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α Cassiopeae

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B Peltier

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λ Tauri

	P	P Dec 3d	M D3d			
ε	9.586	.624	.584	.620	.140	.056
γ	.486	.494	.522	.564	.140	.056
ξ	.426	.554	.602	.490	.057	.947
o	9.402	.514	.632	.550	.038	.003
v	.382	.462	.580	.478	.871	.896
	2282	2648	2844	2702	4.240	4.958
	9.456	.530	.579	.540	.048	.991

	ε	γ	ξ	o	v
P	+130	+30	−30	−54	−74
Dec 3d	+94	−36	+24	−16	−68
M	+9	−57	+23	+53	−79
Dec 3d	+80	+24	−52	+10	−62
M	+92	+92	+3	−10	−177
Dec 20	+65	+65	−44	+12	−95

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+130	+094	+9	+80
+30	-36	-57	+24
-30	+24	+23	-50
-54	-16	+53	+10
-74	-68	-79	-62

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ε Andromedae

	M Dec 8th		M Dec 20th	
ε	9.522	.524	.579	.584
ζ	.486	.480	.355	.377
β	.402	.458	.434	.530
η	.364	.360	.475	.406
	1.774	1822	1843	1897
	.443	.455	.461	.474

ε	ζ	β	η
+79	+43	-41	-79
+79	+25	+3	-95
			+14
+118	-106	-27	~~+66~~
+110	-97	+66	-68

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α Orionis

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ζ Geminorum

M Dec. 20.t

δ	.504	.446	.076
ξ	.504	.488	.072
λ	.446	.426	.093
ν	.502	.502	.891
ϰ	.504	.487	.832

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α Hydrae

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α Hercules.

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β Lyrae

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η Aquilae

	P 1d	P 2d.		P 3d		P synth
δ	9.134 ~~9.068~~	.364	.194			.540
β	9.068	.270	.398	.100	.120	.104 .988
ε	9.016	.042	.112	.006	.092	.940
ι	8.992	.984	.880			.808
μ	8.836	.790	.874	.584	.950	.784
ν	8.778	.830	.736			.614

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δ Cephei

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β Pegasi

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Dec 31 1877

Ap.	Equ.	E – A
0.0	4.0	4.0
0.7	5.0	4.3
0.8	6.5	5.8
0.9	4.8	3.9
1.0		
1.1	4.6	3.5
1.2	5.0	3.8
1.3	6.0	4.7
1.4	5.0	3.6
1.5	6.5	5.0
1.6	6.6	5.0
1.7		
1.8	6.0	4.2
1.9	7.0	5.1
2.0	6.7	4.7
2.1		
2.2	7.5	5.3
2.3	7.5	5.2
2.4	7.0	4.6
2.5	7.0	4.5
2.6	7.8	5.2
2.7	7.8	5.1
3.0	8.0	5.0
3.5	8.0	4.5
4.5	7.5	3.0

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1890phae.proj.1848.

Dec 31 1877

0.0	7.4	7.4
0.0	7.6	7.6
0.6	7.7	7.1
0.7	7.6	6.8
0.8	8.0	7.2
0.9	8.1	7.2
1.0	80	7.0
1.1	7.9	6.8
1.2	7.0	5.8
1.3	8.5	7.2
1.4	8.3	6.9
1.5	8.5	7.0
1.6	8.6	7.0
1.7	8.3	6.6
1.8	8.7	6.9
1.9	8.6	6.7
2.0	8.8	6.8
2.1	8.7	6.6
2.2	8.7	6.5
2.3	8.7	6.4
2.4	8.9	6.5
2.5		
2.6	9.2	6.6
2.7	9.1	6.4
2.8	8.8	6.0
2.9	9.0	6.1
4.0	9.5	5.5
4.5	9.7	5.2
5.0	hair	

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Dec 3d 1877 φ60 Ursae Maj. 3h 8m 69°13'

0.0	7.0	7.0
0.0	7.2	7.2
.6	7.8	7.2
7	7.7	7.0
8	8.1	7.3
9	8.0	7.1
10	8.4	7.4
11	7.7	6.6
12	8.5	7.3
13	8.4	7.1
14	8.3	6.9
15	8.8	7.3
16	8.6	7.0
17	8.7	7.0
18	8.7	6.9
19	8.8	6.9
20	8.7	6.7
21	8.9	6.8
22	8.7	6.5
23	9.0	6.7
24	9.1	6.7
26	9.2	6.6
27	9.2	6.5
28	9.6	6.8
29	9.3	6.4
4.0	9.8	5.8
4.5	Cloud	
5.0	"	

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1890phae.proj.1848.

