1→6	2	✓		16
0.8	1.4	0.5	0.6→7	1.0	0.9	−2447.3	1	5	4	3→2	1	✓		17
1.1	1.3	1.1	1.4→1	1.6	1.2	−1844.7	1	1	1	7→1	4	✓		18
0.5	0.5	0.9	0.1	0.7	0.3	−2429.0	8	2	6	4	4	✓		23
1.9	2.4	2.2	1.9→2.0	2.2	2.1	−1649.5	2	3	1	7→1	1	✓		25
0.1	0.3	0.4	0.6	0.1	0.0	−1064.7	1	3	4	6	1	✓		26
1.1	1.0	0.4→3	0.5	0.2	0.6	−860.4	5	4	2→3	1	4		III 0".4 p174 X+Y substituted.	29
1.0	1.1	1.0	1.1→0	0.8	1.0	−387.7	0	1	0	1→0	2	✓		31
1.4	0.3	1.4	1.2	1.0	1.1	−428.7	3	8	3	1	1	✓		35
0.3	0.3	0.0	0.3	0.1	0.0	+353.0	3	3	0	3	1	✓		36
					+61 −63→4 ±124→5 18 ±.69 ✓ −.01 −.017		+3.2→3 −4.4 ±7.6→7 17 ±.45 −.07	+3.1→6 −33 70 18 ±.39 +.02	+26 −24 50 ✓ 18 ±.28 +.01	+35→1 −29→8 64→59 18→3 ±.36 +.03	+27 −25→4 52→1 18 ±.29→8 +.01		Mean = ±.35 ✓ mean do not need.	
p 186	188	190	192	194										
0.6	0.5	0.6	0.3	0.4	0.2	−262.2	4	3	4	5	6			37
				4.2		−266.6					A			
	0.1				+0.1	+1316.3" (applied meas see p204)		A						7
					17.0 omitting Pl I 8		6	5	3	3	4			
17.9→8	17.5	16.7	17.3	16.6	+17.2	−24747 ✓	7	3	5	1	6		−24749" = Pls II III IV + V ✓	19
			(10.5) component		3.2 omitting III+V			12	3	12	4		−27344 = Pls II+IV see p203	21
	2.0	3.5	4.4	3.6	+3.4 ✓	−27342 −27271 ✓	1.4	1	10	2			1 meas. 10 out. rej in both comp ← component. See p 553 of NP [illegible]	
7.8	7.9	5.9	6.5	6.1	−6.8	−23870	10	11	9	3	7			24
1.2			1.1	1.1	−1.1	−12929	1			0	0			28
1.4			0.5	0.8	−0.6	+2928	8			11	2			32
0.2	0.4	9.1 +0.5	1.2	0.6→7	+0.4→5	−209→8	6→7	0→1	5→0	8→7	2 ✓			33
2.3		0.2	0.4	1.6	−1.1	+4225	12		9	7	5 ✓			34
					−0.5 omitting I+II		36	4	5	7	1		−2607.1 = Pls III IV + V	
4.1	0.1	1.0	0.2	0.6	−1.1	+26065	3.0	1.0	1	13	5			38

See Ledger for Ch [illegible]

Results for Standard Stars in Y

Table III of mss.	Y	Residuals from Means of each plate I	II	III	IV	V	Uncorr. y Y I	II	III	IV	V
+89° 1	+79.0"	538	331	R 1.0 226	113	1111	0.4"	3.2"	2.3"	1.6"	1.4"
2	+1222.2	3331	335 R 1.3	R 1.1 171	331	111	3.0	3.8	5.2	2.8	3.2
3	+858.7	8774	100	351 R 1.0	313	129 R 60	4.1	6.8	5.6	4.8	4.5
4	+1031.6	111	113	1155	113	0402	3.5	4.5	4.9	3.7	3.6
5	+1334.0	111	111	335	422	313	1.2	2.9	3.1	1.3	1.4
6	+2025.4	559	111	111	515	113	2.4	5.0	4.8	2.4	3.0
9	+1884.4	331	022	835	111	111	4.3	4.4	3.3	4.5	4.5
12	+1319.7	111	143	2252	131	4226	2.3	2.7	2.7	3.2	3.3
16	+865.5	583	331	R 1.0 371	000	111	2.5	3.3	2.0	3.8	3.9
Rel R: see p203 17	+649.0	111	R 223	179	211	440	2.2	5.5 4*	4.7	5.8	5.6
18	+199.5	R 000	202	593	000	113	2.6	6.3	6.0	6.3	6.4
23	−616.6	313	111	R 571	242	8620	2.7	3.0	2.6	3.5	3.5
25	−871.0	000	753	513	533	717	3.1	1.7	1.1	1.9	1.3
26	−250.7	111	067	5024	254	8052	0.8	1.9	2.2	1.9	2.4
29	−974.3	111	422	1133	131	1115	0.6	4.8	4.7	3.7	3.7
31	−1220.5	121	000	1111	000	131 R 1	2.0	2.0	2.3	2.0	2.1
35	−707.3	111	111	1351	111	1 R 13	1.1	3.1	3.5	2.9	2.9
36	−1148.3	066	202	R 111	135	5113	1.5	6.2	6.9	3.8	3.4
		+7.2 −6.5 ±13.7 56	+5.9 −6.0 ±11.9 55	+11.1 −11.3 ±22.4 64	+5.1 −5.1 10.2 54	+7.2 −7.9 ±15.1 64					
Av. Dev.		±.24	±.22	±.35	±.19	±.24	Mean Av. Dev ±.25				
Component 37	−340.5	000	111	1111	113	3111 A	0.4	4.1	4.1	3.7	3.9 16.2
7	+2492.2	R	A	R	R	R		6.5			
19	+337.0	A	A	A	A	01	1.7	0.4	1.0	2.1	2.4
21 dbl a 21 b	−512.8	R	A	44	R ~~00 11 12~~ A A 1	44		9.2	7.3	12.2 ~~13.4~~ 6.5	7.3
24	−1563.2	A	A	A	A	11	1.2	3.5	2.9	4.9	4.6
28	−2471.0	A	R	R	A	22	2.6			2.3	2.1
32	−2566.7	A	R	R	A	A	3.1			0.9	0.7
33	−1746.4	A	A	11 ~~A~~	A	844 ~~66~~	0.3	10.0	6.6 1	3.9	3.3 5
34	−2339.2	A	R	00	A	11	0.1		5.8	3.9	3.6
38	−566.0	A	11	A	A	87	1.0	3.4	4.1	1.0	1.6

Corr. 4–V

p144 I	150 II	156 III	162 IV	168 V	Mean I II III IV V	y	I	II	III	IV	V	Remarks	
0.4	0.7	1.8	1.1 2	1.4	1.1	+77.9	7	4	2	0 1	3	√	1
0.2 1	0.6	0.4	0.5	0.7	0.2	+1222.4	0 1	8	2	3	5	√ I approx. val. x used. p145.	2
2.0	2.6	1.5	1.8	1.3	1.8	+860.5	2	8	3	0	5	√ V R = 4"+5" resid.	3
1.1	0.3	0.7	0.8 7	0.5	0.7	+1032.3	4	4	0	1 0	2	√	4
1.8	1.5	1.3	1.6 5	1.6	1.8 5	+1332.4 5	~~2~~ 3	~~1~~ 0	~~3~~ 2	~~0~~ 0	~~0~~ 1	√	5
1.8	0.4	0.2	0.5						6	1	2	√	6
0.6	0.0	0.4	0.4						6	2	0	√	9
0.4	1.5	0.7	1.0						2	1	1	√	12
0.7	0.7	1.2	0.6						7	1	0	√	16
0.8	1.6 5	1.8	1.2						2 5	1	3	√ * Pl II + 5".5 used in Least Sq Sol.	17
1.9	2.5	2.8	2.2						5	1	0	√	18
2.0	0.6 5	0.4	0.5						4	3	4	√ II 0.6 p173 X+Y substituted	23
2.1	1.8	2.2	1.6						3	3	1	√	25
0.9	1.8 8	1.3	1.6						0	3	3	√ II 1.9 p173 " "	26
0.5	1.2	1.1	0.8 7						2	1 2	1	√	29
0.6	1.5	1.5	0.6						6	3	5	√	31
0.5	0.6 5	0.3	0.1						1	3 2	3	√ II 0.6 p173 " "	35
2.7	2.6	2.8	1.6						6	6	9	√	36

+35 4 +18 6 +22
−33 −15 7 −25 6
6.8 7 3.3 √ 4.7 8
±38 7 ±18 ±26 7 Mean = ±35
−06 +08 +08 do not need

p 187	189	191	193										
0.4	0.3	0.3	0.7	1.0	0.5	−340.0	1	2	2	2	5		37
					13.2	−327.3					A		

	1.8				+1.8	+2494.0							7
2.7 6	3.4	1.9	2.4	2.1	−2.5	+3345	8 1	9	6	1	4		19
	5.6	4.4	2.3 8092	3.2	+3.9 √	−5089 4.8 −5036	17	17	5	16	7	component.	21
1.0	0.2	0.1	1.4	1.3	+0.8	−15624	2	6	9	6	5		24
1.0			0.2	0.1	+0.2 −0.1 omitting V	−24708	8			4	3	2566.8 −2471 = Pls I + IV	28
~~0.5~~			0.7	0.6	−0.3	−2567.0 omitting II	6 8			6 4	5 3		32
1.9	6.6	2.0 1	1.8	1.3 5	+2.7 +1.8 8	−1743.7 6	8 9	3.9 8	7 √	1 10	1.4 3	(1 4.8 3 0 3) −1744.6 Pls I III IV V	33
3.1		1.6	2.3	2.2	+2.3	−23369	8		7	0	1		34
1.0	0.5	0.9	0.3	0.7	∓0.3	−566.3	13	2	6	0	4		38

√ M.P.B.R.

