

KG  
11366  
138



1679phae.proj.1140.  
K 6 11366 .138















KG 11366.138

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Observations probably incorrect made with  
Photometer P.

1879					
June 21	2347	June 34	[7.52]		
" "	2351	" "	[7.54]		
" "	2376	" "	[4.08]		
" "	2531	" 35	{124.3}	{0.62}	
" "	2440	" "	{4.3}	{9.13}	
" "	64	" "	{84.6}	{2.21}	





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199.

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201. " " " " " "

202. " " " " " "

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# Adjacent Stars in Catalogue.

$0^h$

3-4-7

50-52

94-97-99

$I^h$

cl. 156-7 Piscium  $1^{h-2} 0^h 59^m 3$   $+20^\circ 50'$   $\pm 88.30''$

166-70

186-90

212-3

242-5

cl. 278-9 Androm.  $1^h \begin{cases} 48.8^m \\ 49.1 \end{cases} +36^\circ \begin{cases} 40.1' \\ 41. \end{cases} \pm 4^r 178''$

292-3

294-5

297-9

$II^h$

331-3

cl. 380-1 Arietis  $2^h \begin{cases} 30.0^m \\ 30.1 \end{cases} +24^\circ 8'$   $\pm 57^r 273''$

409-12

426-7

$III^h$

484-8

572-5-6

581-5

584-8

623-7

631-2

$IV^h$

639-42

cl. 659-61 Eridani  $4^h \begin{cases} 6.3^m \\ 6.4 \end{cases} -20^\circ \begin{cases} 41.1' \\ 40. \end{cases}$



cl. 672-3 Tauri  $4^h \begin{cases} 9.0^m \\ 9.1 \end{cases} +5^\circ \begin{cases} 54' \\ 52. \end{cases}$

682-3

685-6

704-6

707-9

715-18

728-9-30

734-6-7

735-8

748-9

761-2

807-10

$\sqrt{h}$

862-7

893-7-900

909-10

918-9

965-6

cl. 968-70 Orionis  $\theta 5^h \begin{cases} 29.4^m \\ 29.5 \end{cases} -5^\circ \begin{cases} 28' \\ 30. \end{cases} \Sigma$

983-7

1042-3

1045-7

$\sqrt{h}$

1096-8

1105-10

1138-9

1206-8

1209-11

cl. 1224-5 Can. Maj.  $6^h 44.7^m -23^\circ \begin{cases} 57' \\ 59. \end{cases}$

1228-31

1243-4

VII<sup>h</sup>

1294-7

1306-7

1328-31

1334-6

1379-80

mining

1396-7

1399-1401

VIII<sup>h</sup>

1459-61

1521-3-5

1537-8

IX<sup>h</sup>

1628-9

1635-6

1641-3

1670-1

1685-6

1688-9

X<sup>h</sup>

1697-8

1718-20

1726-8

1791-2

1798-1800

XI<sup>h</sup>

1829-31-33,

d 1924-6 Mrs. May:  $11^h \begin{cases} 48.9^m \\ 49.0 \end{cases} + 47^o \begin{cases} 9.' \\ 8. \end{cases} \approx 20^I \ 63''$

XII<sup>h</sup>

1972-7

1976-5



1981-2

1983-4

1993-4

2010-1

2019-20

$$cl \quad 2063-4 \quad Camelop. \quad 12^h \begin{cases} 48.2^m \\ 48.3 \end{cases} + 84^\circ 4' \quad \Sigma \quad 1694.22''$$

2076-7

XIII<sup>h</sup>

2098-9-2101

2106-7

$$cl \quad 2121-2 \quad Virginis \quad 13^h \begin{cases} 12.8^m \\ 13.0 \end{cases} + 4^\circ \begin{cases} 19' \\ 21' \end{cases}$$

2130-1

2134-6

$$cl \quad 2142-4 \quad Drae. \quad 13^h \begin{cases} 23.7^m \\ 23.2 \end{cases} + 65^\circ \begin{cases} 21' \\ 19' \end{cases}$$

2152-3

2188-90

XIV<sup>h</sup>

2211-12

2249-51

2267-9

2305-7

2326-8-9

XV<sup>h</sup>

2428-33

2495-7

XVI<sup>h</sup>

2547-8

2586-7

2606-8

$$cl \quad 2626-7 \quad Drae. \quad 16^h \begin{cases} 33.4^m \\ 33.4 \end{cases} + 53^\circ \begin{cases} 10' \\ 8' \end{cases} \quad \Sigma \quad 30^\circ \quad 90''$$

$$cl \quad 2628-30 \quad Herculis \quad 16^h \begin{cases} 34.6^m \\ 34.7 \end{cases} + 4^\circ \begin{cases} 26' \\ 27' \end{cases} \quad \Sigma \quad 31^\circ \quad 70''$$

2677-9  
XVII<sup>h</sup>

2731-2

2757-8

cl 2764-5 Drae.  $17^h \begin{cases} 29.^m \\ 29.9 \end{cases} + 55^\circ \begin{cases} 16.' \\ 15.' \end{cases} \approx 35^I 62''$

2777-80

2795-7

Mining cl 2802-3 Drae.  $17^h 44.^m + 72^\circ \begin{cases} 12.' \\ 13.' \end{cases} \approx 2241 31''$

2824-7

2849-51

XVIII<sup>h</sup>

2863-5

2874-5

cl 2880-1  
 2883-4 Drae  $18^h 9.^m + 79^\circ \begin{cases} 59.' \\ 58.' \end{cases} \approx 2308.21''$   
 2904-5

cl 2920-1 Hercules  $18^h \begin{cases} 21.^m \\ 21.9 \end{cases} + 26^\circ 23'$

~~cl~~ 2958-9

cl 2961-2 Lyrae  $3^h 18^m \begin{cases} 40.^m \\ 40.7 \end{cases} + 37^\circ \begin{cases} 29.' \\ 28.' \end{cases} \approx 38^I 44''$

2978-9

2981-4

XIX<sup>h</sup>

3056-7

cl 3061-2 Lyrae  $19^h \begin{cases} 6.^m \\ 6.8 \end{cases} + 26^\circ \begin{cases} 4.' \\ 3.' \end{cases} \approx 2480 \text{ min}$

3080-2

3087-90

3099-3100-2

cl 3114-5 Pegasus.  $19^h 19.^m + 16^\circ 43'$   $\approx 41^I 336''$

3125-9

3146-8

3149-51

cl 3165-7 Pegasus  $19^h \begin{cases} 32.^m \\ 32.9 \end{cases} - 23^\circ 42'$



3173-7  
 d 3184-5 Cygni  $19^h 38.7^m + 50^\circ \begin{cases} 15.1' \\ 14. \end{cases} \quad \Sigma 46^2 37''$

3264-5

XX<sup>2</sup>

3289-90 ~~Kappa~~ ~~XX~~ <sup>a.p.</sup> <sub>p.m.</sub>

3296-8

d 3305-8 Capricorni  $20^h \begin{cases} 11.0^m \\ 11.2 \end{cases} - 12^\circ \begin{cases} 52.1' \\ 55. \end{cases} \quad \Sigma 51^2 375''$

3342-3-5

d 3356-7 Aquilae  $20^h 26.3^m + 1^\circ \begin{cases} 49.1' \\ 43. \end{cases}$

d 3378-9 Cygni  $20^h \begin{cases} 32.7^m \\ 32.8 \end{cases} + 31^\circ \begin{cases} 6.1' \\ 9. \end{cases} \quad \Sigma 53^2 178''$

3387-9

3390-2

3395-8

3402-5

3427-30

3440-2

3475-9

XXI<sup>2</sup>

d 3483-4 Cygni  $21^h 1.5^m + 38^\circ 9' \quad \Sigma 2758^{\pm} 15''$

3590-3

d 3635-7 Cephei  $21^h \begin{cases} 54.1^m \\ 54.3 \end{cases} 65^\circ \begin{cases} 35.1' \\ 34. \end{cases}$

3649-52

XXII<sup>2</sup>

3665-70

3803-4

XXIII<sup>2</sup>

3914-6

3935-6

3941-2

3993-7



## Bright Stars.

1.	5	Andromedae	$\alpha$
2.	95	Ceti	B
3.	132	Cassiopeiæ	$\gamma$
4.	175	Andromedae	B
5.	199	Ursæ Minoris	$\alpha$
6.	304	Andromedae	$\gamma_2$
7.	310	Arctis	
8.	460	Persei	B
9.	505	Persei	$\alpha$
10.	751	Tauri	$\alpha$
11.	883	Aurigæ	$\alpha$
12.	887	Orionis	B
13.	927	Tauri	B
14.	928	Orionis	$\gamma$
—	953	Orionis	$\delta$
15.	974	Orionis	$\epsilon$
16.	990	Orionis	$\zeta$
17.	992	Columbæ	$\alpha$
18.	1011	Orionis	K
—	1033	Orionis	$\alpha$
19.	1042	Aurigæ	B
20.	1140	Canis Majoris	B
21.	1184	Geminorum	$\gamma$
22.	1207	Canis Majoris	$\alpha$
23.	1253	Canis Majoris	$\epsilon$
24.	1277	Canis Majoris	$\delta$
25.	1346	Geminorum	$\alpha$
26.	1361	Canis Minoris	$\alpha$
27.	1377	Geminorum	B
28.	1598	Hydræ	$\alpha$





29.	1695	Leonis	$\alpha$
30.	1720	Leonis	$\gamma$
31.	1815	Ursae Majoris	$\beta$
32.	1818	Ursae Majoris	$\alpha$
33.	1912	Leonis	$\beta$
34.	1922	Ursae Majoris	$\gamma$
- 35.	1962	Corvi	$\gamma$
36.	2066	Ursae Majoris	$\delta^+ \epsilon$
37.	2133	Virginis	$\alpha$
38.	2134	Ursae Majoris	$\zeta$
39.	2203	Ursae Majoris	$\eta$
40.	2262	Bootis	$\alpha$
41.	2355	Ursae Minoris	$\beta$
42.	2393	Librae	$\beta$
43.	2441	Coronae Borealis	$\alpha$
- 44.	2531	Scorpiionis	$\beta$
45.	2597	Scorpiionis	$\alpha$
—	2702	Herculis	$\alpha$
46.	2763	Optinchi	$\alpha$
47.	2943	Loprae	$\alpha$
48.	3203	Aquilae	$\alpha$
49.	3332	Cygni	$\gamma$
50.	3399	Cygni	$\alpha$
51.	3594	Pegasi	$\epsilon$
52.	3806	Piscis Australis	$\alpha$
53.	3828	Pegasi	$\alpha$





## Variable Stars.

No.	No. Sec.				
1.	1.	$\gamma$ Cass.	6.5	—	
2.	2.		5.6	Inact.	—
3.	6.			Inact	Obscure.
4.	9.	$\alpha$ Perseus	7.4	—	
5.	12.			Inact	Obscure
6.	16.			Inact	Obscure
7.	17.			Inact	Obscure
8.	19.			Inact	Obscure
9.	25.			Inact	Obscure
10.	26.	$\alpha$ Leporis	6-7	—	
11.	27.	$\alpha$ Anguiae	6.5	—	
12.	29.			Inact	Obscure
13.	30.			Inact	Obscure
14.	31.			Inact	Obscure
15.	32.			Inact	Obscure
16.	34.			Inact	Obscure
17.	36.			Inact	Obscure
18.	38.	$\alpha$ Can Min.	7.2	—	
19.	44.	$\alpha$ Cancri	6.2	—	
20.	51.	$\alpha$ Leo Min.	6.1	—	
21.	52.		5.2	Inact	—
22.	53.		6.0	Inact	—
23.	63.	$\alpha$ Virginis	6.5	—	
24.	68.	$\alpha$ Hydreae	4.0	Inact	—
25.	69.	$\beta$ Virginis	5.7	Inact	—
26.	73.		5.9	Inact	—
27.	74.		4.9	Inact	Obscure
28.	78.	$\delta$ Coronae	6.1	—	—
29.	79.		5.8	Inact	—



30.	80.	<i>R. Sclerites</i>	5.6	Insect- —
31.	82.	<i>7 Coronae</i>	2.0	Insect- —
32.	89.		5.	Insect- Obscure
33.	92.		5.9	Insect- —
34.	93.		5.5	Insect- —
35.	95.			Insect- Obscure
36.	96.		4.6	Insect- Obscure
37.	97.		7.1	Insect- —
38.	98.		4	Insect- Obscure
39.	99.		5	Insect- Obscure
40.	105.		4.7	Insect- Obscure
41.	106.		3.4	Insect- Obscure
42.	107.		4.3	Insect- Obscure
43.	110.	<i>R. Aquila</i>	6.4	— —
44.	114.		5.9	Insect- —
45.	115.		3	Insect- —
46.	117.	<i>X Cygni</i>	4.0	Insect- Obscure
47.	118.		3.5	Insect- Obscure
48.	124.		3.5	Insect- Obscure
49.	126.		5	Insect- —
50.	130.		5.5	Insect- —
51.	135.		4	Insect- Obscure
52.	137.		3.7	Insect- Obscure
53.	139.		2.2	Insect- Obscure
54.	140.	<i>R. Leporis</i>	6.9	— —
55.	142.		5.8	Insect- —
56.	143.		4.8	Insect- —





## Adjacent Stars from Struve.

61	121	h	0 <sup>h</sup> -43.1 <sup>min</sup> +4	27°	3'+1	4"450	6.0	6.0
88	156-7		0 58.9 <sup>+</sup> <sub>4</sub>	20	48 <sup>+</sup> <sub>2</sub>	29.897	4.9	5.0
100	186	b	1 7.1+4	6	55+2	23	4.2	5.3
180	274	b	1 46.6+3	18	42+0	9	4.2	4.4
4 <sup>I</sup>	278-9		1 48.7 <sup>+</sup> <sub>4</sub>	36	39 <sup>+</sup> <sub>1</sub>	178	6.0	6.0
202	301	b	1 55.5+4	2	9+2	4	2.8	3.9
205	304		1 56.3+3	41	44+1	10	3.0	5.0
<del>227</del>	<del>320</del>		<del>2 52.2+2</del>	<del>29</del>	<del>43+2</del>	<del>4</del>	<del>5.0</del>	<del>6.4</del>
333	439	b	2 52.2+2	20	49+3	1	5.7	6.0
346	456	b	2 58.1+3	24	44+3	1	6.0	6.0
470	604	b	3 48.1+2	-3	18-1	7	4.0	6.0
460	609	-	3 49.3+7	80	21+1	9	5.2	6.1 -
485	-	-	3 56.9	62	1	18	6.1	6.2 -
9 <sup>I</sup>	713-5		4 17.9 <sup>+</sup> <sub>4</sub>	21	59 <sup>+</sup> <sub>4</sub>	339	5.0	6.0
10 <sup>I</sup>	729-30		4 21.4 <sup>+</sup> <sub>4</sub>	15	38 <sup>+</sup> <sub>2</sub>	337	4.7	5.0
550	733	-	4 22.3+2	53	38+1	10	5.1	6.2 -
552	-	-	4 22.7	39	43	9	6.3	6.5 -
572	-	-	4 30.6	26	40	3	6.5	6.5 -
11 <sup>I</sup>	761-2		4 32.1 <sup>+</sup> <sub>3</sub>	15	37 <sup>+</sup> <sub>5</sub>	428	5.2	5.7
13 <sup>I</sup>	837-b		4 55.1+6	58	49-1	181	5.0	6.0
738	966	e	5 28.3+2	9	51+0	4	4.0	6.0
747	966	b	5 29.0	-6	6	36	5.6	6.5 -
16 <sup>I</sup>	968-70		5 29.2 <sup>+</sup> <sub>3</sub>	-5	30 <sup>+</sup> <sub>0</sub>	53	4.8	6.1 -
774	990-b		5 34.6+1	-2	2+2	2	2.0	5.7
795	1008		5 41.2+4	6	27-2	2	6.2	6.2 -
845	1080		6 2.0+4	48	44+1	8	5.2	6.4 -
919	1157	b	6 22.7+3	-6	56-1	7	5.0	5.5
948	1195		6 35.1+6	59	35-2	2	5.2	6.1 -
958	1201	b	6 38.7-7	55	50-1	5	6.0	6.0
1110	1346	b	7 26.6+4	32	9+0	4	2.7	3.7



Cat.  $K'K^2$ , Dm Echt  $K'x^2$ , Tauri



11961438	6	8 <sup>h</sup>	4.9 <sup>+4</sup>	18°	2'-1	1"	5.0	5.7
12231461	8		19.3 <sup>+2</sup>	27	21-1	5	6.0	6.5-
12681509	8		39.0 <sup>+4</sup>	29	13-1	30	4.4	6.5-
12911528	8		46.5 <sup>+4</sup>	31	4-1	2	5.9	6.4-
18 <sup>I</sup> 1710ab	10		9.6 <sup>+4</sup>	24	6-5	314	3.8	6.0
14241720-18	10		13.1 <sup>+3</sup>	20	29-2	103	2.0	3.5
15231850b	11		11.5 <sup>+3</sup>	32	14-1	2	4.0	4.9
20 <sup>I</sup> 1924-6	11		48.6 <sup>+3</sup> <sub>+4</sub>	47	10 <sup>-1</sup> <sub>-2</sub>	63	6.1	6.5-
16271969	12		11.6 <sup>+4</sup>	-3	13-4'	20	5.9	6.4-
21 <sup>I</sup> 1998-b	12		22.6 <sup>+3</sup>	26	36-1'	145	4.8	6.0
16572018	12		28.7 <sup>+4</sup>	19	5-3	20	4.7	6.2-
16692034	12		34.8 <sup>+2</sup>	-12	17-4	5	6.5	6.5-
16702035-b	12		35.3 <sup>+3</sup>	-0	45-2	2	3.0	3.0
23 <sup>I</sup>	12		46.1	17	46	195	5.3	6.1-
16942064-3	12		48.3 <sup>+0</sup>	84	4+0	22	4.9	5.4
16922070-b	12		50.2 <sup>+2</sup>	39	0-2	20	3.2	5.7
17282100b	13		4.0 <sup>+2</sup>	18	12-2	1	6.0	6.0
24 <sup>I</sup> 2099-10	13		4.1 <sup>+1</sup> <sub>+5</sub>	39	10 <sup>+0</sup> <sub>+2</sub>	290	5.5	5.9
25 <sup>I</sup>	13		8.8	67	57	179	5.9	6.3-
17442134-b	13		19.0 <sup>+1</sup>	55	36-3	14	2.1	4.2
18642309-b	14		34.8 <sup>+3</sup>	16	58-2	6	4.9	6.0
18652310-b	14		35.1 <sup>+3</sup>	14	16-1	1	3.5	3.9
18772324	14		39.5 <sup>+3</sup>	27	36-1	3	3.0	6.3-
18902343	14		45.6 <sup>+0</sup>	49	14-1	4	5.8	6.5-
19092376	14		59.6 <sup>+2</sup>	48	10-3	3	5.2	6.1-
1932	15		13.0	27	19	2	5.6	6.1-
19372409	15		18.1 <sup>+1</sup>	30	45-2	1	5.2	5.7
19542438	15		28.7 <sup>+4</sup>	10	57-0	3	3.0	4.0
19622452	15		31.9 <sup>+3</sup>	-8	20-4	12	6.3	6.4-
19652460	15		34.6 <sup>+3</sup>	37	1+1	6	4.1	5.0





	$h$	$min$					
199825306	15	57.4+2	-11°	2' +0	1"	4.9	5.2
201025446	16	2.3 +4	17	23-1	31	5.0	6.0
20322566	16	9.7 +5	34	12-2	1	5.0	6.1 -
29 <sup>I</sup> 2586-7	16	17.6 $\pm$ .4	34	2 $\pm$ $\frac{3}{3}$	372	4.8	5.1
20552605	16	24.6 +.3	2	15 $\pm$ 0	1	4.0	6.1 -
30 <sup>I</sup> 2626-7	16	33.1 $\pm$ $\frac{3}{3}$	53	11 $\pm$ $\frac{3}{3}$	90	5.0	5.0
20782627	16	33.3 +1	53	9 +1	4	5.0	6.0
20842637	16	36.7 +1	31	49 $\pm$ 0	23	3.0	6.5 -
33 <sup>I</sup> 2677-9	16	58.0 $\pm$ $\frac{3}{3}$	13	46 $\pm$ 1	292	5.8	6.3 -
21302690	17	2.8 +0	54	38 $\pm$ 0	3	5.0	5.1
21402702	17	8.9 +3	14	32 +0	5	3.0	6.1 -
21612734	17	19.2 +4	37	18-2	4	4.0	5.1
21732748	17	24.1 +1	-0	55-2	1	5.8	6.1 -
35 <sup>I</sup> 2764-5	17	29.7 $\pm$ $\frac{1}{2}$	55	16 $\pm$ 2	62	4.6	4.6
22022786	17	38.4 +1	2	38 $\pm$ 0	21	5.5	5.8
22412802-3	17	44.6 $\pm$ $\frac{5}{5}$	72	13 $\pm$ $\frac{1}{0}$	31	4.0	5.2
22622843	17	56.1 +4	-8	10-1	0.4	5.0	5.7
22642842	17	56.2 +3	21	35 +2	6	4.9	4.9
22722852	17	59.1 +3	2	33-1	4	4.1	6.1 -
22802862	18	2.6 +4	26	5 +0	14	5.9	5.9
23082883-4	18	9.4 $\pm$ $\frac{3}{3}$	79	59 $\pm$ 0	21	5.4	6.1 -
23822958	18	40.2 +2	39	33 +0	3	4.6	6.3 -
23832959	18	40.2 +2	39	29 $\pm$ 0	3	4.9	5.2
38 <sup>I</sup> 2961-2	18	40.5 $\pm$ $\frac{1}{2}$	37	28 $\pm$ $\frac{1}{0}$	44	4.2	5.5
24172997	18	50.2 +0	4	1 +3	22	4.0	4.2
24863069	19	8.8 +2	49	36 +1	10	6.0	6.5 -
40 <sup>I</sup> 3090	19	12.3 +4	0	9 -1	423	6.0	6.2 -
42 <sup>I</sup> 3135	19	23.6 +1	24	28-3	396	4.4	5.7
43 <sup>I</sup> 3139	19	25.7 +2	27	42 +1	34	3.0	5.3
46 <sup>I</sup> 3184-5	19	38.5 $\pm$ $\frac{2}{2}$	50	15 $\pm$ 0	37	5.1	5.3
25943215	19	48.1 +0	-8	34-2	36	5.2	6.2 -



33<sup>I</sup> Cat. - Herculis  
Sun wt 33, 34 Ophiuchi.

50 <sup>I</sup> <sub>3296-8</sub>	20	9.6 <sup>h</sup> <sub>+3</sub>	46° 22" <sub>+5</sub>	338"	3.7	5.0
51 <sup>I</sup> <sub>3305-8</sub>	20	10.8 <sub>+4</sub>	-12 55 <sub>+0</sub>	375	3.2	4.2
52 <sup>I</sup> <sub>3323-6</sub>	20	13.7 <sub>+6</sub>	-15 11 <sub>+1</sub>	205	2.5	6.0
53 <sup>I</sup> <sub>3378-9</sub>	20	32.5 <sub>+3</sub>	31 7 <sub>+2</sub>	178	6.0	6.1 -
272 <sup>I</sup> <sub>3410-20</sub>	20	41.1 <sub>-1.0</sub>	15 39 <sub>+3</sub>	12	4.0	5.0
273 <sup>I</sup> <sub>3460</sub>	20	52.8 <sub>+3</sub>	3 48 <sub>+2</sub>	0.4	5.7	6.2 -
275 <sup>I</sup> <sub>3483-4</sub>	21	0.9 <sub>+6</sub>	38 6 <sub>+3</sub>	15	5.3	5.9
54 <sup>I</sup> <sub>3492-4</sub>	21	4.4 <sub>+1</sub>	9 36 <sub>+3</sub>	366	4.2	5.7
57 <sup>I</sup>	21	31.8	66 11	179	6.5	6.5 -
282 <sup>I</sup> <sub>3598-21</sub>	21	38.4 <sub>+4</sub>	28 12 <sub>+0</sub>	6	4.0	5.0
286 <sup>I</sup> <sub>3656</sub>	21	59.9 <sub>+4</sub>	64 0 <sub>+3</sub>	6	4.7	6.5 -
290 <sup>I</sup> <sub>3720</sub>	22	22.3 <sub>+3</sub>	-0 40 <sub>+2</sub>	4	4.0	4.1
58 <sup>I</sup> <sub>3732</sub>	22	24.5 <sub>+2</sub>	57 46 <sub>+2</sub>	41	3.0	5.3
292 <sup>I</sup> <sub>3747</sub>	22	30.4 <sub>+2</sub>	38 59 <sub>+2</sub>	22	6.0	6.5 -
60 <sup>I</sup>	23	29.2	59 45	247	6.4	6.5 -
30503980	23	53.2 <sub>+2</sub>	33 3 <sub>+1</sub>	4	6.0	6.0

Inter-

28 <sup>I</sup>	12	46.3	17	46
25 <sup>I</sup>	13	9.0	67	57
1932	15	12.2	27	19

2397 h





The preceding list contains double stars from Sturtevant's catalogue, of which the fainter exceeds 6.5 magnitude. The list being then compared with the catalogue, the differences in R.A. & Dec. were entered in the list, the Sturtevant number, distance, and magnitudes A & B in the catalogue, opposite the corresponding catalogue number, if catalogued as a single star, opposite the brighter component if catalogued as two stars.

Finished June 12, 1879

Frank P. Whitman.

No work remains to do on these pages 35-37, except as directed elsewhere. [see p. 131 - ]

35

All stars were taken from catalogue whose D.M. magnitude was fainter than 6.2.

Stars were identified in D.M. by the DM numbers given in the catalogue;

Brought forward the R.A. and Decl. for 25 years and compared with R.A. and Decl. given in catalogue.

In some cases, where the D.M. number was incorrect, the star was identified by R.A., Decl. and magnitude.

these

All stars whose D.M. number, R.A., Decl., and magnitude were found to be correct were checked with red ink.

The following list contains stars, whose D.M. number was found to be incorrectly given in catalogue; whose R.A., as brought forward from D.M., differed from R.A., as given in catalogue, by more than 0.2 minutes; or whose Decl., as brought forward from D.M., differed from Decl., as given in catalogue, by more than 2'.

~~He~~ <sup>all</sup> corrections made in catalogue.

Corrections in blue ink made in the catal. for stars here checked ✓

Catalogue number.	D.M.	R.A.	Decl.
	[readings should be]		
633.	[see p. 132.] +52° 77'	3 <sup>h</sup> 59.4	+03° 2' ✓
818.	DM +73° 265' instead of +73° 264'		+73° 56' ✓
1180.	DM +40° 1665' instead of +39° 1690'	30.5 ✓	+39° 50' ✓
1661.			+73° 28' ✓
1700.		6.6 ✓	
1716.	DM +54° 1366' instead of +54° 1367' 0"	12.5 ✓	+54° 49' ✓
1735.		21.3 ✓	+10° 22' ✓
1924.		47° 19' 13" ✓	



Catalogue number.	D.M.	R.A.	Decl.	Mag.
1926.	+47° 19 14 ✓			
1956.	+11° 24 40 ✓			
2007.	+53° 15 54 ✓			
2113.		13 <sup>h</sup> 9.5 ✓		
2215.	+12° 26 35 ✓	13 <sup>h</sup> 46.4 ✓		6.8 ✓
2226.	32° 24 11 ✓	<del>50.4</del> ✓	+32° 37' ✓	<del>+32° 46'</del> 6.3 ✓
2275.		14 <sup>h</sup> 13.6 ✓	+0° 56' ✓	
2506.		15 <sup>h</sup> 49.5 ✓	+56° 11' ✓	
2520.		15 <sup>h</sup> 53.5 ✓	+39° 16' ✓	
2586.		16 <sup>h</sup> <del>17.1</del> ✓	+58° <del>15'</del> 8' ✓	
2655.		16 <sup>h</sup> 44.4 ✓	+55° 37' ✓	
2689.		17 <sup>h</sup> 1.4 ✓	<del>43° 59'</del> ✓	
2770.		33.1 ✓	+2° 6' ✓	
3017.		18 <sup>h</sup> 54.8 ✓	+40° <del>55'</del> 31' ✓	
3115.		19 <sup>h</sup> 19.8 ✓	+16° <del>44'</del> 3' ✓	
3134.		19 <sup>h</sup> 23. ✓	+1° <del>48'</del> 2' ✓	
3571.	+5° 48 30 ✓			
3651.	+59° 24 56 ✓			
3990.	+7° 51 21 ✓			

Finished June. 13<sup>th</sup> '79.

Newton M. Anderson.

List of stars which should have been checked as above, but which were to near 90° decl. to use compass.

is being forwarded. (See next page.) Correct stars checked in blue ink. For others see bottom of p. 37.

Catalogue No.	BAC	BAC	BAC	BAC
<del>123</del>	<del>225</del>	<del>1952</del>	<del>4106</del>	2315
464		<del>1975</del>	<del>4165</del>	2639 5611
649 1263		1976	4150	2883 6208
869		<del>2063</del>	<del>4339</del>	2884 6206
		<del>2064</del>	<del>4342</del>	
<del>1373</del>	<del>2521</del>	<del>2210</del>	<del>4643</del>	2946 6378

Finished June. 13<sup>th</sup>

Newton M. Anderson.



To check D.M. nos. of stars whose R.A. or Dec. have been changed in catalogue in red ink.

Such stars were found in D.M. by D.M. nos. given in catalogue, the R.A. and Dec. brought forward 25 years, and compared with R.A. and Dec. as given in catalogue.

The magnitudes were then compared as given in catalogue and D.M.

The following are the discrepancies between the catalogue and the D.M.

Catalogue no.	R.A. + Dec from Cat.	Corrected R.A. + Dec from D.M.
626	$3^h 57^m.4 + 21^\circ 45'$	$3^h 57^m.6 + 21^\circ 45'$
<del>2395</del>	<del><math>15^h 10^m.7 + 33^\circ 46'</math></del> <small>error in DM</small>	<del><math>15^h 10^m.7 + 33^\circ 48'</math></del> <small>18</small>
<del>2704</del>	<del><math>17^h 10^m.4 - 0^\circ 18'</math></del>	<del><math>17^h 10^m.4 - 0^\circ 20'</math></del>
<del>3823</del>	<del><math>22^h 56^m.9 + 22^\circ 31'</math></del> <small>Two stars here</small>	<del><math>22^h 56^m.5 + 22^\circ 40'</math></del>

Finished June 14 1879

Frank P. Whitman

The stars at bottom of preceding page which have B.A.C. nos., were brought forward by B.P.M., 4 May 80, and compared with the catalog. All agreed exactly <sup>in position</sup>, except nos. 2063 " $12^h 48^m.2$ " instead of  $12^h 48^m.1$ ; no. 2884, " $18^h 9^m.1$ " instead of  $18^h 9^m.0$ ; no. 2883, " $79^\circ 59'$ " instead of  $79^\circ 58'$ ; no. 2945, " $77^\circ 28'$ " instead of  $77^\circ 27'$ ; no. 1976, " $12^h 14^m.4$ " instead of  $12^h 13^m.4$ ; no. 2639, " $16^h 36^m.9$ " instead of  $16^h 35^m.9$ . Nos. 464, 869, 2315, 3372 are not yet checked.

See p. 131 for Catal. nos. 649, 1975, 1976; p. 132 for no. 2639, 6208, 6206

Corrections of checked stars all made in the catalog 21 May 1880.





Took from catalog all stars whose declination has changed from one zone to another.

Brought them forward from D.M. by curves and compared D.M. number and R.A. & decl. as brought forward with that given in catalogue.

All cases where D.M. number agreed, the R.A. agreed within 0.2 minutes and decl. within 2 minutes, they remain as before without checking.

All cases where the D.M. number was wrong, the R.A. or decl. differed more than above limits are in following list.