Feb 7th 1878. D.h. 80°.544 6.2 m.

Ap.	Est.	E - A
0.0	6.0	6.0
.	6.6	6.6
.	6.2	6.2
1	6.3	6.2
2	6.4	6.2
3	6.5	6.2
4	6.6	6.2
5	6.6	6.1
6	6.0	5.4
7	6.7	6.0
8	6.5	5.8
9	6.5	5.6
1.0	6.9	5.9
1.1	6.7	5.6
1.2	6.9	5.7
1.3	7.0	5.7
1.4	7.5	6.1
1.5	7.9	6.4
1.6	7.6	6.0
1.7	7.7	6.0
1.8	7.9	6.1
1.9	8.1	6.2
2.0	7.6	5.6
2.1	8.2	6.1

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1890phae.proj.1848.

2.2	8.0	5.8
2.3	8.5	6.2
2.4	8.7	6.3
2.5	8.7	6.2
2.6	8.6	6.0
2.7	8.8	6.1
2.8	9.0	6.2
2.9	8.9	6.0
3.0	=	
3.5	–	
6.0	9.2	5.2
6.5	9.6	5.1
5.0	not seen	

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Feb 19d 1878. 2 Ursae Minoris 6.5

Ap.	Est.	Σ − G
0.0	6.7	6.4
0.0	6.9	6.9
0.0	6.8	6.8
0.1	7.0	6.9
.2	7.0	6.8
.3	6.8	6.5
.4	7.0	6.6
.5	6.9	6.4
.6	7.0	6.4
.7	7.3	6.6
.8	6.9	6.1
.9	7.1	6.2
1.0	7.4	6.4
1.1	7.6	6.5
1.2	7.4	6.5
1.3	8.2	6.9
1.4	7.5	6.1
1.5	7.3	6.5
1.6	8.1	6.5
1.7	8.6	6.9
1.8	8.0	6.2
1.9	8.1	6.2
2.0	7.4	6.9
2.1	7.8	6.4

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2.2	8.4	6.5
2.3	8.6	6.3
2.4	8.8	6.4
2.5	8.4	6.2
2.6	8.8	6.2
2.7	8.9	6.2
2.8	9.1	6.3
2.9	9.0	6.1
3.0	8.8	5.8
3.5	9.0	5.5
4.0	9.4	5.4
4.5	9.6	5.1
5.0	invis.	?

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Oct. 26d 1878 λ Ursae Minoris

Ap.	Est.	E-A.
0.0	6.4	6.4
0.0	6.9	6.4
0.0	6.4	6.4
0.1	6.8	6.4
.2	7.1	6.9
.3	6.9	6.6
.4	7.0	6.6
.5	7.2	6.7
.6	6.9	6.3
.7	6.9	6.2
.8	7.2	6.4
.9	7.3	6.4
1.0	7.1	6.1
1.1	7.7	6.6
1.2	7.6	6.4
1.3	8.2	6.9
1.4	7.0	5.6
1.5	8.4	7.2
1.6	8.6	7.0
1.7	7.5	5.8
1.8	7.9	6.1
1.9	8.4	6.5
2.0	8.1	6.1
2.1	8.8	6.4

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2.2	8.6	6.4
2.3	8.7	6.4
2.4	8.6	6.2
2.5	8.8	6.3
2.6	9.0	6.4
2.7	8.9	6.2
2.8	8.9	6.1
2.9	8.9	6.0
3.0	8.9	5.9
3.5	9.1	5.6
4.0	9.5	5.5
4.5	invis	?
5.0	"	"

For Magnitudes less than 8.7 stars very good, for fainter stars very poor

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Feb. 26, 1878. λ Ursae Minoris