Means for p199

III	V
Resids	
+34	+22
−33	−26
+.1	−.4
18	18
+.006	−.022

Corr. y−Y

p144 I	150 II	156 III	162 IV	168 V	mean I II III IV V	y	I	II	III	IV	V	Remarks	
0.4	0.7	1.8	1.1 2	1.4	1.1	+777.9	7	4	2	0 1	3		1
0.2 1	0.6	0.4	0.5	0.7	0.2	+1222.4	0 1	8	2	3	5	I approx. val. x used p145.	2
2.0	2.6	1.5	1.8	1.3	1.8	+860.5	2	8	3	0	5	V R = 4"+5" resid.	3
1.1	0.3	0.7	0.8 7	0.5	0.7	+1032.3	4	4	0	1 0	2		4
1.8	1.5	1.3	1.6 5	1.6	1.8 5	+1332.4 5	~~2~~ 3	~~1~~ 0	~~3~~ 2	~~0~~ 0	~~0~~ 1		5
1.8	0.4	0.2	0.5	0.2	0.4	+2025.0	R 1.4	8	6	1	2		6
0.6	0.0	0.4	0.4	0.2	0.2	+1884.6	4	2	6	2	0		9
0.4	1.5	0.7	1.0	1.0	0.9	+1318.8	5	6	2	1	1		12
0.7	0.7	1.2	0.6	0.5	0.5	+865.0	R 1.2	2	7	1	0		16
0.8	1.4 5	1.8	1.2	1.0	1.3	+650.3	5	3 2	5	1	3	* Pl II +5".5 used in Least Sq Sol.	17
1.9	2.5	2.8	2.2	2.3	2.3	+201.8	4	2	5	1	0		18
2.0	0.6 5	0.4	0.5	0.4	0.8	−617.4	R 1.2	2 3	4	3	4	II 0.6 p173 X+Y substituted	23
2.1	1.8	2.2	1.6	2.0	1.9	−872.9	2	1	3	3	1		25
0.9	1.8 8	1.3	1.6	1.0	1.3	−252.0	4	8 5	0	3	3	II 1.9 p173 " "	26
0.5	1.2	1.1	0.8 7	0.8	0.9	−973.4	4	3	2	1 2	1		29
0.6	1.5	1.5	0.6	0.4	0.9	−1221.4	3	6	6	3	5		31
0.5	0.6 5	0.3	0.1 0	0.1	0.2	−707.5	3	4 3	1	5 2	3	II 0.6 p173 " "	35
2.7	2.6	2.8	1.6	1.3	2.2	−1146.1	5	4	6	6	9		36
					+9.6 −26.5 ±19.2 1 18 ±1.07 6 .00		+46 −46 9.2 4 ±5.1 2 −.06	+35 −38 7.3 ±4.1 39 −.06	+35 −33 6.8 7 ±3.8 7 −.06	+18 −15 3.3 ±1.8 +.08	+22 −25 4.7 8 ±2.6 7 +.08	Mean = ±3.5 do not need	
p 187 0.4	189 0.3	191 0.3	193 0.7	195 1.0	0.5	−340.0	1	2	2	2	5		37
					13.2	−327.3					A		
	1.8				+1.8	+2494.0							7
2.7 6	3.4	1.9	2.4	2.1	−2.5	+3345	2 1	9	6	1	4		19
	5.6	4.4	2.3 80.92	3.2	+3.9	−5089 −5036 4.8	1.7		5	16	7	component.	21
1.0	0.2	0.1	1.4	1.3	+0.8	−15624	2	6	9	6	5		24
1.0			0.2	0.1	+0.2 −0.1 omitting V	−24708	8 6			4 6	3 5	2566.8 −2347.1 = Pls I+IV	28
0.5			0.7	0.6	−0.3 omitting II	−2567.0	8			4	3		32
1.9	6.6	2.6 1	1.8	1.3 5	+2.7 8 +1.8	−1743.7 6	8 9	3.9 8	7	7 10	14 3	(1 4.8 3 0 3) −1744.6 Pls I III IV+V	33
3.1		1.6	2.3	2.2	+2.3	−23369	8		7	0	1		34
1.0	0.5	0.9	0.3	0.7	∓0.3	−566.3	13	2	6	0	4		38

Table V of MSS.

	Uncorr Mean X 5 plates	Residuals from means I	II	III	IV p26–30	V	Cor. Mean X 5 plates	Residuals I II III IV V
5a	+1481.8	133	3122	111	113	111	+1482.1	5 2 5 0 2
	(1482.0		mean of II III IV and V				+1482.0	2 1 4 1 3)
a	−267.~~4~~5	111	131	13.1	113	2242 ~~133~~	−265.9	2 3 1 0 ~~4~~5
b	−287.8	1133	341	111	202	331	−286.2	2 5 1 5 4
c	−403.9	R R R 1.5 1.7 5 2.8	000	111	252	724	−402.2	7 2 R15 3 5
d	−585.7	R 111	111	000	440	426	−583.9	5 1 1 4 2
e	−545.1	143R	111	335	224	022	−543.4	R1.1 R1.2 5 4 2
5 pls f 4 pls	−405.3 (402.6)	8886	715	422	111	133	(−402.6 −403.7	5.8 ~~R~~ 7 6 1 1) 4.7 1.8 5 12 1.0
4 pls g	−258.9	....	133	111	358	220	−257.9	R 5 2 1 3
h	+133.1	111	111	111	000	111	+134.4	3 4 2 4 6
k	+10.2	R448	131	131	311	111	+11.5	3 2 5 3 2
l	−88.8	R R 2 2 3 19 7	000	111	515	331	−87.4	R1.4 2 5 5 4
Star 5a not included in Av. Dev.	not point	+9a 5 −92 ±18.2 7 31 ±.59 60	+25 −22 47 30 ±.16	+23 −2.1 4.4 30 ±.15	+35 −34 6.9 30 ±.23	+3.9 8 −2.8 3 ~~6.7~~ 70 ~~30~~ 31 ±.22	mean ±0″.27	+3.1 +3.8 −40 −14 −23 −7.4 −.5 +3 +16 +11 ±10.5 ±4.3 ±4.3 ±3.0 ±3.4 9 10 ±1.17 ±43 ±43 ±30 ±34

col 1 2 = 3 of Table II 3 = 7 of II 4 = 8 of II

X
~~Bk Uncorrected~~ means of each plate
Red Corrected

	p186	p188	p190	p192	p194
5a	+1480.9″ 2.6	+1482.8″ 1.9	+1482.5″ 1.6	+1481.3 2.1	+1481.3″ 2.3
a	−269.2 5.7	−265.6 5.6	−265.2 6.0	−268.5 5.9	−268.7 8 6.34
b	−289.6 6.0	−285.8 5.7	−285.3 6.1	−289.3 6.7	−289.0 6.6
c	−405.2 1.5	−402.6 2.4	−402.9 3.7	−404.5 1.9	−404.7 1.7
d	−588.4 4.4	−584.3 4.0	−583.2 4.0	−586.2 3.5	−586.2 3.7
e	−548.5 4.5	−542.5 2.2	−543.1 3.9	−545.6 3.0	−545.6 3.2
f	−412.2 408.4	−402.1 401.9	−402.4 403.2	−405.0 402.5	−405.0 402.7
g	—	−257.5 7.4	−257.3 8.1	−260.2 57.8	−260.5 58.2
h	+131.6 4.7	+135.0 4.8	+135.5 4.6	+131.7 4.0	+131.6 3.8
k	+ 8.6 11.8	+ 11.4 11.3	+ 11.8 11.0	+ 9.5 11.8	+ 9.5 11.7
l	−89.4 86.0	− 87.2 87.2	− 87.1 87.9	−90.2 87.9	− 90.0 87.8

Table V of MSS.

	Uncor Mean x 5 plates "	Residuals from means I	II	III	IV p 26–30	V	Cor. Mean x 5 plates "	Residuals I II III IV V
5 a	+1481.8	133	3122	111	113	111	+1482.1	5 2 5 0 2
	(1482.0	mean of II III IV and V					+1482.0	— 1 4 1 3)
a	−267.4 5	111	131	13.1	113	~~133~~ 2242	−265.9	2 3 1 0 4 5
b	−287.8	1133	341	111	202	331	−286.2	2 5 1 5 4
c	−403.9	R R R 1.5 1.7 5 2.8	000	111	252	724	−402.2	7 2 1.5 R 3 5
Red R see note p 203 d	−585.7	111 R	111	000	440	426	−583.9	5 1 1 4 2
e	−545.1	14 3 R	111	335	224	022	−543.4	R R 1.1 1.2 5 4 2
5 pls f	−405.3	8886	715	422	111	733	(−402.6	5.8 R ← 7 6 1 1)

	Uncor Mean y 5 plates "	I	II	III	IV	V	Cor Mean y 5 plates "	Residuals I II III IV V	
5 pls ← adopted in x	+1367.0	313	5986	269	000	000	+1363.4	R 1.7 5 2 7 5	5 pls
4 pls adopted in y →	(+1367.6						+1363.9	R=2.2 — 0 3 2 0)	4 pls
	−325.2 1	322	131	624	220	~~022~~ 3 1 1 3	−327.9	2 5 2 2 2 3	
	−279.1	R 6 1.4 0 6	131	000	133	111	−281.8	R R 1.3 1 1.0 3 1	
	−110.2	3111	111	000	000	000	−113.0	6 3 6 0 1	
	−62.1	R 5 3 1	311	135	111	533	−65.0	4 4 3 1 1	
	+120.2	R 5 1.1 5 R	000	111	000	111	+117.2	2 2 1 3 2	
4 pls adopted 5 pls 5 "	+126.5 (127.8)	1111	000	131	440	331	(+124.3 +123.5	4.1=R — 0 1 2 1) 3.3 8 7 1.0 7	4 pls 5 "

pp 200–201

		I	II	III	IV	V		
Including all (5a + f) in cols 3 + 6		+98 −96 ±194 34	+29 −26 ±55 34	+24 −23 ±47 33	+38 −36 ±74 33	+39 −34 ±73 34		
		±0.57	±0.16	±0.14	±0.22	±0.21	Mean ±0.26	
Including 5a and Excluding f because not included in mean in Col 4 }								+36 +31 −39 −14 −22 −16 −7 +3 +15 +13 ±52 ±38 ±42 ±29 35 9 10 10 10 10 ±.58 ±.38 ±.42 ±.29 ±35 Mean ±0.40
Col 1				(3)			(4)	(5)