Cat. No.	D.M. No.	[readings should be]	R.A.	Decl.
58	+1° 57'			
188	+70° 90' ✓	1 <sup>h</sup>	7.6 ✓	71° 8' ✓
1180	<del>+59° 16.5</del> ✓ +69° 58.7 ✓	6	30.8 ✓	<del>39° 30'</del> ✓ 68° 24' ✓
1273	+68° 61' ✓	10	33.4 ✓	68° 3' ✓
1770	+69° 58.3 ✓	10 <sup>h</sup>	33.4 ✓	69° 3' ✓
2275	+1° 29.13 ✓	14	13.6 ✓	0° 56' ✓
2730	+2 <sup>3</sup> ° 31.00 ✓			
8897	+31° 41.81 ✓			

Stars whose decl. has changed from one zone to another, but which are too near pole to be brought forward by curves.

Cat. No. BAC

442	908	right
1286	2326	For +83° 10' Dec +82° 39' read +82° 20', 7 <sup>h</sup> 5.8 +82° 38' ✓
3395	7178	right
3450	7291	right

Finished, June, 19<sup>th</sup> 79.  
Newton M. Anderson.





Made list of all stars in D.M. of magnitude 6.1 or 6.2.  
 Compared the number of stars, of each of the above  
 magnitudes, in each zone, with the lists of same contained  
 in Vol. IX of the Annals.

Identified stars contained in catalogue, of above mag., and  
 found all were contained in D.M.

No. 53 in Catalogue should read D.M. 1° 57

Following list contains discrepancies between D.M.  
 and list in Vol. IX. of Annals.

Zone.	Nos. given in Vol. IX		Nos. found in D.M.	
	mag. 6.1	mag. 6.2	mag. 6.1	mag. 6.2
+1°	3	2	2	3
5°	3	3	1	5
37°	1	8	1	7
46°	2	2	2	1
50°	0	8	3	4
63°	1	0	1	1

Following list contains Zone and R.A. as given in D.M.  
 of all stars contained in D.M. of mag. 6.1 or 6.2 not in catalogue.

Zone.	R.A.	mag.	Zone	R.A.	mag.	Zone	R.A.	mag.
<i>Remains of list omitted.</i>								
377	-1° 24 53"	6.2	3816	+0° 17 49"	6.2	4902	10° 23 6"	6.2
63	-0° 0 19	6.2	347	+1° 1 48	6.2	261	11° 1 51	6.2
593	3 37	6.2	118	2° 0 43	6.2	3802	19 13	6.2
632	3 55	6.2	40952	5 11	6.1	4368	20 38	6.1
1299	6 19	6.2	1315	6 30	6.1	25	12° 0 14	6.2
2195	9 18	6.2	2217	9 25	6.2	2901	18° 18 2	6.2
2796	14 6	6.2	36	+7° 0 13	6.2	3593	X 18 11	6.1
4585	23 47	6.2	3367	8° 17 4	6.2	4360	20 13	6.2
2782	+0° 11 15	6.2	3741	18 26	6.2	4861	22 3	6.2
3337	15 11	6.2	4735	9° 21 3	6.2	over.		



	Zone R.A. mag.				Zone R.A. mag.				Zone R.A. mag.			
3279	14°	17 <sup>h</sup>	27 <sup>m</sup>	6.2 3150	27°	18 <sup>h</sup>	48 <sup>m</sup>	6.2 3668	41°	20	9	6.2
926	15°	5	38	6.2 947	29°	5	30	6.2 3805		20	29	6.2
2690		14	10	6.2 418	30°	2	28	6.1 1935	42°	8	43	6.2
3095		16	54	6.2 3706		19	37	6.2 2544		15	9	6.1
2705	16°	14	46	6.2 1139	31°	5	45	6.2 2068	43°	10	52	6.2
3241	17°	17	19	6.2 140	33°	0	50	6.2 4375		22	56	6.2
2906	18°	14	31	6.1 3410	34°	12 <sup>h</sup>	11	6.2 4378		22	56	6.1
4930		22	0									
		21	59	6.1 4500		21	35	6.2 3133	44°	19	22	6.2
3218	19°	16	57	6.2 8	35°	0	1	6.2 237	45°	0	49	6.1
4017		19	20	6.2 1334		5	56	6.1 2684		18	11	6.2
5058		22	59	6.2 4357		20	55	6.2 3637		21	37	6.2
5147		23	38	6.2 1883	36°	8	44	6.1 3813		22	3	6.2
85	20°	0	31	6.2 899	37°	4	5	6.2 536	46°	2	5	6.2
4602		20	28	6.1 954		4	31	6.2 2551		18	43	6.1
4629		20	27	6.2 2551		14	28	6.2 2158	47°	14	29	6.2
2755	21°	15	11	6.2 4271		21	13	6.2 2937		19	47	6.2
2764	22°	14	50	6.2 4866		23	27	6.2 1592		8	24	6.2
558	23°	3	40	6.2 515	38°	2	27	6.2 320	48°	0	53	6.2
3733		19	34	6.2 3758		19	42	6.1 899		3	13	6.2
4305		21	17	6.2 2357	39°	10	21	6.2 1015		3	43	6.2
2779	24°	14	41	6.1 1032	40°	4	34	6.2 3249		20	52	6.2
3975		19	55	6.2 1665		6	38	6.1 1273		5	18	6.2
1496	25°	6	46	6.2 2948		15	52	6.2 2604	49°	17	8	6.2
2733		14	1	6.2 3228		17	47	6.2 3448		20	59	6.2
3972		19	41	6.2 3446		18	34	6.2 2705	50°	18	55	6.2
5068		23	57	6.2 4885		22	35	6.1 3232		20	52	6.2
2250	26°	11	36	6.2 2170	51°	11	6	6.2 1605	51°	10	21	6.2

	Zone, R.A. mag.					Zone, R.A. mag.			
1632	51°	10 <sup>h</sup>	44 <sup>m</sup>	6.2	1669	62°	12 <sup>h</sup>	56 <sup>m</sup>	6.1
1205	52°	7	14	6.1	2171		23	2	6.2
2350		19	5	6.2	238	63°	1	37	6.1
2799		20	42	6.2	HD 1843	64°	9 <sup>10</sup>	20	6.2
3114		22	2	6.2	280	65°	2	26	6.1
92		0	24	6.2	1263	69°	22	29	6.2
2397	53°	20	21	6.2	24	70°	0	25	6.2
1570	54°	12	10	6.1	102		1	15	6.1
2544		21	24	6.1	409	72°	8	5	6.2
1058	56°	5	34	6.1	805		17	45	6.2
651	57°	2	41	6.2	108	73°	1	50	6.2
1456		13	35	6.1	229	74°	4	44	6.1
2054		19	40	6.2	59	75°	1	19 <sup>10</sup>	6.2
541	59°	2	86	6.2	247		5	45	6.2
1446		12	23	6.2	519	77°	13	39	6.2
? 2050		<del>19</del> <del>18</del>	<del>30</del> 36	6.2	392	78°	11	29	6.2
2060		19	31	6.2	349	81°	10	29	6.2
1813	60°	18	9	6.2	389		11	52	6.2
2026		19	48	6.1	536	83°	18	43	6.2
178	61°	0	43	6.2	588		20	43	6.2

Finished June 24<sup>th</sup> 1879

Horatio M. Anderson.

R. P. Whitman.



J. J. J.

^

May 1879. Memoranda of work done in connection with observations with Meridian Photometer.

The upper & lower culmination stars (blue & red) & bright stars (black) have been entered in the catalogue of observations.

List of adjacent stars Book 37 pp 11 to 16 inc.

" " bright " " " " 18 " 21 "

In the list of ~~stars~~ adjacent stars those which are distant 3' or less have their names R, B, & Dec noted.

A list of variable stars marked in the catalogue of observations (var.) with their Schanfelds Numbers.

First 12<sup>th</sup>  
completed

Lower culmination stars (red) marked <sup>Red</sup> in observations with their catalogue number between the ~~top~~ current numbers of the catalogue corresponding with their right ascension.

To the preceding list of variable stars others equalling or exceeding the 6.5 magn. have been added from Schanfelds II Catalogue, the whole being numbered consecutively & entered in Book 37 page 22 with Schanfelds numbers in the second column.

The adjacent stars have been connected by brackets. The right ascension has been entered at the top of each page & the minutes opposite the first stars where the minute changes.

The declination of stars of  $>60^\circ$  in declination has been noted at the right of their current number.





①

1880 May 20. Read M. Record Book 37, p. 36, to verify corrigenda to Catal. based on DDT. Made the following changes.

Catal No.

1956. For  $DM + 10^{\circ} 24' 40''$  read  $DM + 11^{\circ} 24' 40''$

2007. —  $DM + 53^{\circ} 25' 54''$  read  $DM + 33^{\circ} 15' 54''$

2113. For  $DM + 20^{\circ} 29' 49''$ ,  $8^m.0$  ~~read~~ <sup>DM</sup>  $+ 20^{\circ} 28' 14''$ ,  $6^m.8$ .

2215. For  $DM + 12^{\circ} 25' 18''$ ,  $7^m.3$  read  $DM + 12^{\circ} 26' 35''$ ,  $6^m.8$ .

2226. For  $DM + 32^{\circ} 25' 31''$ ,  $AR 13^h 50^m.3$ ,  $6^m.3$  read  $DM + 32^{\circ} 24' 11''$ ,  $AR 13^h 50^m.4$ ,  $6^m.5$ , and note correction to be made in DM. — Auth. BAC 4652

2275. For  $AR 14^h 14^m.3$  read  $AR 14^h 13^m.6$ . — Auth. DM & Heis p. 147, no. 158.

2506. For  $AR 15^h 50^m.5$  read  $AR 15^h 49^m.5$ , and note corr. to be made in DM.

— Auth. B.A.C. 5279.

2520. For  $AR 15^h 54^m.5$  read  $AR 15^h 53^m.5$  and note corr. in DM. — BAC 5307.

2546. Position right in Catal. Note corr. in DM. — BAC 5415

2655. For  $AR 16^h 45^m.4$  Dec  $+55^{\circ} 58'$  read  $AR 16^h 44^m.4$  Dec  $+55^{\circ} 57'$  and note corr. in DM. — BAC 5658.

2689. For  $AR 17^h 2^m.4$  ~~Dec~~ Dec  $+44^{\circ} 0'$  read  $AR 17^h 1^m.4$  Dec  $+43^{\circ} 59'$  and note corr. in DM. — BAC 5775.

2770. For  $AR 17^h 32^m.2$  read  $AR 17^h 31^m.1$  or  $17^h 31^m.2$ . — <sup>auth</sup>  $DM + 20^{\circ} 33' 73''$  and Heis p. 155, no. 68\*.

3017. For  $AR 18^h 54^m.9$  ~~read~~ read  $AR 18^h 54^m.8$ . — Auth BAC 6493.

3115. For  $AR 19^h 19^m.0$  read  $AR 19^h 19^m.4$ . — Auth BAC 6647

3134. For  $AR 19^h 22^m.9$  Dec  $+1^{\circ} 45'$  read  $AR 19^h 23^m.0$  Dec  $+1^{\circ} 42'$ . — Auth BAC 6670



(Cont)

②

See other side

3571 For DM + 6° 48' 30" read DM + 5° 48' 30".3653. For DM + 59° 24' 46" read DM + 5° 24' 56"3990. For DM + 7° 51' 22" read DM + 7° 51' 21".

1975. [See Record Book 37, p. 131.]

1976. [See Record Book 37, p. 131.]

2945. For Dec. + 77° 28' read Dec. + 77° 27' — Auth. Bac 63752883. For Dec. + 79° 59' read Dec. + 79° 58' — Auth. Bac 62082884 For AR 18<sup>h</sup> 9<sup>m</sup>.7 read AR 18<sup>h</sup> 19<sup>m</sup>.0. — Auth. D.A.C. 62062639. For AR 16<sup>h</sup> 36<sup>m</sup>.9 read AR 16<sup>h</sup> 35<sup>m</sup>.9. — Auth. Ba e 56112063. For AR 12<sup>h</sup> 48<sup>m</sup>.2 read AR 12<sup>h</sup> 48<sup>m</sup>.1. — Auth. Bac 43391976. For AR 12<sup>h</sup> 14<sup>m</sup>.4 read AR 12<sup>h</sup> 13<sup>m</sup>.4. — Auth. Bac 41502883 and 2884. ~~For~~ Exchange the DM designations in the Cat. —

Auth. Record Book 37, p. 132.

The catalog for 0<sup>h</sup> to 11<sup>h</sup> not at hand. This list is to be continued with that hereafter, for remaining stars on p. 358, Book 37

649 For DM + 82° 82, 7<sup>m</sup>.5 read DM + 82° 113, 5<sup>m</sup>.0.3823 For DM + 22° 47' 62, 6<sup>m</sup>.0, read DM + 22° 47' 63, 6<sup>m</sup>.6. This is

Heis p. 50 no. 109 = 22<sup>h</sup> 285P. — DM + 22° 47' 62, 6<sup>m</sup>.0 is a different star, position 1880.0 = 22<sup>h</sup> 56<sup>m</sup>.5 + 22° 40', and is:

3822b. The star above mentioned inserted, DM + 22° 47' 62.

626. For AR 3<sup>h</sup> 57<sup>m</sup>.4 read A.R. 3<sup>h</sup> 57<sup>m</sup>.6. — Auth. Ba e 1257



③

Cont.

1880 May 21 continued and  
~~checked~~ checked p. 39

1880 May 20. Read MS Record Book 37, p. 36 to verify corrigenda to catal.

based on DM. Made the following changes.

Catal No.

633. Strike out this star = Persei  $58^{\circ}55' + 52^{\circ}4'$  in Uran. nova, as Argel.  
in the "corrigenda" <sup>in</sup> U. N. says "nudis oculis non visibilis delanda". Its  
position in 1855 would be  $3^h 56^m.8 + 52^{\circ}6'$  and in 1880  $3^h 58^m.7 + 52^{\circ}10'$  or 11';  
there is no such star in DM. DM +  $52^{\circ}771$ ,  $7^m.1$ , is in position 1855,  
 $3^h 57^m.5 + 52^{\circ}58'$  and would be in 1880,  $3^h 59^m.4 + 53^{\circ}2'$ .
818. For DM +  $73^{\circ}264$  read DM +  $73^{\circ}265$ .
1180. For DM +  $39^{\circ}1690$  read DM +  $40^{\circ}1665$ .
1661. For Dec +  $73^{\circ}37$  read Dec +  $73^{\circ}27$ . — B.A.C. 3376.
1700. For ~~AR~~ AR  $10^h 6^m.2$  read AR  $10^h 6^m.6$ . — B.A.C. 3483.
1716. For DM +  $54^{\circ}1367$   <sup>$6^m.5$</sup>  read DM +  $54^{\circ}1366$   <sup>$7^m.0$</sup> . — Henr p. 34 no. 85
1735. For ~~AR~~ AR  $10^h 20^m.9$  Dec +  $10^{\circ}23'$  read AR  $10^h 21^m.3$  Dec +  $10^{\circ}22'$ .  
— B.A.C. 3575
1924. For DM +  $47^{\circ}1813$  read DM +  $47^{\circ}1913$ .
1926. For DM +  $47^{\circ}1814$  read DM +  $47^{\circ}1914$ .
1770. For DM +  $68^{\circ}617$ ,  $6^m.2$ , read DM +  $69^{\circ}583$ ,  $5^m.5$ .
1772. For DM +  $69^{\circ}583$ ,  $5^m.5$  read DM +  $69^{\circ}586$ ,  $4^m.7$
1773. For DM +  $69^{\circ}586$ ,  $4^m.7$  read DM +  $69^{\circ}587$  var.
53. For DM +  $0^{\circ}57$  read DM +  $1^{\circ}57$ .

as in original in corrigenda



(4)

188. For  $DM+78^{\circ} 90$  AR  $1^h 8^m.1$  read  $DM+70^{\circ} 90$  AR  $1^h 7^m.6$ . The position in the catal. was copied from the C. list.
- 2730 For  $DM+22^{\circ} 3100$  read  $DM+23^{\circ} 3100$ .
3397. For  $DM+35^{\circ} 4181$  read  $DM+31^{\circ} 4181$
1286. For  $DM+83^{\circ} 101$  AR  $7^h 5^m.7$  Dec  $+82^{\circ} 39'$  read  $DM+82^{\circ} 201$ , AR  $7^h 5^m.8$  Dec  $+82^{\circ} 38'$  — auth B. a. c. 2326
- 2317 [See Book 37, p. 47.]

12

7

# Corrections made in Catalogue

No 2317 D.M., no changed from 2451 to 1451

No. 635. For AR  $3^h 59^m.4$  read AR  $3^h 58^m.5$ . — Auth. U.A., p. 161, no. 169 and reduction by B.P.M. from L.L. 7600.

No. 1382. For  $7^h 39.6 - 24^{\circ} 33'$  read  $7^h 39.5 - 24^{\circ} 23'$  and insert  $6.7^{\text{mag}}$  from Heis, <sup>p. 134, no. 20\*</sup> <sub>n</sub> This is B.A.C. 2565, <sup>and L.C. 2940.</sup> — Auth. U.A., p. 172, no. 161 (which reads Dec. [1875] =  $-24^{\circ} 22'$ ), and reduction by B.P.M. from L.L. 15131. See Remarks.

No. 1389. For 15215 L.L. read 15219 L.L.

No. 1387 = 15215 L.L.

No. 1717. For Dec.  $-28^{\circ} 28'$  read Dec  $-28^{\circ} 23'$ . — Auth. B.A.C. 3521

No. 2754. For 31951 L.L. read 31952 L.L.

No. 876a. For AR  $5^h 5^m.7$  read AR  $5^h 5^m.3$  — auth L.L. 9764

No. 3983. For AR  $23^h 55^m.0$  read AR  $23^h 57^m.0$ . — Auth. L.L. 47161, L.B. 9701, U.A. p. 209, no. 5.

No. 1307b. Added for O.A. 6600, which is not the same star as 2730 G, " $7^h 14^m.2 - 26^{\circ} 14'$ ."

No. 1248b. Added for B.A.C. 2281 = L.B. 2535, as it was confounded with B.A.C. 2284 = L.B. 2538.

No. 67. For AR  $0^h 26^m.3$  read AR  $0^h 26^m.2$ . — auth B.A.C. 129.

No. 199. For AR  $1^h 14^m.6$  read AR  $1^h 14^m.8$ . — Auth. B.A.C. 360.

No. 342b. Cumulus added for Heis, p. 19, no. 16, <sup>as it was confounded with U.N., p. 14, line - 11;</sup> <sub>n</sub> after correcting Heis as indicated in Corrigenda and Remarks.

No. 343b. Cumulus re-introduced for U.N., p. 14, line - 11. Strike out  $\chi$ . — Auth. B.A.C. 719 and B.A.C. 696.

No. 394b. Cumulus re-introduced for U.N., p. 14, line - 8.

No. 395b. Cumulus added for Heis, p. 19, no. 30, <sup>as it was confounded with U.N., p. 14, line - 8;</sup> <sub>n</sub> after correcting Heis as indicated in Corrigenda and Remarks.



No. 593 b. Added for *TN*, p. 53, line 14 = 142 B., as it was confounded with *Heis*, p. 65, no. 37 = 1189 B.A.C.

No. 1516. Changed decl. from  $-18^{\circ}17'$  to  $-18^{\circ}19'$ , to correspond to correction made in *Heis*, p. 135, no. 56.

No. 2658 a. Added for *Heis*, p. 94, no. 69, as it was confounded with 49 Herc. = 5674 B.A.C.

No. 2658 b. ~~For~~ Strike out S, and for  $16^{\circ}46'.7 + 15^{\circ}10'$  read  $16^{\circ}46'.6 + 15^{\circ}11'$ . — Auth. B.A.C. 5674. In col. magn. *Heis*, strike out var., which belongs to No. 2658 a.

Nos. 278 and 279. <sup>and *Heis*</sup> For *TN*, magnitudes separately to each, read one combined magnitude for the two.

No. 1798. Strike out this star, as it is not visible to the naked eye, and only occurs in the *TN*, p. 68, line 4, from an error which is explained by Schönfeld, *V. J. S.*, 8:62. Transfer the magnitude to no. 1800, which is the star really seen by Argelander.

No. 1800. Add the *TN* magnitude,  $6^m$ , as explained under no. 1798, and ~~for~~ for AR  $10^{\circ}49'.2$  read AR  $10^{\circ}49'.1$ .

No. 3339. ~~For~~ Cephei? read Draconis.

No. 49 b. Added or re-introduced on the authority of *Franks'* catalog.

No. 994 b. Added on the authority of *Franks'* catalog.

No. 2336 a. " " " " " "

No. 2978 a. " " " " " "

No. 3101 b. " " " " " "

No. 3254 b. " " " " " "

No. 3628 b. " " " " " "

No. 3631 b. " " " " " "

No. 326 b. " " " " " *JA*

No. 2243. For DM  $+64^{\circ}978$  read DM  $+65^{\circ}978$ .



No. 188. For Cephei read Cassiop.

In July 1880, B. P. Mann copied the outlines of Fleis' constellations on coordinate paper (13 or 14 sheets), allowing one <sup>small</sup> square for every degree in  $\text{AR}$  and two squares for every degree in declination. This copy was made first with lead pencil, as nearly as the position of the outlines could be estimated from <sup>the coordinates of</sup> Fleis' atlas. He then took Fleis' list, and inserted from that such B. A. C. stars as came near the boundaries of the several constellations, ~~in~~ the positions given by the B. A. C., attaching the B. A. C. nos. to the dots representing the positions. He inserted dots also for the stars near the boundaries which were contained in Fleis' list, but were not B. A. C. stars. He then drew in red ink the outlines of Fleis' constellations, guided by the positions of the stars. To mark more distinctly the extension of the several constellations, he used red, black and blue ink, and lead pencil, as nearly in alternation as possible, to make the dots and write the <sup>of the stars</sup> nos. of different constellations. From Proctor's new star atlas he drew in interrupted lines the limits of the constellations where these deviated from the outlines given by Fleis, but found them of little service. In cases where the B. A. C. limits deviated from Fleis', he drew in continuous pencil lines the outlines of the B. A. C. constellations. He then took the *Ms. Catalog of Zones*, (in which all B. A. C. stars had been checked, and corrected to agree in nomenclature with the B. A. C.), and looked for all the stars which had no B. A. C. nos., finding their positions on the atlas he had made, and correcting the *Catalog* to make it conform to the B. A. C. limits of the constellations. Many stars coming near the boundary lines and outside of any B. A. C. stars in the



respective constellations, may with equal ~~pro~~ propriety be assigned to either one of two or three B. A. C. constellations. A list of these stars is given in Book R 38, p. 1-21.

A few B. A. C. stars are placed by the B. A. C. in constellations within which they can only be included by a violent distortion of the boundaries. The striking cases noticed are mentioned below.

B.A.C. No.	Position 1850	Placed by B.A.C. in:	Should be in:	Our Catal. No.
7310		Cygnus	Cepheus	3470
1001		Cassio. p.	Camelopard.	481
2868		Monoc.	{ Puppis } { Melus }	1480
8064		Pisc. austr.	Aquar.	3842

3129. For  $DM+19^{\circ}40'17''$  <sup>6.<sup>m</sup>2</sup> read  $DM+19^{\circ}40'15''$ , 6.<sup>m</sup>1. [What of  $DM+19^{\circ}40'17''$ , thus excluded?]

131 For Ceti read Androm.

683. Until 15 Feb '81 this star was erroneously identified in the Md. catalog as  $DM+49^{\circ}11'55''$ , whereas it is  $DM+49^{\circ}11'62''$ .

677b. Added 15 Feb 1881 for  $DM+49^{\circ}11'55''$ .

635B. Added 16 Feb 1881 for  $DM+85^{\circ}63'$  [auth "539 stars"]

946B. Added 17 Feb 1881 for  $DM+74^{\circ}252'$  [auth. "539 stars"]

1389 For  $7^h 44.2$  read  $7^h 42.2$ . [auth. U. A.]

1442a For  $8^h 6.9$  read  $8^h 7.9$  [auth. U. A.]

Go to page 133, for continuation

Faint stars, observed by Herschel and cited by him  
to be fainter than 17<sup>th</sup> mag. 1825-31.

no. in. Catalogue	R.A.	N.P.D.	Position	quad.	dis.	mag.
1068	0 <sup>h</sup> 56.1	75° 58' 19"	265°		30"	5.6 18
1115	2 9.1	62° 8' 5"	206°		50"	6 18
332	3 5.3	57° 47' 13"	20°	sf	15"	7 20
338	3 44.3	92° 52' 30"	45°	sf	10"	5 17
365	5 17.4	68° 12' 46"	{ 75° 75° 5°	np	20"	5.6 17
				sp	85"	5.6 17
				sp	50"	5.6 17
			quadraph			
379	5 58.1	58° 43' 21"	40°	sf	5"	8 18
397	6 30.6	61° 38' 58"	{ 60° 40°	nf	25"	8 19
				nf	40"	8 13
384	6 36.6	96° 13' 1"	60°	nf	35"	4.5 18
110	8 48.9	77° 28'	50°	np	10"	4 20
128	9 8.4	77° 46'	15°	np	30"	6 18
469	9 35.0	70° 21' 29"	30°	sp	18"	7 20
475	9 59.0	57° 33' 57"	80°	sf	20"	6 19
482	10 22.1	56° 44' 25"	45°	sp	25"	6 20
173	10 53.6	92° 35'	85°	sf	30"	7 20
108	11 37.5	90° 15'	45°	sf	6"	15 16
521	12 36.7	61° 40' 5"	80°	nf	25"	7 20
522	12 50.	61° 30' 51"	87°	nf	35"	6 18
564	14 56.9	59° 57' 20"	70°	nf	15"	6 20
248	15 0.9	75°	{ 5° 30°	np	8"	10 11
				sf	30"	10 18
1285	15 54.8	50° 20" 16"	180°		12"	7 18
1455	19 49.9	51° 21' 21"	{ 170° 332°		20"	4.5 18
					30"	4.5 13
608	20 8.6	103° 3' 59"	60°	sf	8"	34 18
2994	20 36.3	112° 7' 26"	338°		20"	6 18
282	21 15.7	78° 8'	30°	nf	10"	9 20
301	22 37.9	78° 43'	30°		11"	5 18
3155	22 48	112° 4' 15"	10°		15"	9.10 20

Mounted by M. Anderson.

Finished June 16<sup>th</sup>.





In the following list are given the discrepancies bet. the Dun Echt and the Catalogue R.A.'s and Decs. of all stars in the Dun Echt Cat., the brighter compo. of which are brighter, & the fainter compo., fainter, than 6.5 mag.\* Differences in R.A. of  $0^m.1$ ,  $0^m.2$  &  $0^m.3$  have been neglected; also diffs. in Dec. differing by not more than  $1''$  from the changes caused by precession during the interval of 5 years separating the two catalogues. These changes are given, to the nearest minute, in the subjoined table. The sign + in the column of differences ( $\Delta\alpha$  &  $\Delta\delta$ ) indicates that the Catalogue R.A. or Dec. exceeds the corresponding quantity given in the Dun Echt.; the sign - that it falls short of it, by the amount indicated.

L.H. Mitcheff.

Finished 1879 June 17

### Five Years Precession in Declination

0—1	+2'	23 <sup>h</sup> —24 <sup>h</sup>
2—4	+1'	20—22
5—7	0'	17—19
8—10	-1'	14—16
11—12	-2'	12—13

\* This class includes stars whose brighter compo. = 6.5, & whose fainter compo. are fainter than 6.5; but does not include those whose fainter compo. = 6.5 & whose brighter compo. are brighter than 6.5



AR1875 BAC	AR1875 DE	AR1880 BAC	AR1880 Catal
$0^h 25^m 57^s$	$25.8$	$26^m 12^s$	$26.3$
$41^m 29^s$	$41.3$	$41^m 46^s$	$41.8$
$59 21+$ <i>trans. alm.</i> $+88^\circ 39'$ $+88^\circ 39' 12.8$	$59.2$ $+88^\circ 39'$ $13.0$	$59 37$ $+88^\circ 40'$ $14.8$	$59.6$ $+88.40$ $14.6$
$1^h 17 7$	$16.9$	$17 27+$	$17.5$
$\Sigma 35 34$	$33.5$	$\Sigma 35.49$	$35.9$
$50 58$	$50.9$	$51 15-$	$51.3$
$55 40$	$55.5$	$55 58^{57+}$	$56.1$
$\Sigma +5^\circ 2' 48''$ $2^h 29 19$	$+5^\circ 2'$ $28.2$	$\Sigma +5^\circ 4' 18''$ $29 35$	$+5^\circ 5'$ $29.6$
$33 23$	$33.3$	$33 40$	$33.7$
$36 50$	$36.7$	$37 5$	$37.1$
$42 19$ $+37^\circ 49' 40''$ $45 49$	$42.1$ $+37^\circ 49'$ $45.6$	$42 36$ $+37^\circ 50' 55''$ $46 8$	$42.6$ $+37^\circ 52'$ $46.2$
$49^{35}$ $51 58$	$49.3$ $51.9$	$50^{34}$ $52 19$	$50.3$ $52.4$
$+0^\circ 0' 26''$ $3^h 30 30$	$+0^\circ 12'$ $30.8$	$+0^\circ 11' 54''$ $30 36$	$+0^\circ 2'$ $30.8$
$41 25$	$41.2$	$41 41$	$41.7$
$4^h 8 27-$	$8.3$	$8 41$	$8.7$

$\Sigma$  position all as per sec. var.

Probably not the same as 1112 BAC  
no 1112 BAC

$\Sigma 422 (1830) 3^h 28^m 4.40 + 0^\circ 1' 36''$   
BAC 1112 (1830)  
 $(1850) 3^h 29^m 5.81 + 0^\circ 1' 6''$   
 $(1850) 3^h 29^m 15.43 + 0^\circ 4' 40''$   
 $(1880) 3^h 30^m 37.93 + 0^\circ 11' 54.4$



where the discrepancy falls short of  $0^m.2$  or  $2'$ , after taking account of precession, the line is cancelled. B.P.M. Where it equals  $0^m.2$  or  $2'$ , but falls short of  $0^m.3$  or  $3'$ , a cross X is placed.