Ap	Est	E−A
0.0	6.5	6.5
0.0	6.8	6.8
0.0	6.5	6.5
0.1	6.4	6.6
0.2	6.4	6.5
0.3	6.8	6.5
0.4	6.6	6.2
0.5	7.0	6.5
0.6	7.2	6.6
0.7	7.1	6.4
0.8	6.9	6.1
0.9	7.6	6.7
1.0	7.0	6.0
1.1	7.8	6.7
1.2	7.6	6.4
1.3	8.0	6.7
1.4	7.5	6.1
1.5	8.3	6.8
1.6	8.2	6.6
1.7	8.4	6.7
1.8	8.3	6.5
1.9	7.7	5.8
2.0	7.9	5.9
2.1	8.6	6.5

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2.2	8.6	6.4
2.3	8.6	6.3
2.4	8.6	6.2
2.5	8.7	6.2
2.6	8.8	6.2
2.7	8.9	6.2
2.8	9.0	6.2
2.9	8.8	5.9
3.0	8.9	5.9
3.5	9.1	5.6
4.0	9.2	5.2
4.5	9.6	5.1
5.0	Invis	

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1890phae.proj.1848.

Feb. 27, 1878. λ Ursae Minoris

Ap.	Est	E-A	Ap.	Est	E-A
0.0	6.7	6.7	2.2	8.4	6.2
0.0	6.7	6.7	2.3	8.8	6.5
0.0	6.9	6.9	2.4	8.7	6.3
0.1	7.1	7.0	2.5	8.6	6.1
0.2	6.9	6.7	2.6	8.7	6.1
0.3	6.8	6.5	2.7	8.5	5.8
0.4	6.9	6.5	2.8	8.9	6.1
0.5	6.9	6.4	2.9	8.9	6.0
0.6	6.9	6.3	3.0	8.8	5.8
0.7	7.0	6.3	3.5	8.9	5.4
0.8	7.0	6.2	4.0	9.3	5.3
0.9	7.2	6.3	4.5	Cirrus	
1.0	8.1	7.1	5.0	"	
1.1	7.6	6.5			
1.2	8.4	7.2			
1.3	8.2	6.9			
1.4	7.6	6.2			
1.5	8.0	6.5			
1.6	7.9	6.3			
1.7	8.1	6.4			
1.8	8.3	6.5			
1.9	8.3	6.4			
2.0	8.4	6.4			
2.1	8.5	6.4			

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57 Cephei

Day	16th Est.	19th Est.	~~11th~~ ~~19th~~
0.0	5.7	5.7	5.7
"	5.9	6.2	5.9
"	5.7	5.8	5.7
"	6.1	6.0	6.1
"	5.9	5.7	5.9
1	5.9	6.0	5.9
2	6.0	5.9	6.0
3	6.0	6.5	
4	6.7	5.8	
5	6.1	6.3	
6	6.1	6.2	
7	6.7	6.1	
8	6.4	5.9	
9	6.2	7.2	
10	7.2	6.9	
11	7.5	6.9	
12	6.9	7.4	
13	7.0	7.3	
14	7.6	7.0	
15	7.0	7.4	
16	7.6	7.2	
17	7.8	7.5	
18	8.0	7.9	
19	7.9	6.9	
20	8.1	6.9	

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1890phae.proj.1848.

5.8
5.8
5.7
6.3
5.6
5.5
6.0
5.6
5.3
6.2
6.4
5.7
5.7
6.2
5.5
6.0
6.1
6.2
6.0
6.1

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1890phae.proj.1848.

	16d	19d
21	8.7	7.8
22	8.6	7.8
23	8.5	8.2
24	8.0	7.5
25	8.4	7.3
26	8.5	8.2
27	8.6	8.4
28	8.8	8.5
29	8.9	8.6
30	8.7	7.8
35	8.9	8.4
40	9.0	8.8
45	9.3	9.3
50	invis	9.6

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6.6
6.4
6.2
5.6
5.9
5.9
5.9
6.0
6.0
5.7
5.4
5.0
4.8

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1890phae.proj.1848.