		I	II	III	IV	V		
Included all in cols 3 + 6		+52 −54 ±106 34	+38 −35 ±73 34	+42 −39 ±81 33	+31 −30 ±61 33	+26 −24 ±50 34		
		±0.31	±0.21	±0.25	±0.18	±0.15	Mean ±0.22	
Excluding 5a and f because not included in mean in Col 7. ⟶								−6 −27 +2 +16 +13 +39 +1 −39 −4 −1 ±45 ±28 ±41 ±20 ±14 8 9 9 9 9 ±0.56 ±31 ±46 ±22 ±16 Mean ±0.34
				(6)			(7)	(8)

	I	II	III	IV	V
a	−269.2 5.7	−265.6 5.6	−265.2 6.0	−268.5 5.9	−268.7 6.34
b	−289.6 6.0	−285.8 5.7	−285.3 6.1	−289.3 6.7	−289.0 6.6
c	−405.2 1.5	−402.6 2.4	−402.9 3.7	−404.5 1.9	−404.7 1.7
d	−588.4 4.4	−584.3 4.0	−583.2 4.0	−586.2 3.5	−586.2 3.7
e	−548.5 4.5	−542.5 2.2	−543.1 3.9	−545.6 3.0	−545.6 3.2
f	−412.2 408.4	−402.1 401.9	−402.4 403.2	−405.0 402.5	−405.0 402.7
g	—	−257.5 7.4	−257.3 8.1	−260.2 57.8	−260.5 58.2
h	+131.6 4.7	+135.0 4.8	+135.5 4.6	+131.7 4.0	+131.6 3.8
k	+8.6 11.8	+11.4 11.3	+11.8 11.0	+9.5 11.8	+9.5 11.7
l	−89.4 86.0	−87.2 87.2	−87.1 87.9	−90.2 87.9	−90.0 87.8

I	II	III	IV	V		
−328.1 328.1	−324.6 328.4	−323.9 327.7	−324.7 327.7	−324.7 327.6		
−280.4 280.5	−278.1 281.9	−279.0 282.8	−279.1 282.1	−278.9 281.9		
−112.0 112.4	−109.5 113.3	−109.8 113.6	−109.8 113.0	−109.8 112.9		
−64.2 64.6	−61.6 65.4	−61.6 65.3	−61.6 64.9	−61.6 64.9		
+117.7 117.0	+120.9 117.0	+120.8 117.1	+120.9 117.5	+120.8 117.4		
+121.0 120.2	+128.2 124.3	+127.9 124.2	+127.8 124.5	+127.5 124.2	−402.6 −408.4	+124.3 +120.2
—	+54.1 50.2	+54.6 50.8	+54.4 57.2	+54.1 50.9	+5.8 "	+4.1
−266.2 266.4	−263.1 266.9	−263.1 267.1	−263.6 266.4	−263.7 266.5	÷10 y = +0.6	" = +0.4
−85.7 86.2	−82.0 85.9	−82.5 86.4	−82.7 85.7	−82.7 85.7		
+3.4 2.8	+5.1 1.2	+4.3 0.4	+4.4 1.4	+4.5 1.5		

Cols 2+5 chkd from MSS Table I
all chkd

Table V of MSS.

	Uncorr Mean x 5 plates "	Residuals from means I	II	III	IV p 26–30	V	Corr. Mean x 5 plates "	Residuals I II III IV V	
5 a	+1481.8	133	3122	111	113	111	+1482.1	52502	5 pls
	(1482.0	mean of II III IV and V					+1482.0	1413)	4 pls
a	−267.4 5	111	131	13.1	113	~~133~~ 2242	−265.9	2310~~4~~ 5	
b	−287.8	1133	341	111	202	331	−286.2	25154	
c	−403.9	R R R 1.5 1.7 5 2.8	000	111	252	724	−402.2	72 R 15 35	
Red R see note p. 203 d	−585.7	R 111	111	000	440	426	−583.9	51142	
e	−545.1	143R	111	335	224	022	−543.4	R R 1.1 1.2 542	
5 pls 4 pls f	−405.3 (−402.6)	8886	715	422	111	133	(−402.6 −403.7	5.8 R 7611) 4.7 18 5 10 10	4 pls 5" 4 pls

	I	II	III	IV	V
a	−269.2 5.7	−265.6 5.6	−265.2 6.0	−268.5 5.9	−268.7 6.34
b	−289.6 6.0	−285.8 5.7	−285.3 6.1	−289.3 6.7	−289.0 6.6
c	−405.2 1.5	−402.6 2.4	−402.9 3.7	−404.5 1.9	−404.7 1.7
d	−588.4 4.4	−584.3 4.0	−583.2 4.0	−586.2 3.5	−586.2 3.7
e	−548.5 4.5	−542.5 2.2	−543.1 3.9	−545.6 3.0	−545.6 3.2
f	−412.2 408.4	−402.1 401.9	−402.4 403.2	−405.0 402.5	−405.0 402.7
g	—	−257.5 7.4	−257.3 8.1	−260.2 57.8	−260.5 58.2
h	+131.6 4.7	+135.0 4.8	+135.5 4.6	+131.7 4.0	+131.6 3.8
k	+ 8.6 11.8	+ 11.4 11.3	+ 11.8 11.0	+ 9.5 11.8	+ 9.5 11.7
l	−89.4 86.0	− 87.2 87.2	− 87.1 87.9	−90.2 87.9	− 90.0 87.8

1897phae.proj.1669V

	Uncorr Mean of 5 plates	I	II	III	IV	V	Corr Mean of 5 plates	Residuals I II III IV V	
5 pls adopted in x	+1367.0"	313	5986	269	000	000	+1363.4"	1.7 5 2 7 5	5 pls
4 pls adopting →	(+1367.6						+1363.9	R=2.2 — 0 3 2 0)	4 pls
	−325.2 1	322	131	624	220	~~022~~ 3 1 1 3	−327.9	2 5 2 2 2 3	
	−279.1	6 1.4 0 6 R	131	000	133	111	−281.8	1.3 R 1 1.0 R 3 1	
	−110.2	3111	111	000	000	000	−113.0	6 3 6 0 1	
	−62.1	5 R 3 1	311	135	111	533	−65.0	4 4 3 1 1	
	+120.2	5 1.1 R 5 R	000	111	000	111	+117.2	2 2 1 3 2	
4 pls adopted 5"	5 pls +126.5 4 pls (127.8)	1111	000	131	440	331	(+124.3 +123.5	41=R — 0 1 2 1) 4 pls 3.3 8 7 1.0 7 5"	
4 pls → not seen on I	+54.3	. . . .	044	337	593	022	+50.8	R 6 0 4 1	4 pls
	−264.0 3.9	066	111	351	000	111	−266.7	3 2 4 3 2	
	−83.1	R 022	000	113	113	313	−86.0	2 1 4 3 3	
	+4.3	3511	484	440	539	202	+1.4 5	1.3 3 R 1.1 R 1 0	
	not print	+4.9 −5.0 ±9.9 31 ±32	+2.4 −2.1 ±4.5 30 ±15	+3.3 −3.1 6.4 30 ±21	+3.1 −3.0 6.1 30 ±20	+2.3 6 −2.3 4 4.6 50 30 31 ±15 6	mean ±0".21	−47 −27 +2 +18 +3 +39 ±1 −40 −4 −2 ±86 ±28 ±42 ±22 ±15 9 10 ±95 ±28 ±42 ±22 ±15	

These a.v. also are not given in Mss

5 6 7

---

y
~~Bk~~ = Uncorrected means of each plate
Red = Corrected

p187 "	189 "	191 "	193 "	195 "
+1364.7 1.7	+1368.3 3.9	+1368.0 3.6	~~+1367.0~~ 4.1	+1367.0 3.9
−328.1 328.1	−324.6 328.4	−323.9 327.7	−324.7 327.7	−324.7 6 327.7 6
−280.4 280.5	−278.1 281.9	−279.0 282.8	−279.1 282.1	−278.9 281.9
−112.0 112.4	−109.5 113.3	−109.8 113.6	−109.8 113.0	−109.8 112.9
−64.2 64.6	−61.6 65.4	−61.6 65.3	−61.6 64.9	−61.6 64.9
+117.7 117.0	+120.9 117.0	+120.8 117.1	+120.9 117.5	+120.8 117.4
+121.0 120.2	+128.2 124.3	+127.9 124.2	+127.8 124.5	+127.5 124.2
—	+54.1 50.2	+54.6 50.8	+54.4 57.2	+54.1 50.9
−266.2 266.4	−263.1 266.9	−263.1 267.1	−263.6 266.4	−263.7 266.5
−85.7 86.2	−82.0 85.9	−82.5 86.4	−82.7 85.7	−82.7 85.7
+3.4 2.8	+5.1 1.2	+4.3 0.4	+4.4 1.4	+4.5 1.5

Approx Pr. mot. 5a + f
x . y

+1363.9" mean of II III IV V
1.7 = I
+ 2.2 ÷ 10 = .2"

−402.6
−408.4
+5.8"
÷ 10 y = +0.6"

+124.3
+120.2
+4.1
= +0.4"

Cols 2 + 5 chkd from Mss Table I
all chkd.