Run Ephr. Page	Cat. No.	$\Sigma$ No.	$\Delta\alpha$ m	$\Delta\delta$	Name of Star	B.A.C. No.	B.A.C. D.E.	B.A.C. minus Cat.	
1	12	5	omit		34 Piscium				
2	67	36	+0.5		51 "	129	X	+0 <sup>m</sup> .1 -0 <sup>m</sup> .1	
"	86	46	omit		55 "	?			
3	111	60	.5		$\gamma$ Cassiope	218	X	+0 <sup>m</sup> .2 0 <sup>m</sup> .0	
4	146	79	.4		Andr. 16413	-			
"	158	90	.4		77 Piscium	311	X	+0 <sup>m</sup> .2 0 <sup>m</sup> .0	Discrepancy +8 <sup>s</sup>
5	199	93	1.6		$\alpha$ Ursa Min.	360		-0 <sup>m</sup> .2 +0 <sup>m</sup> .2	
"	204	147	.6		$\nu$ Cassiope	412	X	+0 <sup>m</sup> .2 0	
6	251	147	2.4		$\chi$ Ceti	-		$\Sigma$ +2 <sup>m</sup> .1 $\Sigma$ -0 <sup>m</sup> .1	✓
8	265	170	.4		$\lambda$ Arietis	593		+0 <sup>m</sup> .1 -0 <sup>m</sup> .1	Discrepancy +8 <sup>s</sup>
"	303	201	.6		$\epsilon$ Trianguli	624		+0 <sup>m</sup> .2 -0 <sup>m</sup> .1	
11	373	279	.4		H. II. 47	-			
"	379	281	1.4	3	$\nu$ Ceti	794		+1 <sup>m</sup> .1 -1 <sup>m</sup> .1	✓
"	380	51	omit		30 Arietis				
12	384	289	.4		23 "	813		+0 <sup>m</sup> .7 0	
"	401	299	.4		$\gamma$ Ceti	837		+0 <sup>m</sup> .7 0	
"	412	311	.5		$\pi$ Arietis	870	X	+0 <sup>m</sup> .2 0	
13	423	318	.6	3	20 Persei	888		+1 <sup>m</sup> .1 -1 <sup>m</sup> .1	
"	430	320	1.0		Ceph. 47 Her.	896		+0 <sup>m</sup> .2 -0 <sup>m</sup> .1	✓
"	438	331	.5		P. II. 220	918		+0 <sup>m</sup> .1 -0 <sup>m</sup> .1	Discrepancy +9 <sup>s</sup>
44	514	284	.5		Lam. 2 Her.				
"	520	390	.4		" 4 "				
16	543	422	.0	-10	P. III. 98(?)	1112		-1 <sup>m</sup> .1 -1 <sup>m</sup> .1	See Remarks
17	583	452	.5		30 Tauri	1174	X	+0 <sup>m</sup> .2 0	
"	586	453	omit		27 "				
19	669	516	.4		39 Eridani	1303	X	+0 <sup>m</sup> .1 0	Discrepancy +9 <sup>s</sup> or 10 <sup>s</sup>
20	707	533	.4	7	H. V. 72(?)				
"	708	534	omit		62 Tauri				



$1875$ BAC		$1880$ BAC	
$4^h 30 14$	29.9	$30 27+$	30.5
$37 35$	37.8	$37 50$	37.8
$+53^{\circ} 32' 54''$	$+53^{\circ} 32'$	$+53^{\circ} 33' 32''$	$+53^{\circ} 34'$
<u>47 16</u>	47.2	<u>47 40</u>	47.7
50 46	50.6	51 6	51.1

$\Sigma 5^h 5 18$  5.0  $\Sigma 5^h 5 34$  5.6

this checked again, for if there is not a large discrepancy for northern stars, it is a mistake. Checked  $4^h$  to  $8^h$

$-5^{\circ} 28' 25''$	$-5^{\circ} 30'$	$-5^{\circ} 28' 42''$	$-5^{\circ} 28'$
$5^h 29 8$	29.1	$29 23$	29.4
$-5^{\circ} 59' 36''$	$-6^{\circ} 1'$	$-5^{\circ} 59' 32''$	$-5^{\circ} 59'$
<u>29 19</u>	29.4	<u>29 34</u>	29.6
$30 36$	30.4	$30 56$	31.6
$-2^{\circ} 40' 25''$	$-2^{\circ} 41'$	$-2^{\circ} 40' 13''$	$-2^{\circ} 40'$
<u>32 28</u>	32.5	<u>32 43</u>	32.7
$\Sigma 1 42$	2.2	$\Sigma 1 52$	2.7
$6^h 34 6$	33.8	$34 22$	34.4

42 3+	42.0	42 30	42.6
50 23	50.2	50 37	50.6

$7^h 12 39+$	12.5	$12 57+$	13.0
$\Sigma 0 26$	59.9	$\Sigma 0 46$	0.7
$+24^{\circ} 58' 30''$	$+24^{\circ} 56'$	$+24^{\circ} 59' 40''$	$+24^{\circ} 29'$
$8^h 24 7$	19.4	$24 25$	24.4

Different stars

$9^h 11 4$	10.9	11 23	11.4
------------	------	-------	------



Dunn Echb. Page	Cat. No.	$\Sigma$ no.	$\Delta\alpha$ m	$\Delta\delta$ '		BAC No	BAC min DE	BAC min Catal.	
22	754	566	+6		2 Camelop.	1424 X	+0.3	0	discrepancy $10^{\circ} 6' 12''$ ✓
"	777	590	0		55 Eridani	1461 X	-0.2 +1'	0' 0'	
23	810	610	-5	+2	7 Camelop.	1504	+0.1	0"	
"	826	616	5		W Aurigar	1530 X	+0.2	0	
"	829	Ann.	4		18 Camelop.				no mags. given in Dunn Echb.
24	863	645	4		47 Aurigar B.				= 863?
"	865	634	7		Lam. 19 Hec.				
"	875	652	16				+0.3	0	✓
"	879	654		-2	p Orionis	X			
25	895	311	6		1 Aurigar				
26	916	696	4		23 Orionis				
27	946	725	4		31 "				
"	948	728	4		32 "				
"	950	729	4		33 "				
28	968	745		+2	8' "	1758 X	+2' 0"	0' 0"	also, appendix Page 120.
"	971	752		+2	1 "	1762	+1' -0.1	0' 0"	
"	979	753	1.2		26 Aurigar	1768	+0.2 +1'	-0.7 0'	
29	984	762		-2'	5 Orionis	1780	0"	0"	
32	1083	855	5		Anon.	X	$\Sigma -0.5$	$\Sigma -0.8$	✓
35	1191	950	6		15 Minerva.	2185	+0.3	0	✓
36	1202	Ann.	5		46 Aurigar				
"	1219	963	6		14 Lyncis	2220 X	+0.1	-0.1	
37	1245	997	4		$\mu$ Can. Maj.	2273 X	+0.2	0	
39	1300	1061	4		1 Gemina.				
"	1304	1066	5		8 "	2410 X	+0.2	0"	
43	1429	1183	8		Anon.		+0.5	0"	✓
45	1474	1224	5.0	-27	46 t. Cancri				
"	1478	Ann.	5	-27	v' Cancri	2850	-26' +4.7	0' 0	See Remarks
46	1509	1268	4		2 A Bes. Maj.				
47	1528	1291	4		2 Cancri				
49	1582	1334	5		38 Lyncis	3162 X	+0.2	0	



11 <sup>h</sup> 48 35	48.4	48 51 4	48.9
<sup>55</sup> 57.52 +41° 21' 28" 12 <sup>h</sup> 9 52 -12° 19' 42" Σ 34 47	57.9 +41.20' 9.7 -12° 17'	<sup>10</sup> 58 8 41° 19' 42" 10 7 -12° 21' 22" Σ 35 3	58.6 +41° 20' 10.1 -12° 21' 35.0
13 <sup>h</sup> 36 47	37.1	37 2	37.1
14 <sup>h</sup> 11 45 +9° 0' 58"	11.9 +8° 59'	11 55 +8° 59' 34"	11.9 17.5
45 37	45.5	45 51	45.9
<sup>52</sup> +15° 48' 52" 15 <sup>h</sup> 40 25 +45° 51' 44" Σ 28 2	+15° 47' 40.3 +45° 52' 28.1	<sup>52</sup> +15° 47' 52" 40 39 +45° 51' 5" Σ 28 11	+15° 48' 40.7 +45° 53' 28.3
+60° 50' 47" Σ 14 34 +24° 35' 46" 17 <sup>h</sup> 37 27	+60° 51' 14.6 +24° 35' 35.9	+60° 50' 27" 14 37 +24° 35' 46" 37 53	+60° 47' 15.1 +24° 38' 37.6
41.4	41.4	41.8	
17 <sup>h</sup> 59 53	18 <sup>h</sup> 0.0	18 <sup>h</sup> 0 0	1.0
<sup>34</sup> Σ 4 34 +0° 7' 78" 20.8	4.4 +0° 6' 20.8	<sup>47</sup> Σ 4 47 +0° 7' 27" 21.1	4.8 +0° 8' 21.1
18 <sup>h</sup> 53 20 +0° 57' 32"	53.1 +0° 49' 12.1	53 34 +0° 52' 8"	53.6 +0° 52' 12.4

Different stars

Not in Σ cat gen



<i>Dim</i> <i>Right</i> <i>Asc.</i>	<i>Lat.</i> <i>No.</i>	<i>E.</i> <i>No.</i>	<i>Dec.</i> <i>m.</i>	<i>OS</i> <i>°</i>		BAC Nos.	BAC DE	BAC Catul	
<del>49</del>	<del>1601</del>	<del>1356</del>	<del>4</del>	<del>-3</del>	<del>6 Serpens</del>				
50	1602	1351	5		23 H. Vel. Maj.				
<del>52</del>	<del>1755</del>	<del>1450</del>	<del>4</del>		<del>49 Serpens</del>				
<del>+</del>	<del>1778</del>	<del>1466</del>	<del>4</del>		<del>35 Serpens</del>				
<del>56</del>	<del>1859</del>	<del>1476</del>	<del>4</del>		<del>1 Serpens</del>				
<del>57</del>	<del>1876</del>	<del>1447</del>	<del>4</del>		<del>48 "</del>				
<del>"</del>	<del>1885</del>	<del>1452</del>	<del>4</del>		<del>90 "</del>				
58	1924	1579	5		65 Vel. Maj.	4026	X	+0.2	0
<del>+</del>	<del>1926</del>	<del>20</del>	<del>4</del>		<del>" " (p. 4 fol.)</del>				
59	1941	1595	7		2 Comae	4066		0	-0.5
<del>60</del>	<del>1964</del>	<del>1622</del>	<del>4</del>	<del>0</del>	<del>2 Canum Ven.</del>	<del>4126</del>	<del>X</del>	<del>+0.2</del>	<del>0</del>
62	2034	1669		-4	58 Comae B.	-	X	+3'	0'
<del>64</del>	<del>2097</del>	<del>1724</del>	<del>4</del>	<del>-4</del>	<del>0 Virginis</del>				
66	2183	1777	0		84 "	4570		-0.3	-0.1
68	2266	3124	0		1 Bootis	4742	X	-0.2	0
"	2281	1835		+1	P. XIV. 69	4766	X	+2'	0'
70	2345	1858	4		3 Bootis	4905	X	+0.7	-0.1
<del>72</del>	<del>2397</del>	<del>1930</del>	<del>4</del>		<del>5 Serpens</del>				
74	2478	1970	4	+1	B "	5216	X	+0.7	-0.1
77	2614	2063		+1	H. IV. 62	-	X	Σ 0	-2'
<del>81</del>	<del>2717</del>	<del>Ann.</del>	<del>4</del>		<del>V Serpens</del>				
"	2721	2155	5	-4	132 Draconis B.	-		Σ 0'	+3'
82	2781	2194	1.7	+3	P. XVII. 200	5999		Σ 0'	-0.5
83	2794	2215	4		Anon.	-	X	+3'	0'
85	2854	2277	10		401 Urculis B.	6129		+1.5	0
<del>86</del>	<del>2864</del>	<del>2281</del>	<del>4</del>		<del>59 Serpens</del>				
"	2872	2289	4		417 Urculis B.	-	X	Σ +0.2	0m
87	2918	2316		+2	59 Serpens	6269	X	+1'	-1'
91	3012	2424	5		11 Aquilar	6483		+0.2	0
93	3087	2492		+3	23 "	6597	X	+3'	0'

Discrepancy -15<sup>s</sup> ✓See Remarks  
= 2781? ✓Discrepancy 14 to 16<sup>s</sup> ✓



19 <sup>h</sup> 18 45 <sup>s</sup>	18 59	19.0	
19 8	19.0	19 22	19.0
+33°26'24"	+33°28'	+33°27'16"	+33°27'
	41.5		41.8
$\Sigma$ 1.49	1.7	2 31	2.1
+77°20'16"	+77°18'	+77°20'58"	+77°21'
20 <sup>h</sup> 13 4	13.2	12 55	12.9
+0°39'52"	+0°38'	+0°40'48"	+0°41'
$\Sigma$ 18 15	18.2	18 31	18.6
<hr/>			
+48°47'58"	+48°48'31"		
26 52	27.0	27 36	27.6
+31°51'52"	+31°50'	+31°52'54"	+31°53'
	36.0		36.2
+30°15'46"	+30°14'	+30°16'52"	+30°17'
	40.5		40.7
<hr/>			
58 42	58.5	58 50	58.9
+57°28'52"	+59°29'	+59°29'34"	+59°28'
21 <sup>h</sup> 8 37	8.5	8 45	8.8
+19°16'12"	+19°15'	+19°17'22"	+19°18'
	16.2		16.5
-0°57'12"	-0°59'	-0°55'44"	-0°56'
31 9	30.8	31 24	31.4
+25°44'15"	+25°5'	+25°5'37"	+25°41'
	39.0		39.2
47 57	47.6	48 7	48.1
48.6	47.8	48 22	48.4
<hr/>			
22 <sup>h</sup> 46 29	46.1	46 41	46.7
50 41	50.5	50 55	50.9
-8°22'33"	-8°14'	-8°20'26"	-8°20'
	58.7		58.9
<hr/>			
<hr/>			

different stars

not in 5 Cat gen

Dim Eclat Page.	Cat. No.	$\Sigma$ No.	$\Delta$ No.	$\delta$ No.	BAC No.	BAC -DE	BAC -Catal
94	3114-15	41"	0		56642	X	-0.2
					6647		+0.1
97	3194	2580	-1		6784	X	-2'
99	3275	2628	4			X	$\Sigma + 0.1$
101	3315	2675	-3	+3	7005	X	+2'
101	3336	2677	4	+3		X	-0.1
						X	$\Sigma + 2'$
102	3349	2657	0			X	$\Sigma + 0.1$
"	3363	Umm.	6			X	-0.1
103	3397	2706		+3		X	0
"	3412	2726		+3		X	0
104	3473	2745	4			X	0
105	3477	2751	4			X	0
106	3501	2780	+3	-1		X	0
"	3526	11"		+3		X	0
107	3569	2809	6	+3		X	0
108	3600	2826		-1		X	0
"	3627	2840	5			X	0
"	3628	2838	6			X	0
110	3696	2893	0			X	0
112	3778	2943	3			X	0
113	3791	2950	6			X	0
"	3805	2960	4			X	0
"	3829	50'		-6		X	0
114	3877	2998	4			X	0
116	3978	3049	4			X	0

2.3 Lacittas

172 Lygni

227 Aquilae B.

K Cephei

P. XII. 116

27 Cephei B.

Lygni 201 B.

49 Lygni

52

12 Aquarii

83 Cephei B.

P. XII. 51.

1 Pegasi

H. IV. 38

K Pegasi

147 Cephei B.

100 Aquarii.

Aurora.

241 Cephei B.

16 Lacertae

83 Aquarii

96

5 Cassiope.

= Lygni  
in Cat.  
See Remarks





List of Stars  
 the A components of which are bright-  
 er, and B components fainter, than 6.5  
 mag., which are in the Dun Eck  
 but not in the Catalogue.

Dun Eck Page.	$\Sigma$ No.	Name of Star
1	2	Leph. 316 B.
3	73	36 Androm. = 250 B. A. C.
6	131	Aurion
7	163	"
8	191	"
<del>9</del>	<del>231</del>	<del>66 Cete</del>
12	294	84 "
15	396	Aurion
16	427	39 Tauri
19	495	179 "
22	571	H. III. 93
"	572	4 Aurigar
23	Unm.	26 Orionis
"	12	323 Tauri
25	674	P. V. 25
"	681	Aurion
"	680	P. V. 37
26	698	H. IV. 10.
28	750	Aurion.
29	754	158 Orionis

3268.

= \* 753?

\* underlined numbers  
 refer to the Catalogue.





<i>Dun. Eggt. Page.</i>	<i>E No.</i>	<i>Name of Star</i>
29	764	H. N. 75
31	816	Anon
32	472	"
33	881	4 Lyncis
34	921	H. N. 2
"	924	20 Gemin.
39	1055	47 Camelop.
"	1051	Anon
41	1120	"
"	1127	"
42	1138	2 Argus
43	1171	5 Lyncis B.
"	1177	17 " "
44	1193	176 " "
46	1254	P. VIII. 129.
47	1298	5 <sup>4</sup> Lyncis
49	1340	39 Lyncis
50	Vnn.	7 Leonis
51	"	.....
52	1415	H. N. 145.
"	Vnn.	Leonis 155 B.
53	1441	P. X. 94
54	1495	H. V. III.
56	1540	83 Leonis
57	1560	P. XI. 126
"	1561	290 Urs. Maj. B.
59	1604	59 Virginis "
"	1606	Anon.
60	1615	"
60	1625	"

= 1160?

= 1350?

= 1543?





<i>Dun Eck Page</i>	<i>E no.</i>	<i>Name of Star</i>	
60	1632	20 Can. Ven. B.	
"	1636	17 Virginis	
62	1678	Anon.	
65	1750	72 Virginis	= 2151?
66	1768	181 Can. Ven. B.	= 2171?
"	1770	P. XIII. 156	
68	1840	H. N. 71	
"	1850	Ann. x Jundi Sol.	In S. W. corner of Librar.
70	1854	Anon.	= 2333?
"	1894	286 Bootis B.	
"	1894	18 Librar	
71	1919	H. N. 62	= 2387?
"	1926	Ann. Librar 97 B.	
"	1926	Anon.	= 2389?
72	1931	" Bootis 8	
"	28	{ P. XV. 74	
73	1972	II' Mus. Min.	
74	1984	Anon.	
75	2007	"	
76	2022	"	
"	2048	P. XVI. 88	
"	2054	99 Draco. B.	
"	2049	Anon.	
79	2101	"	
"	2104	"	
"	2103	"	
"	2107	167 Herc. B.	
"	2118	20 Dracmis	
"	2115	192 Herc. B.	
"	2114	P. XVI. 270	
80	2120	210 Herc. B.	

no maj. is  
given in E  
for number  
star, except in  
Appendix, p. 123,  
where it is 6.5.  
A is 4.0, P. 72, +  
4.5 + 5.0, P. 123  
= 2338 if Dec.  
sign is changed (?)

= 2651?





Don Edg. Page	E no.	name of Star.
80	2142	Auron.
81	2166	"
82	2184	54 Ophiuchi
82	2194	P. XVII. 200
83	2218	Auron
85	2276	P. XVII. 362
87	361	39 Dracon. & Aur.
"	2322	47 Taur. Pon. B.
"	2325	29 Scut. Lib.
88	2342	55 Taur. Pon.
89	2375	75 " " "
90	2391	Auron.
"	2404	78 Tauri
91	2440	223 Dracon. B.
92	2443	1 Vulpec.
"	2446	P. XVIII. 302
93	2476	56 Aquilae B.
94	2504	Auron.
"	2521	P. XIX. 128
95	2532	" " 144
96	44	Auron
"	2545	"
"	45	151 Aquil. B.
"	2562	P. XIX. 241
"	2573	Auron.
97	2587	180 Aquar. B.
98	2604	H. N. 120
99	2640	Auron.
100	2654	"

= 2781?

= 2922?  
 E. 2323, assume  
 = 2922 (P. 153. Cat.)

This can not  
 be 3065.  
 { P. 94 E. Magn. of  
 28 Aquilae not  
 given. Dist. =  
 60". No inser-  
 tion in Cat.  
 (3094)  
 = 3125?  
 or 3129?

Should P. XX. 63 (= H. II. 10,  
 E 50', P. 100) be in as the  
 B. comp., or as the C. comp.,  
 of 0.2? Its mag. = 6.5.





Dim Eph Page	E no.	Name of star
101	2666	172 Cygni B.
"	2665	Anon.
102	2696	"
"	2700	"
103	2723	43 Delph. B.
104	2729	4 Aquarii
"	2741	P. XX. 429
"	2744	Anon.
105	2769	"
108	Ann.	76 Cygni
"	2841	H. N. 14
109	2873	180 Cephe. B.
110	2869	129 Pegasus
"	2877	P. XXII. 33
"	2878	148 Pegasus B.
"	2896	P. XXII. 65
113	2959	H. N. 15
114	2986	Anon
115	3004	"
"	3007	"
116	3053	"

{ P. 102 E. 11 p Cap-  
ricorni. Dist.  
& mass. not given

= 3464

= 3590 ?

= 3626 ?

= 3697 ??





List of Stars  
in the preceding class, <sup>to</sup> which ~~have~~ no  
names have been assigned in the Cat-  
alogues

Cat. No. Name in Dun Eckl.  
1845 234 *Min. May. B.*

1888 *P. XI. III.*

1952 *Camelop. 207 B.*

2685 124 *Oph.* "

2486 6 *Lynxi* "

3079 71 *Aquilae* "

3325 *H. I. 95.*

3445 *P. XX. 376*

3490 " *XXI. 1.*

3580 " " 248

3627 147 *Lept. B.*

3684 189 " "

246 *P. I. 145*

264 " " 179

1335 " *VII. 116*





The following stars in Wolff have not been identified in the Catalogue:—

Page  
in Wolff.

92	DM. +18.2795 Boot.	= 4637 B.A.C. = 7 Bootis = <del>Catal. 2266</del> ✓	4.83
"	P. VII. 67 Camelopard.	= 2439 B.A.C. = Catal. 1320 ✓	4.63
93	DM. +59.156 Cass.	= 255 B.A.C. = Catal. 1336 ✓	4.78
100	Axon. Orionis	(= ? 9666 ?) = Catal. 9666 ✓	var. 3.65
101	73* Heis Persei	= 1035 B.A.C. = Catal. 5016 ✓	4.66
"	DM. +48.913 "	= $3^h 17^m 8^s + 48^\circ 42'$ (1880.0) = Catal. 5126 ✓	4.27
100	" + 10.818 Orion.	= $5^h 28^m 5^s + 10^\circ 9'$ (1880.0) = 9656 ✓	4.64
"	E 701 Orionis	= $5^h 17^m 5^s - 8^\circ 32'$ (1880.0) = 9206 ✓	4.17
102	30 Denebentis	= 5226 B.A.C. = 24796 ✓	4.17
"	3 H. Deneb	= 6325 B.A.C. = 2931C = 1 Aquilae ✓	3.36
"	4 " "	= 6361 B.A.C. = 29466 = 2 Aquilae ✓	3.73
"	5 " "	= 6367 B.A.C. = 29486 = 3 Aquilae ✓	3.88
104	Axon. Virginis	= 4508 B.A.C. = Catal. 21486 ✓	4.61

97 P. XVII. 71 = 2722

" " XVI. 279 = 2675

101 " II. 220 = 438

The following stars in Seidel have not been identified in the Catalogue

? Draconis

Axon. Pegasi = P. XXI. 321 <sup>p. 135-138</sup> May. 5.17 <sup>40</sup> 3624











# Phot. P. Stars Completed. (Variation.)

79

June 23	.34	29.04	33.28	35.36	34.02	37.26	
25	.22	.24	.34	36.08	.34	38.24	
	.12	31.16	.21	.17	37.20	.15	
	.22	.30	34.21	.19	.15	.22	
	.32	.37	.60 <sup>x</sup>	.18	.26	.10	
	.25	.37	.13	.18	.55	.22	
	.35	33.17	.05	.17	.17	.04	
	.39	.06	35	.31	.35	.13	
26	.16	.40	.25	.11	.20	.23	
	.13	26.54 <sup>x</sup>	35.50 <sup>x</sup>	.41	.31	.11	
Mean 10) =	250	.255	.292	.216	.255	.170	
		.54	1.50				
Mean after rejection } =		9) 201	8) 182				
		.22	.23				
June 38	.36	39.27	40.38	42.07	100 Stars Summary after rejection.	Summary of means	
20	.33		.38	.29	.25	.26	
	.18	40.24	.39	.33	.22	.29	
	.60 <sup>x</sup>	.09	.47	.41	.23	.22	
	.22	.26	.36	.40	.22	.26	
	.20	.08	.38	.25	.26	.25	
	.25	.48 <sup>x</sup>	.45	.34	.17	128	
	.22	.60 <sup>x</sup>	.25	.25	.26	Mean .26	
39.102 <sup>x</sup>	.31	41.101 <sup>x</sup>	43.03	.244	.38	.17	
	.46	.03	.25	.16	.25	.37	
Mean 10) =	.371	.269	.440	.253		.27	
	162	108	1.01			.44	
8) 209		8) 161	9) 339			.25	
Mean after rejection } =	.26	.20	.38			.150	
						.30	



Game 43	48	43.56*	45.19	46.37	47.81*	Summary { after of means } Rejection	
	.19	44.40	.46	.12	48.46		
	.23	.54*	.21	.23	.47	.23	.23
	.11	.22	.25	.12	.34	.36	.24
	.00	.42	.64	47.39	.16	.39	.25
	.32	.28	.18	.07	.33	.25	.22
44.	.42	.76*	.22	.11	.26	.40	.33
	.27	.12	.56	.44	.26	5) 1.63	1.27
	.17	.13	46.50	.14	.57*	.33	.25
	.14	.16	.64*	.50*	50.37		
$\div 10 = \text{Mean}$	.233	.359	.386	.249	.403		
		1.89	.64	.50	1.38		
Mean after rejection } =	7) 1.70	9) 3.22	9) 1.99	8) 2.65			
	.24	.35	.22	.33			

50	.34	53.37	53.32	53.42	53.58		
	.26	.16	.39	.31	.53*	.25	.25
	.18	.18	.68*	.44	.50	.40	.38
	.12	.59	.51	.54*	.36	.46	.38
	.06	.50	.15	.67*	55.80*	.54	.40
52.23	.18	.48	.40	.39	.51	.45	
53.29	.53	.22	.85*	.59	5) 2.16	1.86	
.38	.44	.69*	.71*	.65*	.43	.37	
.41	.45	.50	.62*	.41			
.25	.59*	.61*	.142	.32			
$\div 10 = \text{Mean}$	.252	.399	.465	.538	.513		
	.59	1.98	3.39	1.98			
Mean after rejection } =	9) 3.40	7) 2.67	5) 1.99	7 3.15			
	.38	.38	.40	±.45			

Jan 55	55.50	55.45	56.1.95 <sup>x</sup>	58.31	58.37	Summary of Medians
	.39	.66 <sup>+</sup>	58.58 <sup>x</sup>	.52 <sup>x</sup>	.52 <sup>+</sup>	
	.29	.57 <sup>+</sup>	.16	.39	.31	
	.45	.12	.70 <sup>x</sup>	.43	60.25	
	.25	56.73 <sup>+</sup>	.28	.29	.49 <sup>+</sup>	
	.85 <sup>+</sup>	1.07 <sup>+</sup>	.60 <sup>x</sup>	.42	.48	
	.90 <sup>+</sup>	.73 <sup>+</sup>	.49 <sup>x</sup>	.54 <sup>+</sup>	.35	
	.43	.76 <sup>+</sup>	.20	.64 <sup>x</sup>	.80 <sup>+</sup>	
	.52 <sup>+</sup>	.41	.43	.49	.11	
	.18	.37	.38	.09	1.30 <sup>+</sup>	
÷10 = mean	.456	.581	.577	.412	.498	.31
	.207	.446	.432	1.70	3.11	5) 1.65
	7) 2.49	4) 1.35	5) 1.45	7) 2.42	6) 1.87	.33
Mean after rejection	.36	.34	.29	.35	.31	

60.50	60.72 <sup>+</sup>	64.29	67.75 <sup>+</sup>	67.81 <sup>+</sup>		
.78 <sup>+</sup>	.62 <sup>+</sup>	.48	.76 <sup>+</sup>	.62 <sup>+</sup>		
.76 <sup>+</sup>	64.53	.39	.61 <sup>+</sup>	.12	.57	.42
.56 <sup>+</sup>	.53 <sup>+</sup>	.80 <sup>x</sup>	.15	.40	.49	.37
.73 <sup>+</sup>	.42	.65 <sup>x</sup>	.45	.32	.46	.38
.34	.31	.20	.47	.31	.51	.34
.38	.61 <sup>x</sup>	67.40	.27	.27	.46	.33
.68 <sup>+</sup>	.56 <sup>x</sup>	.52 <sup>+</sup>	.34	.58	5) 2.49	1.84
.44	.41	.42	.62 <sup>+</sup>	.66 <sup>+</sup>	.50	.37
.56 <sup>+</sup>	.19	.49	.69 <sup>+</sup>	.52 <sup>+</sup>		
.573	.490	.464	.511	.461		
.4.07	.3.04	.1.97	.3.43	.2.61		
4) 1.66	5) 1.86	7) 2.67	5) 1.68	6) 2.00		
.42	.37	.38	.34	.33		



67.71 <sup>+</sup>	67.73 <sup>+</sup>	70.65 <sup>+</sup>	71.14	74.26		
.83 <sup>+</sup>	70.12	1.19 <sup>+</sup>	74.39	.31		
.83 <sup>+</sup>	.18	.19	.16	.34		
.52	.36	.82 <sup>+</sup>	.78 <sup>+</sup>	76.40	.61	.31
.60 <sup>+</sup>	.35	.31	.28	.25	.42	.23
.79 <sup>+</sup>	.71 <sup>+</sup>	.25	.08	.43	.40	.28
.24	.21	71.22	.20	.47	.38	.21
.63 <sup>+</sup>	.73 <sup>+</sup>	.37	1.05 <sup>+</sup>	.62 <sup>+</sup>	.46	.35
.17	.54 <sup>+</sup>	.66 <sup>+</sup>	.20	77.51 <sup>+</sup>	5) 22.7	1.38
.74 <sup>+</sup>	.24	.35	.48 <sup>+</sup>	1.03 <sup>+</sup>	.45	.28
.606	.417	.401	.376	.459		
.513	.281	.232	.231	.216		
3) .93	6) 1.38	6) 1.68	7) 1.45	7) 2.43		
.31	.23	.28	.21	.35		

77.72 <sup>+</sup>	77.40	77.28	77.37	78.42		
.72 <sup>+</sup>	.16	.36	.23	.50 <sup>+</sup>		
.38	.33	.08	.36	.50		
.68 <sup>+</sup>	.33	.31	.32	.50	.58	.40
.52 <sup>+</sup>	.34	.75 <sup>+</sup>	.33	.19	.43	.37
.68 <sup>+</sup>	.60	.97 <sup>+</sup>	.45	.77 <sup>+</sup>	.46	.32
.55 <sup>+</sup>	.84 <sup>+</sup>	.42	78.31	.34	.38	.35
.64 <sup>+</sup>	.42	.33	.61 <sup>+</sup>	.56	.50	.42
.41	.35	.43	.42	.61 <sup>+</sup>	8) 23.5	1.86
.48 <sup>+</sup>	.56 <sup>+</sup>	.63 <sup>+</sup>	.34	.59 <sup>+</sup>	.47	.37
.578	.433	.456	.378	.498		
.499	.140	.235	.61	.247		
2) .79	7) 2.93	7) 2.21	9) 3.17	6) 2.51		
.40	.37	.32	.35	.42		

78.37





- Zone. Omissions, Corrections etc. Phot. P.
1. In 3612, 3698, 3715, the fourth reading was omitted, and therefore the observations were not inserted.
- 8 In 3777 the last reading was changed from 224.0 to 254.0, this is evidently right because a setting had been made at 25 — and been crossed out because it was in the wrong quadrant.
- 11 In 3828 the third reading was changed from 246.3 to 216.3, the 1 on the reading circle looks very much like a 4.
- 17 The observation of number 3914 was transferred to 3916, because the note shows the star observed was no. 3916.
- 19 In 3789 the 2<sup>nd</sup> reading was changed from 34.3 to 84.3. It could not have been a 3 and the 8 was very probably taken for a 3.
- 41 In 832 the 3<sup>d</sup> reading changed from 118.0 to 218.0. It seems probable that the change is correct as the difference of the last two readings would be so great as to deem a mistake in recording possible.
- 82 In 1215 the star is rejected as the sheet got into 4<sup>h</sup> whereas the original is 6<sup>h</sup>. The mistake in the hour was not discovered till after the observation. A wrong star, of course, was observed.
- 269 In 3939 [Var.] the last reading 67.1 is assumed as 267.1 as a mistake in recording seems probable. The last reading is much smaller than the preceding.



86

Zone

422

Star 1034 1<sup>st</sup> reading changed from 91.4 to 61.4 as a mistake in recording seems probable.

423

N.E.

Only 6 stars taken in this zone, viz: nos. 1004, 1007, <sup>1008,</sup> 1010, 1086, 1089, and 1 blue star, no. 1099; also 1 observation of Polaris. The residuals resulting from a comparison of the observed magnitudes of <sup>seven of these</sup> ~~these eight~~ stars <sup>(excluding no. 1008)</sup> with former corrected magnitudes of the same, give equal + and - residuals; consequently, these observed magnitudes will be accepted as they stand.

428

Star # 1317, 1<sup>st</sup> reading being recorded as 63.P, was changed to 63.5.











The table on next page was computed by Prof. Pickering as follows, viz.: by determining the limiting points for mags. of 2.0, 2.1, 2.2, &c. by taking four times the anti-logarithmic cotangent + 2.00.

The table was double-checked by O. C. Wendell as follows, viz.: first, by determining the limiting points as far as possible from the former Meridian Photometer table, and supplementing this by taking 5 log. cotang. + 2.00 where the former failed; and, second, by also going through the whole table independently by the last mentioned process. (See also p. 92.)