51 Cephei reduced by Pickering.

0.0	7.0	6.4
"	6.5	6.7
"	6.8	6.5
"	6.8	6.9
"	6.9	7.0
1	6.8	7.2
2	6.7	6.9
3	6.7	6.8
4	6.9	7.0
5	6.7	7.0
6	7.0	6.7
7	6.9	7.0
8	7.5	7.0
9	7.1	7.2
10	7.6	7.8
11	8.3	7.2
12	8.0	6.9
13	7.6	7.5
14	8.0	
15	8.0	8.4
16	8.1	8.2
17	7.6	8.5
18	7.9	8.2
19	8.5	
20	8.3	

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6.7
6.5
6.4
6.5
6.2
6.4
6.2
6.7
6.2
6.6
7.2
6.8
6.3
6.6
6.5
6.5
6.9
6.1
6.6
6.3

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21	8.4	8.4
22	8.7	8.3
23	8.7	8.6
24	8.6	
25	8.7	8.5
26	8.9	8.8
27	8.8	8.6
28	8.6	invis
29	8.6	8.9
30	9.0	9.0
35	9.4	9.2
40	9.4	9.5
45	9.5	invis
50	9.6	~~9.9~~

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6.3
6.5
6.4
6.2
6.2
6.3
6.1
5.8
5.7
6.0
5.9
5.4
5.0
4.6

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λ Ursae Minoris

	Feb 19th	24th	26th	27th	Mar 19th
	any of the following nos may be erroneous (See 8.90.)				
00	6.7	6.7	6.5	6.4	6.8
"	6.9	6.9	6.8	6.4	6.9
"	6.8	6.7	6.5	6.9	
"					
"					
1	7.0	6.8	6.4	7.1	
2	7.0	7.1	6.7	6.9	
3	6.8	6.9	6.8	6.8	
4	7.0	7.0	6.6	6.9	
5	6.9	7.2	7.0	6.9	
6	7.0	6.9	7.2	6.9	
7	7.2	6.9	7.1	7.0	
8	6.9	7.2	6.9	7.0	
9	7.1	7.3	7.4	7.2	
10	7.7	7.1	7.0	7.1	
11	7.4	7.7	7.8	6.5	
12	7.7	7.4	7.6	7.2	
13	8.2	8.2	6.7	6.9	
14	7.5	7.0	6.1	6.2	
15	7.3	8.7	6.8	6.5	
16	8.1	8.6	6.6	6.3	
17	8.6	7.5	6.7	6.4	
18	8.0	7.9	6.5	6.5	
19	8.1	8.4	5.8	6.4	
20	7.9	8.1	5.9	6.4	

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λ Ursae Minoris

0.0	6.7	6.7
"	6.9	6.9
"	6.8	6.7
01	7.0	6.8
02	7.0	7.1
03	6.8	6.9
4 4	7.0	
5 5	6.9	
6 6	7.0	
7 7	6.9	
8 8	7.0	
9 9	7.3	
10 10	6.9	
11 11	7.1	
12 12	7.7	
13 13	7.6	
14 14	7.7	
15 15	8.2	
16 16	7.5	
17 17	7.9	
18 18	8.1	
19 19	8.6	
20 20	8.0	
21 21	8.1	
22 22	7.9	
23		
24		
25		

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λ Ursae Minoris

Ap.
—
0.0
"
"
"
"
01
2
3
4
1

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Constant of Illum. Micrometer.

					Eyepiece 1 δ 8.4 – A	Eyepiece 2 7.6 – A
138.	Jan. 7th	6.5	δ	9.043	9.357	3.261
139	"	6.6	λ	8.339	~~4.661~~	3.241
145	"	6.8	"	8.359	~~4.041~~	
146	"	6.9	δ	9.117	3.283	
147	"	8.4	"	9.143	3.257	
148	"	8.5	λ	8.417	3.183	
169	"	9.0	"	8.208	3.392	
170	"	9.0	δ	9.030	3.370	
171	"	9.4	λ	8.184	3.416	
172	"	9.4	δ	9.056	3.344	
184	"	9.7	"	9.187	3.213	
185	"	9.7	λ	8.369	3.231	
186	"	19th 7.4	δ	9.393	3.007	
187	"	7.5	λ	8.561	3.039	
188	"	7.7	"	8.521	3.079	
199	"	9.3	δ	9.191	3.209	
200	"	9.4	λ	8.496	3.104	
203	"	10.0	"	8.496	3.104	
204	"	10.1	δ	9.047	3.353	R
205	"	10.3	λ	9.451	2.149	"
206	"	24th 8.7	"	8.848	2.752	Unsatisfactory setting.
207	"	8.9	"	8.773	2.827	
208	"	9.1	δ	9.504	2.896	
220	"	10.9	λ	8.505	3.095	
221	"	11.0	δ	9.225	3.175	
~~239~~	"	~~26th 8.9~~	~~λ~~	~~9.a~~		