Catalogue and Lettered Stars.

N. Pole: Remarks:

Notes on Table I of Mss.

number of meas. of Stand + Let. Stars — In general three measures were made on each of the five plates A = I B = II C = III D = IV E = V, of the Catalogue stars adopted as standards for determining the plate constants (scale, orient. &c) and of the sequence stars, letters a to l, selected for standards of brightness.

of Faint Stars — One measure was made of the faint stars (580) within 30' of the pole on each of plates III and V supp 90-132. In measuring all within 30', extra measures ~~were~~ on Plates III + V were made of 10 of the Catalogued stars and the third measure of the sequence stars was made at this time as they are all within 30' of the pole. The seq. stars are nos. $\overset{=a}{229}$, $\overset{=b}{220}$, $\overset{=c}{193}$, $\overset{=d}{152}$, $\overset{=e}{162}$, $\overset{=f}{197}$, $\overset{=g}{230}$, $\overset{=h}{301}$, $\overset{=k}{288}$ + $\overset{=l}{268}$ and are letters a, b, c, d, e, f, g, h, k, l respectively. The ten Catalogue stars within 30' of pole are Lm + 89° 1 3 (two extra on V) 4 12 26 29 31 (two extra on V) 35 36 + 37. They are nos. 391, 416, 477, 84, 69, 103, 190, 183 350 + 228 respectively of the 580. A fourth measure was thus made of these 10 on plate III and of plate V, and an extra measure having already been made of 89° 3 + 31 on V made five for each of these 2 stars on V

Remeasures — It was decided to make a fourth measure whenever the residuals from the mean of the 3 measures equalled or exceeded 1."0 Among the 10 for which a fourth meas. had already been made were 3 + 36 on pl. III for which resids from mean of 3 meas. equalled or exceeded 1."0 and 31 " V " " " " 4 " " "

A fourth measure was then made for the same reason i.e. for all other cases where the residuals from the mean of the 3 measures equalled or exceeded 1."0

discordant Coord.	Col 1 Resids equalled or exceeded 1.0″ Remeasures of 16 stars on 18 Plates	Col 2 Cases Rejected See p52 of MSS
see p84 x+y II y +89° III	2 on Pls II p80 and III p14	in both Coords.
y I+III	3 .. .. I p80 .. III = no416 p120	for discordance. see p84
y	5a .. .. II p80	
x	17 .. .. II p80	17 II 1st meas. = Mar 16 '97 red ink R's prov
y	18 .. I p80	18 I 1 .. = May 2
x+y	23 .. .. III p80	23 III 2 .. = Apr 20
y	31 .. .. V = no 190 p104 was 2 meas.	31 V 4th .. Apr 10 — See note by Prof. P. on p124 of Bk 5 "Impossible readings &c".
x	35 .. .. V = .. 183 p104 " 2 "	35 V 2 .. Mar 23
y	36 .. .. III = .. 350 p114 " 2 ..	36 III 1st .. Mar. 16
y	b .. .. I p80	
x	c .. .. I ..	
x	d .. .. I ..	d I 2 .. May 6
y	e .. .. I ..	e I 4 .. June 13 p80
x	f .. .. I ..	
x	k .. .. I ..	k I 1st .. May 2
x	l .. .. I p80	21a IV 1st .. June 13 p82 in x ~~only~~ and y
(14 on p84)		21b IV 1st see note p82 " .. p82 in x and y

Extra meas:

see p14 80	Oct 89	2 on y Pl. I an extra or 4th meas. made in getting an approx x reading
16		3 .. V = an extra made apparently because the 1st was from 2 sqs making 5 in all
14		16 on .. III } no apparent reason for an extra measure, as the
14		23 .. .. V } resids from the 3 meas. do not equal 1.0 see p87.

(for refs to meas. see p[illegible])

Remeasures for discordance were therefore made of 16 stars on 18 plates (see col 1) and means and residuals were again taken including them. For two of the 16 stars, 5a and f the residuals from the mean of the 4 measures did not equal 1.0″. For the other 14 stars the scale was again laid upon plate and the discordant cases 9 rejected see p84 + col 2 above.

(9) Rejected Meas. (resids over 1.0)

The 4 meas. were retained although the resids. from mean equalled or exceeded 1.0″, for 2 on II & III, 3 on III + for b, c, l on I, also for 1 and II 16 (see p102) on Pl. III (see above). For star e the mean of the adopted 3 meas. exceeds 1.″0. (For the stars 3+31 with 5 meas. on Pl. V see p 202.)

(5) Retained Meas. (resids also over 1.0)

Extra's retained

See p 57 mss.

Notes on Table I Approximate measures only could be made for the following Catalogue Stars. These Stars have not been used as Standards except 2 for which see note*

Dm +89° 19 on Pl. I x because the measure of Scale A is approximate

rejected see p 82 21 .. III 2nd meas in x because meas. of scales A + C are approx.

rejected see note p 82 .. IV first meas of both ~~meas~~ components in x because meas. of A + C are approx. on both

.. V 2nd meas. in x because meas of A + C are approx. no first (meas in x made only y, no earlier)

32 .. V in y because the meas. of D is approx.

33 .. II in y because the meas. of scales B + D are approx

38 .. I + II in x because the meas. of A + C are approx on both

Stand. 2 .. I in x because the meas. of A + C are approx.

*This Star 2 was used as a Standard on pls II III IV + V but not on pl. I.

Wrong Est. d on Pl. III 2nd meas. recorded 40.1 Bk 7 p 4 should be 39.1 38 was used see note p 207

Cat. + Lettered Stars measured from 2 squares, see also p 206 because on edges of squares

Stand. 89° 3 on Pl II 2nd + 3rd measure in y see Bk 7 pp 6 + 10
" III 4th " " y v. Bk 5 p 176
.. V 1st " .. y v p 17.
17 II 4.5 " .. y v p. 80
Stand. 17 .. IV 2nd + 3rd .. .. y v. p 29 31
Stand. 18 .. IV 3rd " .. x v. p 31
.. V 2nd + 3rd .. .. x see Bk 7 pp 122 + 124
19 .. IV 2nd " .. x + y v. p 82
a .. I all three meas. in x see Bk 5 170-2-4 (chkd with Table I mss)

Cat. + Lettered Stars measured from different squares, because on edges i.e. they are not measured from the same square on all the plates,

Stand. 89° 3 in x + y Pl I Est x + y = 63.9 mm 65.9 mm, II 64.0 mm 66.0 mm, III 64.0 mm 66.0 mm (63.9 66.0), IV 63.9 mm 66.0 mm, V 63.9 mm 65.9 mm
9 in x .. I Est x = 43.9, II 44.0 (43.9), III 44.0 (43.9), IV 43.8 (43.9) V not est
Stand 17 in y .. I Est y = ~~61.9~~ 61.9, II ~~62.0~~ 62.0, III 61.9, IV 62.0 V not est
" 18 in x .. I Est x = 14.9, II 15.0, III 15.1, IV 15.1 V not est
19 in x + y I 3.0 56.0, III 3.1 55.8
" 25 in y .. I Est y = 32.9, II 33.0, III 33.0, IV 33.0 V not est
" 35 in x .. I Est x = 41.9, II 42.0 (41.9), III 42.0, IV 41.9 V 41.8
d in x .. I Est x = 38.9, II 39.0, III 39.1, IV 38.9, V 38.9
(Star near 21 + 21 added in x + y II 1.9 39.9, III 2.0 39.9, V 2.1 39.9

For these stars applying one div gives meas + reduction from same square

Catalogue Stars.

See also p207

Stars measured from different squares, because on edges

Cases 1 division out because Estimated + reduced from one square + measured from another

Stand +89 3 on Pl IV subtracted 1 div from all 3 meas. in y. v.p27.29.31
on II + III sub. 1 div from 1st meas in y because Est. + red. with 66 + is meas from 65 v p10 + 13

omit this kind = error in reduction + are all corrected. occurred because one value Est used on all plates

.. (V last 4 meas. in y 2, 3, 4 + 5 — see B5. v.p.11 1st 2 meas. because all reduced with wrong Est. this pl. 66. instead of 65, Star 3)

" 17 .. II − 1 div y 1st meas y because Est + red with 62 + is meas 61 p11

.. IV − 1 div y. because est + red 62 meas 61 1st meas. in y. p27

.. V subtracted 1 div from all 3 meas. in y v p17 because not estimated on pl. V but reduced with 62 + is meas. from 61 1st meas (2 + 3 v. BK5)

" 18 .. IV added 1 div to 1st + 2d meas. in x. p27 29. because estimated + reduced with 15 + is meas from 14

893 II x p11, I y p80 19 .. I added 1 div y because reduced with 3. + is meas from 2. a single meas. p82

(17 III y p13, 19 III y p13, 35 III x p13)

.. II subtracted 1 div y " " " 56 .. " " 55 " " v p11

→ (III " 1 div y " " " 56 " " 55 " " v p13)

d II + III x Bk 7 = Σ 1777

21 .. IV added 1 div in x because reduced 2 + is meas from 1 single meas v p82

Star near 21 " IV subtracted 1 div y because reduced with 39 + is meas from 40 v p82

25 on III + 1 div. 1st meas y because reduced with 33 + is meas from 32 v p13

* In reducing the measures the whole numbers only of the estimated x and y are used.

Sometimes the stars on edges are estimated from one square and measured from the other.