Magn.	Sum of Diff's.	Magn.	Sum of Diff's.
		.5	255.6 to 251.4
-1.0	304.8 to 302.4	.6	251.3 " 247.1
-0.9	302.3 " 299.8	.7	247.0 " 242.6
-.8	299.7 " 297.1	.8	242.5 " 238.1
-.7	297.0 " 294.3	.9	238.0 " 233.4
-.6	294.2 " 291.4	1.0	233.3 " 228.7
-.5	291.3 " 288.3	1.1	228.6 " 223.8
-.4	288.2 " 285.2	1.2	223.7 " 218.9
-.3	285.1 " 281.9	1.3	218.8 " 213.9
-.2	281.8 " 278.5	1.4	213.8 " 208.8
-.1	278.4 " 275.0	1.5	208.7 " 203.6
0.0	274.9 " 271.4	1.6	203.5 " 198.4
+0.1	271.3 " 267.6	1.7	198.3 " 193.2
.2	267.5 " 263.8	1.8	193.1 " 188.0
.3	263.7 " 259.8	1.9	187.9 " 182.7
.4	259.7 " 255.7		



# 91

## Reduction Table for Meridian Photometer.

Mags.	Sum of Diff's.	Mags.	Sum of Diff's.
2.0	182.6 to 177.4	5.0	57.6 to 55.2
2.1	177.3 " 172.1	5.1	55.1 " 52.8
2.2	172.0 " 166.9	5.2	52.7 " 50.5
2.3	166.8 " 161.7	5.3	50.4 " 48.3
2.4	161.6 " 156.5	5.4	48.2 " 46.2
2.5	156.4 " 151.3	5.5	46.1 " 44.2
2.6	151.2 " 146.2	5.6	44.1 " 42.2
2.7	146.1 " 141.2	5.7	42.1 " 40.4
2.8	141.1 " 136.3	5.8	40.3 " 38.6
2.9	136.2 " 131.4	5.9	38.5 " 36.9
3.0	131.3 " 126.7	6.0	36.8 " 35.3
3.1	126.6 " 122.0	6.1	35.2 " 33.7
3.2	121.9 " 117.5	6.2	33.6 " 32.2
3.3	117.4 " 113.0	6.3	32.1 " 30.8
3.4	112.9 " 108.7	6.4	30.7 " 29.4
3.5	108.6 " 104.4	6.5	29.3 " 28.1
3.6	104.3 " 100.3	6.6	28.0 " 26.9
3.7	100.2 " 96.3	6.7	26.8 " 25.7
3.8	96.2 " 92.5	6.8	25.6 " 24.5
3.9	92.4 " 88.7	6.9	24.4 " 23.4
4.0	88.6 " 85.1	7.0	23.3 " 22.4
4.1	85.0 " 81.6	7.1	22.3 " 21.4
4.2	81.5 " 78.2	7.2	21.3 " 20.4
4.3	78.1 " 74.9	7.3	20.3 " 19.5
4.4	74.8 " 71.8	7.4	19.4 " 18.6
4.5	71.7 " 68.7	7.5	18.5 " 17.9
4.6	68.6 " 65.8	7.6	17.8 " 17.0
4.7	65.7 " 63.0	7.7	16.9 " 16.3
4.8	62.9 " 60.3	7.8	16.2 " 15.5
4.9	60.2 " 57.7	7.9	15.4 " 14.8



this page refers to on p.90

Sidereal Time	Mean Time							
	March 1881 - April 1882							
9 <sup>h</sup>	March			April				
	21 9 <sup>h</sup> 1 <sup>m</sup>	25 8 <sup>h</sup> 46	29 8 <sup>h</sup> 30 <sup>m</sup>	2 8 <sup>h</sup> 14	6 7 <sup>h</sup> 58 <sup>m</sup>	10 7 <sup>h</sup> 43	14 7 <sup>h</sup> 27 <sup>m</sup>	18 7 <sup>h</sup> 11 <sup>m</sup>
12 <sup>h</sup>	April			May				
	22 9 <sup>h</sup> 55 <sup>m</sup>	26 9 <sup>h</sup> 40 <sup>m</sup>	30 9 <sup>h</sup> 24 <sup>m</sup>	4 9 <sup>h</sup> 8	8 8 <sup>h</sup> 52 <sup>m</sup>	12 8 <sup>h</sup> 36	16 8 <sup>h</sup> 21	20 8 <sup>h</sup> 5
14 <sup>h</sup>	May			June				
	24 9 <sup>h</sup> 49	28 9 <sup>h</sup> 33	1 9 <sup>h</sup> 18	5 9 <sup>h</sup> 2	9 8 <sup>h</sup> 46	13 8 <sup>h</sup> 30	17 8 <sup>h</sup> 15	21 7 <sup>h</sup> 59
16 <sup>h</sup>	June			July				
	25 9 <sup>h</sup> 43	29 9 <sup>h</sup> 27	3 9 <sup>h</sup> 11	7 8 <sup>h</sup> 56	11 8 <sup>h</sup> 40	15 8 <sup>h</sup> 24	19 8 <sup>h</sup> 8	23 7 <sup>h</sup> 53
18 <sup>h</sup>	July			August				
	27 9 <sup>h</sup> 37	31 9 <sup>h</sup> 21	4 9 <sup>h</sup> 5	8 8 <sup>h</sup> 49	12 8 <sup>h</sup> 34	16 8 <sup>h</sup> 18	20 8 <sup>h</sup> 2	24 7 <sup>h</sup> 46
20 <sup>h</sup>	August			September				
	28 9 <sup>h</sup> 31	1 9 <sup>h</sup> 15	5 8 <sup>h</sup> 59	9 8 <sup>h</sup> 43	13 8 <sup>h</sup> 28	17 8 <sup>h</sup> 12	21 7 <sup>h</sup> 56	25 7 <sup>h</sup> 40
22 <sup>h</sup>	September			October				
	29 9 <sup>h</sup> 24	3 9 <sup>h</sup> 9	7 8 <sup>h</sup> 53	11 8 <sup>h</sup> 37	15 8 <sup>h</sup> 21	19 8 <sup>h</sup> 6	23 7 <sup>h</sup> 50 <sup>m</sup>	27 7 <sup>h</sup> 34 <sup>m</sup>
1 <sup>h</sup>	October			November				
	31 10 <sup>h</sup> 18 <sup>m</sup>	4 9 <sup>h</sup> 46 <sup>m</sup>	8 9 <sup>h</sup> 46 <sup>m</sup>	12 9 <sup>h</sup> 15 <sup>m</sup>	16 9 <sup>h</sup> 15 <sup>m</sup>	20 8 <sup>h</sup> 43 <sup>m</sup>	24 8 <sup>h</sup> 43 <sup>m</sup>	28 8 <sup>h</sup> 43 <sup>m</sup>
3 <sup>h</sup>	November			December				
	2 10 <sup>h</sup> 12 <sup>m</sup>	6 9 <sup>h</sup> 40 <sup>m</sup>	10 9 <sup>h</sup> 40 <sup>m</sup>	14 9 <sup>h</sup> 9 <sup>m</sup>	18 9 <sup>h</sup> 9 <sup>m</sup>	22 8 <sup>h</sup> 37 <sup>m</sup>	26 8 <sup>h</sup> 37 <sup>m</sup>	30 8 <sup>h</sup> 37 <sup>m</sup>
5 <sup>h</sup>	December			January				
	3 10 <sup>h</sup> 12 <sup>m</sup>	7 9 <sup>h</sup> 40 <sup>m</sup>	11 9 <sup>h</sup> 40 <sup>m</sup>	15 9 <sup>h</sup> 9 <sup>m</sup>	19 9 <sup>h</sup> 9 <sup>m</sup>	23 8 <sup>h</sup> 37 <sup>m</sup>	27 8 <sup>h</sup> 37 <sup>m</sup>	31 8 <sup>h</sup> 37 <sup>m</sup>
7 <sup>h</sup>	January			February				
	4 10 <sup>h</sup> 12 <sup>m</sup>	8 9 <sup>h</sup> 40 <sup>m</sup>	12 9 <sup>h</sup> 40 <sup>m</sup>	16 9 <sup>h</sup> 9 <sup>m</sup>	20 9 <sup>h</sup> 9 <sup>m</sup>	24 8 <sup>h</sup> 37 <sup>m</sup>	28 8 <sup>h</sup> 37 <sup>m</sup>	March 4
9 <sup>h</sup>	February			March				
	8 10 <sup>h</sup> 12 <sup>m</sup>	12 9 <sup>h</sup> 40 <sup>m</sup>	16 9 <sup>h</sup> 40 <sup>m</sup>	20 9 <sup>h</sup> 9 <sup>m</sup>	24 9 <sup>h</sup> 9 <sup>m</sup>	28 8 <sup>h</sup> 37 <sup>m</sup>	1 8 <sup>h</sup> 37 <sup>m</sup>	5 8 <sup>h</sup> 37 <sup>m</sup>



Sidereal Time at 7<sup>h</sup> 0<sup>m</sup> p.m., M.T.

1881			1881			1881			1882		
March	h	m	June			Oct.			Jan.		
21	6	59	29	13	33	3	19	51	3	1	54
25	7	14	July			7	20	7	7	2	10
29	7	30	3	13	49	11	20	23	11	2	26
April			7	14	4	15	20	39	15	2	41
2	7	46	11	14	20	19	20	54	19	2	57
6	8	2	15	14	36	23	21	10	23	3	13
10	8	17	19	14	52	27	21	26	27	3	29
14	8	33	23	15	7	31	21	42	31	3	44
18	8	49	27	15	23	Nov.			Feb.		
22	9	5	31	15	39	4	21	57	4	4	0
26	9	20	Aug.			8	22	13	8	4	16
30	9	36	4	15	55	12	22	29	12	4	32
May			8	16	11	16	22	45	16	4	47
4	9	52	12	16	26	20	23	1	20	5	3
8	10	8	16	16	42	24	23	16	24	5	19
12	10	24	20	16	58	28	23	32	28	5	35
16	10	39	24	17	14	Dec.			March		
20	10	55	28	17	29	2	23	48	4	5	51
24	11	11	Sept.			6	0	4	8	6	6
28	11	27	1	17	45	10	0	19	12	6	22
June			5	18	1	14	0	35	16	6	38
1	11	42	9	18	17	18	0	51	20	6	54
5	11	58	13	18	32	22	1	7	24	7	9
9	12	14	17	18	48	26	1	22	28	7	25
13	12	30	21	19	4	30	1	38	29	7	29
17	12	45	25	19	20	Jan.			April		
21	13	1	29	19	36	3	1	54	2	7	45
25	13	17									



For explanations,  
see p. 107.

Discrepancies between the positions of stars  
as given in the MS. working catalog of zones and as  
given in Howzeau's *Uranométrie générale*. (Annal. de  
l'Observ. roy. de Bruxelles, n. s., *Astronomie*, v. 1, 1878.)

Discrepancies less than  $0^m.2$  in A.R. or than  $2'.0$  in Decl. not noticed.

Catal. No.	A R		Decl.	
	in Howzeau	in Catal. Zones	in Howzeau	in Catal. Zones
51	$0^h 14^m.2$	$0^h 18^m.2$		
52	14.6	18.6		
76	29.9	30.3	$+53^\circ 22'$	$+53^\circ 14'$
96	38.6	37.8	$74^\circ 15'$	$74^\circ 20'$
105	38.6	39.8	$74^\circ 15'$	$74^\circ 12'$
120			$63^\circ 25'$	$63^\circ 35'$
143	53.1	52.6		
174			$63^\circ 39'$	$63^\circ 33'$
196	$1^h 13.7$	$1^h 13.4$		
217 <sub>a</sub>	22.3	21.3		
250			$59^\circ 47'$	$59^\circ 57'$
273	50.7	46.8		
290 <sub>a</sub>	53.5	53.8		
319	$2^h 5.6$	$2^h 5.2$		
	9.8	13.7	$56^\circ 58'$	$56^\circ 34'$
372	26.5	26.8		
385	30.9	30.5		
415	44.1	43.7		
424	45.6	46.4		
430	50.7	50.3		

A lead pencil dash — is set in Howzeau's catalog against each  
star contained in the Harvard list; a continuous pencil line is drawn  
in the Harvard list under every A.R. & Decl. agreeing exactly with  
Howzeau's list, and a broken line under every one agreeing  
within  $0^m.1$  or  $1'$ .



Discrepancies greater than AR  $0.2^m$  or Decl.  $2.0'$   
between Howseau's Uranometrie générale and the Harvard  
College Observatory Ms. working catalog of Zones.

Catal. No.	AR (cont.)		Decl.	
	in Howseau	in Catal. Zones	in Howseau	in Catal. Zones
454	$2^h 55.5^m$	$2^h 57.3^m$		
461	$3^h 0.1$	$3^h 0.4$		
469	4.5	4.0		
478	7.3	7.6		
537	26.1	27.3		
609	54.4	50.0		
640	$4^h 0.8$	$4^h 0.4$		
656	5.2	6.1		
678	10.7	11.1		
733	26.5	22.5		
766			$+75^\circ 40'$	$+75^\circ 43'$
778			$81^\circ 2'$	$80^\circ 59'$
779	34.1	38.0		
870	$5^h 5.0$	$5^h 3.6$		
903	12.7	13.2		
1001	39.7	40.0		
1105	$6^h 9.0$	$6^h 8.6$		
1136	16.3	16.6		
1161			$79^\circ 47'$	$79^\circ 42'$
1169	27.1	26.8		
1173	27.7	27.4		
1218	42.3	42.6		
1222	47.0	43.8		
1362	$7^h 32.7$	$7^h 33.1$		
1367	39.0	35.0		
<del>1373</del>	<del>40.1</del>	<del>36.5</del>	<del><math>80^\circ 10'</math></del>	<del><math>80^\circ 34'</math></del>
1402	47.5	48.0		

Catal. No.	in Houzeau	<sup>AR</sup> in Catal. Zones	Decl.	in Houzeau	in Catal. Zones
1447	8 <sup>h</sup> 10. <sup>m</sup> 3	8 <sup>h</sup> 10. <sup>m</sup> 7			
1460	19.0	19.3			
1490			+53° 14'	+53° 8'	
1560	9 <sup>h</sup> 0.3	9 <sup>h</sup> 1.0			
1630	31.7	32.0			
1661			73° 27'	73° 37'	
1702	10 <sup>h</sup> 7.3	10 <sup>h</sup> 6.9	60° 40'	60° 37'	
1713	11.5	12.0			
1727	19.8	16.3			
1742	23.3	23.6			
1774	35.9	36.2			
1775	37.1	36.5	46° 51'	46° 56'	
<del>1792</del>			<del>53° 12'</del>	<del>53° 9'</del>	
1854			67° 51'	67° 45'	
1924	11 <sup>h</sup> 49.8	11 <sup>h</sup> 48.9			
1952	12 <sup>h</sup> 5.2	12 <sup>h</sup> 5.6			
1957			54° 30'	54° 7'	
1961	7.5	9.5			
1968	13.5	11.5			
2063	47.7	48.2			
2139	13 <sup>h</sup> 21.4	13 <sup>h</sup> 21.1			
2210	45.4	45.8			
2266	14 <sup>h</sup> 12.4	14 <sup>h</sup> 11.9			
2355	51.5	51.1			
2417	15 <sup>h</sup> 22.2	15 <sup>h</sup> 21.8			
2489			62° 55'	62° 58'	
2507	48.3	50.7			
2506	49.5	50.5			
2520	53.5	54.5			
2582	16 <sup>h</sup> 16.9	16 <sup>h</sup> 16.6			



Catal. No.	<i>a R</i>		<i>Decl</i>	
	in Flowseau	in Catal Zones	in Flowseau	in Catal Zones
2614			+45° 50	+45° 53
2639	16 <sup>h</sup> 35. <sup>m</sup> 9	16 <sup>h</sup> 36. <sup>m</sup> 9		
2662	52.3	48.4		
2669			65° 16'	65° 19'
2680	59.0	58.6		
2900	18 <sup>h</sup> 19.2	18 <sup>h</sup> 15.5		
2989	49.5	48.8		
<del>3222</del>	<del>19<sup>h</sup> 48.5</del>		<del>47° 42'</del>	
3222	19 <sup>h</sup> 49.1	19 <sup>h</sup> 48.7	47° 42'	47° 39'
3269	20 <sup>h</sup> 0.6	20 <sup>h</sup> 0.2	64° 23'	64° 29'
3315	13.7	12.9		
3398			80° 51'	80° 40'
3451			46° 55'	46° 58'
3553	21 <sup>h</sup> 26.1	21 <sup>h</sup> 25.0		
3556	21 <sup>h</sup> 25.3	25.6		
3604	41.0	40.2	( $\tau$ Cephei	11 Cephei)
3612			( $\sigma$ "	" )
3657			62° 32'	62° 36'
3725			64° 41'	64° 31'
3742	22 <sup>h</sup> 28.6	22 <sup>h</sup> 28.9		
3795	48.2	47.9		
3862	23 <sup>h</sup> 10.7	23 <sup>h</sup> 11.0		
3875	13.5	13.8		
3876			47° 50'	47° 58'
3889			59° 23'	59° 28'
3907	28.5	27.8		
785			63° 28'	63° 18'
896	5 <sup>h</sup> 9.8	5 <sup>h</sup> 10.9	78° 7'	77° 52'
1412	7 <sup>h</sup> 55.3	7 <sup>h</sup> 52.8	55° 49'	57° 36'

Catal. No.	AR		Decl.	
	in Houzeau	in Catal. Zones	in Houzeau	in Catal. Zones
1976	12 <sup>h</sup> 13. <sup>m</sup> 5	12 <sup>h</sup> 14. <sup>m</sup> 4		
1975	12 <sup>h</sup> 12.9	12 <sup>h</sup> 14.4		
2374	14 <sup>h</sup> 55.9	14 <sup>h</sup> 58.9	+45° 3'	+45° 7'
2427			62° 35'	62° 42'
3026	18 <sup>h</sup> 55.7	18 <sup>h</sup> 56.0		
3036	57.8	58.0	47° 51'	46° 47'
3296 [see 3298]			46° 24'	46° 27'
3501	21 <sup>h</sup> 9.7	21 <sup>h</sup> 8.8	59° 37'	59° 28'
3696	22 <sup>h</sup> 10.9	22 <sup>h</sup> 10.7	71° 47'	72° 43'
3745	29.7	29.6	69° 31'	69° 16'
3814			51° 50'	52° 0'
3975	23 <sup>h</sup> 52.1	23 <sup>h</sup> 52.4	49° 46'	50° 43'

40	0 <sup>h</sup> 12. <sup>m</sup> 4	0 <sup>h</sup> 12. <sup>m</sup> 0		
81	30.7	31.0		
130	49.5	48.5		
209	1 <sup>h</sup> 18.6	1 <sup>h</sup> 19.3	+42° 45'	+42° 50'
243	33.9	33.6		
311	2 <sup>h</sup> 0.9	2 <sup>h</sup> 1.3		
314	3.3	2.6		
315			38° 16'	38° 29'
323	5.5	5.8		
331	8.7	9.0		
333	<del>9.7</del>	<del>9.9</del>	33° 28'	33° 42'
334	11.1	10.4	33° 23'	33° 18'
339	12.5	12.0	<del>28° 7'</del>	<del>28° 5'</del>
345			40° 56'	40° 51'
373			36° 58'	36° 48'
374	2 <sup>h</sup> 28.3	28.6		
375+			7° 0'	6° 57'



Catal. No.	AR	Decl.
in Hourglass in Catal. Zones	in Hourglass in Catal. Zones	in Hourglass in Catal. Zones
399		+43°56' +43°47'
417	2 <sup>h</sup> 43. <sup>m</sup> 9 2 <sup>h</sup> 44. <sup>m</sup> 2	
447		26°3' 26°0'
489	3 <sup>h</sup> 10.5 3 <sup>h</sup> 11.3	
535	26.3 25.7	
686		21°28' 21°31'
707}	4 <sup>h</sup> 18.1 {4 <sup>h</sup> 16.7}	33°46' {33°51'
709}	{16.9}	{33°42'
718}	19.5 {19.13}	22°37' {22°32'
723}	{20.1}	{22°43'
758	31.7 31.2	
761}		{15°37' {15°33'
762}		{15°42'
786		32°29' 32°24'
793	42.9 42.4	
840	56.7 55.9	
897	5 <sup>h</sup> 10.2 5 <sup>h</sup> 11.1	
918}		31°4' {31°7'
919}		{31°2'
949	24.9 24.6	
979	30.8 31.6	
1033	47.7 48.7	
1149	6 <sup>h</sup> 20.0 6 <sup>h</sup> 21.0	
1180	30.1 6 <sup>h</sup> 30.5	39°46' 40°0'
1251	53.1 53.4	16°11' 16°14'
1284		5°46' 5°51'
1334}	7 <sup>h</sup> 22.0	28°16' {28°23'
1336}	7 <sup>h</sup> 22.4	{28°10'
1440	8 <sup>h</sup> 6.3 8 <sup>h</sup> 5.7	
1477}	26.4 {25.6}	
1482}	{27.1}	

Catal. No.	<sup>αR.</sup> in Houzeau in Catal. Zones		<sup>Decl.</sup> in Houzeau in Catal. Zones	
1522	8 <sup>h</sup> 45.5	8 <sup>h</sup> 45.2		
1528	47.4	46.9		
1537 }	50.7	{ 50.6 }	+15° 55'	{ +15° 47'
1538 }		{ 50.9 }		{ +16° 2'
1543	53.5	52.2	32° 49'	32° 53'
1544	52.4	52.9		
1573	9 <sup>h</sup> 7.2	9 <sup>h</sup> 6.0		
1700	10 <sup>h</sup> 6.5	10 <sup>h</sup> 6.2		
1735	21.3	20.9		
1740	22.8	23.1		
1751	26.7	26.2		
1808			43° 28'	43° 34'
1857			44° 4'	44° 9'
1898	11 <sup>h</sup> 34.0	11 <sup>h</sup> 34.8		
1914	42.8	43.3	42'	
1940	56.3	56.0	43° 46'	43° 43'
1941	58.1	58.6		
1949			17° 51'	17° 28'
1967	12 <sup>h</sup> 11.5	12 <sup>h</sup> 10.5		
2099 }				
2101 }				
2171	13 <sup>h</sup> 31.0	13 <sup>h</sup> 32.1	36° 57'	36° 54'
2180			23° 6'	23° 9'
2363			39° 41'	39° 45'
2402	15 <sup>h</sup> 14.9	15 <sup>h</sup> 15.3		
2428 }	26.8		41° 15'	
2433 }		27.5		41° 18'
2474	38.3	39.3		
2507	51.3	50.7		
2570			38° 6'	38° 18'
2541			10° 19'	10° 13'



2586 }			34° 2'	{ 34° 5'
2587 }				{ 33° 59'
2663			21° 8'	21° 11'
2683	16 <sup>h</sup> 58.9	16 <sup>h</sup> 59.6		
2698	17 <sup>h</sup> 7.1	17 <sup>h</sup> 6.8		
2770	33.0	32.2		
2776	35.9	35.4		
2781 }	38.1	{ 37.6 }	24° 29'	{ 24° 38'
2785 }		{ 38.4 }		{ 24° 23'
2815	50.9	50.2		
2839 }	56.7	{ 56.2 }	33° 16'	{ 33° 13'
2847 }		{ 57.2 }		{ 33.20
2876			33° 20'	33° 26'
2899	18 <sup>h</sup> 15.6	18 <sup>h</sup> 15.2		
2958 }				
2959 }				
2978			32° 32'	32° 25'
2982	46.1	47.1		
2995	50.5	50.0		
3012			13° 37'	13° 28'
3013			37° 6'	38° 6'
3032	57.0	57.4	33° 32'	33° 27'
3043			30° 33'	31° 34'
3135 }			24° 28'	{ 24° 25'
" + }				{ 24° 31'
3144	19 <sup>h</sup> 27.4	19 <sup>h</sup> 28.2		
3191	40.5	40.0		
3209	45.2	46.4		
3211	45.9	46.5		
3356 }			1° 51'	{
3357 }				1° 43'

3396	20 <sup>h</sup> 35. <sup>m</sup> 2	20 <sup>h</sup> 35. <sup>m</sup> 8		
3410	41.1	40.1		
3421			+34° 0'	+33° 56'
3516	21 <sup>h</sup> 15.3	21 <sup>h</sup> 14.8		
3554	24.7	25.3		
3567	29.5	29.9		
3590	37.1	37.5	40° 24'	40° 32'
3626	48.3	48.0	19° 9'	19° 6'
3665 }	22 <sup>h</sup> 4.3	22 <sup>h</sup> 3.9		
3670 }		4.7		
3686			27° 58'	28° 1'
3730			32° 3'	31° 57'
3750 }	33.5	{ 32.1 }	18° 58'	{
3756 }		{ 34.0 }		19° 3'
3771	39.0	38.6	38° 47'	38° 50'
3796			44° 4'	44° 7'
3871 }	23 <sup>h</sup> 13.4	{ 23 <sup>h</sup> 12.7 }	41° 17'	{ 41° 7'
3877 }		14.2 }		41° 25'
3882	14.2	15.0		
3879	15.0	14.7		
3890			31° 53'	31° 43'
3894			0° 32'	0° 36'
3902	25.2	25.5		
3903			27° 52'	28° 0'
3910			30° 47'	30° 40'
3914 }	29.5	{ 28.9 }	23° 59'	{ 23° 45'
3916 }		{ 29.9 }		23° 53'
24	0 <sup>h</sup> 7.8	0 <sup>h</sup> 7.2		
33	8.2	9.0		



177			+25°10'	+24°50'
705	4 <sup>h</sup> 17.0	4 <sup>h</sup> 16.5		
1202	6 <sup>h</sup> 37.0	6 <sup>h</sup> 38.2		
1220			46°20'	16°20'
1242	49.2	49.9		
1358	7 <sup>h</sup> 32.8	7 <sup>h</sup> 32.2		
1364	33.3	33.8	28°19'	23°19'
1559	8 <sup>h</sup> 59.4	9 <sup>h</sup> 0.7		
1694	9 <sup>h</sup> 57.8	10 <sup>h</sup> 1.8		
1932	11 <sup>h</sup> 49.9	11 <sup>h</sup> 51.0	41°20'	41°2'
1934	51.9	53.1	33°7'	33°50'
2199	13 <sup>h</sup> 42.5	13 <sup>h</sup> 41.8		
2216	46.8	46.5	34°57'	35°2'
2264	14 <sup>h</sup> 13.0	14 <sup>h</sup> 11.5		
2275	13.8	14.3	0°45'	0°56'
2276	15.2	14.9	39°17'	39°22'
2353			14°35'	14°56'
2487	15 <sup>h</sup> 43.6	15 <sup>h</sup> 44.6		
2757			18°0'	18°50'
2759	17 <sup>h</sup> 29.1	17 <sup>h</sup> 28.3	16°35'	16°26'
2829			4°10'	4°23'
2895	18 <sup>h</sup> 13.0	18 <sup>h</sup> 13.5		
2929			16°32'	16°51'
2970	44.3	43.2		
3446			+13°6'	+13°16'
3			-3°10'	{ -3°13'
4				{ -3°7'
128	0 <sup>h</sup> 46.8	0 <sup>h</sup> 48.1		
2977				
2995				

376 }				
383 }				
538	3 <sup>h</sup> 28. <sup>m</sup> 3	3 <sup>h</sup> 27. <sup>m</sup> 3		
621 +	58.5	55.9		
6597	4 <sup>h</sup> 6.1			
661 }		4 <sup>h</sup> 6. <sup>m</sup> 4		
742	27.1	26.5		
820			-16° 46'	-16° 36'
849	59.0	58.3		
876	5 <sup>h</sup> 4.9	5 <sup>h</sup> 5.7		
914	14.8	15.6		
962	27.0	27.4		
968 }				
970 }				
1079	6 <sup>h</sup> 1.8	6 <sup>h</sup> 1.5		
1212			-10° 6'	-9° 58'
1216	41.6	41.9		
1315	7 <sup>h</sup> 16.1	7 <sup>h</sup> 16.5		
1324	19.3	19.7		
1386			-14° 25'	-14° 16'
1429			-8° 46'	-8° 54'
1431	8 <sup>h</sup> 1.8	8 <sup>h</sup> 2.0	-17° 2'	-20° 12'
1439	6.4	5.6		
1498	34.0	34.3		
1508	38.8	39.2		
1550	56.3	56.0		
1600	9 <sup>h</sup> 21.5	9 <sup>h</sup> 21.8		
1608	9 <sup>h</sup> 24.3	9 <sup>h</sup> 24.6		
1699	10 <sup>h</sup> 4.6	10 <sup>h</sup> 5.0		
1717			-28° 24'	-28° 28'
1824 }	10 <sup>h</sup> 59.8	{ 10 <sup>h</sup> 59.5 }	-26° 33'	{ -26° 39' }
1825 }		{ 11 <sup>h</sup> 0.1 }		{ -26° 38' }
1829 {	which?		-29° 25'	-29° 31'
1831 }			-29° 25'	-29° 19'



1880	11 <sup>h</sup> 26.3	11 <sup>h</sup> 26.6		
1959	12 <sup>h</sup> 9.4	12 <sup>h</sup> 9.0		
1970	13.8	13.4		
2074	54.1	57.7		
2362	14 <sup>h</sup> 55.5	14 <sup>h</sup> 54.9		
2451	15 <sup>h</sup> 33.6	15 <sup>h</sup> 32.1	-34° 8'	-34° 1'
2499	47.4	47.0		
2572	16 <sup>h</sup> 12.5	16 <sup>h</sup> 12.0		
2811	17 <sup>h</sup> 47.1	17 <sup>h</sup> 48.9		
2905+	18 <sup>h</sup> 16.7	18 <sup>h</sup> 17.1		
2950	18 <sup>h</sup> 37.5	18 <sup>h</sup> 37.8		
2962+	40.8	41.8		
2987	47.9	48.6		
3025			-19° 21'	-19° 25'
3201	19 <sup>h</sup> 45.2	19 <sup>h</sup> 44.2		
3286	20 <sup>h</sup> 5.5	20 <sup>h</sup> 5.8	-12° 52'	-12° 58'
3316	14.2	13.0	-29° 34'	-29° 36'
3333	18.5	18.0		
3561			-20° 42'	-20° 37'
3743	22 <sup>h</sup> 29.5	22 <sup>h</sup> 29.0		
3753			-28° 59'	-28° 56'
3758	34.0	34.3		
3800	50.1	49.0		
3933			-18° 35'	-18° 28'
288	1 <sup>h</sup> 53.8	1 <sup>h</sup> 53.1	-27° 1'	-26° 52'
905	5 <sup>h</sup> 14.0	5 <sup>h</sup> 13.4	-18° 27'	-18° 15'
1293	7 <sup>h</sup> 9.4	7 <sup>h</sup> 8.8	-10° 11'	-10° 6'
1599	9 <sup>h</sup> 22.8	9 <sup>h</sup> 21.8	-5° 32'	-5° 33'
1983	12 <sup>h</sup> 17.1	12 <sup>h</sup> 16.8		
1984				
3246	19 <sup>h</sup> 52.1	19 <sup>h</sup> 54.0		



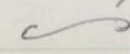
## Explanation, by B. PICKMAN MANN

In the work from which the entries on the preceding pages 95 to 106 resulted, I compared the Ms. catalog of zones with Howzeau's work as recorded on p. 95. Wherever the position of the star in the two works was given to the same  $0.^m$  of  $R$ , I drew a continuous pencil line under minute and tenth in the Ms. catalog; wherever the Decl. was exactly alike in the two works I drew a continuous pencil line under degree and minute in the Ms. catalog. If the position varied by  $0.^m$  or  $1'$ , I drew a separate line under the minute and tenth, or under the degree and minute, thus:  $0^h 0.^m 0.2 + 63^\circ 31'$  (Catal.) =  $0^h 0.^m 0.3 + 63^\circ 30'$  (Howzeau).

If the positions varied by  $0.^m 2$  or  $2'$ , I drew a pencil line only under so much as agreed in the two lists, thus:

$$0^h 1.^m 6 - 23^\circ 11' \text{ (Catal.)} = 0^h 1.^m 6 - 23^\circ 9' \text{ (Howzeau)}.$$

If the positions varied by  $0.^m 3$  or  $3'$ , or more, I drew a pencil line only under so much as agreed in the two lists, and made an entry of the positions in the preceding pages 95-106 of so much as would show the disagreement.