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239	Feb. 2nd	8.0	λ	8.956	2.644	
240	" "	8.1	δ	9.643	2.757	?
241	" "	8.2	"	9.588	2.812	
253	" "	9.8	λ	8.985	2.715	
254	" "	10.0	δ	9.444	2.956	
257	" "	11.6	λ	9.097	2.603	
258	" "	11.7	δ	9.682	2.718	
269	" 4th	7.6	λ	8.621	2.979	
270	" "	7.8	δ	9.187	3.213	
276	" "	8.5	λ	8.329	3.271	
282	" "	9.2	δ	9.068	3.332	
288	" "	9.9	λ	8.561	3.039	
290	" "	10.3	"	8.417	3.183	?
24 291	Jan. 26th	8.9	"	7.931	3.669	
25 292	" "	9.0	δ	8.875	3.525	
226	" "	9.0	"	8.711	3.689	
227	" "	9.0	λ	7.994	3.606	
233	" "	9.4	λ	7.827	3.773	
234	" "	9.5	δ	8.785	3.615	
235	" "	9.5	"	8.803	3.597	
236	" "	9.6	λ	8.254	3.346	
291	Feb. 6th	9.2	"	8.329	3.271	
292	" "	9.3	δ	8.951	3.449	
298	" "	9.9	λ	8.529	3.071	
304	" "	10.8	δ	9.323	3.077	R

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I

λ Ursae Minoris*

Ap.	1878, Feb. 19th	24th	26th	27th	1879, Mar. 19th
0.0	6.7	6.7	6.5	6.7	6.8
"	6.9	6.9	6.8	6.7	6.9
"	6.8	6.7	6.5	6.9	7.8
"					7.0
"					6.9
0.1	7.0	6.8	6.7	7.1	7.9
2	7.0	7.1	6.7	6.9	7.7
3	6.8	6.9	6.8	6.8	7.3
4	7.0	7.0	6.6	6.9	7.5
5	6.9	7.2	7.0	6.9	7.4
6	7.0	6.9	7.2	6.9	7.4
7	7.3	6.9	7.1	7.0	8.0
8	6.9	7.2	6.9	7.0	7.8
9	7.1	7.3	7.6	7.2	7.6
10	7.7	7.1	7.0	8.1	8.2
11	7.6	7.7	7.8	7.6	8.0
12	7.7	7.6	7.6	8.4	7.8
13	8.2	8.2	8.0	8.2	8.2
14	7.5	7.0	7.5	7.6	7.7
15	7.3	8.7	8.3	8.0	8.4
16	8.1	8.6	8.2	7.9	8.6
17	8.6	7.5	8.4	8.1	7.9
18	8.0	7.9	8.3	8.3	8.0
19	8.1	8.4	7.7	8.3	7.9
20	7.9	8.1	7.9	8.4	8.0

* without prism.

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1890phae.proj.1848.

$\Sigma - a$	$\frac{\Sigma - a}{n}$	$\Sigma - b$
$\Sigma - a$	$\frac{\Sigma - a}{n}$	
6.8	.2	2
6.8	.3	3
6.6	.4	.6
6.8	.3	.3
7.1	1.4	1.4
	26	28
46.8	Σ .15	Σ .16

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	Feb. 19th	24th	26th	27th	Mar. 19
21	8.8	8.8	8.6	8.5	8.4
22	8.7	8.6	8.6	8.4	8.5
23	8.6	8.7	8.6	8.8	8.4
24	8.8	8.6	8.6	8.4	8.3
25	8.4	8.8	8.7	8.6	8.5
26	8.8	9.0	8.8	8.7	8.6
27	8.9	8.9	8.9	8.5	8.9
28	9.1	8.9	9.0	8.9	8.9
29	9.0	8.9	8.8	8.9	8.8
30	8.8	8.9	8.9	8.8	8.8
35	9.0	9.1	9.1	8.9	9.0
40	9.4	9.5	9.2	9.3	9.0
45	9.6	inis	9.6	inis	9.4
50	inis	"	inis	"	inis