See Table I of MSS. & Miss L's Bk 7 p4 + Bk 5 p156 + 176 for original meas.

e.g. Star 3 1st meas on pl III in x is Est. 64 mm v.p7 but is meas + reduced from sq. 63 mm v.p12

* For the Standard Stars one value of the whole number of the Estimates for each star was used throughout on all the plates see p.8. For 89° 3 Est x = 63 mm Est y = 66 mm were used for the reduction of all the measures on all the plates, so that the example above, 1st meas. pl III of this star x was reduced from 63 (though Est 64) and was therefore not 1 division out because it was measured from sq. 63 mm. Since 66 mm was the Est. y used for all plates, the 3 meas. on pl IV were 1 div. out and also the last 4 on pl. V. In this connection it must be noticed that pls I + IV are positives and −(C−A) + −(B−D) ~~were~~ applied to the whole number of the estimates (times scale) and that pls II III + V are negatives and +(C−A) + −(B−D) were applied to the same estimates expressed in arc.

see note*

used p8-9
63. 66.
43. 85
62
15.
3. 56.
33.
41.
38.
−2. 39

see above →

Stars on Edges of Squares. Catalogue (Stand. + "Single" Obs), Lettered and Faint Stars

Stars measured from 2 squares.

		Coord.	Pl.		
Stand. +89	√3	y	II	2° + 3° meas. III 4th meas. V̌ 1st meas.	v p207
	√17	y	II	4th IV̌ 2° + 3d	"
	√18	x	IV	3d V̌ 2 + 3d	"
"Single"	√19	x + y	V	2d IV. x + y	"
Lettered	√a	x	I	all 3	See p204
Faint No.	15	x	III		
	√35	y	III		
	√43	y	III		
Rem Rem	122a 122b	x y	III III		
	√128	x	III	diff. stars y to be Rem. v p 210	
	√158	x	III		
	√184	y	III		
	√191	x	III	diff. stars y, to be rem. v p210	
Rem	191	x	III		
	√221	y	III	def? v. p 209 also p207 for other note	
	√238	y	III		
	√278a	y	III	def? v p 208-9	
Rem	278b	y	V		
	√308	y	III		
	√324	y	V	1st meas from 2 Sqs. Rem p209. There was no need of meas. 2 Sqs. Estimates show that this star is at the centre of a square.	
	√326	x	III		
	√382	x	III		
	√409	y	III	v p207 for other note	
×	√442	y	III		
	√443	x	III	v p207 " "	
	√485	x	III		
	√493	y	III		
	√508	y	III		
	550a	x	V		
"	√569	y	III		
Miss Furness' Star +89	16a	x	V		

Stars on Edges

Estimated and reduced from one square but measured from the other. e.g. 3 II y p 11
Est. + red. 66. meas 65 (9 = 6 - 4)

Estimated reduced and measured from different Squares on the different plates e.g. 3 I y p 80
Est. + meas. 65 but reduced with 66. see p 205 *

Stars measured from different Squares.

also v p 211

Cases 1 division out

Pl

Stand. + 89 3 II y - 1 div 1st meas.
III y " 1st "
IV y " all 3 "
17 II y " 1st "
IV y " 1st "
V y " all 3 "
18 IV x + 1 div 1st + 2d "
"Single" 19 I x + 1 div
II y - 1 div
" 21 IV x + 1 div v p 82 this book
star near " IV y - 1 div "
Stand. 25 III y + 1 div 1st " v p 205
Faint No. 40 V x - 1 div Est. + red x 25.0, meas (C - A) = .9 ~~24.7~~
72 V y - 1 div " " y 63.0 meas (B - D) = .9
96 V x - 1 div " " x 32.0 (C - A) = .9
83 V y - 1 div " " y 70.0 " (B - D) = .9
~~128 III y~~ see p 210 to be remeas.
" Bk. 5 p 136
170 V x - 1 div Est. + red x 41.0, meas (C - A) = .9
221 V y " " " y 51.0, meas (B - D) = .9
222 V x " " " x 44.1 " (C - A) = .9
231 V x " " " x 45.1 " (C - A) = .9
245 V y " " " y 37.0 " (B - D) = .9
2786 III y " " " y 72.0 (B - D) = .9 (B - D) = .9
× 305 III y " Est. + red y 64.0 meas. 63.
(on V " " 63 " ")
× 353 III x " Est + red. x 57.0 meas. 56. (C - A) = .9
409 V y " " " y 29.0 " (B - D) = .9
both cords. × 443 III y " Est. + red y 42.0 meas. 41 (B - D) = .9
v. p. 206 2 sqs in x
× 479 III x " Est. + red. x 71.0 meas. 70 (C - A) = .9
× 483 III x " " " " 71.0 meas. 70 (C - A) = .9
580 V y " " " " 56.0 meas (B - D) = .9

× = whole est. differ in the 2 pls.

Cases not 1 division out when each plate ~~is reduced~~ or meas is reduced with its own estimate

89 3 I y, II x, V y

Est. were not always made with every meas of the Catal. Std. Stars.

17 III y
19 III y
35 III x
d II x III x, both pls Est 39. + meas. 39 (all 3 meas Bk 7) 2d meas;
first reduced with 38. now corrected see p 204 p 205

Faint No. 9	III / V	x	Est. red. + meas.	18.0 17.9
13		x	" " "	19.0 18.9
16		x	" " "	20.0 19.9
25		y	" " "	59.9 60.0
27		x	" " "	22.1 21.9
31		x	" " "	23.1 22.9
44		x	" " "	26.1 25.9
76		x	" " "	31.0 30.9 see BK 21 p 86
nr 15's dbl		x		
136		y	" " "	61.9 62.0
151		x	" " "	39.0 38.9
171		x	" " "	41.0 40.9
174		x		41.0 40.9
177		x	" " "	42.0 41.9
189		x	" " "	43.1 42.9
× 223	III / V	x	Est. red. + meas.	45.0 44.9
284		x	" " "	51.0 50.9
348		x	" " "	57.0 56.9
367		x	" " "	58.0 57.9
368		x	" " "	58.0 57.9
379		x	" " "	60.0 59.9
403		x	" " "	63.0 62.9
430		x	" " "	65.0 64.9
520		y	" " "	63.0 62.9
× 531	III / V	x	est. red + meas	77.1 76.9
543		x	" " "	78.1 77.9
570	III / V	y	" " "	40.0 39.9

Notes on the "580" faint Stars

Cases not measured on D4849=III

Probably defects.

No. × √ 1 Remeas. Bk21 p78 on D 4885 = V
× √ 2 "
× √ 3 "
× √ 7 "
× √ 33 N.S on III "
× √ 42 NS "
× √ 47 NS "
× √ 54 NS "
× √ 55 NS "
× √ 56 NS "
× √ 57 NS "
× √ 59 NS "
× √ 71 NS "
× √ 74 NS "
√ 75 N.S "def? v p209 defect
× √ 77 N.S "def? v p209 Remeas ?
× √ 78 NS Remeas. on V
× √ 79 N.S "
× √ 90 N.S dbl or def? v p209 " ?
× √ 94 NS Remeas. on V
× √ 95 N.S "
× √ 99 N.S "
× √ 108 NS "
× √ 115 NS "
~~126 N.S~~ Meas on D4849 Bk21 p80
× √ 163 NS Remeas on V
× √ 164 NS "
~~179 NS~~ Meas on D4849 Bk21 p80
× √ 192 NS Remeas on V
× √ 244 NS "
~~247 NS~~ Meas on D4849 Bk21 p80

No. × √ 258 NS Remeas Bk21 p80
× √ 298 NS "
√ 339 NS defect 2 stars on V
× √ 340 NS Remeas. on V
× √ 375 NS "
× √ 377 NS "
× √ 398 NS "
× √ 473 NS "
√ 501 NS ~~why omitted p80?~~ ~~√ Bk21~~ defect "Bk21 p88
× √ 519 NS Remeas on V
× √ 567 NS on III "

42 are meas on V only
+ 5 defects p209
Tot=47 " " " "

If they are stars and not defects, to be rem. on V if they cannot be found on III when superposed on V.

√ = 36 meas on V only
2 " " III "
× = 38 " " 1 pl only

Cases not measured on D4885=V

No. √ 57a Measured Miss L's Bk21 p76 on D4885 √
√ 62a "
√ 65a "
√ 92a "
√ 101a "
√ 122a "
√ 154a "
√ 162a "
√ 218a "
× √ 261a v p209 "plate cracked through region NS"
√ 274a v p209 Meas.
√ 278a v p206+209 "
√ 278b "
√ 334.a "
√ 343a "
√ 347a "
√ 387a "
√ 397a Not seen, defect v Bk21 p90
√ 419a Meas.
√ 420a v p209 "
~~445~~ v p209
√ 447a "
√ 464a v p209 "
√ 466a v p209 "
√ 516a "
√ 547a "
× √ 579a Not seen

27 (26) are meas. on pl. III only, if they are stars and not defects to be [illegible] on III if not found on V when superposed on III.

Feb 1 1901 All but 2 397a + 579a found on V by Miss L by superposing, + measured.

No. of Defects

75 Def. on V reject meas. p94. ?=Def. both pls?

No. 169 Def. on III not meas. on III

174 .. ..

236 .. ..

339 .. V reject meas p114

384 III .. .. ..

397a ~~V~~ III

445 III .. .. ..

501 V See Bk 21 p90

No. of Defects? marked doubtful

No. 75 Def. on ~~IV~~ V not meas III v p208 n.S III

77 ~~IV~~ V .. .. " n.S ..

90 ~~IV~~ V .. .. " n.S ..

185 meas. on both pls.

200 .. ..

221 .. .. v p206-7 v Bk 5 p142+94

227 .. ..

241 .. " .. ..

260 .. ..

261 a V not meas v p208

264 meas. on both pls.

274 a V not meas v p208

278 a V .. .. v. p206+8

343 a V .. .. v p208

378 meas. on both pls.

381 .. ..

420 a V not meas v p208

464 a V " " "

466 a V " " "

19

Include in Table VI all meas. on both pls. as they are probably not defects.