In comparing the two catalogs I made a dash against every star in Howzeau's list which I found in the Ms. catalog, without distinction as to whether the positions agreed or not. After going through one of Howzeau's zones (viz.  $+90^\circ$  to  $+45^\circ$ ,  $+45^\circ$  to  $0^\circ$ ,  $0^\circ$  to  $-45^\circ$ ), and checking off all the stars found to be common to the two lists, I went over the Ms. catalog again, seeking for all the stars in the respective zone which had not been yet found in Howzeau's list, and endeavored to identify each one of these, if possible, with some star in Howzeau's list. The entries or notes made upon this second comparison will be found on the preceding pages directly following, in their respective zones, the notes made on the first comparison, and separated from the preceding notes by a  In some cases stars were



identified with reasonable certainty even when their positions were given quite discordantly; in other cases the identification was made only by exclusion, and that without research for ascertaining what other stars, here not mentioned, might be in the field. Therefore it is probable that some stars were wrongly identified, especially upon the second comparisons, when I made as liberal an allowance for discrepancies as possible.

I noted on a loose sheet of paper the Catalog Nos. of those stars which were in the Ms. Catalog, but not in Howse's list. This list may be copied into this book (p. ). The magnitude column for the Howse magnitudes is left blank in the Ms. catalog against all these stars except that as I went over Howse's zone  $0^\circ$  to  $-45^\circ$  I drew a dash — against all the stars in that zone not in Howse's list and against a few of the stars in the other zones.

Howse's list contains the following stars of requisite magnitude and position to go in the Ms. catalog, but yet missing from the Ms. Catalog.

AR	Decl.	Mag.	AR	Decl.	Mag.
$0^h 13^m.8$	$+48^\circ 15'$	6	$0^h 11^m.5$	$+15^\circ 39'$	6
22.3	$-21^\circ 0'$	6	11.6	$+1^\circ 1'$	6
25.1	$+52^\circ 10'$	6	12.0	$+10^\circ 33'$	6
27.4	$+66^\circ 4'$	6	14.7	$+10^\circ 19'$	6
27.8	$-30^\circ 14'$	6	38.6	$+40^\circ 5'$	$\overline{5.6}$
$1^h 5.6$	$-2^\circ 53'$	6	41.2	$+6^\circ 6'$	6
21.6	$-22^\circ 58'$	6	42.1	$+6^\circ 39'$	6
24.3	$-26^\circ 14'$	6	53.6	$+5^\circ 51'$	6
26.2	$-30^\circ 54'$	6	$1^h 16.7$	$+33^\circ 37'$	6



AR	Decl.	Magn.	AR	Decl.	Magn.
1 <sup>h</sup> 30.7	-30° 32'	6	1 <sup>h</sup> 37. <sup>m</sup> 3	+31° 44'	$\frac{D}{6}$
33.2	-25° 38'	6	2 <sup>h</sup> 16.2	+31° 15'	5.6
36.8	-32° 57'	5.6	26.4	+14° 30'	6
40.4	-27° 57'	6	29.0	+41° 51'	6
49.7	+61° 6'	6	52.4	+37° 40'	5.6
51.9	-2° 38'	6	3 <sup>h</sup> 4.8	+12° 35'	6
2 <sup>h</sup> 9.6	-10° 1'	6	37.6	+23° 55'	6
16.5	-18° 11'	6	59.7	+42° 53'	6
22.9	-34° 22'	5	4 <sup>h</sup> 15.2	+42° 9'	6
27.3	+65° 14'	6	33.6	+38° 4'	6
31.1	-30° 35'	5.6	39.2	+18° 31'	6
33.2	-30° 43'	6	5 <sup>h</sup> 59.3	+38° 6'	6
35.8	-15° 4'	6	6 <sup>h</sup> 11.9	+23° 30'	$\frac{D}{6}$
40.9	+68° 23'	6	30.4	+4° 51'	6
47.1	+62° 2'	6	44.5	+39° 1'	6
52.8	-9° 47'	$\frac{D}{6}$	52.0	+26° 5'	6
3 <sup>h</sup> 38.8	-0° 42'	6	52.4	+7° 36'	$\frac{D}{6}$
55.5	+61° 46'	6	54.1	+2° 8'	$\frac{D}{6}$
55.5	-30° 51'	5	55.8	+29° 33'	6
59.9	-20° 46'	$\frac{D}{6}$	58.1	+1° 40'	6
4 <sup>h</sup> 27.8	-5° 34'	6			
50.3	+52° 59'	6			
5 <sup>h</sup> 6.9	-30° 23'	5			
25.7	+64° 4'	6			
29.1	-6° 5'	6			
49.0	-11° 46'	6			
55.0	+51° 35'	6			
6 <sup>h</sup> 1.3	-11° 10'	6			
15.5	+58° 40'	6			
41.9	-20° 53'	6			
48.4	-0° 57'	$\frac{D}{6}$			

*Sheets written in blue ink  
for all stars underlined  
on p. 108-113.*



7 <sup>h</sup> 2.5	+81° 29'	6	7 <sup>h</sup> 26.5	+15° 54'	6
9.3	-30° 9'	6	41.4	+23° 27'	6
9.3	-30° 54'	5.6	43.3	+33° 32'	6
12.3	-30° 42'	5.6	50.0	+4° 48'	6
13.1	+50° 22'	$\frac{D}{5}$	8 <sup>h</sup> 2.0	+14° 0'	6
23.5	-1° 40'	$\frac{V}{6}$	6.1	+16° 53'	6
31.4	-19° 26'	6	19.3	+2° 31'	6
39.0	+50° 42'	5.6	23.5	+37° 28'	6
40.1	+80° 10'	5.6	27.4	+5° 10'	6
55.9	+59° 35'	6	33.2	+32° 21'	6
59.3	-19° 22'	6	9 <sup>h</sup> 1.5	+34° 22'	6
8 <sup>h</sup> 5.7	+60° 44'	5.6	6.7	+21° 48'	6
18.6	-3° 21'	6	26.5	+2° 24'	6
22.8	-20° 27'	6	42.9	+40° 11'	5.6
29.6	-7° 34'	6	44.2	+4° 55'	6
32.4	-6° 15'	6	10 <sup>h</sup> 0.5	+6° 12'	6
49.5	-10° 54'	6	15.1	+41° 50'	6
49.7	-17° 47'	6	16.7	+7° 9'	6.7
9 <sup>h</sup> 3.5	-17° 51'	6	43.3	+28° 36'	6
6.5	-19° 16'	6	46.0	+1° 39'	6
11.4	-14° 5'	6.7	50.1	+26° 8'	6
21.5	-21° 49'	5	11 <sup>h</sup> 6.0	+36° 29'	6
24.4	-22° 49'	6	15.6	+40° 58'	6
24.7	-15° 3'	6	22.3	+62° 26'	5.6
26.2	-31° 21'	$\frac{D}{5}$	31.0	+63° 23'	6
32.0	-31° 38'	6	42.9	+0° 22'	6
56.1	-23° 14'	6	12 <sup>h</sup> 4.7	+40° 35'	6
58.3	-17° 30'	6	13.8	+28° 59'	$\frac{D}{8}$
10 <sup>h</sup> 5.3	-6° 43'	6	14.3	+26° 41'	6
10.0	-10° 36'	6	24.4	+59° 27'	6
15.8	-23° 6'	6	41.0	+6° 37'	6
32.9	-11° 49'	6			

10 <sup>h</sup> 36.5	-13° 20'	6	12 <sup>h</sup> 41.2	+12° 36'	5.6
57.6	-12° 47'	6	13 <sup>h</sup> 21.9	+63° 52'	6
11 <sup>h</sup> 10.9	-6° 29'	6	<del>31.0</del>	+36° 57'	$\frac{D}{6}$
26.7	-7° 10'	6	40.9	+31° 30'	6
26.9	-30° 24'	6	48.3	+42° 47'	6
42.3	-9° 39'	6	14 <sup>h</sup> 3.2	+7° 58'	6
54.8	-1° 6'	6	18.2	+8° 42'	6
59.8	-2° 28'	6	24.7	+32° 19'	6
59.9	-10° 6'	6	<del>36.7</del>	<del>+21° 44'</del>	<del>6</del>
12 <sup>h</sup> 21.8	-13° 47'	5.6	36.7	+21° 44'	$\frac{D}{6}$
23.9	-12° 44'	6	41.0	+1° 30'	6
49.5	-14° 40'	6	51.1	+32° 47'	6
57.3	-19° 56'	6	51.7	+22° 2'	6
13 <sup>h</sup> 10.2	-30° 51'	5	15 <sup>h</sup> 1.7	+9° 22'	6
10.3	-0° 45'	6	3.6	+84° 24'	6
15.1	-18° 52'	6	21.7	+44° 43'	6
20.1	-0° 35'	6	23.7	+16° 48'	6
28.2	-12° 37'	6	25.5	+47° 46'	6
38.9	-32° 26'	4.5	46.1	+80° 22'	6
44.9	-32° 24'	4.5	55.5	+49° 54'	6
46.2	-31° 20'	5	16 <sup>h</sup> 7.1	+33° 39'	6
14 <sup>h</sup> 0.0	-8° 20'	6			
2.6	-9° 47'	6			
7.5	-0° 17'	6	15 <sup>h</sup> 7.3	-31° 4'	5
11.5	-6° 59'	6	7.8	-17° 19'	6
11.9	-18° 10'	6	9.4	-21° 57'	6
18.7	-19° 25'	6	23.5	-20° 19'	6
45.1	-17° 51'	6	31.9	-18° 54'	5.6
50.3	-20° 50'	6	50.5	-20° 38'	6
59.0	-30° 28'	5.6	59.5	-5° 52'	$\frac{D}{5.6}$
15 <sup>h</sup> 3.1	-25° 53'	6			



16 <sup>h</sup> 21.2	-7° 19'	6	16 <sup>h</sup> 22.6	+0° 19'	5.6
23.5	-34° 25'	4	37.2	+36° 40'	6
34.3	-24° 15'	6	39.4	+1° 15'	6
37.5	-28° 17'	6	49.8	+13° 47'	6
42.2	-14° 42'	6	53.0	+0° 29'	5.6
56.8	-25° 31'	$\frac{D}{6}$	17 <sup>h</sup> 20.6	+17° 2'	6
59.0	-21° 24'	6	44.7	+20° 50'	6
17 <sup>h</sup> 12.9	-17° 37'	6	45.2	+11° 58'	6
28.0	-11° 10'	6	18 <sup>h</sup> 20.2	+27° 20'	6
37.3	-7° 2'	6	22.3	+6° 2'	5.6
41.3	-31° 40'	5	27.7	+8° 11'	6
51.3	-30° 14'	6	29.8	+46° 3'	$\frac{D}{6}$
59.8	-4° 46'	6	39.6	+5° 22'	6
18 <sup>h</sup> 0.0	-21° 27'	6	49.5	+27° 46'	6
11.8	-13° 51'	6	19 <sup>h</sup> 32.6	+38° 7'	6
13.2	-15° 51'	6	38.7	+39° 43'	$\frac{D}{6}$
16.4	-12° 4'	6	52.3	+1° 2'	6
16.7	-9° 0'	5	53.0	+57° 52'	6
20.9	-17° 44'	6	20 <sup>h</sup> 4.0	+9° 42'	6
22.3	-14° 38'	5	32.4	+5° 58'	6
24.7	-10° 53'	6	47.1	+32° 24'	6
26.2	-24° 9'	$\frac{D}{6}$	49.1	+1° 22'	6
26.3	-14° 56'	$\frac{D}{6}$	52.3	+44° 29'	6
28.4	-11° 4'	5.6	55.1	+38° 22'	6
28.7	-8° 19'	4	21 <sup>h</sup> 1.9	+15° 12'	6
35.7	-9° 10'	4.5	2.7	+21° 17'	6
37.0	-8° 23'	5	23.3	+45° 58'	$\frac{D}{6}$
41.0	-5° 50'	V	27.9	+47° 54'	6
41.8	-4° 52'	4.5	39.5	+62° 9'	6
44.3	-9° 55'	6	<del>51.4</del>	<del>+73° 8'</del>	<del>6</del>
44.8	-3° 26'	$\frac{D}{6}$			

18 <sup>h</sup> 50. <sup>m</sup> 7	-6° 0'	5	22 <sup>h</sup> 1. <sup>m</sup> 8	+17° 25'	6
19 <sup>h</sup> 2.7	-20° 0'	6	6.0	+15° 27'	6
13.4	-22° 38'	6	16.9	+43° 9'	6
23.8	-21° 34'	6	18.5	+37° 57'	6
41.7	-29° 4'	6	48.9	+0° 26'	6
44.4	-5° 0'	6	50.4	+15° 42'	6
47.6	-8° 54'	6	23 <sup>h</sup> 1.7	+32° 11'	6
55.8	-5° 19'	6	30.3	+67° 01'	$\frac{D}{6}$
20 <sup>h</sup> 1.7	-7° 6'	6	38.7	+6° 32'	6
25.7	-25° 20'	6	45.6	+4° 2'	$\frac{D}{6}$
31.1	-0° 21'	6	45.8	+2° 16'	6
44.1	-12° 59'	6	53.2	+34° 28'	6
45.0	-6° 4'	6	58.7	+25° 48'	6
48.9	-1° 50'	6			
50.0	-4° 1'	6			
58.7	-30° 35'	6			
59.2	-32° 50'	5			
21 <sup>h</sup> 4.8	-31° 4'	5.6	22 <sup>h</sup> 58.7	-17° 43'	6
12.6	-16° 41'	6	23 <sup>h</sup> 2.0	-1° 21'	6
32.9	-11° 7'	6	23.3	-2° 27'	6
36.5	-14° 57'	6	23.4	-1° 42'	6
47.9	-5° 19'	6	34.3	-32° 33'	5
22 <sup>h</sup> 4.3	-4° 52'	6	38.3	-26° 55'	6
6.0	-14° 47'	6	44.0	-10° 39'	6
18.0	-14° 8'	6	46.3	-14° 55'	6
23.6	-13° 32'	6	46.8	-3° 49'	6
25.1	-3° 30'	6	49.0	-32° 36'	5.6
36.7	-0° 25'	6	53.4	-30° 10'	5.6
52.0	-2° 7'	6	58.1	-17° 11'	6
55.2	-7° 42'	6			
56.3	-7° 13'	6			



## Comparison of Gould's Uranometria Argentina with the Ms. Catalog of Jones.

I went over each constellation in Gould's work, to find the stars north of  $-30^\circ$ , and as bright as 6.0 magnitude, at the same time copying into the appropriate column in the Ms. catalog the magnitude assigned by Gould, and making a pencil dash against each star in Gould's work which was found in the Ms. catalog. At the same time I tried to identify in Gould's work every star in the corresponding region in the Ms. catalog, and made entries as for the other stars. Several stars given in the Ms. catalog were not found in Gould's work. A list of these is given on p. 115. Several stars given in Gould's work were not found in the Ms. catalog, although they fell within the appropriate limits. A list of these is given on p. 116-118.

Several discrepancies were found between the two works. A list of the ~~positive~~<sup>essential</sup> discrepancies noticed is given on p. 119. The nomenclature of constellations often varied greatly, and many Bayer letters were omitted from the Ms. catalog that were given in Gould, or were numbered with different exponents. After going through with the two lists as above described, I went over the Ms. catalog again, making a special hunt for each star not already found in Gould.

The "Notes to the Catalogue" in Gould's Uranometria contain remarks on the magnitude of several of the stars. I began to make a list of references to them, beginning with Eridanus, and noting only the remarks upon stars appropriate to our catalog. The few references I made are recorded on p. 120.

The precession in AR to be applied to Gould's positions is between  $0''.2$  and  $0''.3$ ; for the precession in Decl. (5 years) see this book, p. 53.



## Stars in Mr. Catalog of Zones not in Gould's Uranometria

Catal. No.	AR	Decl.	Remarks.
7	0 <sup>h</sup> 2.5	-2° 53'	Is it no. 68 Piscium, U. A. p. 228?
201	1 <sup>h</sup> 16.7	+6° 46'	
288	53.1	-26° 52'	
632	3 <sup>h</sup> 58.5	-20° 32'	See nos. 1668 & 167 Enidani, U. A., p. 161.
659	4 <sup>h</sup> 6.3	-20° 41'	Is not this same as Mr. Catalog, no. 661?
699	14.7	-25° 19'	
967	5 <sup>h</sup> 29.2	-30° 2'	Is it no. 27 Columbae, U. A., p. 183?
1082	6 <sup>h</sup> 2.5	-20° 58'	
1176	28.1	-27° 51'	
1206	39.6	-30° 4'	
1372	7 <sup>h</sup> 35.8	-27° 40'	
1389	44.2	-15° 42'	See Catal. nos. 1387 & 1389 on p. 119 of this book.
1585	9 <sup>h</sup> 13.4	-23° 58'	
1603+	22.8	-5° 32'	
1677	53.2	-24° 47'	
1679	53.5	-23° 33'	
1833	11 <sup>h</sup> 2.8	-29° 6'	
1983	12 <sup>h</sup> 16.8	-24° 12'	see Catal. no. 1984
2008	25.8	-26° 53'	
2031	33.0	-28° 51'	
2234	13 <sup>h</sup> 53.8	-25° 41'	
2292	14 <sup>h</sup> 24.1	-24° 47'	
2616	16 <sup>h</sup> 29.8	-1° 33'	
2840	17 <sup>h</sup> 56.2	-23° 8'	}
2846	56.6	-22° 56'	
3748	22 <sup>h</sup> 31.2	-34° 5'	



Stars in Gould's Uranometria which should be in the M.S. Catalog,

but are not.

	Uran. Arg. p.	Uran. Arg. No.	Epoch 1875.0 AR.	Epoch 1875.0 Decl.	Magn.	Name
Eridanus	160	96	3 <sup>h</sup> 24 <sup>m</sup> .3	-12° 4'	5.8	Ll. 6492
	"	125	38.5	-0° 41'	5.9	25 Ll. 6934
	161	184	4 <sup>h</sup> 4.8 <sup>54</sup>	-30° 56' -20° 29'	5.9 6.0	Ll. 1316 Ll. 7819
	162	278	49.5	-16° 57'	r5.7	Ll. 9279
Puppis	174	291	8 <sup>h</sup> 15.0	-22° 32'	r6.0	
	"	293	16.2	-17° 11'	5.9	Ll. 16439
	"	301	19.5	-22° 45'	5.9	
Sagittarius	179	32	18 <sup>h</sup> 0.5	-17° 10'	5.9	O.A. 17670
	"	56	13.8	-24° 58'	var. 6.7 <sup>1</sup> / <sub>2</sub>	Ll. 33732, L. 7681
	"	57	14.0	-18° 55'	6.0	Ll. 33748
	"	74	22.8	-18° 48'	6.0	Ll. 34138
	"	78	26.2	-24° 7'	r5.9	24 L. 7769
	"	86	31.4	-21° 9'	6.0	By. 2335, Ll. 34488.
	"	99	38.8	-22° 31'	r5.6	28 Ll. 34761
	180	110	46.5	-21° 31'	6.0	33 J. 8674.
	"	141	59.7	-16° 25'	6.0	O.A. 19082.
	"	165	19 <sup>h</sup> 13.2	-22° 38'	5.9	B. 6642, Ll. 36327
	"	184	18.3	-14° 9'	5.9	W.B. 408
	181	264	54.0	-23° 5'	r5.9	L. 8308, Ll. 38123.
Hydra	185	55	0 <sup>h</sup> 7.4	-26° 43'	6.0	L. 7, Ll. 133.
	192	121	9 <sup>h</sup> 13.6	-15° 18'	6.0	Ll. 18407
	194	287	11 <sup>h</sup> 26.7	-30° 24'	r5.8	By. 1579, L. 4776.
	197	71	6 <sup>h</sup> 40.3	-14° 40'	r5.7	Ll. 13059.
	198	177	7 <sup>h</sup> 21.7	-22° 50'	5.7	Ll. 14552.
	"	17	16 <sup>h</sup> 21.0	-7° 18'	r5.7	Ll. 29935.
	199	61	49.3	-22° 57'	5.9	24 Ll. 30756.
	201	64	15 <sup>h</sup> 9.2	-21° 56'	5.8	Ll. 27781.
	202	77	21.2	-16° 17'	5.9	32 Ll. 28160.
	"	101	31.7	-18° 53'	5.9	41 J. 7291.



Capricornus	204	115	21 <sup>h</sup> 36 <sup>m</sup> .3	-14° 58'	6.1	44	Ll. 42288
	"	20	5 <sup>h</sup> 5.6	-12° 0'	6.0		By. 724, Ll. 9785.
Serpens	"	33	11.9	-13° 39'	6.0		By. 743, Ll. 9946.
	205	69	43.9	-14° 31'	5.8		Ll. 11086.
Serpens	"	96	6 <sup>h</sup> 3.9	-14° 34'	r 6.0		WB. 58.
	208	256	23 <sup>h</sup> 35.1	-18° 43'	r 5.8	A <sub>2</sub> 103	J. 594.
Aquarius	"	268	43.8	-10° 41'	5.8		Ll. 46684.
	209	7	57.9	-17° 13'	5.9		OA. 23220.
Cetus	211	203	1 <sup>h</sup> 57.4	-4° 42'	5.8		Ll. 3811.
	"	204	57.4	-0° 56'	5.9	61	Ll. 3808.
Cetus	"	219	2 <sup>h</sup> 5.2	-10° 38'	5.9		Ll. 4060.
	212	264	28.4	+6° 56'	5.9		Ll. 4780.
Crater	213	21	11 <sup>h</sup> 10.6	-6° 27'	6.0		Ll. 21540.
	215	106	12 <sup>h</sup> 57.1	-19° 55'	5.9		Ll. 24275.
Virgo	216	165	13 <sup>h</sup> 28.0	-12° 34'	var. 5½-6½		Ll. 25086.
	"	184	40.6	-17° 14'	5.8	87	Ll. 25391.
Virgo	218	243	16 <sup>h</sup> 3.3	-3° 8'	5.9		Ll. 29440.
	"	220	17 <sup>h</sup> 59.6	-4° 46'	6.0		Ll. 33176.
Serpens	"	232	18 <sup>h</sup> 13.0	-15° 53'	r 5.8		By. 2296.
	219	44	21.9	+6° 7'	6.0		Ll. 34128.
Serpens	"	66	39.3	+5° 22'	5.9		Ll. 34820.
	"	2	18 <sup>h</sup> 16.2	-12° 4'	6.0		Ll. 33845.
Serpens	"	3	16.8	-9° 0'	5.3	γ	Hev. 1, WB. 339.
	"	6	22.1	-14° 39'	4.8	γ	Hev. 2, J. 470.
Sagittarius	"	10	25.6	-14° 57'	r 5.9		By. , Ll. 34257.
	"	13	28.1	-11° 4'	5.7		By. , Ll. 34356.
Sagittarius	"	14	28.4	-8° 20'	var? 3.6	α	Hev. 3, Ll. 34374.
	"	19	35.4	-9° 10'	5.1	δ	Hev. 4, J. 474.
Sagittarius	"	21	36.7	-8° 24'	5.2	ε	Hev. 5, Ll. 34687.
	"	24	40.5	-4° 53'	4.5	β	Hev. 6, Ll. 34866.
Sagittarius	"	25	40.8	-5° 50'	var. r 5-9	R	Ll. 34875.



Orion Scutum	219	33	18 <sup>h</sup> 50 <sup>m</sup> .4	-6° 0'	5.4	7	Hen. 7, Lk. 35301.
	223	102	5 <sup>h</sup> 28.9	-6° 6'	var.		Ll. 10527.
	"	103	28.9	-6° 5'	5.8		By. 801, Ll. 10529.
Monoceros	224	28	6 <sup>h</sup> 18.5	+7° 9'	var. 6-7½	I	WB. 507.
	225	90	48.0	-0° 58'	5.9		Ll. 13339.
	226	134	7 <sup>h</sup> 23.0	-1° 39'	6.0		WB. 669.
Scutum	"	139	24.8	-9° 31'	var. 6-7	U	Ll. 14658.
	227	47	10 <sup>h</sup> 19.5	-6° 26'	6.0		By. , Ll. 20222.
	228	49	23 <sup>h</sup> 45.6	+2° 14'	5.6	22	Ll. 46744.
Pices	"	52	48.4	-0° 35'	5.9		Ll. 46859.
	"	95	0 <sup>h</sup> 41.8	+6° 37'	6.0	62	Ll. 1300.
	"	118	1 <sup>h</sup> 21.8	+7° 19'	5.9		Ll. 2677.
Cassiopeia	229	131	42.0	+3° 4'	5.9		Ll. 3298.
	"	135	53.6	+2° 30'	var? 6.0	112	Ll. 3688.
	232	5	20 <sup>h</sup> 53.9	+7° 2'	6.0		Ll. 40649.
	233	51	23 <sup>h</sup> 45.0	+8° 37'	var? 5.8	80	Ll. 46719

~~It seems as if, to correspond with the other catalogs, the stars of 6.1<sup>mag.</sup> and 6.2<sup>mag.</sup>, and those of 6.3<sup>mag.</sup> in Gould's list should be included in the Ms. catalog; also that some bright stars a little south of -30° should be so included.~~

*Sheets written in blue ink for all stars on p. 116-118.*



Principal discrepancies between M.S. Catalog and Gould's Uranometria.

Catal. No.	Citation in M.S. Catalog.	Citation in Uranometria Argentina.
<del>440</del>	<del>5511 L.L. <sup>Dbl or Trpl star</sup></del>	<del>L.L. 5516 [no. 43, p. 159]</del>
631-632	U.A. mentions L.L. 7579 and 7590; Catal. mentions L.L. 7590 & 7591. [See this book, p. 115, no. 632, and see Uran. Arg., p. 161, no. 166-167.]	
<del>635</del>	<del>3<sup>h</sup> 58<sup>m</sup> 130° 8' Error in Cat.</del>	<del>3<sup>h</sup> 58<sup>m</sup> 130° 8' [no. 169, p. 161]</del>
827	4 <sup>h</sup> 51.7 <sup>m</sup>	4 <sup>h</sup> 52.0 [no. 281, p. 162]
<del>1382</del>	<del>-24° 33' Error in Cat.</del>	<del>-24° 22' [no. 161, p. 172]</del>
<del>1387</del>	<del>Error in Heis</del>	<del>L.L. 15215 [no. 180, p. 173]</del>
<del>1389</del>	<del>15215 L.L.</del>	<del>[absent] [see Uran. Arg., p. 173, no. 578]</del>
1442	8 <sup>h</sup> 6.9 <sup>m</sup>	8 <sup>h</sup> 4.7 <sup>m</sup> [no. 270, p. 174]
<del>1717</del>	<del>-28° 28' Error in Cat.</del>	<del>-28° 22' [no. 59, p. 188]</del>
1685	C. 4124, 9 <sup>h</sup> 58.7 <sup>m</sup> -24° 31'	L. 4124, 9 <sup>h</sup> 57.9 <sup>m</sup> -24° 43' [no. 191, p. 193]
<del>1249</del>	<del>-24° 50' Different star</del>	<del>24° 28' [no. 102, p. 197]</del>
<del>1309</del>	<del>-26° 14' Different star</del>	<del>-26° 22' [no. 154, p. 198]</del>
<del>2754</del>	<del>3195<sup>2</sup> L.L. Error in Heis</del>	<del>L.L. 31952 [no. 153, p. 200]</del>
<del>2452</del>	<del>28472 L.L. Dbl.</del>	<del>L.L. 28473 [no. 102-103, p. 202]</del>
<del>3983</del>	<del>23<sup>h</sup> 54.0<sup>m</sup> Error in Behm.</del>	<del>23<sup>h</sup> 56.7<sup>m</sup> [no. 5, p. 209]</del>
<del>21</del>	<del>73 L.L. Dbl.</del>	<del>L.L. 72 [no. 18, p. 209]</del>
254	1 <sup>h</sup> 36.7 <sup>m</sup>	1 <sup>h</sup> 37.6 <sup>m</sup> [no. 175, p. 211]
2028	23618 L.L. <sup>Dbl., 6<sup>m</sup> &amp; 9<sup>m</sup></sup>	L.L. 23617. [no. 441, p. 214]
<del>2914</del>	<del>34022<sup>21</sup> L.L. Error in Heis</del>	<del>L.L. 34021. [no. 439, p. 215]</del>
<del>3318</del>	<del>20<sup>h</sup> 24<sup>m</sup> 52<sup>s</sup> Error in Heis</del>	<del>20<sup>h</sup> 28<sup>m</sup> 5. [no. 131, p. 221]</del>
<del>3336</del>	<del>39224 L.L. Dbl.</del>	<del>L.L. 39222. [no. 135, p. 221]</del>
1002	DM +9° 854	DM 954 [no. 137, p. 223]
745	8612 L.L. <sup>Dbl.</sup>	L.L. 8611 [no. 60, p. 231]
<del>876</del>	<del>5<sup>h</sup> 5.3<sup>m</sup> Error in Catal.</del>	<del>5<sup>h</sup> 5.0<sup>m</sup> [no. 42, p. 222]</del>

As noted on p. 114 of this book, the precession in A. R. to be applied to Gould's positions is between 0.2<sup>m</sup> and 0.3<sup>m</sup>; the limit between these two is the 25-year ~~year~~ precession of 1.25<sup>m</sup> on the coordinate sheets used in bringing forward positions from Heis and the DM.

None of the positions of stars compared differed, between the U.A. and our Catalog, more than 0.2<sup>m</sup> or than 2', except as expressed above on this page.



References to notes on magnitudes in Gould's Uranometria.

Catal. No.	Ur. Arg. p.	Ur. Arg. no. 8	Cat. No.	Ur. Arg. p.	Ur. Arg. no.
712	272	215	799	273	274
750	"	243	820	"	279
760	273	252	836	"	283
775	"	259	862	"	290

On p. 342 of Gould's Uranometria is given a list of the bright stars, in the order of their magnitude. Mann wrote in the main catalog of the work, in the column of remarks, the magnitudes given in this list as showing the order of brightness of the respective stars. The following stars were not found in the main catalog, p. 131-232.