1 Ursae Minoris

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II

51 H. Cephei. ×

Aft	March 16th.	19th.	21st.
			6.8
0.0	5.7	5.7	6.9
"	5.9	6.2	6.7
"	5.7	5.8	6.9
"	6.1	6.0	6.6
"	5.9	5.7	
0.1	5.9	6.0	6.7
2	6.0	5.9	6.8
3	6.0	6.5	7.0
4	6.7	5.8	7.2
5	6.1	6.3	6.9
6	6.1	6.2	7.5
7	6.7	6.1	6.9
8	6.4	5.9	7.5
9	6.2	7.2	7.4
10	7.2	6.9	7.6
11	7.5	6.9	7.3
12	6.9	7.4	7.4
13	7.0	7.3	7.6
14	7.6	7.0	7.5
15	7.0	7.4	8.4
16	7.6	7.2	8.2
17	7.8	7.5	7.7
18	8.0	7.9	7.7
19	7.9	6.9	7.4
20	8.1	6.9	7.9

× without prism.

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5.9	.6	1.4
5.9	.9	1.6
6.8	.5	2.9
	20	59
6.2	.13	.39

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51 M. Cephei

Mp.	Mch. 16th.	19th.	21st
21	8.7	7.8	8.6
22	8.6	7.8	8.4
23	8.5	8.2	7.9
24	8.0	7.5	7.8
25	8.4	7.3	8.0
26	8.5	8.2	8.8
27	8.6	8.4	8.5
28	8.8	8.5	9.1
29	8.9	8.6	8.9
30	8.7	7.8	8.3
35	8.9	8.4	8.5
40	9.0	8.8	9.4
45	9.3	9.3	9.3
50	Twis	9.6	9.6

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III

51 H. Cephei
(with prism)

Ap.	Mar. 16th	19th	21st
0.0	7.0	6.4	7.1
0.0	6.5	6.7	8.0
"	6.8	6.5	7.0
"	6.8	6.9	7.1
"	6.9		
0.1	6.8	7.2	8.3
2	6.7	6.9	7.2
3	6.7	6.8	7.6
4	6.9	7.0	7.2
5	6.7	7.0	7.7
6	7.0	6.7	7.2
7	6.9	7.0	7.5
8	7.5	7.0	7.3
9	7.1	7.2	7.4
10	7.6	7.8	7.7
11	8.3	7.2	7.9
12	8.0	6.9	8.4
13	7.6	7.5	8.0
14	8.0		9.0
15	8.0	8.4	7.9
16	8.1	8.2	8.1
17	7.6	8.5	7.7
18	7.9	8.2	7.5
19	8.5		9.1
20	8.3		8.9

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6.8	.6	.7
6.6	.7	1.1
7.3	1.4	1.6
	2.7	3.4
6.9	.21	.26

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M.	March 16th	19th	21st
21	8.4	8.4	9.2
22	8.7	8.3	8.4
23	8.7	8.6	8.8
24	8.6		9.6
25	8.7	8.5	8.9
26	8.9	8.8	8.6
27	8.8	8.6	8.9
28	8.6	(clouds)	9.0
29	8.6	8.9	9.0
30	9.0	9.0	9.0
35	9.4	9.2	9.3
40	9.4	9.5	9.6
45	9.5	(clouds)	thin s. (cirrus)
50	9.6	"	"

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IV

λ Ursae Minoris
(without prism)

Apr.	Mch.20?	Mch.26	Mch.30	Mch.31.	Apr.2
0.0	6.5	6.9	6.4	6.8	6.4
0.0	6.5	6.9	6.5	6.7	6.4
"	6.5	6.9	6.6	7.0	6.5
"	7.0	6.9	6.4	6.9	6.4
"	6.6	6.9	6.7	6.9	6.3
0.1	6.3	6.8	7.0	6.8	6.6
2	6.5	7.0	7.0	6.9	7.5
3	6.4	7.0	7.9	7.3	7.0
4	6.6	7.4	6.7	7.3	6.8
5	6.6	7.0	6.9	7.6	8.0
6	6.6	7.5	7.4	7.7	6.7
7	7.4	7.3	7.5	7.0	7.2
8	7.4	7.6	7.0	7.5	7.0
9	6.8	7.4	7.6	7.4	6.9
10	7.6	7.4	7.7	7.5	8.0
11	7.7	7.9	7.8	7.8	8.0
12	6.7	7.8	7.3	8.0	8.4
13	7.2	7.6	8.4	8.0	8.3
14	7.0	7.8	7.3	8.3	7.6
15	7.5	8.2	8.2	8.6	8.0
16	7.6	8.0	8.5	8.4	8.4
17	7.9	8.0	7.8	8.1	8.5
18	7.1	8.4	8.0	8.4	8.6
19	7.6	8.4	8.4	8.6	8.9
20	~~8.8~~ (omitted) 7.2	8.4	8.4	8.5	8.7