Incomplete readings

for MSS p52 or p59

No. 271 x on III no lines scale C assumed a value of x + reduced y

528 y on III no reading of scale B .. y .. x

529 y on III no reading of scale B .. y .. x

530 y on III no reading of scale D .. y .. x

Corrected estimates

No. 109	x	on III	34.3 mm	not	32.3 mm
127	x	.. III	36.8	..	35.8
138	x	.. III	36.5	..	53.5
154	y	.. V	65.3	..	60.3
209	y	.. III	38.8	..	33.8
247	y	.. V	65.3	..	69.3
324	x	" III	53.5 ✓	"	33.5 Rem. Bk 21 reduced with ass. val 335
342	y	.. III	37.4	..	32.4
387	y	.. V	17.9	"	70.9
545	x	.. V	77.6	..	76.6

Remeasures on V, made before Dec 11th 1900

No. 217 y Bk 5 p94+207, wrong reading scale B Rem. to be confirmed V
Rej. 1st V y v. Bk 21 p88 ✓
324 y .. 102+207 Mean of 2 adopted, the first meas. was from 2 sqs. see p206.
Rej. all + 173.4 + 178.9 + 175.8 + 178.8

399 y Bk 5 p108+207, wrong reading made on scale D V the second to be confirmed i.e. rej. 1st meas. if 2d is confirmed V
Rej. 1st V y v. Bk 21 p88 ✓

544 y Bk 5, 118 + 207 wrong reading on scale D, the 2d to be confirmed i.e. rej. 1st meas if 2d is confirmed V
Rej. 1st V y v Bk 21 p88 ✓

Remeasured again in Bk 21 p84 on D4849 June 1901, Wanted 4885

Confirmed → See Apr 5 1901 Bk 21 p88

Notes on the "580"

Cases to be remeasured on both plates, in both coords. the 2 enlargements
III + V differ 2″.5 or more. Corrected Results v. pp 91.93 &c

✓ No. ✓5 x + y = the discordant coord. Remeas Bk. 21 p 84 III, p 86 V. see note apr 17 p 211
✓ ✓50 y Retain all resids from 4 < 2″.5 "
✓ ✓53 x " See note p 211 apr. 17
✓ ✓112 x Retain all resids from 4 < 2″.5 "
✓ x ✓128 y Rej 1st III y ✓ chkd with new Table VI June 14 1901 "
✓ x ✓134 x Rej 1st V y ✓ "
✓ x ✓141 x Rej 1st V x ✓ "
✓ ✓155 x Retain all resids from 4 < 2″.5 "
✓ ✓156 y Retain all resids from 4 < 2.5 "
✓ ✓157 y Retain all resids from 4 < 2.5 "
✓ ✓178 x + y " (note apr 8 1901 Are not 178 + 179 same #?) See note p 211 apr 17
89 35 = ~~183 x~~ → 2d has been rej. on V v. p 203
✓ x ✓191 y Rej 1st V y ✓ "
c = ~~193 x~~ = 1st has been retained v pp 190 + 194
x 217 y p 209 ✓
✓ ✓241 x + y def? see p 209 " see note p 211 apr. 17
✓ x ✓261 x p 208-9 Rej 1st V x ✓ "
✓ x ✓264 y def? see p 209 Rej 1st III y ✓ "
✓ ✓282 x Retain all resids from 4 < 2.5 "
✓ x ✓289 y Rej 1st III y ✓ "
✓ ✓337 y Retain all greatest resids from 4 = 2.5 "
x 399 y p 209 ✓
✓ x ✓500 y Rej 1st V y ✓ "
x 544 y p 209 ✓
✓ ✓550 y Retain all resids from 4 < 2.5 "
22

Dec 20 1900 To Miss Leland

x For 11 cases scale again laid on plate + other meas. confirmed
see Bk 21 p 88 Apr 5 1901 by Miss Leland.

Feb 1901

"Single" … IV D because the
meas. m… that no meas have
been m… star 21 p82
Pl. IV
+89 … s. see Bk21

Σ1717=dbl = 2

323 …

3 39 39 39 34 34 39 6
1
4 47
5 57 59 58 53 4
3
9.9 49 70
14

0	~~||||~~ |||	8
1	~~||||~~ ~~||||~~ |	11
2	~~||||~~ ||	7
3	~~||||~~	4
4	~~||||~~ ||||	9
5	|||	3
6	|	≠1
7	||	≠2
8	||	0
9		

12
8
20

25 and gr.

to be remeas.

Limits for Cat. + Sel Stars = 1.0 see p.84-87
" .. Faint .. = 2.5 .. p134

Dec 11 1900

N. Pole Limits
for p 210

Feb 14 1901 … cases 1 div. out
… lts.

note:
Mar 20
Prof. P. … e with the … enl. was made
having marked on it the ~~X~~ 9* defects p209 and
the 40 odd stars measured only on 1 plate. p208
ask Mr. King for plate.

Apr. 18th 9* defects see p209, 38 stars meas. on 1 pl. only see p 208 x
these 47 to be omitted from new copy Table VI = Genl Cat.

Apr 17th Examine pl. D4842 for all cases for which 2nd
4 meas. differ largely viz nos 5 53 178 241

Feb 1901

"Single" Obs. Measures wanted in D4879 = IV because the meas. made on p82 were of pl. 4885 = E or V so that no meas have been made of these stars on pl IV except star 21 p82

Pl V	v p 8	Est Oc mm	Est y mm		
+ 89	7	75.2	97.0	off pl. IV	For meas. see Bk21
	19	3.0	56.0	"	
Σ1717 = dbl =	21	−2.1 −2.2	39.9 40.0	"	
	24	4.7	19.9	"	
	28	25.5	2.6	"	
	82	55.6	$0.\overset{7}{8}$	"	Bk21 Est.
	33	49.7	$16.\overset{4}{5}$	"	Bk21 Est
	34	58.1	5.7	"	
	38	$99.\overset{7}{6}$	38.8	"	Bk21 Est.

Cases 1 division out on both plates

323 y Est. + Red $\overset{mm}{83.0}$ but meas (6−A) = 9 − 1 div

Feb 14 1901 All faint & lettered stars examined for cases 1 div. out when both enlargements give same results.

[illegible]

note: Mar 20 Prof. P. Compare a new & better original with the original from which one of the enl. was made having marked on it the ~~X~~ $\overset{+}{9}$ defects $\overset{p209}{}$ and the 40 odd stars measured only on 1 plate. $\overset{p208}{}$ ask Mr. King for plate.

Apr. 18th 9^{+} defects see p209, 38 stars meas. on 1 pl. only see p 208 x these 47 to be omitted from new copy Table VI = Genl Cat.

Apr 17th Examine pl. D4842 for all cases for which Red 4 meas. differ largely viz nos 5 53 178 241 not measured:

Dm + 89 7 is not on Plates I III IV and V
.. 28 .. .. II and III
.. 32 .. .. II and III
.. 21 .. on extreme edge of Plate I
.. 34 II

Note June 1901 The magnitudes of all Cat. stars outside of 30′ from N.P. are not estimated on either end and this col is blank in Table VI for Dm +89° 26. 5 6. 7. 9. 16. 25. 28. 32. 34 + 38. and also for Miss Wells star with pr. motion 5a and Miss Furness's star 16a also for 21a + 21b, 17 18 19 23 + 24 12.

June 5th entered B for all Cat stars.

B has been entered in Table VI for the bright stars within 30′ or among the 500, F for the faint in magn col and A in resid col where a single meas. of magn has been made.

June 14 1901 Finished chkng Mean x + y + resids Tab VI. Mean Magn + resids also are finished.

Miss W. ~~See note on postal (front)~~ 47

To be marked on e
of D4849 and identifie
=C11847
new original later tha
~~Enter of a good Obs. in Sa~~

Single measures North Pole

	Est. x	Est. y 4885			x	y	
1	15.3	48.3 V	Defect ?	×115 V	34.4	61.8	Defect See Magn
2	15.4						" Defec
3	15.8						An image on 4849 " but looks
7	17.1						4849 III look
33	23.7						168 III look
42	25.3						173 Defect ~~Defe~~
47	26.3 26.6, 31.						III look
~~omit~~ ×54 V	27.6						age marked as defect on See Magn
×53	27.5						Defect "
55	27.9	6					star on origin III ✓ Pla whe
×56 V	27.3	7					See Ma
×57 V	27.8	7					V See Ma
59	28.5	2					"
71	29.4	5					Defec
74	30.6	2					Defect
×(75) ~~V~~ defect Miss	30.5	4					III star ~~look~~
×77 ~~V~~ Miss	30.4						III ✓ Defect Not
×78 V	30.8						? Defective
×79 V	30.9						Defect.
×90 V	31.4						III look for
×94 V	31.5	71.5	Defect	×473 V	69.6	45.2	Defect See Magn. Notes
×95 V	31.8	71.3	Defect.	×(501) V	71.6 ~~74.7~~	67.7 ~~60.6~~	V " Defect. "
×99 V	32.4	56.4	Defect	519	74.7	60.6	74.4, 60.2 star 518 Defect.
				567	80.7	61.2	Defect.
108	33.9	77.1	Defect. ?	579a	83.6	50.1	III ✓ Not on 4885 83.8, 49.7 star 5

Miss L. For p212 N.P. Book

N.P. Stars

See if too bright to estimate magnitude.