2.01	$\alpha$ Cygni	2.0	<del>3.26</del>	<del><math>\eta</math> Velorum</del>	<del>3.2c</del>
2.26	$\alpha$ Arietis	1.9r	<del>3.28</del>	<del><math>\beta</math> Phoenicis</del>	<del>3.3</del>
2.32	$\alpha$ Ophiuchi	2.1	<del>3.51</del>	<del><math>\phi</math> Eridani</del>	<del>3.5</del>
2.35	$\alpha$ Andromedae	2.5	3.68	$\eta$ Piscium	3.4
2.48	$\alpha$ Pegasi	2.6	3.72	$\delta$ Tauri	4.0
2.71	$\gamma$ Aquilae	2.8	3.77	$\gamma$ Tauri	3.9
2.81	$\beta$ Arietis	2.7	3.79	$\epsilon$ Tauri	3.7
<del>2.91</del>	<del><math>\beta</math> Aquarii</del>	<del>2.6c</del>	3.99	$\gamma$ Arietis	3.8
3.05	$\zeta$ Aquilae	3.2			

## Stars to be repeated with Photometer P.

No.	June	Magn.	Mean	Dev.	Obs.
2376	34	4.08	4.97	-.89	W
2402	35	6.23	5.48	+.75	U
2243	16	2.78	3.59	-.81	W
2397	35	4.19	5.09	-.90	U
2416	35	4.46	5.99	-1.53	U
2398	40	6.27	5.37	+.90	W
2394	40	6.25	5.52	+.73	W
2477	41	5.39	3.87	+1.52	U
2572	43	4.97	4.14	+ .83	W
2437	44	5.15	4.33	+ .82	U
2520	41	4.52	5.66	-1.14	U
2428	32	4.64	5.60	-.96	P
2564	47	7.04	6.29	+.75	W
2579	32	4.68	5.90	-1.22	P
2621	47	6.84	5.99	+.85	W
2515	53	4.76	5.64	-.88	P
2570	53	5.24	6.15	-.91	P
2565	53	4.84	5.87	-1.03	P
2528	55	5.99	4.97	+1.02	U
2578	53	4.53	5.34	-.81	P
2580	53	3.37	4.37	-1.00	P
2603	53	3.86	5.13	-1.27	P
2610	53	4.55	5.62	-1.07	P
2616	53	5.17	6.11	-.94	P
2623	53	5.10	5.87	-.79	P
2568	55	4.36	5.56	-1.20	P
2544	55	4.25	5.22	-.97	P



## Stars to be Repeated - Continued.

No.	Zone	Magn	Mean	Dev.	Obs.
2487	55	3.48	4.75	-1.27	P
2484	48	5.99	4.94	+1.05	U
2471	55	5.10	5.89	-.79	P
2460	55	3.32	4.32	-1.00	P
2448	55	3.47	4.23	-.76	P
2638	47	6.80	5.71	+1.09	W
2630	30	7.29	5.67	+1.62	U
2588	30	6.87	5.78	+1.09	U
2583	47	6.00	4.85	+1.15	W
2514	41	7.02	4.10	+2.92	U
2485	50	6.23	5.36	+.87	U
2509	58	3.49	4.54	-1.05	P
2538	50	7.20	6.30	+.90	U
2539	52	6.01	5.27	+.74	U
2585	58	4.36	5.14	-.78	P
2606	58	2.53	3.34	-.81	P
2614	50	6.23	5.27	+.96	U
2645	45	6.78	6.00	+.78	W
2559	50	6.17	5.43	+.74	U
2590	60	4.31	5.48	-1.17	P
2608	43	2.78	4.72	-1.94	W
"	45	6.57	"	+1.85	W
"	60	4.82	"	+1.0	P
2615	49	4.53	3.36	+1.17	W
2618	30	6.77	5.64	+1.13	U
2620	43	3.95	2.60	+1.35	W
2625	47	7.02	5.92	+1.10	W
2628	47	6.72	5.70	+1.02	W

2637	60	1.92	2.76	- .84	P
2651	47	6.03	4.95	+1.08	m
2652	60	4.95	5.88	- .95	P
2646	47	6.84	6.04	+ .80	m
2672	64	5.11	6.30	- 1.19	P
2659	64	4.59	5.50	- .91	P
2660	47	6.65	5.82	+ .83	m
2685	51	6.55	5.57	+ .98	m
2654	67	5.52	6.30	- .78	P
2663	51	6.29	5.16	+1.13	m
2667	47	6.67	5.53	+1.14	m
2669	47	5.76	4.84	+ .92	m
2686	51	6.63	5.70	+ .93	m
2688	51	4.02	5.05	-1.03	m
2694	54	3.18	4.40	-1.22	m
2695	51	6.58	5.65	+ .93	m
2726	51	6.18	5.13	+1.05	m
2727	51	6.45	5.67	+ .78	m
2736	51	7.43	6.36	+1.07	m
2741	51	6.14	4.99	+1.15	m
"	57	3.76	"	-1.23	m
"	67	5.08	"	+ .09	P
2742	51	6.40	5.18	+1.22	m
"	57	3.94	"	-1.24	m
"	67	5.20	"	+ .02	P
2750	57	4.37	5.59	- .86	m
2753	51	6.91	5.72	+1.19	m
2758	54	4.13	5.08	- .95	m
2777	51	7.40	6.29	+1.11	m



2780	51	6.73	5.63	+1.10	m
2723	51	7.18	6.12	+1.06	m
2732	54	4.23	5.33	-1.10	m
2731	54	3.61	4.42	-.81	m
2743	70	4.30	3.33	+.97	P
2745	51	6.98	5.20	+1.78	m
"	54	3.74	"	-1.46	m
"	70	4.88	"	-0.32	P
2751	70	3.31	2.08	+1.23	P
2684	47	6.08	5.09	+.99	m
2779	54	3.83	5.18	<del>+</del> 1.35	m
"	70	4.95	"	-.23	P
"	74	6.75	"	+1.57	u
2752	57	2.56	3.74	<del>+</del> 1.18	m
2807	54	4.73	5.46	-.73	m
2801	77	5.79	5.02	+.77	P
2804	57	3.97	5.53	-1.54	m
2806	77	5.48	4.41	+1.07	P
2809	77	6.29	5.20	+1.09	P
2813	77	7.12	6.10	+1.02	P
2815	77	6.22	5.45	+.77	P
2819	77	6.87	5.85	+1.02	P
2824	77	4.32	3.49	+.83	P
2827	77	5.12	4.17	+.95	P
2850	68	4.57	5.30	-.73	u
2865	77	5.92	4.65	+1.27	P
2889	77	5.00	4.17	+.83	P
2909	65	5.67	6.79	-1.12	u
2911	77	7.25	5.79	+1.46	P

2925	77	5.75	4.81	+ .94	P.
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Note upon inks in the M.S. Catalog of Zones.

The catalog was written in black ink. B. P. Mann went over it, to check the magnitudes &c. by Argelander's Uran. nova, Heis' Uran. & Behrmann's Uran., drawing lines in *red ink* under the correct magnitudes, and making corrections and notes in *red ink*. W. Hoxie made corrections of names, letters and numeros in *blue ink*, <sup>to produce conformity with the B. G. C.</sup> ~~upon what authority~~ B. P. Mann inserted the Herschel magnitudes from *Annal. Astron. Obs. H. C.*, v. 9, in *blue ink*.

6 Apr. 1880. B. P. Mann.

The above works as mentioned in chronological order. Previous to the insertion of the Herschel magnitudes, B. P. M. inserted the Howxau magn.<sup>s</sup> in [this] stylographic ink, and the Gould (Uran. Arg.) magn.<sup>s</sup> with stylographic pen containing an admixture of red ink to black stylographic ink.

Mann wrote new sheets, for stars previously overlooked, in blue ink, and inserted the stars in the catalog in blue ink.

## Memoranda about Reductions of Meridian Photometer Observations.

B. P. Mann began reducing observations about Zone 56 inclusive, drawing a line with (this) stylographic pen under the record of the observations on the original sheet, when reduced. At about Zone 100 he began writing under this line the ascertained magnitude, and when he encountered a sheet containing observations previously reduced by him, he wrote, from the catalog, the ascertained magnitude under the line previously drawn. Prior to Zone 56 the reductions had been made by F. Waldo (?) and O. C. Wendell, and occasionally after this reductions were made by O. C. W. before the sheets came into B. P. M.'s hands. These reductions were generally accepted without verification by B. P. M.

The results of reductions (the ascertained magnitudes) were recorded in the "Observations of zones," for ordinary stars; in ledgers for blue and black stars, and in a journal for red stars. About 1 May 1880, A. W. Cutler made ledgers of the completed red stars from the journal. At the same time Cutler repeated, with the completed ordinary stars, the reductions previously made by Mann. In case the magnitudes had been recorded on the original sheets (as was generally the case from  $8^h 0^m$  onwards), Cutler compared his results directly with Mann's; in case they had not been recorded, (as was generally the case, with Mann's reductions, from  $3^h 0^m$  to  $7^h 0^m$ ) Cutler wrote his results on the original sheets, and Mann afterwards compared these results with his entries in the Catalog="Observations of Zones." In the latter case, Mann drew a line with (this) stylographic pen under Cutler's record of magnitude, when the two records agreed, and, if they did not agree, corrected the erroneous record.

(over)



Beginning with Zone 134, on 3 May, Cutler and Mann checked each other's reductions as follows: Mann made the reductions, entered them in the catalog, and drew a line on the original sheet; Cutler made the reductions, writing on the original sheet, in blue ink, the differences, their sum, and the magnitude; then Mann compared Cutler's results with the entries in the catalog and underlined Cutler's record of the magnitude.

B. PICKMAN MANN  
CAMBRIDGE, Mass.

3<sup>rd</sup> 4 May 1880.

When one computer found an error in the work of the other he corrected it and returned the sheet to the other computer, who, if he accepted the correction, drew a double line under it.

Beginning with Zone 218, on 23-24 Aug. 1880 (when Mann went away for a fortnight), Cutler made the reductions, and entered the results in the "Observations of Zones", which reductions, up to the present time, have not been checked.

B. PICKMAN MANN  
CAMBRIDGE, Mass.

22 Nov. 1880.

About Aug 1<sup>st</sup> 1881 Mr. Mann left the Observatory to accept a position in Washington, and thereafter the reduction and in fact all computing referring to Meridian Photometers was done by A. W. Cutler.

A. W. Cutler Jan. 30, 1882







## Residual Corrections.

Several of the lists of discrepancies in the former part of this book and elsewhere have been examined, and many of the discrepancies explained, but some remain yet to examine by less expeditious methods than it was necessary to apply to the others. These, so far as occasion offers, are repeated here, that they may be less likely to be overlooked.

~~In the U.S. Coast Surv. rept. for 1873, p. 175, an error in Heis' posel. nov. p. viii, note, is corrected to read  $\delta = 31^{\circ} 27'$ . In A. O. H. C., v. 9, p. 29, it is corrected to read  $\delta = 31^{\circ} 37'$ . In VTS viii, p. 67, reads  $+31^{\circ} 37'$ .~~

~~Not all the corrections in VTS, 8: 67-70 seem to be repeated in A. O. H. C., 9: 29-35; even some relating to the list are wanting, as well as those relating to the charts. At the time of this writing our copy of Heis' can not be found, so the comparison is postponed. Later a complete list of corrections and additions was compiled.~~

~~No. 649 of the MS Catalog = BAC 1263 = DNI  $+82^{\circ} 113$ , magn. 5.0, is given in the MS. Catalog as = DNI  $+82^{\circ} 82$ , magn. 7.5. Correction made in Cat.~~

The precession of No. 1975 of the MS. Cat. = BAC 4165 = DNI  $+88^{\circ} 71$  is  $-0^{\circ}.235$  in 1850; the sec. var. for 5 yrs. =  $+0^{\circ}.067$ ; the prec. in 1855 is  $\therefore -0^{\circ}.168$ , and the mean for 5 yrs. =  $-0^{\circ}.2015$ ; the prec. from 1850 to 1855 is  $\therefore = -1^{\circ}.0075$  ~ The prop. mot. for 5 yrs. =  $-0^{\circ}.865$  ~ The AR of the star in 1855 should  $\therefore$  be  $12^h 14^m 30^s.42$ , but in DNI it is  $12^h 14^m 22^s$  ~ In like manner the sec. var. for 30 yrs. is  $+0^{\circ}.402$ , and the mean prec. is  $-0^{\circ}.235 + 0^{\circ}.201 = -0^{\circ}.034$  ~ The prec. from 1850 to 1880 is  $\therefore = -1^{\circ}.020$ , and the prop. mot. =  $-5^{\circ}.19$  ~ The AR in 1880 should  $\therefore = 12^h 14^m 26^s.08$ , as in the Catal. Either there is a discrepancy between BAC and DNI, or the precession has not been rightly computed.

The prec. of Cat. No. 1976 = BAC 4150 = DNI  $87^{\circ} 107$  is  $+1^{\circ}.551$  in 1850; sec. var. for 5 yrs. (or for 30 yrs.) is practically 0; prop. motion for 5 yrs. =  $+1^{\circ}.625$ ; the AR in 1855 should  $\therefore$  be  $12^h 12^m 35^s.36$ , but in DNI it is  $12^h 12^m 33^s$  ~ In like manner the AR for 1880 is  $12^h 13^m 22^s$  ~



Cat. No. 2639 ~ Prec. 1850 =  $-2^s.684$ ; sec. var. 15 yrs. =  $+0.021$ ; aver. prec. =  $-2^s.663$ ; prec. for 30 yrs. =  $-1^m79^s.89$ , which applied to BAC 5611 gives position in 1880 =  $16^h35^m51^s$

Cat. No. 2884 = BAC 6206 has decl.  $+79^\circ58'26''.6$  in 1850 with aver. prec. for 5 yrs. of  $+0''.97$ ; prec. in decl. 1850 to 1855 =  $+4''.87$ ; prop. mot. for 5 yrs. =  $+0''.25$ ; decl. in 1855 =  $+79^\circ58'31''.7$  ~ Decl. of Cat. No. 2883 = BAC 6208 in 1850 =  $+79^\circ58'38''.3$ , and in 1855 =  $+79^\circ58'36''.9$  ~ The BAC 6206 decl. for 1855  $\therefore$  exceeds the DM  $+79^\circ57'$  decl. by  $-0'.5$ , and the BAC 6208 decl. exceeds the DM  $+79^\circ57'$  decl. by  $-1'.3$  ~ Cat. No. 2883 = BAC 6208 = DM  $+79^\circ57'$ , and Cat. No. 2884 = BAC 6206 = DM  $+79^\circ57'$ , but the DM. nos. are reversed in the Catalog.

Corrections necessitated by notes on p. 35-36 for stars in  $0^h$  to  $11^h$  are <sup>all</sup> yet to be made in the catalog. Also the four circumpolar stars 464, 869, 2315, 3372, from bottom of p. 36 and p. 37, are to be checked.

Cat. no. 663. DM  $+52^\circ77'$ ,  $7^m.1$  would have 1880 position  $3^h59^m.4 + 53^\circ2'$ , but this a different star from Argelander's Persei  $58^\circ55' + 52^\circ4'$  in U. N. p. 16, which latter is moreover to be struck out of the U. N. as "nudis oculis non visibilis."

Nothing has been done with the list of stars on p. 41-43; nothing also with the list on p. 51, and nothing with the list on p. 63-71 and p. 73; nothing with the list on p. 115

The first list of stars on p. 75 has been identified and all the stars inserted in the catalog; the second list seems to be a mere memorandum, and nothing has been done with it; in the third list, "? Draconis, mag. 5.17" is not identified yet; "Anon. Pegasi = P. XXI. 321, mag. 5.79" may be the star referred to in Seidel's Resultate, p. 39 [457], no. 613, but the identification there is doubtful. P. XXI. 321 = 16 Pegasi = Catal. no. 3624.



Corrections made in Catalog of Zones.

7 July 1881. B. P. Mann corrected in this red ink, by positions of the "539 stars", the following stars in the MS. Catalog: Nos. 23, 65, 132, 183, 195, 272, 276, 304, 310, 360, 372, 404, 410, 432, 460, 530, 638, 704, 829, 862, 887, 899; [also 96, 99, 120, 167, 230, 319, 322, 334a, 335, 387, 430, 471, 545, 601a] 687, 766, 779, 874, 929, 995;] also 1011, 1016, ~~1033~~, ~~1035~~, 1042, 1077, 1109, 1133, 1161, 1169, 1184, 1198, 1202, 1205, 1210, 1218, 1222, 1300, 1320, 1328, 1346, 1362, 1383, 1397, 1407, 1422, 1436, 1463a, 1466, 1481, 1512, 1528, 1544, 1586a, 1602, 1606, 1631, 1640, 1647, 1653a, 1669, 1725, 1736, 1739, 1746, 1753, 1784, 1803, 1850, 1855, 1856, 1859, 1915, 1943, 1970, 1992, 2014, 2071, 2097, 2101, 2141, 2148a, 2174, 2237, 2238, 2261, 2262, 2300, 2314, 2349, 2353a, 2393, 2417, 2478, 2489, 2507, 2523, 2535, 2575, 2639a, 2694, 2745, 2771, 2782, 2823, 2833, 2898, 2947, 2979, 2991, 2997a, 2997b, 3122, 3141, 3191, 3195, 3221, 3236, 3284, 3383, 3410, 3423, 3443, 3483, 3484, 3501, 3526, 3555, 3573, 3600, 3604, 3624, 3640, 3659, 3667, 3670, 3703, 3711, 3737, 3763, 3770, 3772, 3776, 3864, 3921, 3967a, 3979.



# Number of stars observed.

	No. Stars <i>Uncol.</i>	Polaris		Black	Resid.	Av. Dev.
		Blue	Red			
0	213	32	21	10		
10	187	39	29	13		
20	247	30	36	17		
30	268	25	32	14	0.10	
40	240	11	21	7	0.19	
50	206	9	29	8	0.08	
60	170	12	23	7	0.20	
70	203	21	30	8	0.06	0.099
80	226	22	30	16	0.09	0.089
90	<u>229</u>	<u>30</u>	<u>28</u>	<u>20</u>	<u>0.01</u>	<u>0.081</u>
100	<u>2189</u> 240	<u>231</u>	<u>279</u>	<u>120</u>		
		30	35	12	0.12	0.086
110	224	30	30	13	0.17	0.100
120	191	30	15	11	0.14	0.095
130	190	27	36	11	0.11	0.106
140	229	25	28	14	0.06	0.103
150	244	42	36	16	0.10	0.081
160	219	31	27	17	0.08	0.097
170	249	34	32	13	0.11	0.080
180	219	30	26	8	0.21	0.070
190	<u>248</u>	<u>29</u>	<u>37</u>	<u>5</u>	<u>0.10</u>	<u>0.069</u>
	<u>2253</u>	<u>308</u>	<u>302</u>	<u>120</u>	<u>1.20</u>	<u>0.887</u>
200	299	27	31	7	0.08	0.084
210	433	28	31	10	0.14	0.069
220	254	16	23	7	0.07	0.081
230	263	22	29	11	0.11	0.074
240	317	19	21	7	0.09	0.075
250	313	17	20	4	0.030	0.078
260	378	19	29	5	0.03	0.082
270	<u>302</u>	<u>22</u>	<u>32</u>	<u>9</u>	<u>0.02</u>	<u>0.071</u>

	No Stars	Polaris		Black	Resid	Av. Dev.
		Blue	Red			
280	303	24	28	7	0.040	0.063
290	258	20	24	12	0.070	0.083
	<u>3120</u>	<u>214</u>	<u>268</u>	<u>79</u>	<u>0.194</u>	<u>0.760</u>
					0.0194	0.076
300	241	18	22	24	0.08	0.070
310	205	20	25	15	0.10	0.083
320	194	16	24	14	0.09	0.050
330	194	14	26	19	0.05	0.087
340	246	20	28	10	0.12	0.087
350	238	24	29	8	0.06	0.073
360	209	22	31	21	0.05	0.078
370	263	16	32	25	0.06	0.072
380	220	18	28	23	0.08	0.067
390	228	19	22	31	0.11	0.101
	<u>2258</u>	<u>187</u>	<u>267</u>	<u>190</u>	<u>0.80</u>	<u>0.768</u>
					0.08	0.0768
400	287	20	32	14	0.06	0.091
410	250	26	27	23	0.03	0.096
420	319	16	21	3		0.117
430	277	19	22	10		0.076
440	216	28	26	10		0.071
450	312	42	57	22		0.078
460	266	28	25	14		0.084
470	229	27	24	6		0.109
480	214	20	23	7		1.02
490	268	20	31	1		0.066
500	251	18	22	1		0.065
510						
520						
530						
540						
550						





Copy of a  
Catalogue of  
the Colors and Magnitudes  
of 3890 Stars;  
Between the North Pole and  $25^{\circ}$  S. Declination  
\*  
by W. S. Franks  
1878

This Catalogue was received from the Royal  
Astronomical Society in May 19, 1880.



The examination of the colours of all the stars visible to the naked eye, was, so far as I am aware, never been extended beyond double stars, red stars and a few of the leading stars in each Constellation. This particular line of observation was suggested to me by the Rev. J. W. Webb, as being one well suited to an amateur.

Naturally, I felt some diffidence at undertaking a work of this magnitude, but having once taken it in hand, I devoted my leisure time almost exclusively to it from July 1877 to May 1878. Although but imperfectly executed, it may possibly serve as a basis for some-one else to work upon, and if it but opens out the way for a more exact treatment of this much neglected branch of stellar observation, I shall feel amply rewarded for the labour it has cost me.

A few words in explanation of the Catalogue may be deemed necessary. My method of observing was to take 1 hour in R.A. as the limit of the sweeps, and commencing at  $25^{\circ}$  South declination, examine each zone of  $5^{\circ}$  in declination at a time, gradually working up to the pole. In doing so, I endeavoured as much as possible to follow the Natural grouping of the stars, in preference



to a rigid adherence to their strict sequence in Right Ascension. I cannot but help but express my regret that Mr. Proctor, in his admirable Star Atlas, did not adopt a more reliable authority than the B.A.C. for his magnitudes. Argelander is singularly accurate in this respect, indeed, in the great majority of cases, where my estimate differed from the B.A.C., the 'Uranometria Nova' generally confirmed mine. The omission of half magnitudes is a great defect in all star atlases which are unaccompanied by catalogues, and it might be obviated easily enough. For instance the same outline might be retained for the half as the whole magnitude but instead of its being filled in black, used shaded lines to represent the half magnitude. I have tried this experimentally with the 6 magnitudes in Proctor's Large Atlas, and it answered admirably, the half magnitudes being very easily distinguished. I would also say a word with respect to some of the elaborate and costly contrivances for measuring stars to the tenth of a magnitude, by means of limiting apertures. Such methods may answer very well for double stars, but for ordinary use they are utterly untrustworthy. The constant changes in the translucency of our atmosphere and the differences caused



by twilight, moonlight, fog and haze quite vitiate the results arrived at by such artificial means. The only sure method is that of comparison with surrounding stars, which I availed myself freely of, as a check upon my independent estimates.

I found a good opera glass very useful for this purpose, its enormous field allowing one to pass easily from star to star.

The telescope used was a 5 inch "Wray" of 78 inches focus. The finder has a 2 inch O.F. of 22 inches focus, and the eyepiece has a field of exactly 2° diameter. It is mounted as a simple equatorial, with coarsely divided circles, which are quite sufficient to enable me to find bright stars by day, and identify faint ones by night. My latitude and longitude are approximately :- Lat =  $52^{\circ} 39' N$ . Long  $4^m 31^s W$ . from Greenwich. The elevation is 235 feet above mean sea-level. The defining and illuminating power and achromatism of the O.F. is almost perfect; it will deeply notch  $\gamma^2$  Andromeda in good air. The eyepiece constantly used was an applanatic by Horne & Trenchwaite magnifying 105 diameters and having a field of view of  $33'$  diameter. The only exceptions were in the case of a few close doubles, when higher powers were used, according to circumstances. I



commenced with the XVIII<sup>th</sup> Hour of R.A. being the most convenient point to start from at that time. The richest hours are the XIX<sup>th</sup> and XX<sup>th</sup>, with 216 and 215 stars respectively. Next comes the V<sup>th</sup> with 196, and midway between these two prolific regions is the most barren hour of all, the XI<sup>th</sup>, with only 101 stars. It will be noticed that these are regions of white, yellow and orange stars where each particular colour seems to predominate over all the rest. Red stars, as a rule, appear to cling to the neighborhood of the Galaxy.

One or two good specimens in 6 mag. stars will be found which I think have hitherto escaped notice.

The arrangement of the catalogue is as follows; Column I. has the British Association Catalogue number; Column II. the Constellation with Bayer's letter, Flamsteed's number, or Piazzini's hour and number, in order of preference. In a few instances Struve's Number (for double stars) is given.

Columns III and IV. the British Association Catalogue and Observed Magnitudes, respectively. The colour is given in Column V and the date of observation in Column VI. Column VII is devoted to Notes and remarks, which will probably be found useful. The works used most frequently



as references for doubtful magnitudes &c., were — Proctor's Large and Small Star Atlases: the S.D.U.K. large maps; the B.A.C.; Argelanders "Uranometria Nova"; and "Celestial Objects" for Common Telescopes. I examined every star shown on Proctor's Large Atlas, and all the stars to 6 mag. inclusive on the large maps of the S.D.U.K. within the given limits. I have no doubt errors exist here and there in spite of the most careful revision, but I trust they will not be very numerous or important.

The following abbreviations are occasionally used to economize space &c. —

Argel = Argelander      S.N.p.f. = South: North: preceding: following.  
 S.D.U.K. = {Society for diffusing  
                   Useful Knowledge}      V or Var. = Variable  
 P = Proctor.      Du: Ru = Double: Red Star.

B.A.C. British Association Catalogue.      vis.: n. eye = visible; naked eye.

≤ = Struve      pos: brt. = position: bright.

P.O. = Piazzi's Hour & No.      p: dp: = pale: deep.

Sup. or > = Superior      wht. = white

Inf. or < = Inferior      greenh = greenish

= = of the same Magnitudes.      yellh = yellowish

M. or Mag = Magnitudes      max = maximum

diff: Decl = difference: Declination.      btwn. = between

W. S. Franks.

Leicester, May 13<sup>th</sup> 1878.



B.A.C. No.	Constellation	B.A.C. Mag.	Obs. Mag.	COLOUR	REMARKS	DATE 1877 Nov. 12
HOUR 0						
115	Po. 91 Ceti	6	6	yellowish white	Not given by Proctor	"
190	P.O. 155 "	6	7	pale white		"
203	P.O. 166 "	6	6	yellowish white		"
-----	"	-----	6	white	{ Omitted by Proctor & S.D.U.K. About 50' n f. Po. 166	"
-----	"	-----	6	pale yellow	{ Omitted by Proctor & S.D.U.K. About 30' s f. Po. 166	"
21	6	"	6	5-1/2 pale orange	{ 5-4 m Angelander. As Bright as 7 Ceti. Probably Variable	"
33	7	"	5-1/2	5-1/2 pale yellow		"
111	P.O. 88 "	6	6	white	Not given by Proctor.	"
-----	P.O. 100 "	-----	6 1/2	deep yellow	6 mag. S.D.U.K.	"
-----	P.O. 144 "	-----	6 1/2	deep yellow	6 mag. S.D.U.K.	"
196	$\beta$	"	2 1/2	2 1/2 bright yellow		"
-----	P.O. 174 "	-----	6	dull white	6 mag S.D.U.K.	"
-----	"	-----	6	full yellow	{ Omitted by Proctor & S.D.U.K. About 10 f $\beta$ Ceti.	"
35	"	"	6	white	Not given by S.D.U.K.	"
75	9	"	6	6 1/2 pale yellow		"
185	P.O. 152 "	6	6	deep yellow	Erroneously printed 162 [in S.D.U.K.]	"
-----	P.O. 161 "	-----	6 1/2	yellowish white	6 mag S.D.U.K.	"
200	$\phi'$	"	5	5 pale yellow		"
208	18	"	6	6 1/2 pale yellow		"



The fourth and fifth columns of this catalogue have been copied into the *Practical Phot. Catalogue*. The fifth column is abridged as follows:—

b.	bsh.	denotes	blue,	bluish
g.	gsh	"	green,	greenish
o.		"	orange.	
p.	psh.	"	purple.	purpleish
r.	rsh.	"	red.	reddish
w.	wsh.	"	white,	whitish
y.	ysh.	"	yellow,	yellowish

Omit vowels in other terms, as pl = pale; dll = dull; llc = lilac.

Except ft = faint; br = bright; ashy = ashy.

Write in full, words only rarely used as — 'light fawn colored', 'mild', &c.

In printing denote the chief colors as above, by single letters; denote the termination ish, or any modifying term, such as faint, <sup>dull</sup>, or pale, by making the letter an italic one; denote "bright", "very", etc., by making the letter a capital.

Note May 25, 1883.

On this system we might represent "bright light yellow" by a capital italic Y, but certainly not by a Roman capital Y, which would be appropriate only for "full yellow", "deep yellow", "rich", "topaz yellow", and the like. If the italic capital Y is used, it should also be employed for "fine pale yellow", "bright yellowish white", and similar combinations. Frank's original designations are to be found only in package "A", the original draft of the Catalogue.

Stars found in W. S. Frank's cata-  
logue, omitted from Harvard Observa-  
tory catalogue.

BAC.	Obs. mag.	Color	H Co Cat. No.
<del>190</del>	<del>7</del>	<del>pl. w.</del>	<del>[93+]</del>
185	6	deep y.	[93+]
313	6 1/2	" "	[158+]
205	6 1/2	" "	[102+]
248	6	pl. y.	—
81	6	" "	—
95	6	" "	[53+]
57	6	ysl. w.	—
89	7 1/2	deep y.	—
129	6	br. w.	67
216	6	pl. y.	—
274	6	pl. o.	—
73	7	topaz. y.	—
82	7	dp. y.	—
149	6	ysl. w.	—
<del>63</del>	<del>7</del>	<del>pl. y.</del>	<del>—</del>
168	6	pl. y.	—
250	6	pl. o.	—
224	8	pl. y.	—
263	8	o.	—
299	6 1/2	pl. y.	—
310	6	o.	—
297	6 1/2	pl. y.	—
78	5	pl. y.	496
13	7	ysl.	—
189	5 1/2	pl. y.	94
226	7	faint y.	—
245	7	deep y.	—



## Continued

BAC.	Obs. mag.	Color.	
54	6	w	—
<del>255</del>	<del>6 1/2</del>	<del>pl. w.</del>	<del>1336</del>
65	6	pl. y.	—
282	6	pl. y.	—
302	6 1/2	dll w.	—
114	6	ysh w	—
131	6	ysh. w.	—
280	6 1/2	pl. y.	—
39	6	w.	—
105	6	full. y.	—
6	6	w.	—
86	6	w	—
300	6	full. y.	—
240	6	ysh. w.	—
273	6	deeps. y.	—
419	6	gsh. y.	—
356	6 1/2	topaz y.	—
386	6	dll buff color. [192+]	—
406	6 1/2	pl. y.	—
433	6 1/2	deeps. y.	—
359	6 1/2	w.	—
442	7	dull w	—
481	7	ysh. w.	—
341	6	w.	—
476	6	w.	—
496	7	deeps. y.	—
469	6	o	—
533	6 1/2	ysh. w.	—
632	7	deeps. y.	—
607	6 1/2	pl. y.	—

B.A.C.	Obs. mag.	Color.	
645	7	pl. w.	—
647	6	ysh. w.	—
<sup>See page 157</sup> 394	6 1/2	pl. y.	—
450	7	pl. y.	—
535	6	" "	—
588	6	w.	282
444	7	pl. y.	—
363	6 1/2	fine O.	—
350	6 1/2	ysh. w.	—
583	6 1/2	" "	—
605	6	w.	298
360	2	brilliant ysh. w.	Polaris 199
494	6 1/2	full y.	—
789	6 1/2	" "	3756
755	7	ysh. w.	—
758	6 1/2	pl. y.	—
780	6 1/2	" "	—
771	6	" "	—
782	6 1/2	ysh. w.	—
761	6 1/2	y.	—
916	6 1/2	O.	—
705	6 1/2	pl. y.	—
714	6 1/2	flushed w.	—
897	7	deep. y.	—
806	8	ysh.	—
875	6 1/2	pl. w.	—
646	6	pl. y.	—
658	6 1/2	ysh. w.	—
696	6 1/2	deep. y.	—
814	6	ysh. w.	—

II<sup>h</sup>



B.A.C.	Obs. Mag.	Color.	
<u>651</u>	6	ysh.w.	—
<u>740</u>	6	pl. O.	—
<u>784</u>	6	ysh.w.	385
<u>1124</u>	6	pl. y.	[549+]
<u>1110</u>	6	deep. y.	—
<u>987</u>	6½	pl. y.	—
<u>966</u>	6	w.	—
<u>971</u>	7	deep y.	—
<u>1107</u>	6½	w.	—
<u>1126</u>	6	ysh.w.	—
<u>1146</u>	6	dull w.	—
<u>1177</u>	6	pl. w.	—
<u>1223</u>	6	w	—
<u>1260</u>	6	flushed w.	[628+]
<u>1101</u>	7½	pl w.	—
<u>1008</u>	6½	" "	—
<u>993</u>	6½	w.	—
<u>1105</u>	7	pl w.	—
<u>1024</u>	6	pl. O.	—
<u>1035</u>	6	ysh.w.	501b
<u>1063</u>	6	w	—
<u>1072</u>	6	bsh. w.	—
<u>1078</u>	6½	all w.	—
<u>1081</u>	6	ysh w.	—
<u>1089</u>	6½	pl. y.	—
<u>1261</u>	6	pl. O.	—
<u>998</u>	6	pl. w.	—
<u>1144</u>	5	pl. O.	574
<u>1067</u>	6	w	—
<u>1334</u>	6	w.	—