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II

S. Ph.

6.8	6.8	1.3	1.0
6.8	6.9	.0	1.0
6.6	6.5	.5	.8
6.8	6.9	.4	.8
7.1	6.4	.2	1.5
		2.4	5.1
6.7	6.7	.10	.20

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Apr.	Mch 20?	Mch 26	Mch 29	Mch 31	Apr. 2
21	7.8	8.9	8.9	8.6	8.8
22	8.6	8.3	9.0	8.5	8.4
23	8.0	8.5	8.8	8.4	9.0
24	8.4	8.3	8.8	8.8	9.1
25	8.4 (+)	8.6	8.4	8.6	9.2
26	8.2	8.9	9.2	8.9	8.8
27	8.4	8.4	9.1	8.8	8.9
28	8.7	9.1	9.0	9.0	9.0
29	8.6	9.2	9.0	9.2	9.4
30	8.6	8.9	8.9	9.0	8.8
35	9.2	9.1	9.4	9.2	9.0
40	9.4	9.5	9.4	9.4	9.5
45	9.4			9.4	
50	~~9.4~~				

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V

λ Ursae Minoris

(erste Spitze)

Aph.	Mech. 20?	Mech. 26	Mech. 30	Mech. 31	Aph. 2
0.0	7.0	7.3	7.2	7.2	7.4
"	7.7	7.2	7.2	7.4	7.2
"	7.5	7.2	7.5	7.5	7.3
"	7.4	7.7	7.2	7.4	7.3
"		7.4	7.4	7.3	7.6
0.1	7.0	7.0	7.3	7.4	7.5
2	7.4	7.4	7.3	7.5	7.7
3	8.2	7.4	7.7	7.3	7.9
4	7.2	7.7	8.0	7.4	8.0
5	7.8	8.6	7.4	8.0	8.0
6	7.8	8.7	8.0	7.6	8.0
7	7.6	7.6	7.6	7.7	8.0
8	7.7	8.5	8.4	7.8	8.7
9	8.0	9.4	8.2	7.7	8.4
10	8.3	8.0	8.9	8.0	8.5
11	8.0	8.3	8.9	8.4	7.7
12	8.2	9.0	8.3	8.2	7.9
13	8.1	8.4	8.7	8.4	8.0
14	8.5	8.8	8.4	8.6	8.0
15	8.3	8.4	8.8	8.6	9.0
16	8.0	8.5	8.9	8.9	8.9
17	8.2	9.5	9.6	8.8	8.8
18	8.4	9.3	8.9	9.0	8.7
19	8.8	9.0	8.9	8.9	9.0
20	8.8	8.9	9.1	8.9	8.8

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7.4	.8	.8
7.4	.8	.8
7.3	.7	.7
7.4	.4	.4
7.4	.6	.6
7.4	.13	.14

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Apr.	Mch. 20?	Mch. 26	Mch. 30	Mch. 31	Apr. 2
21	~~9.8~~	9.3	8.5	8.9	9.3
22	8.6	9.0	9.0	9.4	9.1
23	~~8.0~~ 9.2	9.0	9.1	9.0	8.9
24	~~8.4~~ 9.1	9.4	9.0	9.1	9.2
25	9.0	9.2	9.6	9.2	8.9
26	8.5	9.2	9.4	9.4	9.3
27	9.0	9.0	9.5	9.3	9.2
28	9.0	9.1	9.5	9.2	9.5
29	9.4	9.3		9.6	9.5
30	9.3	9.5	9.1	9.5	9.6
35	9.5			9.8	9.7
40			9.5		0
45	9.7				0
50					0

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Sil-1

1 1st Set 5.