		Est x	Est y	
B89	21a	−2.1 ✓	39.9 ✓	
	21b	−2.2	40.0	
	19	3.0 ✓	56.0 ✓	10.5
B	17	3.5 ✓	62.0 ✓	
	23	3.9 ✓	37.9 ✓	10.5
	24	4.7 ✓	19.9 ✓	11.0
	16a	11.1	66.3	11.2
B	18	15.0 ✓	53.5 ✓	
	16	16.2 ✓	66.1 ✓	11.5
B	25	18.7 ✓	33.0 ✓	
	28	25.5 ✓	2.6 ✓	10.3
	12	30.7 ✓	74.6 ✓	
B	29	33.7 ✓	31.2	
~~B~~	9	43.9 ✓	85.5 ✓	10.0
B	33	49.6	16.5 ✓	
B See 4885	32	55.6 ✓	0.7 ✓	~~not on 4849~~
B	36	56.8 ✓	27.8 ✓	
	34	58.1 ✓	5.1 ✓	10.0
	1	60.1 ✓	51.2 ✓	10.0
B	3	63.9 ✓	66.0 ✓	
See 4842	7	75.2 ✓	97.0 ✓	Not on 4849
	5a	78.4 ✓	75.5 ✓	11.0
	5	79.7 ✓	74.9 ✓	11.0
	6	88.6 ✓	88.2 ✓	10.0
	2	97.2 ✓	72.8 ✓	10.8
B	38	99.6 ✓	38.8 ✓	

1161K

16a = Furness star

8a = Proper motion Star Miss Wells.

June

Miss W. ~~See note on postal (front)~~ 47

Single measures North Pole.

Est. x Est. y 4885

1 15.3 48.3 V Defect ?

2 15.4

3 15.8

7 17.1

33 23.7

42 25.3

47 26.3 26.6,31.

omit ~~54 V~~ 27.6

53 27.5

55 27.9 6

56 V 27.3 7

57 V 27.8 7

59 28.5 2

Var? 71 29.4 5

74 30.6 2

~~(75) V~~ defect Miss ~~30.5~~

Var? ~~77 V 30.4~~ Miss

78 V 30.8

79 V 30.9

90 V 31.4

94 V 31.5 71.3 Defect

95 V 31.8 71.3 Defect.

99 V 32.4 56.4 Defect

108 33.9 77.1 Defect. ?

July 1 All D4842 cannot be found to est. magn of 89 7 therefore left B in Table VI

To be marked on e

of D4849 and identifica

new original later the =C11847

~~Enter of a good Obs. in Sa~~

x y

115 V 34.4 61.8 Defect See Magn

Defec

An image on

4849" but looks

4849

III look

ar 168

III look

173

Defect

~~Defe~~

III look

age marked

by defect on See Magn

Defect

star on origin

III Pla whe

See Mag

V See M

Defec

Defect

III ~~look~~ star

III Defect Not

? Defective

Defect.

III look for

473 V 69.6 43.2 Defect See Magn. Notes

(501) V 71.6 ~~74.7~~ 67.7 ~~60.6~~ V Defect.

519 74.7 60.6 Defect.

74.4, 60.2 star 518

567 80.7 61.2 Defect.

579a 83.6 50.1 III Not on 4885 83.8, 49.7 star 5

Miss W. ~~See note on postal (front)~~ **47**

To be marked on e
of D4849 and identifie
new =C11847 ^ original later tha
~~Enter of a good Obs. in sa~~

Single measures North Pole.

	Est. x	Est. y 4885		
1	15.3	48.3	V	Defect ?
2	15.4			
3	15.8			
7	17.1			
33	23.7			
42	25.3			
47	26.3 26.6, 31.			
omit ×54 V	27.6			
×53	27.5			
55	27.9	6		
×56 V	27.3	7		
×57 V	27.8	7		
59	28.5	2		
Var. 71	29.4	5		
74	30.6	2		
~~×(75) V~~ defect Miss	30.5			
Var. ~~×77 V~~ Miss	30.4			
×78 V	30.8			
×79 V	30.9			
×90 V	31.4			
×94 V	31.5			
×95 V	31.8	71.3		Defeat.
×99 V	32.4	56.4		Defect
108	33.9	77.1		Defect. ?

	x	y	
×115 V	34.4	61.8	Defect See Magn
			"Defec
×(501) V	~~74.7~~ 71.6	~~60.6~~ 67.7	V " Defect. "
519	74.7 74.4, 60.2 star 518	60.6	Defect.
567	80.7	61.2	Defect.
579a	83.6	50.1	III ✓ Not on 4885 83.8, 49.7 star 5

An image on
) 4849" but looks
4849
III look
ar 168
III look
173
Defect
~~Defe~~
III look
age marked
by defect on
See Magn
Defect "
star on origin
III ✓ Pla
whe
See Ma
V See M
"
Defec
Defect
star
III ~~look~~
III ✓ Defect Not
? Defective
Defect.
III look for
Defect See Magn. Notes

Miss L Wells. for p212

No 241 of original negs

	x	y
Est	46.5	26.5

magn 15.8

Defect on D4849 ?

Yes. Defect on D4849 not on original (C10052) ×

Magn. Mr. K.'s ~~Def~~ ~~III~~ & ~~V~~

Est x = 75.2 Est y = 97.0 (over)

7 magn. II

D4849 15.8, 16.0 } 15.9 1

D4885 15.8, 15.8 } 15.8 2

× and def on original of C10092 broken plate × confirmed by Miss L. and Miss Wells

Miss W. ~~See note on postal (front)~~ 47

To be marked on e
of D4849 =C11847 and identifie
new original later tha
~~Enter of a good Os. in Sa~~

Single measures North Pole

	Est. x	Est. y	4885	
1	15.3	48.3	V	Defect ?
2	15.4	47.7		Defect ?
3	15.8	[illegible]		Defect
7	17.1			
33	23.7			
42	25.3			
47	26.3 26.6, 31.			
omit ~~54~~ V	27.6			
53	27.5			
55	27.9	6		
56 V	27.3	7		
57 V	27.8	7		
59	28.5			
71	29.4	5		
74	30.6	2		
(75) ~~V~~ defect	Miss 30.5			
77 ~~V~~	Miss 30.4			
78 V	30.8			
79 V	30.9			
90 V	31.4			
94 V	31.5			
95 V	31.8			Defect.
99 V	32.4	56.4		Defect
108	33.9	77.1		Defect. ?

	x	y	
115 V	34.4	61.8	Defect See Magn
163 V	39.5	60.1	" Defect
164 III	39.5	78.0	An image on 4849" but looks

Is 53 on other original C10852? No —

Defects in slightly different positions on both enlargements.

4849
III look
in 168
III look
173 Defect ~~Defec~~
III look
age marked
for defect on
See Magn
Defect "
star on origin
III ✓ Pla
whe
See Ma
V See M
Defec
— Defect
star
III ~~look~~
— III ✓ Defect Not
9? Defective
— Defect.
III look for
Defect See Magn. Notes
V " Defect. "

519	74.7 74.4, 60.2 star 518	60.6	Defect.
567	80.7	61.2	Defect.
579a	83.6	50.1	III ✓ Not on 4885 83.8, 49.7 star 5

Var.?

Miss W. ~~See note on postal (front)~~ ~~[illegible]~~ **47**

To be marked on all D4885 of D4849 and identified on ~~a~~ new =C11847 original later than C10092 1213 N.P. Book

~~Enter if a good obs. in same sq. [illegible]~~

Single measures North Pole

	Est. x	Est. y	4885	
1	15.3	48.3	V	Defect ?
2	15.4	47.7		Defect ?
3	15.8	56.7		Defect
7	17.1	56.2		Defect
33	23.7	43.2		Defect
42	25.3	58.3		Defect.
47	26.3	31.4		Defect 26.6, 31.4 star 48
omit ×54 V	27.6	64.6		× defect See Magn. Notes Bk 5 p 178 marked defect
×53	27.5	64.4		defects Miss Wells has looked up on originals
55	27.9	64.9		Defect
×56 V	27.3	70.7		" Defect
×57 V	27.8	70.4		" Defect
59	28.5	26.4		Defect.
71	29.4	57.3		Defect.
74	30.6	25.5		Star ? not on 4849 On C10092 not on C11847
×(75) ~~V~~ defect	~~30.5~~	~~40.3~~	~~V~~	Miss Wells has looked up Defect ~~" " omit~~ not on 4849
×77 ~~V~~	~~30.4~~	~~55.4~~		Miss Wells has looked up Defect. ~~" " omit~~ not on 4849
×78 V	30.8	66.8		" " Defect ~~?~~ On C10092 not on C10057
×79 V	30.9	67.2		Defect not on 4849 " ~~Star?~~ " On ~~C10092~~ not on C11847 or 10092
×90 V	~~31.4~~	~~59.4~~		" Both ~~Bright~~ objects & defects ~~faint~~ " ~~object a star~~ ~~omit~~
×94 V	31.5	71.5		Defect
×95 V	31.8	71.3		Defect.
×99 V	32.4	56.4		Defect
108	33.9	77.1		Defect. ?

	x	y	
×115 V	34.4	61.8	Defect See Magn. Notes Bk 5
×163 V	39.5	60.1	" Defect "
×164 III	39.5	78.0	An image on 4849 " but looks like defect; " Star.
(169) on both plates	40.4	61.6	4849 III look for on V Star. ✓ 40.2, 61.6 star 168
(174) On both plates	40.9	74.6	III look for on V Star ✓ 40.6, 74.0 star 173
192	42.7	31.9	Defect
~~Miss W.~~ (236)	45.9	74.8	III ~~Defect~~, star look for on V
~~Enter Pl. f. Bk 5~~ ×244 V	46.4	28.6	Wrong image marked. Image meas. is a defect, one marked a star. See Magn. Notes a Star. ✓
×258 III	47.2	47.3	Defect " "
261 p	47.1	56.5	III ✓ star on original of both plates. Plate cracked where this image comes
×298 V	52.5	17.7	See Magn. " Defect.
×(339) V	55.5	19.2	V See Magn. " Defect.
×340 V	55.9	29.9	" " " Defect
375	58.6	38.1	Defect.
377	58.5	74.5	Defect
(384) — On 4849 very ft.	59.5	59.5	III star ~~look for on V~~
(397 p)	61.7	53.5	III ✓ Defect Not on 4885
398 — Image on 4849? Defective	61.1	67.5	Star.
(445)	66.4	65.5	III — Defect. look for on V
×473 V	69.6	45.2	Defect ~~See Magn. Notes~~
×(501) V	71.6 ~~74.7~~	67.7 ~~60.6~~	V " Defect. "
519	74.7	60.6	Defect. 74.4, 60.2 star 518
567	80.7	61.2	Defect.
579 p	83.6	50.1	III ✓ Not on 4885 83.8, 49.7 star 579 Defect