B.A.C.	Obs. mag.	Color.	
1487	6	ysh.w.	[793+]
1418	6 1/2	pl.O.	[747+]
1275	6 1/2	w.	—
1335	6 1/2	ysh.w.	—
1361	6 1/2	" "	—
1402	6	" "	—
1468	6 1/2	pl.y.	—
1485	6 1/2	full y.	—
<del>1557</del>	<del>5</del>	<del>br. w.</del>	<del>—</del>
1518	6 1/2	pl. y.	—
1534	6 1/2	dull y.	—
1305	6 1/2	pl. w.	—
1320	6 1/2	full y.	—
1282	7 1/2	deep y.	—
1524	6 1/2	O.	—
1566	6 1/2	pl. w.	—
1292	6	pl. O.	—
1501	7	deep O.	—
1457	6 1/2	splendid r.	—
1496	6 1/2	pl O.	—
1509	6 1/2	fine O.	—
1280	6 1/2	pl. w.	—
1550	6	w.	—
<del>1565</del>	<del>5</del>	<del>pl. y.</del>	<del>865</del>
<del>1276</del>	<del>6</del>	<del>pl. O.</del>	<del>658</del>
1235	6 1/2	pl. w.	—
1708	6 1/2	pl. y.	—
1657	6	ysh.w.	—
1689	6 1/2	pl. w.	—
1702	6 1/2	pl. O.	—
1810	7 1/2	dull y.	—

Vh



BAC	Obs. mag.	Color.	
1821	6 1/2	ysh.w.	—
1733	6	w.	—
1925	6 1/2	w.	—
1951	6 1/2	full y.	—
1746	6 1/2	fine O.	—
1754	6	w.	—
1772	6	ysh.w.	—
1635	6	w	—
1683	6 1/2	ysh.w.	—
1857	6	full y.	—
1875	6	w.	—
1935	6 1/2	deep y.	—
1947	7	dull w.	—
1931	6	ysh w.	—
1609	6 1/2	dull y.	—
1769	6	pl y.	—
1832	6 1/2	" "	—
1866	6 1/2	ysh w	—
1924	6	pl. y.	—
1888	6	deep y.	—
1705	6 1/2	pl. y.	—
1744	6	" "	—
1776	6 1/2	dull w.	—
1797	5 1/2	ysh w.	9946
1818	6	pl. w.	—
1833	6	w	—
1887	6	ysh.w.	—
1583	6 1/2	ysh w.	—
1721	6	fine O.	—
1777	6 1/2	dull y.	—

	B.A.C.	Obs. Mag.	Color	
	1874	6 1/2	w.	—
	1881	7	deep O.	—
	1706	6 1/2	pl. y.	—
	1610	6 1/2	full y.	—
	1619	6	pl. y.	896
	1662	6 1/2	pl. y.	945
	1879	6 1/2	" "	—
VI <sup>h</sup>	2224	6 1/2	pl. w.	—
	2281	6	deep y.	12486
	2131	6	pl. O	—
	2168	6	ruddy y.	—
	1974	6 1/2	pl. y.	—
	2030	6	pl. O.	—
	2087	7	pl. w.	—
	2057	6 1/2	w.	—
	2088	6 1/2	pl. O.	—
	2189	6 1/2	pl. w.	—
	2144	6 1/2	" "	—
	2222	6 1/2	pl. O.	—
	2230	6	" "	—
	2292	7	deep O.	—
	2111	6 1/2	deep y.	—
	1970	6 1/2	fine O.	—
	1971	6	ysh. w.	—
	1975	6 1/2	pl. w.	—
	1981	6	ysh. w.	—
	1987	6 1/2	O. r.	—
	2080	6	full y.	—
	2084	6	pl. w.	—
	2238	6	pl. O.	—



B.A.C.	Obs. mag.	Color	
2254	6	w.	—
2275	6	flushed w.	—
2278	6	pl. w	—
2301	6	pl. y.	—
1999	6 1/2	pl. y.	—
2139	6 1/2	fine r.	—
2155	6	gsh. o.	—
2235	6	pl. y.	—
2300	{ 6 1/2	w.	—
1950	6 1/2	deep o.	—
2020	6	ysh. w.	—
2074	6	pl. y.	—
2107	6	ysh. w.	—
2249	6 1/2	pl. o.	—
2294	6	deep y.	—
2019	6 1/2	dull y.	—
2125	6 1/2	creamy w.	—
2143	6	br. w.	—
2312	6	pl. o.	—
1985	6 1/2	ruddy w.	—
2083	6	pl. y.	1156
2210	5	splendid y.	1218
2157	5 1/2	fine y.	1222
2351	6	dull w.	—
2498	6	pl. y.	—
2565	6 1/2	dull y.	1382
2587	6 1/2	dull y.	—
2708	7	dull w.	—
2706	7	" "	—
2569	6	pl. w.	—

VII<sup>h</sup>

<u>B.A.C.</u>	<u>Sta.</u> <u>mag</u>	<u>Color</u>	
2437	6	pl. y.	—
2354	6	flashed w.	—
2382	6 1/2	pl. y.	—
2433	6	w.	—
2491	6	pl. y.	—
2636	6	" "	—
2664	6	w	—
2683	6	"	—
2364	6	pl. O.	—
2374	6	fine O.	—
2440	6	w.	—
2472	7	dull w	—
2545			—
2663	6	w	—
2688	6	"	—
2638	6 1/2	pl. y.	—
2334	7	pl. O.	—
2576	6	ysh. w.	—
2365	6 1/2	O. R.	—
2369		No star larger than 8 <sup>th</sup> hole	—
2501	6 1/2	ruddy O.	—
2512	6 1/2	full y.	—
2616	6 1/2	ysh. w	—
2397	6	ysh. w	—
2533	6	w.	—
2648	6 1/2	dull y.	—
2681	7	" "	—
2317	6	w	—
2377	6	pl. y.	—
2320	6	w.	—
2739	6	w.	[1435+]

VIII<sup>h</sup>



B.A.C.	Obs. mag.	Color.	
2785	6 1/2	dull w.	[1447+]
3065	6 1/2	deep y.	[1544+]
2746	6	w.	[1437+]
2807	6 1/2	full y.	[1454+]
2814	6	ysh. w.	—
2831	6	ysh. w.	—
2791	6 1/2	pl. y.	—
3013	7	dull y.	—
2720	6	w.	—
2867	6 1/2	ysh. w.	—
<del>2745</del>	<del>5</del>	<del>full y.</del>	<del>14386 Combined with 27114 [C.L. No. 14387]</del>
2995	7	dull y.	—
2818	6 1/2	ysh. w.	—
2833	6 1/2	w.	[1468+]
2917	6	full y.	—
2918	6	pl. O.	—
2925	6	pl. y.	—
3000	6 1/2	deep O.	—
3088	6 1/2	ysh. w.	—
2952	6 1/2	full y.	—
3046	6	pl. y.	—
3068	6	ysh. w.	—
2855	6	full y.	—
3060	7	pl. y.	—
3100	7	dull gsh. y.	—
2715	6 1/2	pl. w.	—
2798	6	O. R.	—
2844	6 1/2	deep y.	—
2784	6 1/2	pl. O.	—
2824	6	" "	—

IX<sup>h</sup>

B.A.C.	Obs. mag.	Color.	
2749	6	pl. o.	—
2677	6	w	—
2830	6½	pl. w.	—
2930	7	dull w.	—
3042	6	ysh w.	—
2787	6	pl. y.	—
3428	7½	deep dull y.	[1683+]
3222	7	faint y.	—
3233			Col. No. 1603+
3293	6½	deep o.	—
3368	6	w.	—
3133	6½	dull y.	—
3359	6½	full y.	—
3380	6	pl. o.	—
3272	6½	flushed w.	—
3344	6	ysh. w.	—
3132	6½	deep y.	[1572+]
3123	6	pl. o.	—
3138	6	w.	—
3285	6½	pl. y.	—
3294	7	dull deep y.	—
3309	6½	pl. o.	—
3112	6	pl. y.	—
3144	6	ysh. w.	—
3238	6	pl. y.	—
3252	7	deep y.	—
3313	6½	ysh. w.	—
3397	6½	deep o.	—
3169	6	ysh. w.	—
3421	8	pl. w.	—



B.A.C.	Obs. Mag.	Color.	
3308	6 1/2	subdued w.	—
3315	6	ysh. w.	—
3325	6 1/2	dull. y.	—
3275	6	w	—
X <sup>h</sup> 3632	6 1/2	deep dull O.	—
3470	6 1/2	w.	—
3476	6 1/2	w.	—
3492	7 1/2	dull y	—
3603	6	pl. O.	—
3550	6 1/2	pl. y.	—
3570	6 1/2	pl. O.	—
3582	6	w.	—
3663	6 1/2	pl. y.	—
3711	6 1/2	pl. w.	—
3600	7	full y.	—
3667	6	ysh. w.	—
3684	6	pl. O.	—
3726	6	ysh. w.	—
3449	6	pl. y.	—
3463	6	full y.	—
3529	6 1/2	pl. y.	—
3544	6	rich y.	—
3690	6	O.	—
3696	6 1/2	deep y.	—
3475	6 1/2	dull y.	—
3579	6 1/2	w. 7 full y.	—
3511	6	pl. y	—
3801	7	dull w.	—
3650	6 1/2	pl. w.	—
3710	6	creamy w	—

B.A.C.	Obs. Mag.	Color.	
<u>3727</u>	7	dull y.	—
<u>3735</u>	6	w.	—
<u>3751</u>	6	pl. O.	—
<u>3633</u>	6	pl. y.	—
<u>3704</u>	6	pl. y.	—
<u>3559</u>	6	pl. y.	—
<u>3466</u>	6	pl. O.	—
<u>3515</u>	6½	dull y.	—
<u>3525</u>	6½	pl. w.	—
<u>3530</u>	6	w.	—
<u>3565</u>	6	ysh. w.	—
<u>3519</u>	6	pl. y.	—
<u>3678</u>	6½	dull O.	—
<u>3682</u>	6½	pl. w.	—
<u>3571</u>	6	deep O.	—
<u>3764</u>	7	pl. w.	—
<del><u>3577</u></del>	<del>6½</del>	<del>pl. O.</del>	<del>1742</del>
<u>3629</u>	6½	ysh. w.	—
<u>3975</u>	6½	pl. O.	—
<u>3836</u>	6	dull ysh. w.	—
<u>3857</u>	6	full y.	—
<u>3996</u>	7	dull y.	—
<u>3845</u>	6½	dull w.	—
<u>3869</u>	7	pl. w.	—
<u>3992</u>	6½	ysh. w.	—
<u>4056</u>	6½	pl. y.	—
<u>3813</u>	6	pl. O.	—
<u>3973</u>	6½	deep y.	—
<u>3825</u>	6½	w.	—
<u>3942</u>	7	deep y.	—

X<sup>h</sup>



B.A.C.	Obs. mag.	Color.		
4050	6	w.	—	
4070	6	w.	—	
4149	6	pl. o.	—	
4198	6	full y.	—	
4213	6½	w.	—	
4382	6½	pl. y.	—	
4140	6	w.	—	
4259	9	pl. w.	—	
4269	7	o.	—	
4294	6	ysh. w.	—	
4312	7	pl. y.	—	
4200	6½	w.	—	
4225	6½	pl. y.	—	
4255	6½	w.	—	
4277	6	ysh. w.	—	
4323	6	ysh. w.	—	
4137	6	w.	—	
4296	6½	o.	—	
4314	6	pl. y.	—	
4168	6½	pl. y.	—	
4291	6	w.	—	
4218	6½	ysh. w.	—	
4228	6	topaz y.	—	
4267	6	flushed w.	—	
4362	6	pl. y.	—	
4141	6½	w.	—	
4364	7	full y.	—	
4142	6½	pl. y.	—	
4147	6½	w.	—	
4152	6	full y.	—	

B. A. C.	Obs. Mag.	Color.	
<u>4232</u>	6	pl. y.	—
<u>4108</u>	6 1/2	pl. o.	—
<u>4185</u>	6	o.	—
<u>4219</u>	6	pl. o.	—
<u>4249</u>	6 1/2	pl. y.	—
<u>4298</u>	6	fine o.	—
<u>4396</u>	6 1/2	dull y.	—
<u>4428</u>	6 1/2	w.	—
<u>4441</u>	6 1/2	dull w.	—
<u>4466</u>	6 1/2	w.	—
<u>4582</u>	6	w.	—
<u>4679</u>	6	pl. y.	—
<u>4397</u>	6	pl. y.	—
<u>4442</u>	6 1/2	pl. w.	—
<u>4680</u>	6	w.	—
<u>4688</u>	6	w.	—
<u>4502</u>	6	w.	—
<u>4468</u>	7	full y.	—
<u>4403</u>	6	pl. o.	—
<u>4621</u>	6 1/2	faint y.	—
<u>4513</u>	6	w.	—
<u>4575</u>	6 1/2	o.	—
<u>4393</u>	6	pl. y.	—
<u>4453</u>	6	pl. o.	—
<u>4592</u>	6	fine pl. y.	—
<u>4556</u>	6 1/2	topaz y.	—
<u>4416</u>	7	pl. y.	—
<u>4497</u>	6 1/2	w.	—
<u>4689</u>	6	pl. o.	—
<u>4614</u>	6	pl. o.	—

XIII<sup>h</sup>



XIV<sup>h</sup>

B.A.C.	Obs. mag.	Color.	
4659	6 1/2	full y.	—
4452	6	ysh.w.	—
4498	6 1/2	dull w.	—
4923	6	pl. y.	—
4896	6	pl. y.	—
4894	5 1/2	ruddy gray.	2336a
4971	6	w.	—
4765	6	ysh.w.	—
4828	6	w.	—
4868	6	pl. O.	—
4698	6	pl. y.	—
4786	6	w.	—
4944	6	pl. O.	—
4846	6	ysh.w.	—
4737	6 1/2	fine O.	—
4731	6 1/2	pl. w.	—
4962	7	deep y.	—
4803	6	w.	—
4820	6	w.	—
4797	6	pl. y.	—
4783	6	w.	—
4816	6	w.	—
4825	6	pl. O.	—
4863	7	pl. w.	—
4942	6 1/2	pl. w.	—
4805	6	pl. y.	—
4752	6	pl. w.	—
4736	6	dull w.	—
4756	6 1/2	deep y.	—
4834	6 1/2	pl. w.	—

B.A.C.	Obs. mag.	Color.	
<del>4732</del>	<del>6 1/2</del>	<del>dull w.</del>	<del>—</del>
4718	6	pl. w.	—
<del>4984</del>	<del>6 1/2</del>	<del>dull w.</del>	<del>—</del>
5023	6	pl. O.	—
5197	6	ysh.	—
5260	6	pl. w.	—
5278	6 1/2	dull w.	—
5003	6	dull y.	—
5055	6	pl. y.	—
5063	6	fine O.	—
5188	6	pl. y.	—
5330	5 1/2	libac.	<del>25316</del> Combined with 5329 [Cat. no. 2531]
5070	6	deep y.	—
5148	6 1/2	dull y.	—
5270	6	pl. y.	—
5325	6	deep y.	—
5067	6	w.	—
5126	6 1/2	O.	—
5132	6 1/2	pl. w.	—
4993	6	pl. O.	—
5033	6 1/2	O.	—
5157	6	w.	—
5113	6	w.	—
4978	6 1/2	pl. y.	—
5205	6	pl. y.	—
5274	6 1/2	w.	—
5022	6	pl. y.	—
5207	6	w.	—
5352	6	pl. y.	—
5140	6 1/2	dull w.	—



B.A.C.	Obs. Mag.	Color.	
<u>5395</u>	6 1/2	pl. w.	—
<u>5633</u>	6 1/2	pl. w.	—
<u>5680</u>	7	dull y.	—
<u>5709</u>	6	O.	—
<u>5711</u>	6	pl. y.	—
<u>5758</u>	6	pl. y.	—
<u>5383</u>	6 1/2	grayish lilac	—
<u>5695</u>	6	full y.	—
<u>5700</u>	6 1/2	pl. y.	—
<u>5723</u>	6 1/2	deep y.	—
<u>5771</u>	6	pl. O.	—
<u>5748</u>	6	gsh. y.	—
<u>5431</u>	6	creamy w.	—
<u>5493</u>	6	pl. y.	—
<u>5618</u>	6 1/2	ysh. w.	—
<u>5553</u>	7	w.	—
<u>5616</u>	6 1/2	pl. y.	—
<u>5344</u>	6	w.	—
<u>5361</u>	6 1/2	dusky O.	—
<u>5537</u>	6 1/2	pl. w.	—
<u>5376</u>	6 1/2	w.	—
<u>5732</u>	6 1/2	w.	—
<u>5434</u>	6 1/2	full y.	—
<u>5444</u>	7	deep y.	—
<u>5530</u>	6	pl. O.	—
<u>5703</u>	6 1/2	pl. y.	—
<u>5714</u>	6 1/2	pl. y.	—
<u>5541</u>	6 1/2	w.	—
<u>5652</u>	6 1/2	ysh. w.	—
<u>5546</u>	6	pl. w.	—

B.A.C.	Obs. mag.	Color.	
<u>5615</u>	6 1/2	deep y.	[2640+]
<u>5400</u>	6	full y.	—
<u>5417</u>	6	pl. y.	—
<u>5644</u>	6	pl. o.	—
<u>5461</u>	6	pl. o.	—
<u>5706</u>	6	full y.	—
<u>5499</u>	6	w.	—
<u>5549</u>	6	w.	—
<u>5559</u>	6	pl. y.	—
<u>5629</u>	6	pl. w.	—
<u>5509</u>	6	flushed y.	—
<u>5601</u>	6	full y.	—
<u>5717</u>	6	full y.	—
<u>5728</u>	6 1/2	dull w.	—
<u>5734</u>	6 1/2	dull w.	—
<u>5745</u>	6 1/2	pl. w.	—
<u>5475</u>	6	pl. y.	—
<u>5831</u>	6	pl. w.	—
<u>5866</u>	6	o.	—
<u>5954</u>	6	dull w.	—
<u>6053</u>	6 1/2	ysh w.	—
<u>6088</u>	6	pl. y.	—
<u>6081</u>	6	w.	—
<u>6098</u>	6 1/2	dull y.	—
<u>5839</u>	6	w.	—
<u>5948</u>	6	flushed w.	—
<u>6049</u>	6	w.	—
<u>6054</u>	6 1/2	pl. w.	—
<u>6124</u>	6 1/2	w.	—
<u>6096</u>	6 1/2	pl. y.	—

XVII<sup>h</sup>



BAC.	Obs. Mag.	Color.	
6889	6	pl. y.	—
6620	5 1/2	pl. O.	<del>31016</del>
6590	6	pl. O	—
6658	6 1/2	pl. y.	—
6776	6	pl. y.	—
6892	6	ysh. w.	—
6821	6	pl. O.	—
6815	6	pl. y.	—
6663	6 1/2	pl. O.	—
6695	7	pl. w.	—
6882	5 1/2	pl. y.	<del>32546</del>
6673	7	deep y.	—
6762	7	fine O.	—
6777	6	full y.	—
6800	6 1/2	ysh. w.	—
6711	6 1/2	ysh. w.	—
6765	6 1/2	pl. O.	—
6806	6 1/2	pl. y.	—
6860	6 1/2	pl. w.	—
6593	6	ysh. w.	—
6624	7 1/2	O. N.	—
6720	6	ysh. w.	—
6728	6 1/2	O.	—
6603	6	full y.	—
6626	6	pl. O.	—
6741	6	pl. O.	—
6721	6 1/2	ysh. w.	—
6635	6	ysh. w.	—
6712	6	pl. O.	—
6780	6	pl. y.	—

BAC.	Obs. Mag.	Color.	
6863	6	pl. O.	—
6818	6	pl. y.	—
6555	6 1/2	pl. y.	—
6737	6	pl. O.	—
6834	6	pl. y.	—
6861	6 1/2	full y.	—
6862	6 1/2	O.	—
6586	6	pl. y.	—
6752	6	pl. O.	—
6563	6	pl. y.	—
6702	6	fiery R.	—
7049	6	O	—
<del>7479</del>	6	ych. w.	—
7197	7	faint y.	—
7237	6	pl. y.	—
7043	6 1/2	faint y.	—
7099	6	w.	—
7110	6	O.	—
7145	6	pl. y.	—
7202	6	pl. O.	—
7282	6	pl. y.	—
6935	6	dull y.	—
6956	6	pl. w.	—
7221	6	pl. y.	—
7242	6	ych. w.	—
7279	6	pl. w.	—
7288	6	dull y.	—
7229	6	pl. y.	—
7283	6	w.	—
7269	6 1/2	faint y.	—

xx<sup>h</sup>



B.A.C.	Obs. mag.	Color.	
<u>7152</u>	6	pl. O.	—
<u>7001</u>	7	fine N.	—
<u>7008</u>	6½	ysh. w.	—
<u>7084</u>	6½	y.	—
<u>7167</u>	7	y.	—
<u>7313</u>	7	deep y.	—
<u>7297</u>	7	ysh. w.	—
<u>6963</u>	6	O	—
<u>6996</u>	6	ysh. w.	—
<u>7048</u>	6	pl. w.	—
<u>7041</u>	6	pl. O.	—
<u>7101</u>	7	pl. y.	—
<u>7100</u>	6	w.	—
<u>7114</u>	7	O.	—
<u>7119</u>	7	pl. y.	—
<u>7260</u>	6½	pl. w.	—
<u>7326</u>	6	pl. y.	—
<u>7273</u>	6	w.	—
<u>7317</u>	6	pl. O.	—
<u>6985</u>	6	w.	—
<u>7083</u>	7	faint y.	—
<u>7219</u>	7	O. N.	—
<u>7274</u>	6	pl. y.	—
<u>7035</u>	6½	O.	—
<u>7055</u>	6½	w.	—
<u>7153</u>	6½	pl. y.	—
<u>7218</u>	6½	pl. y.	—
<u>6924</u>	6½	pl. y.	—
<u>7166</u>	6	ysh. w.	—
<u>7060</u>	6	ysh. w.	—

B. A. C.	Obs. Mag.	Color.	
<u>7281</u>	6	w.	—
<u>6930</u>	6	pl. y.	—
<u>7090</u>	6	pl. o.	—
<u>7144</u>	6 1/2	w.	—
<u>7230</u>	6 1/2	w.	—
<u>7047</u>	7	pl. y.	—
> <u>7784</u>	6	y.	—
<u>7447</u>	6 1/2	o.	—
<u>7649</u>	6 1/2	pl. o.	—
<u>7391</u>	8	faint y.	—
<u>7666</u>	7	ysh. w.	—
> <u>7433</u>	6 1/2	pl. y.	—
<u>7373</u>	6	ysh. w.	—
<u>7602</u>	6	w.	—
<u>7614</u>	6	w.	—
<u>7477</u>	7	ysh. w.	—
<u>7559</u>	6	w.	—
<u>7593</u>	7	ysh. w.	—
<u>7679</u>	7	pl. w.	—
<u>7469</u>	8	pl. w.	—
<u>7548</u>	6	w.	—
<u>7448</u>	8	pl. w.	—
<u>7488</u>	6 1/2	pl. o.	—
<u>7512</u>	6	ysh. w.	—
<u>7589</u>	6 1/2	ysh. w.	—
<u>7642</u>	5	w.	<del>36286</del>
<u>7646</u>	6	w.	—
<u>7530</u>	6 1/2	pl. y.	—
<u>7387</u>	7	fine r.	—
<u>7494</u>	6	full y.	—

XXI<sup>h</sup>



B.A.C.	Obs. mag.	Color.	
<u>7636</u>	7	ysh.w.	—
<u>7668</u>	7	pl.w.	—
<u>7449</u>	7	y.	—
<u>7533</u>	7	dull y.	—
<u>7651</u>	7	p.y.	—
<u>7611</u>	6	w.	—
<u>7621</u>	6½	ysh.w.	—
<u>7610</u>	6	w.	—
<u>7393</u>	6½	p.y.	—
<u>7508</u>	7	p.y.	—
<u>7654</u>	5½	pl.y.	36318
<u>7663</u>	6½	O.	—
<u>7678</u>	6½	full y.	—
<u>7504</u>	7	pl.w.	—
<u>7818</u>	6	p.y.	—
<u>7836</u>	6	ysh.w.	—
<u>7982</u>	6	pl.O	—
<u>7719</u>	7	deep.y.	—
<u>7781</u>	6	pl.O.	—
<u>7806</u>	6	pl.O.	—
<u>7849</u>	6½	faint y.	—
<u>7835</u>	6½	pl.y.	—
<u>7890</u>	6	pl.y.	—
<u>7726</u>	6	pl.y.	—
<u>8016</u>	6	deep.y.	—
<u>8020</u>	6	pl.y.	—
<u>7985</u>	6	pl.y.	—
<u>7996</u>	6½	deep y.	—
<u>7742</u>	6	pl.y.	—
<u>7978</u>	6½	w	—

BAC.	obs. mag.	Color.	
7743	7	full y.	—
7803	6 1/2	full y.	—
7695	6 1/2	w.	—
7727	6 1/2	w.	—
7825	8	pl. w.	—
7882	6	w.	—
7950	6 1/2	ysh. w.	—
7846	7	ysh. w.	—
7738	6 1/2	w.	—
7736	6 1/2	w.	—
7782	6 1/2	faint y.	—
7799	6 1/2	w.	—
7812	8 1/2	w.	—
7871	6 1/2	w.	—
7953	6 1/2	w.	—
8013	6 1/2	O.	—
7829	7	deep O.	—
7875	6	pl. w.	—
7786	6 1/2	dull w.	—
7810	6	full y.	—
7878	6	pl. y.	—
7963	6 1/2	pl. y.	—
7761	6 1/2	dull y.	—
7907	6	pl. O.	—
8015	6 1/2	deep y.	—
7732	6 1/2	ysh. w.	}
7735	6 1/2	ysh. w.	
7859	6 1/2	deep y.	—
7941	6 1/2	deep y.	—
7851	6	ysh. w.	3721



B.A.C.	Obs. Mag.	Color.	
<u>8155</u>	6	ysh.	—
<u>8167</u>	6	deep y.	—
<u>8194</u>	6	dull w.	—
<u>8225</u>	6	rich y.	—
<u>8297</u>	6	pl. O.	—
<u>8214</u>	6	pl. y.	—
<u>8274</u>	6	pl. O.	—
<u>8183</u>	6	full y.	—
<u>8302</u>	6	pl. y.	—
<u>8365</u>	6	pl. y.	—
<u>8170</u>	6	full y.	—
<u>8353</u>	6	pl. w.	—
<u>8147</u>	7	ysh. w.	—
<u>8248</u>	6	pl. y.	—
<u>8115</u>	6½	w.	—
<u>8120</u>	6½	w.	—
<u>8135</u>	6½	pl. w.	—
<u>8223</u>	6	ysh. w.	—
<u>8245</u>	7	O. r.	—
<u>8056</u>	7	pl. w.	—
<u>8126</u>	6½	dull y.	—
<u>8326</u>	6	ysh. w.	—
<u>8307</u>	6½	ysh. w.	—
<u>8316</u>	7	ysh.	—
<u>8158</u>	7	pl. w.	—
<u>8282</u>	7	pl. w.	—
<u>8317</u>	6½	lsh. w.	—
<u>8372</u>	6	pl. y.	—
<u>8068</u>	6½	pl. w.	—
<u>8277</u>	6	pl. y.	—

B.A.C.	Obs. mag.	Color.	
<u>8373</u>	5 1/2	w.	1
<u>8353</u>	6	pl. y.	—
<u>8077</u>	6	dull w.	—
<u>8173</u>	6 1/2	w.	—
<u>8122</u>	7	Q	—
<u>8314</u>	6	pl. y.	—

In checking this list, B. P. Mann looked directly for the nos. here given, to find them, if possible, in the M.S. Catalog, as far as about #1800; he then looked over the M.S. catalog, about to no. 5100, for stars which had changed their relative AR considerably, and sought to find them in this list; he then looked over the M.S. Catalog for <sup>B.A.C.</sup> stars which <sup>seemed to</sup> have no brightness or color given by Frank, and sought to find them in this list, checking — in this list as he went along.

<u>576</u>	6 1/2	full y.	
<u>352</u>	6 1/2	pl. Q	
<u>377</u>	6 1/2	pl. y.	
<u>474</u>	6	deep y.	
<u>540</u>	6 1/2	pl. y.	
<u>587</u>	7	deep y.	
<u>555</u>	6	w.	
<u>946</u>	6	pl. y.	[447+]
<u>660</u>	7	pl. w.	
<u>685</u>	6	ysh. w.	[326+]
<u>747</u>	6 1/2	pl. w.	[354+]
<u>823</u>	6	pl. y.	[395+]
<u>943</u>	6	ysh. w.	
<u>663</u>	6	pl. y.	



BAC	Obs. Mag.	Color.			
852	6	pl. y.			
950	6	pl. b.			
2091	No such star in this place.				
4166	6	pl. y.			
6311	} no stars found corresponding.				
6318					
7243	No star corresponding to this position.				
6999	Not found.				
7487	No star larger than 8m in this neighborhood.				
7509	No star larger than 8m in this place.				
7787	No star corresponding to this position.				
7813	"	"	"	"	"

The following stars found in H. S. Franks catalogue have definite names but no B.A.C. number.

Page	Name	Obs. mag	Color	Page	Name	Obs. mag	Color	
1	P.O. 100 <sup>Ceti</sup>	6 1/2	deep y.	21	P.II.93 Triang.	6 1/2	pl. y.	
1	P.O. 144 <sup>Ceti</sup>	6 1/2	deep y.	23	P.II.13 Persei	7	deep y.	
1	P.O. 174 "	6	dull w.	23	P.II.133 "	6 1/2	dull w.	
1	P.O. 161 "	6 1/2	ych. w.	24	P.II.2 "	7	deep O.	
2	P.O. 210 "	7	dull w.	26	P.III.226 Eridani	6	pl. y.	622
5	P.O. 258 <sup>Pisces</sup>	6 1/2	pl. O.	26	P.III.238 Jauri	6	w.	630
5	P.O. 103 <sup>Androm</sup>	7	pl. y.	27	P.III.234 "	6 1/2	flushed w.	628
5	P.O. 242 "	6	pl. y.	29	P.III.9 Persei	6	w.	479
7	P.O. 285 Cassio	6 1/2	pl. y.	29	P.III.194 "	6	w.	606
10	P.I. 108 Ceti	6 1/2	pl. w.	34	$\Sigma$ 627 Orionis	6 1/2	pl. w.	835
11	P.I. 168 <sup>Pisces</sup>	-----	-----	35	P.IV.19 Jauri	6	w.	668
12	P.O. 310 "	6 1/2	fine O.	35	P.IV.49 "	6 1/2	full y.	697
12	P.I. 90 "	7	pl. y.	35	P.IV.146 "	6	ych. w.	764
13	P.I. 145 "	6 1/2	buff y.	35	P.IV.236 Orionis	6 1/2	pl. y.	814
13	P.I. 213 <sup>Triang.</sup>	7	pl. y.	35	$\Sigma$ 495 Jauri	6 1/2	pl. y.	-
13	P.I. 29 Androm	6 1/2	pl. y.	38	$\Sigma$ 548 "	6 1/2	pl. y.	726
13	P.I. 56 Androm	-----	-----	38	P.III.255 Persei	6 1/2	pl. O.	
13	P.I. 79 Pisces	6 1/2	ych. w.	51	P.VI.58 Can. Maj	No star larger than 8" in this place.		
14	P.I. 171 Triang	6	pl. y.	53	P.VI.71 Monoc.	6	pl. y.	1181
15	P.I. 31 Androm	7	deep O.	53	76 Orionis	6	O.	
15	P.I. 130 Cassio	7	deep O.	54	P.VI.257 Monoc.	6 1/2	pl. y.	1232
17	P.I. 52 "	6 1/2	pl. w.	57	P.VI.83 Auriga	7	ych. w.	
17	P.I. 194 "	6 1/2	ych. w.	58	$\Sigma$ 958 Lynce	6 1/2	pl. y.	1201



Page	Name	cls. mag	Color	Page	Name	cls. mag	Color	
58	P.VI.54 Lynce	7	deep y.	112	P.XIV 126 Drac.	6	pl. y.	2300
64	P.VII 92 "	6	w.	1326	115 $\Sigma$ 1962 Librae	6	ysh. w.	2452
64	P.VII.156 "	6	pl. y.	116	P.XV.176 Serp.	6 1/2	pl. O.	
64	P.VII.115 "	6 1/2	pl. O.	116	P.XV 89 "	6 1/2	pl. y.	
71	P.VIII.15 "	6 1/2	pl. w.	117	P.XV 203 "	6 1/2	pl. O.	
73	P.IX.39 Hydrae	6 1/2	full y.	117	P.XV 206 "	6	w.	
74	P.IX.85 "	7	deep O.	117	P.XV 215 "	6	w.	2505
76	P.IX.145 Leo (Maj.)	6	O.	1637	118 $\Sigma$ 1932 Coronae	6	w.	—
78	P.IX.28 Lynce	6	w.	118	P.XV.100 "	6	pl. w.	
78	39 "	6 1/2	w.	—	120 P.XV 156 Bootis	6 1/2	fine r.	
78	P.IX.51 Ura. Maj.	6 1/2	fine O.	120	P.XV 39 "	6 1/2	pl. y.	
84	P.X.203 " "	6	full y.	1806	127 P.XVI 161 Herculis	6 1/2	dusky y.	
86	<del>(P.X.203) (P.X.126) (P.X.126) (P.X.126)</del>	6 1/2	fiery r.	128	P.XVI.56 Drac.	6	w.	
87	P.XI.118 Crateris	6	deep O.	128	P.XVI.171 "	7	deep y.	
90	$\Sigma$ 1561 Ura. Maj.	6	ysh. w.	—	<del>181 P.XVII 99 Oph.</del>	<del>6</del>	<del>w.</del>	2787
91	$\Sigma$ 1559 "	6	ysh. w.	1893	132 P.XVII 181 "	6 1/2	pl. y.	
92	P.XII 61 Corvi	7	dull y.	132	P.XVII 266 "	6 1/2	O.	
92	P.XII 234 "	6	pl. y.	132	P.XVII 84 "	6 1/2	pl. O.	2728
93	$\Sigma$ 1669 Virg.	6 1/2	both ysh. w.	2034	132 P.XVII 271 "	6	pl. y.	
99	$\Sigma$ Ura. Maj.	6 1/2	deep O.	—	133 P.XVII 94 (Herc.)	6 1/2	w. as a mass	2732
99	P.XII.144 Drac.	6 1/2	deep O.	—	133 P.XVII 95 (")	6	w.	2731
99	$\Sigma$ 1625 Ura. Min.	6 1/2	w.	—	133 P.XVII 301 "	6 1/2	pl. w.	
104	P.XIII.163 Can. Ven.	6 1/2	pl. O.	2078	134 59 Oph.	6	w.	—
105	P.XIII 65 " "	6	pl. y.	—	134 P.XIII.64 Drac.	6	pl. y.	2716
105	P.XIII 71 " "	6	pl. y.	2129	134 P.XIII 71 "	5 1/2	w.	2722
106	P.XIII 233 Ura. Maj.	6 1/2	w.	2214	134 P.XIII 347 "	6 1/2	deep O.	2839
106	P.XIII 12 " "	6 1/2	w.	—	136 P.XIII 116 Drac.	6 1/2	pl. O.	
108	P.XIV 181 Librae	6	pl. y.	—	136 P.XIII 304 "	7	ysh.	
111	P.XIV 52 Bootis	6	ysh. w.	—	136 P.XIII 38 "	7	pl. y.	