60
65
65
65
255
63.75

47 Single Measures 38 and defects (9)

Cases marked on Enl. pl. D4885 = V and identified on a new original C11847 (later than Pl. D4885 from C10092) by Miss Wells

No	Est. x	Est. y	Pl.	Remarks	No.	Est. x	Est. y	Pl	Remarks
1	15.3	48.3	V =4885	Defect ?	(169)	40.4 40.2	61.6 61.6 =	V 168	Star ✓
2	15.4	47.7	"	Defect ?	(174)	40.9 40.6	74.6 74.0 =	V 173	Star ✓
3	15.8	56.7	"	Defect	192	42.7	31.9	V	Defect
7	17.1	56.2	"	Defect	(236)	45.9	74.8	"	~~Defect~~ Star ✓
33	23.7	43.2	"	Defect	244	46.4	28.6	"	~~Star~~ Defect
42	25.3	58.3	"	Defect	258	47.2	47.3	"	Defect
47	26.3 26.6	31.4 31.4 = Star 48		Defect	261a	47.1	56.5	III	V Crack here cannot be meas on V Star on original of both plates See III ✓
54	27.6	64.6	V	Defect	298	52.5	17.7	V	Defect
55	27.9	64.9	"	Defect	(339)	55.5	19.2	"	Defect
56	27.3	70.7	"	Defect	340	55.9	29.9	"	Defect
57	27.8	70.4	"	Defect	375	58.6	38.1	"	Defect
59	28.5	26.4	"	Defect	377	58.5	74.5	"	Defect
71	29.4	57.3	"	Defect	(384)	59.5	59.5	"	Star ✓ On 4849 very ft.
Var.? 74	30.6	25.5	"	Star ? on C10092 (= D4885) ✓ not on C11847 not on D4849 ✓	(397a)	61.7	53.5	III	not on 4885 Defect ✓ very round star images slightly elongated on III ✓
(75)	30.5	40.3	"	~~omit~~ Defect not on 4849	398	61.1	67.5	V	Star "Image defective" light streak across it on III ^ [illegible] image on V
77	30.4	55.4	"	~~omit~~ Defect not on 4849	(445)	66.4	65.5	"	Defect
78	30.8	66.8	"	Defect ? not on C10052 on C10092	473	69.6	45.2	"	Defect
79	30.9	67.2	"	Defect not on C11847 " " C10092 " " D4849	(501)	71.6	67.7	"	Defect
Var.? 90	31.4	59.4	"	~~omit~~ Bright object a defect faint object a star	519	74.7 74.4	60.6 60.2	" = 518	Defect
94	31.5	71.5	"	star on end of defect. on V only ✓ Defect not on III ✓	567	80.7	61.2	V	Defect
95	31.8	71.3	"	Defect	579a	83.6	50.1	III	not on 4885 Defect ✓ very faint
99	32.4	56.4	"	Defect	47				
108	33.9	77.1	"	Defect ?	June 12 1901 53	27.5	64.4	III ✓ V ✓	Defect on 4885 ? " on 4849
115	34.4	61.8	"	Defect					
163	39.5	60.1	"	Defect					
164	39.5	78.0	"	Star. "Image looks like a defect." ✓ ✓ Irregular in shape on III Star image on V ✓ faint					

✓ = A.W. looked at June 12 + 18 pencil notes

nine counting Nos 53 & 241
Measures were made of forty-~~eight~~ doubtful
objects found within 30' of the N. Pole on Pl. III + V. Three
3 of them were measured ~~appeared~~ on Plate III only, Nos. 261a
44 397a and 579a and forty-~~four~~ five on Plate V
see note below on only, Nos: 1, 2, 3, 7, 33, 42, 47, 54, 55, 56 57
1. 2 & 108 59, 71, 74, 75, 77, 78, 79, 90, 94, 95, 99, 108, 115, 163,
164, 169, 174, 192, 236, 244, 258, 298 339 340
375 377 384 398 445 473 501 519 and 567

Miss Wells finds:
✓ 53 = def on 4885
+ also on 4849
= 1
Total 48

Nos 53 & 241 appeared on both plates but not in exactly
the same position (see resids p134) and the
images on the two enlargements differed
largely in brightness. The original plates
C10052 and C10092 from which the two en-
largements D4849 = III + D4885 = V were made, and a later plate
C11847, taken in April 1899, were then examined
2 for these cases by Miss Wells. Two of the three
34 doubtful objects 397a and 579a which were measured ~~appeared~~
on Plate III only and thirty-~~three~~ ~~four~~ seven including 1, 2, & 108. (78 of these which
appeared on V only, were found to be defects
and were rejected as they did not appear on
the 2 originals from which the enlargements were made. (see cases underlined above)
(241 also) 1 also No 53 which appeared on both enl. was def. on both + rejec
8 ~~Nine~~ Eight cases Nos. *74, ~~90~~, 164, 169, 174 236
261a, 384 and 398 proved to be stars because they appear and
are included in Table VI. The remaining three extremely faint to ~~Four cases~~ which 4 maps
3 → 4 8/49
V now broken appear only on the best enl. Plate V Nos 1. 2. ~~78~~ and 108 are
(June 24 1901) still doubtful as it is uncertain whether they
~~are defects~~ appear on both the originals C10052 + C10092. ~~or not.~~
A note on No. 53 will be found among the Remarks
on Table VI see next page. has been rejected def. on both

Note
June 29 Prof. P. said to include Nos 1 2 and 108 in defects &
put note in 74 see p116a

Nos.
1 } These three objects appear on plate V & may
2 } be ... do not find
108 } the ... 0052 & C (10092)
exam ... wer — but
bein ... plate V- which
is th ... may possibly
be ... good enlargement
only

74 This ... (C 10092) but
is sligh ... surrounding
stars ... is a defect
or a ... is not on
other ...

78 Defe ...

90 - Both of ... fects on enlargement.

L. D. Wells - June 28th 1901

Nos 1 2 ~~78~~ & 108
Three ~~The~~ extremely faint
objects appearing on
Plate V we are
still doubtful about.
On examining with usual power.
We do not find them
on the original nor
on the poorer enlargement
but being so faint
they may be brought
out by the good
enlargement only -

Miss Well's note June 22 1901

Nos.

1 } These three objects appear on plate V & may
2 } be defects on that plate - I do not find
108 } them on either original (C 10052 & C 10092)
examining them with the usual power - but
being so extremely faint on plate V - which
is the best enlargement - they may possibly
be stars brought out by this good enlargement
only -

74 This object appears on the original (C 10092) but is slightly different in shape from surrounding stars - I do not know whether it is a defect or a defective image of a star. It is not on other original (C 10052.

78 Defect on original (C 10092 ~~1005~~

90 - Both objects fastened together are defects on enlargement

L. D. Wells - June 28th 1901

Additional Remarks on Table VI relating
to … to see if
def

53 Mi… …inal C10092

Var? 74 "Star?" … Plate III
Is or … will furnish … sured on Plate
V, on … It does not
app… …te + p116 affirms
Var? 90 I m… …e III and
defect see Miss Wells note of June 28 1901
is f… …, is measured
in …
164 I m… … like a
def…
(already in 34) 261a Ca… …V as the
plai… …It appears
on …
398 I … …, a good
in…

…ted.
…ured on the original … C11847,
…ucts,
1 = 16.0 2 = 15.8 108 = 16.0

* The remaining doubtful object (No 74) does not appear on Plate III, nor on the original negative C10092, it has therefore not been included in Table VI. It appears on Pl I + orig. neg. C10092 of a slightly different shape from surrounding stars. It is uncertain whether it is a defect or a defective image of a star. Position C11847 x 1900 −1021.9 y −1266.0 magn 15.0

Note for p215 U.P.
June 27 1901
Looked over pp 134-5
large residuals to see if
there were any other cases
like No 53 i.e. measured
both pls & got def on
both. Picked out 178
& 241 for exam. of magn
notes to see if def there.
241 = def. on 4849
gave to Miss Wells to
ex. on originals = defect
July 1 1901 ∴ have rejected from Tab VI see p212
178 not marked
def in magn. notes.

Additional Remarks on Table VI relating to stars examined on originals to see if defects or not.

53 Miss Wells says is defect on 4885, is not original C10092

Var? 74" Star? Image does not appear in Plate III. Is on C10092 and has been measured on the enl. print Plate V only, which is enlarged from it. It does not appear on C11847 See Miss Wells note + p116 a Mss.

Var? 90 Image does not appear Rej. in Plate III and is joined to a bright defect in Rej. Plate V, is measured in Plate V only.

Defect see Miss Wells note of June 28 1901

164 Image faint and irregular and looks like a defect on Plate III ✓

(already in 34) 261a Cannot be measured on Plate V as the plate is broken at this point. It appears on both originals ✓

398 Image(?) defective on Plate III, a good image on Plate V.

ted.

ared on the original negatives and also on the later plate C11847,

ects"

1=16.0 2=15.8 108=16.0

* The remaining doubtful object (No 74) does not appear on Plate III, nor on the original negative C10052, it has therefore not been included in Table VI. It appears on Pl V + orig. neg. C10092 of a slightly different shape from surrounding stars. It is uncertain whether it is a defect or a defective image of a star. Is not on C11847 x 1900 −1021".9 y −1266".0 magn 15.0

1897pdae.proj.....185W