Page	Name	Obs. mag.	Color	Page	Name	Obs. mag.	Color	
137	P.XVII.369. Drac.	6½	pl. y.	180	P.XXII.186 Pegasi	6	pl. y.	3760
141	P.XVII.381 Ophi.	6	w.	180	P.XXII.97 "	6	pl. y.	
141	P.XVII.271 Herc.	6½	pl. y.	181	P.XXII.232 "	6	full y.	
143	P.XVIII.179 Lyrae	6½	pl. y.	181	P.XXII.283 "	7	pl. o.	
145	P.XVIII.173 Drac.	6	ysh. w.	181	P.XXII.10 "	6	w.	
152	11 Vulp.	7½	pl. o.	181	P.XXII.76 "	7½	faint y.	
152	H 640 Cygni	6½	rich y.	181	P.XXII.139 "	6	pl. y.	
152	P.XIX.290 "	7	ysh. w.	182	P.XXII.113 "	7	fine o.	3719
153	P.XIX.19 Lyrae	6½	pl. y.	182	P.XXII.65 Lacert.	6½	pl. w.	
153	P.XIX.164 Cygni	6	ysh. w.	182	P.XXII.226 "	6	pl. y.	
153	P.XIX.379 "	6	o.	182	P.XXII.261 "	6½	ysh. w.	3810
156	P.XIX.370 "	6	w.	184	P.XXII.24 Cephei	6½	w.	
156	P.XIX.391 "	7	pl. y.	184	P.XXII.12 "	6½	w.	
160	P.XX.26 Aquil.	6½	w.	187	P.XXIII.262 Ceti	6	pl. y.	
160	E Delph.	6	pl. w.	187	P.XXIII.122 Aquar.	6	pl. o.	3911
161	P.XX.270 "	6½	pl. w.	187	P.XXIII.196 "	6½	full y.	
162	P.XX.358 Vulp.	6	ysh. w.	190	P.XXIII.4 Pegasi	6	pl. o.	3848
162	P.XX.473 "	6½	pl. y.	191	P.XXIII.268 "	6½	deep y.	
166	Σ 2671 Cygni	6	w.	191	Σ 3050 Androm.	5½	pl. y.	3980
166	Σ 2751 Cephei	6	w.	194	P.XXIII.152 Cephei	6½	w.	
171	P.XXI.71 Equulei	6	o.					
172	P.XXI.312 Pegasi	6	w.					
172	P.XXI.195 "	6½	dull y.					
172	P.XXI.1 Cygni	6½	pl. w.					
172	P.XXI.273 "	6	full y.					
174	P.XXI.159 "	6	ysh. w.					
175	P.XXI.83 Cephei	6	pl. y.					
175	P.XXI.133 "	7	y.					
176	P.XXI.89 "	6½	pl. y.					





## Absorption of Chile.

From an examination of the observed light of the Pole Star during each zone the following values have been adopted, and corrections applied to each zone

Zone	Mag. $\alpha$
1 - 60	2.1
62 - 96	2.3
97 - 108	2.0
109 - 131	2.3
132 - 141	1.9
142 - 174	2.0
174 - 183	2.2
184 - 185	1.6
186 -	



# Stars which escaped observa- tion in 1879-81.

		Dist.	magnitudes	
				L.M. Phot.
- 933	Nebulae			
- 157	Double	30"	4.8	5.1
2263	Nebulae	"	4.2	L.M. Phot
2743	Double	9"	4.2	4.4 L.M. Phot too close
3423	Cumulus			"
3433	"			"
3943	"			"
3953	"			"
381	Double	39"	6.1	7.1
<del>558</del>	<del>Alinads</del>			
<del>572</del>	<del>Alinads</del>			
<del>575a</del>	<del>Alinads</del>			
<del>576</del>	<del>Alinads</del>			
631	Double	Not in same field, or walls		L.M. Phot. Too Close
8373	"	181"	5.0	6.0
10793	Cumulus			L.M. Phot Too Close
1082				L.M. Phot. not seen
11443	Cumulus			" Too coarse
1206				" not seen
12113	Cumulus			" Too coarse
<del>1249</del>				
13553	Cumulus			" Too coarse
14383	Double	1"	5.0	5.7
14423	Cumulus			L.M. Phot. Too coarse
<del>1585</del>				
1652	var.		5.3-11	L.M. Phot. Too faint
17103		314"	3.8	6.0
1926		63"	6.1	6.5
19593	Cum.			
20193	Cum.			

2122	Double	Large mer. Phot. Too close		
2144	"	"6.7" 6.7" Webb p243 "		
2182 <sub>6</sub>	Nebulae	Too large to measure. LM Phot		
<del>2216<sub>7</sub></del>				
<del>2253</del>				
2269	Double	6"	Large mer. Phot. No separate sheet 6.3 9.0 Too close	
2616		Large mer Phot too faint		
2666 <sub>8</sub>		Thrown out LM Phot.		
2790 <sub>8</sub>	Cumulus			
2802	Double	31"	4.0 5.6	
2884	Double	21"	5.4 6.1	
2889 <sub>8</sub>	Cumulus	Not to be attempted LM Phot		
2921 <sub>8</sub>	"			
2997 <sub>6</sub>	Double	22"	4.5 4.6	
3062				
3185				
3196 <sub>6</sub>				
3265				
3357	Double	Not in Struve Vol II or Webb		
<del>3492<sub>7</sub></del>				
3637	Double	Not in Struve Vol II or Webb.		
<del>3695</del>	Comp. Nov.			



~~Course of a Great Run~~

	Lat.	Long.	Stars not seen
0	-	-	1082 not seen 6 obs
10	-	-	1206 not seen 2 obs
20	-	-	2616 not seen Prob. misprint
30	-	-	2666 <sub>6</sub> not seen
40	-	0.13	<del>3062</del>
50	-	0.18	<del>3185</del>
60	-	0.08	<del>3196<sub>6</sub></del> Nov 115
70	-	0.18	<del>3265</del>
80	0.10	0.06	
90	0.09	0.09	
100	0.08	0.12	1225 too clear
110	0.12	0.17	1496 too scattered
120	0.10	0.14	<del>32</del>
130	0.11	0.11	<del>3265 too near to 3264</del>
140	0.10	0.06	
150	0.08	0.12	
160	0.10	0.08	
170	0.08	0.11	
180			Antares visibility of stars not found
190	1082	Behr. 6	
200	1206	Behr. 6	
210	2616	D.M. 5.6	prob. misprint for 9.4
220	2666 <sub>6</sub>	H <sub>2</sub> 5.6	
230			
240			
250			

# Omitted Objects

## Multiple and Clusters

93 <sub>b</sub>	too large	1442 <sub>b</sub>	too coarse
226 <sub>b</sub>	not seen	1496 <sub>b</sub>	too scattered
342 <sub>b</sub>	alt. not found	1959 <sub>b</sub>	too scattered
343 <sub>b</sub>	" " "	2019 <sub>b</sub>	too scattered
394 <sub>b</sub>	too scattered	2182 <sub>b</sub>	too large
395 <sub>b</sub>	not seen. 394 <sub>b</sub>	2790 <sub>b</sub>	too scattered
1079 <sub>a</sub>	too coarse	2889 <sub>b</sub>	too scattered
1144 <sub>b</sub>	too coarse	2921 <sub>b</sub>	too scattered
1211 <sub>b</sub>	too coarse		
1355 <sub>a</sub>	too coarse		

Dm.		Data				Diff	
✓	157	30"	4.8	5.1	ψ Pilius	20	
✓	274	9	4.2	4.4	γ Aurigae	-0.6	
7.0 7.5	381	39	6.1	7.1	Antes	2 30	+24
	631				Endams.	3 59	-13° too close
✓	837	181	5.0	6.0	11.12 Canb.	85 56	44 -24 too close
✓	1438 <sub>b</sub>	1	5.0	5.7	3 Canes	? 9 5	8 5 +18
	2102				Uij.	13 13	+4
	2144				Drac.	13 23	+65
	2269	6	6.3	9.0?	Drac.	14 12	+57
✓	2802	31	4.0	5.6	Drac φ 118	17 44	+72
	2884	21	5.4	6.1	Drac 40.51	18 9	+80
✓	2997	22	4.5	4.6	Suff. J. 87	18 50	+4
	3265					19 59	+70
	3357				Aquila	20 26	+1
	3637					21 54	+65
	3062				Lynx	19 6	+26 too close
	3185	37	5.1	5.3	C Cygni	19 37	+50 too close



## No of Zones &amp; Months

	1879	1880
Jan.		37
Feb.		25
Mar.		12
Apr.		21
May		23
June		20
July		
Aug.		
Sept.		
Oct.	7	
Nov.	13	
Dec.	13	

				Σ							
410,1-381	Antes	2	30	+24	39"	6.1	7.1	Dm.	7.5	7.0	0.6
674,15-631	Coronae	3	59	-20 <del>-18</del>				U.A.	6.0	6.9	2.9
1294-1225	Can Maj.	6	45	-24				U.A.	7.5	6.6	4.3
2251,2-2122	Virginis	13	13	+4				Dm. 6.7 7.7 U.A. 6.5 7.1			4.3
2273,4-2144	Orac.	13	23	+65° 10'				Dm.	6.7	6.7	2.0
2405,6-2269	Orac.	14	12	+57				Dm.	6.5	6.5	1.4
3071,7-2484	Orac. 20, 41,	18	9	+80	21"	5.4	6.1 <del>6.5</del>	Dm.	6.5	6.5	0.4
3280,1-3062	Scyri	19	6	+26				Dm.	7.7	7.5	2.5
3410,1-3185	Cygni C	19	39	+50	37"	5.1	5.3	Dm.	6.3	6.2	0.6
3493,4-3265		19	59	+70				Dm.	6.5	8.3	1.3
3588,9-3357	Aquila	20	26	+1				U.A.	6.5	7.5	5.3
3882,3-3637		21	54	+65				Dm.	6.5	6.8	1.9
21823	Can Borealis	12									

335 *Butting meadows Is.*  
Zones 26, 33 not found

[illegible]



## Mo of Venus &amp; Mercury

	1879	1880
Jan.		37
Feb.		25
Mar.		12
Apr.		21
May		23
June		20
July		
Aug.		
Sept.		
Oct.	7	
Nov.	13	
Dec.	13	

				E							
410.1-381	Arct.	2	30	+24	39"	6.1	7.1	Oh	7.5	7.0	0.6
674.5-631	Canis	3	59	<del>-20</del> -13				U.A.	6.0	6.9	2.9
1294-1225	Can. Maj.	6	45	-24				U.A.	9.5	6.6	4.3
2251.2-2122	Virginis	13	13	+4				Oh	6.7	7.7	
								U.A.	6.5	7.1	4.3
2273.4-2144	Orac.	13	23	+65°	10'			Oh	6.7	6.7	2.0
2405.6-2269	Orac.	14	12	+57				Oh	6.5	6.5	1.4
3071.2-2484	Orac. 40, 41,	18	9	+80	21"	5.4	6.1	Oh	6.5	6.5	0.4
3280.1-3062	Lyrae	19	6	+26				Oh	7.7	7.5	2.5
3410.1-3185	Cygni C	19	39	+50	37"	5.1	5.3	Oh	6.3	6.2	0.6
3493.4-3265		19	59	+70				Oh	6.5	8.3	1.3
3588.9-3357	Aquila	20	26	+1				U.A.	6.5	7.5	5.3
3882.3-3637		21	54	+65				Oh	6.5	6.8	1.9
21823	Can. Min.	12									

Buttling meads &c.

335 Zenis 26.33 not found

				P, PS, W	0011	45, 139	(42, 100)	7, 7, 6, 8 C	0.70 ± C
				M. O.	(100, 13)	W.P.	(100-33)	11, 0.8, 1.1, 10	1.00 np C
				SWS	(100, 33)	(100, 46)		.6, .6, .8, .7	.68 z C
16.1	1.8			PS, PS	1001	40	207	3, 4, 4, 3	0.35 nn C
7.5	1.9	0.7		SP, PS	2010	40	207	5, 3, 2, 3	0.32 p p C
10.1	0.1	1.4		SP, WS	2001	41	135	2, 4, 4, 5	0.38 n C
				PS, WP	0201	41	80	1, 3, 1, 0	0.12 s C
7.8	1.8	1.7		SW, SP	1010	136	208	0, 1, 2, 1	0.10 sp C
				WP, PW	1321	137	208	16, 12, 17, 14	1.48 p C
				SPPS, SPOOZ	121	36, 139,		8, 8, 6, 9, 6, 9	0.77 s C
				MSW	(100, 14)	209	(100, 14)	0, 4, 2, 5	0.28 np C
					3111				
					4614.1				
					#.09				



## Mean light of Polar Star.

Zone	Zone	Zone	Zone	Zone	Zone
1	31	61	91 2.1	121 2.6	151
2	32	62	92 2.5	122 2.2	152
3	33	63	93 2.2	123 2.4	153
4	34	64	94 2.4	124 2.3	154
5	35	65	95 2.4	125 2.1	155
6	36	66	96 2.3	126 2.4	156
7	37	67	97 2.3	127 2.3	157
8	38	68	98 2.0	128 2.0	158
9	39	69	99 2.2	129 2.4	159
10	40	70	100 2.1	130 2.5	160
11	41	71 2.3	101 2.2	131 2.3	161
12	42	72 2.3	102 2.3	132 1.8	162
13	43	73 2.5	103 1.8	133 1.8	163
14	44	74 2.3	104 1.9	134 1.9	164
15	45	75 2.3	105 1.8	135 1.8	165
16	46	76 2.3	106 2.1	136 2.0	166
17	47	77 2.1	107 2.0	137 1.8	167
18	48	78 2.2	108 2.0	138 2.0	168
19	49	79 2.3	109 2.3	139 2.0	169
20	50	80 2.2	110 2.4	140 1.6	170
21	51	81 2.3	111 2.2	141 1.9	171
22	52	82 2.3	112 2.5	142 2.0	172
23	53	83 2.3	113 2.1	143 1.9	173
24	54	84 2.2	114 2.5	144 2.0	174
25	55	85 2.0	115 2.5	145 2.0	175
26	56	86 2.2	116 2.7	146 2.0	176
27	57	87 2.3	117 2.3	147 2.0	177
28	58	88 2.1	118 2.4	148 1.8	178
29	59	89 2.2	119 2.5	149 2.0	179
30	60	90 2.2	120 2.4	150 2.0	180
			121 2.5	151 2.1	



## Mean Light of the Polar Star.

Zone		Zone		Zone		Zone		Zone	
151	1.7	181	2.2	211	1.8	241	1.9	271	1.9
152	2.1	182	2.2	212	2.1	242	2.1	272	1.9
153	2.2	183	2.2	213	2.0	243	2.0	273	1.9
154	<del>1.9</del> <sup>2.0</sup>	184	1.7	214	2.0	244	1.9	274	2.0
155	2.0	185	1.5	215	2.0	245	2.0	275	1.9
156	2.1	186	2.0	216	2.0	246	1.9	276	1.9
157	<del>2.1</del> <sup>2.0</sup>	187	1.8	217	2.0	247	1.6	277	1.9
158	2.0	188	1.9	218	1.8	248	1.9	278	1.9
159	1.7	189	2.1	219	1.6	249	2.0	279	1.9
160	1.9	190	1.7	220	1.7	250	2.0	280	1.8
161	1.7	191	2.0	221	1.8	251	1.9	281	1.9
162	2.0	192	2.0	222	1.8	252	1.9	282	1.9
163	1.8	193	1.9	223	1.9	253	1.9	283	1.8
164	1.8	194	1.9	224	1.5	254	<del>1.8</del> <sup>1.9</sup>	284	1.9
165	2.0	195	2.0	225	1.9	255	1.9	285	2.0
166	2.1	196	2.1	226	2.0	256	1.8	286	1.9
167	2.0	197	1.8	227	1.8	257	<del>1.9</del> <sup>1.8</sup>	287	2.0
168	2.0	198	2.0	228	1.8	258	1.9	288	1.8
169	2.0	199	1.8	229	1.8	259	2.0	289	1.9
170	2.0	200	1.7	230	1.8	260	1.9	290	1.9
171	2.1	201	1.8	231	1.8	261	1.9	291	1.8
172	1.8	202	2.0	232	1.8	262	2.0	292	2.0
173	2.1	203	2.0	233	1.9	263	1.9	293	1.8
174	2.1	204	2.0	234	1.8	264	1.9	294	1.9
175	1.9	205	1.9	235	1.8	265	2.0	295	1.7
176	2.2	206	<del>2.2</del> <sup>2.1</sup>	236	<del>2.0</del>	266	1.9	296	1.9
177	2.2	207	2.1	237	<del>1.9</del>	267	1.9	297	1.8
178	2.3	208	1.9	238	2.0	268	2.0	298	1.9
179	2.2	209	1.9	239	2.1	269	1.9	299	1.9
180	2.0	210	2.0	240	1.9	270	1.9	300	2.0



## Mean light of the Polar Star - continued

1879pba

Zone											
301	1.8	329	1.7	357	2.0	385	1.8	413	1.9	441	1.6
302	1.9	330	1.9	358	2.0	386	1.9	414	1.9	442	1.9
303	1.7	331	1.9	359	2.0	387	2.0	415	1.9	443	1.8
304	1.9	332	1.8	360	1.9	388	1.8	416	1.9	444	1.9
305	2.0	333	1.7	361	1.8	389	1.9	417	1.9	445	1.7
306	1.8	334	1.8	362	1.9	390	2.1	418	1.8	446	1.8
307	1.8	335	1.7	363	1.9	391	1.8	419	1.9	447	1.7
308	1.8	336	1.7	364	1.9	392	1.7	420	1.9	448	1.6
309	1.9	337	1.8	365	1.9	393	2.0	421	1.9	449	1.5
310	1.6	338	1.8	366	1.9	394	1.8	422	1.9	450	1.9
311	1.8	339	1.8	367	<del>2.0</del> <sup>1.9</sup>	395	<del>2.0</del> <sup>1.9</sup>	423 Assume	2.0	451	1.8
312	1.9	340	1.9	368	1.8	396	2.0	424	1.9	452	1.7
313	1.8	341	1.7	369	1.9	397	2.1	425	1.9	453	1.7
314	1.8	342	1.9	370	2.1	398	1.8	426	1.7	454	1.7
315	1.8	343	1.8	371	1.9	399	1.9	427	1.8	455	1.7
316	2.2	344	1.6	372	1.8	400	2.0	428	1.7	456	1.6
317	1.8	345	1.8	373	1.9	401	1.8	429	1.7	457	1.7
318	1.9	346	2.0	374	1.9	402	1.7	430	1.7	458	1.6
319	2.0	347	1.9	375	2.1	403	1.9	431	1.8	459	1.9
320	1.7	348	1.9	376	1.8	404	1.9	432	1.7	460	1.8
321	1.9	349	2.0	377	1.9	405	1.8	433	1.9	461	1.8
322	1.9	350	2.0	378	2.1	406	1.8	434	2.0	462	1.9
323	1.7	351	1.9	379	1.9	407	2.0	435	1.7	463	1.9
324	1.9	352	2.0	380	1.9	408	1.8	436	1.8	464	1.9
325	1.8	353	1.9	381	1.8	409	1.9	437	1.8	465	1.8
326	2.0	354	1.9	382	1.9	410	1.8	438	1.7	466	1.9
327	1.8	355	1.9	383	1.8	411	1.8	439	1.8	467	2.0
328	1.7	356	1.7	384	2.0	412	1.8	440	1.8	468	2.0



## Mean Light of the Polar Star - continued.

469	1.8	498	1.8	527	1.8	556	1.8	585	1.7	614	1.9
470	2.0	499	1.8	528	1.8	557	1.8	586	1.8	615	1.8
471	1.5	500	1.8	529	1.6	558	1.7	587	1.7	616	1.8
472	1.8	501	1.6	530	1.5	559	<del>2.0</del> 1.8	588	1.7	617	1.7
473	1.9	502	1.7	531	2.0	560	1.7	589	1.8	618	1.7
474	1.9	503	1.8	532	1.9	561	1.9	590	1.7	619	1.8
475	1.9	504	1.6	533	1.8	562	1.8	591	1.8	620	<del>1.8</del> 1.9
476	1.8	505	1.8	534	1.9	563	1.8	592	1.6	621	1.8
477	1.9	506	1.6	535	1.9	564	1.7	593	1.7	622	1.7
478	1.8	507	1.9	536	1.7	565	1.7	594	1.7	623	1.6
479	<del>1.7</del> 1.9	508	2.0	537	1.9	566	1.8	595	1.7	624	1.7
480	1.7	509	2.0	538	1.7	567	1.5	596	1.7	625	1.7
481	<del>1.8</del> 1.9	510	1.9	539	1.9	568	1.8	597	1.9	626	1.7
482	1.8	511	1.8	540	1.8	569	1.7	598	1.7	627	1.8
483	1.7	512	1.8	541	1.7	570	1.6	599	1.8	628	1.7
484	1.6	513	1.9	542	1.7	571	<del>1.7</del> 1.8	600	1.8	629	1.7
485	1.7	514	2.0	543	1.8	572	1.8	601	1.9	630	1.8
486	1.6	515	1.8	544	1.7	573	1.8	602	1.8	631	1.7
487	1.7	516	1.8	545	1.4	574	1.7	603	1.8	632	1.7
488	<del>1.8</del> 1.9	517	1.8	546	1.7	575	1.6	604	1.8	633	1.6
489	<del>1.7</del> 1.8	518	1.9	547	1.8	576	1.6	605	1.8	634	1.7
490	1.7	519	1.8	548	1.8	577	1.7	606	1.8	635	1.6
491	<del>1.7</del> 1.8	520	1.8	549	1.6	578	1.6	607	1.83	636	1.7
492	1.8	521	1.7	550	1.7	579	1.5	608	1.7	637	1.8
493	1.7	522	1.8	551	1.6	580	1.6	609	1.9	638	1.8
494	1.8	523	1.8	552	1.4	581	1.8	610	1.8	639	1.9
495	1.8	524	1.4	553	1.6	582	1.8	611	1.8	640	1.9
496	<del>1.7</del> 1.8	525	1.7	554	1.8	583	1.7	612	1.6	641	2.1
497	1.7	526	1.6	555	2.0	584	1.8	613	1.7	642	2.0



## Mean light of the Polar Star - continued.

643	1.9	673	1.9
644	2.0	674	1.9
645	2.0	675	1.8
646	2.0	676	1.7
647	2.0	677	1.8
648	2.0	678	1.8
649	1.9	679	1.9
650	1.8	680	1.8
651	2.1	681	2.0
652	2.0	682	1.9
653	1.8	683	2.0
654	2.1	684	2.0
655	1.9	685	1.8
656	1.8	686	1.8
657	1.8	687	1.9
658	2.0	688	1.7
659	2.0	689	1.8
660	2.0	690	1.7
661	1.9	691	1.6
662	2.0	692	1.7
663	2.0	693	1.7
664	1.9	694	1.7 <sup>assumed</sup>
665	1.8	695	1.7
666	1.9		
667	1.9		
668	1.6		
669	1.7		
670	1.8		
671	1.9		
672	2.1		

Comparisons to be made of the 'Copy of  
 Catalogue for Princeton' with other catalogues.  
 I. Compare with Stellaris Catalogue for all  
 stars south of <sup>in MSS catalogue</sup> equator. Also for all stars north  
 of equator in Stellaris.



II. Hamstead. Compare all Hamstead entries  
and note discrepancies. Underline <sup>in pencil</sup> in R.S.S. Catalogue  
all that are correct, insert in pencil all that are  
omitted when stars are given, and indicate in pencil  
all cases of discrepancies.

III. Uranometria Argentina. Catalogue of Standards.  
 Check by data the H. No. and B. letter. Underline with  
 pencil the D. No. & Magn. also the A. No. and H. No.  
 magn. Small & margin the Albany magn.

Feb. 13. Obj. 1 - 65, 1h.

Discontinuity found.

Proc	H.C.	U.C.					
277	62	3	in U.C. and corrected to U.C. corrected to 3.2 by <sup>angle</sup>				
672-3	142	for	D. No. 513, 514 read 613, 614.				
794	163	for	$\pi^3$ read $\pi^1(?)$ . 3.2 $\mu$ 23, 31 var? 2 223				1
800	167	"	$\pi^4$ " $\pi^3(?)$				
864	177	"	D. No. read 643				
902	181			5.9	5.8 Var.		2
916	184			5.2	5.3 { 5.4 7.2		3
966	189	"	879	"	779.35	3.5 var?	
1058	202		1064		964.		
1074	206	"	D. No. 40	"	4.6		
1118	215	"	D. No. 1173	"	1073		
1141	222	hand-	U.C. 6				
1250	241	"	" 6				
1259	242	"	D. No. 1496	"	1396		
1469	264	"	1898	"	1899		
1905	353	"	2558		2456		
2160	379	lett.				5.2 5.3	4
2335	429					7.1 7.0 var?	5
2379	436					6.5 6.6	6
2630	465					5.9 6.0 } 5.9 7.5	
2740	489					4.7 4.5	7
2796	499					3.8 3.9	8
2809	501	"	D. No. 3556		3566		
2897	525		3820, 6.0		3880, 5.5		
3701	671	U.C.	5 $\frac{1}{2}$		5 $\frac{1}{2}$		
3958	716					5.8 5.8 var?	



IV. D.M. and U.A.a. must be in magn columns  
of D.M. and U.A. when stars are not given which are  
contained within their limits.

b. Look up these stars and see if they have been  
omitted by mistake.

V. Compare all stars in UK and H. not underlined









When a star is double, separate lines can give  
to the components when ~~they~~ <sup>each</sup> was  
measured or when their brightness of each appeared  
to exceed <sup>or equal</sup> that of a single magnitude star.





# Magnitudes of the Corrected Values of first two years work Blue Stars (Upper culmination.)

Red figures denote values of the three years

1	6.1	21	6.0	41	4.24	42	61	5.1	81	5.6	
2	5.0	22	3.0	42	4.98	49	62	5.3	82	5.4	
3	5.1	23	5.1	43	4.20	42	63	5.5	83	5.7	
4	5.7	24	4.6	44	5.46	54	64	4.5	84	5.3	
5	5.9	25	4.3	45	4.98	50	65	5.0	85	3.2	
6	5.2	26	4.8	46	3.37	34	66	4.4	86	4.5	
7	5.8	27	4.0	47	4.26	43	67	4.4	87	4.8	
8	4.5	28	3.5	48	4.62	47	68	5.4	88	4.5	
9	5.0	29	4.8	49	5.82	59	69	5.8	89	4.9	
10	6.0	30	2.97	3.0	50	6.67	67	70	4.2	90	3.4
11	1.9	31	4.81	4.4	51	5.55	55	71	4.0	91	5.5
12	4.6	32	4.50	4.5	52	2.09	21	72	5.5	92	3.6
13	3.0	33	3.69	3.8	53	3.93	39	73	5.6	93	5.4
14	3.1	34	5.17	5.2	54	5.36	53	74	5.6	94	4.6
15	5.7	35	4.34	4.4	55	2.04	21	75	5.5	95	5.0
16	3.9	36	4.08	4.1	56	5.05	50	76	4.4	96	1.7
17	5.1	37	5.29	5.4	57	2.58	26	77	5.1	97	5.7
18	2.6	38	3.33	3.4	58	3.30	33	78	5.9	98	3.8
19	4.8	39	2.26	2.3	59	4.36	44	79	4.6	99	5.2
20	4.7	40	3.15	3.2	60		44	80	5.1	100	6.0

## Circumpolar Stars.

work without atmospheric absorption correction.

Red Stars (Lower culmination).

work without atmospheric absorption correction.

1	6.75	6.8	21	6.3	41	5.1	61	5.4	81	6.08	6.0	
2	5.27	5.3	22	3.5	42	5.3	62	6.2	82	5.68	5.6	
3	5.53	5.5	23	5.8	43	4.6	63	6.1	83	6.56	6.6	
4		6.4	24	4.9	44	6.0	64	5.2	84	5.69	5.6	
5	6.14	6.2	25	4.4	45	5.6	65	5.7	85	3.97	4.1	
6	5.85	5.9	26	5.2	46	4.0	66	4.8	86	5.29	5.3	
7		6.5	27	4.2	47	4.6	67	4.8	87	5.14	5.2	
8	4.98	5.0	28	3.7	48	5.4	68	6.1	88	5.15	5.2	
9		5.6	29	5.2	49	6.2	69	6.2	89	5.80	5.8	
10		6.5	30	3.4	50	7.2	70	4.8	90	4.06	4.1	
11		2.2	31	4.7	51	6.4	71	5.0	91	5.87	5.8	
12		5.1	32	4.8	52	3.3	72	5.8	92	4.35	4.4	
13		3.1	33	4.1	53	4.9	73	6.4	93	5.98	6.0	
14		4.0	34	5.6	54	5.8	74	6.2	94	5.47	5.5	
15		6.2	35	4.8	55	2.9	75	6.2	95	5.39	5.4	
16		4.6	36	4.5	56	5.7	76	5.0	96	2.28	2.2	
17		5.5	37	5.8	57	3.6	77	5.9	97	6.52	6.6	
18		3.1	38	3.9	58	4.0	78	6.4	98	4.11	4.2	
19		4.9	39	3.0	59	4.8	79	5.4	99	5.73	5.8	
20		5.3	40	3.5	60	5.0	80	6.04	6.1	100	6.71	6.7