	No.	Mean.	C-O
6.5	2	0.00	.00
6.6	1	.40	+30
6.7	7	.04	-.16
6.8	7	.14	-.16
6.9	15	.36	- 4
7.0	11	.56	+6
7.1	6	.57	- 03
7.2	4	.70	0
7.3	4	.85	+5
7.4	1	.60	-30
7.5	4	1.22	+22
7.6	7	1.14	+ 4
7.7	6	1.13	- 7
7.8	5	1.04	- 26
7.9	7	1.59	+19
8.0	7	1.46	- 4
8.1	5	1.64	+4
8.2	5	1.36	- 34
8.3	6	1.73	- 7
8.4	7	1.83	- 7
8.5	4	237	+37
8.6	12	2.16	+ 6
8.7	8	2.26	+6
8.8	11	2.66	+36
8.9	12	2.87	+47
9.0	6	3.22	+72

~~2 2nd Set 5.~~

~~No. Mean C-O~~

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9.1	6	3.27	+ 67
9.2	1	4.00	+ 1.30
9.3	1	4.0	+ 1.20
9.4	1	4.0	+ 1.40
9.5	1	4.0	+ 1.00
9.6	2	4.5	1.40
9.7	1	4.5	1.30

6.6	+.05
7.0	−.03 −.01
7.5	−.04
8.0	−.08
8.5	+.07
9.0	+.70
9.5	1.20

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6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9
					0.0	0.4	0.0	0.0	0.0
					0.0		0.0	0.1	0.0
							0.0	0.3	0.3
							0.1	0.0	0.5
							0.2	0.3	0.6
							0.0	0.3	0.7
							0.0	0.0	0.8
									0.8
									0.0
									0.2
									0.4
									0.5
									0.6
									0.0
									0.0
					0.0	0.4	.3	1.0	5.4
Table					2	1	7	7	15
>					.00	0.40	.04	.14	.36
					.0	0.0	.3	.9	4.0
Table					.00	.00	.04	.13	.27

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7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9
0.1	0.9	0.5	0.7		1.4	1.1	1.0	2.1	2.0
0.2	0.2	0.8	1.5	0.6	1.7	1.2	1.2	1.1	1.8
0.4	1.0	0.6	0.9		1.4	0.9	1.1	1.2	2.0
0.6	0.7	0.9	0.3		0.4	1.2	1.9	0.0?	1.6
0.4	0.1					1.1	1.4	0.8	1.9
1.4	0.5					1.4	0.2?		1.7
0.5						0.9			0.1?
1.0									
0.7									
0.8									
0.0									

6.1	3.4	2.8	3.4	0.6	4.9	7.8	6.8	5.2	11.1
11		6 4	4	1	4	7	6	5	7
.56	.57	.70	.85	.60	1.22	1.14	1.13	1.04	1.59
3.5	1.8	.6	1.4	.0	1.7	.9	2.2	2.6	2.9
.32	.30	.15	.35	.00	.42	.13	.37	.52	.41

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9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7
2.9	2.8			4.0		4.5	
3.5	3.5				~~9.5~~		
2.6					4.0		
2.8	3.5	4.0	4.0			4.5	
3.5							4.5
4.0							
19 3	9.8	4.0	4.0	4.0	4.0	9.0	
6	3	1	1	1	1	2	1
3.2 7	3.27	4.0	4.0	4.0	4.0	4.5	4.5
27	.9	.0	.0	.0	.0	.0	.0
.45	.30	.00	.00	.00	.00	.00	.00

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	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9
19th	1.8	1.6	1.3				1.7	2.2	2.4	2.7
		1.9					2.3	2.5	2.6	
									30	
Feb 24th		2.0	1.3		1.9		1.6	1.5	2.1	2.7
							2.2	2.3	2.5	2.8
							2.4			2.9
										3.0
26th	1.3		1.6	1.5	1.7		2.1	2.5	2.6	2.7
				1.8			2.2		2.9	3.0
							2.3			
							2.4			
27th	1.5	1.0	1.3	1.8	1.2	2.1	2.5	2.4	2.3	2.8
		1.7		1.9	2.0	2.7		2.6	3.0	2.9
					2.2					3.5
Mar. 1st	2.0		1.3	2.4	2.3	2.2	1.6	2.1	2.9	2.8
	1.8			1.0	1.5	2.5	2.6		3.0	2.7
	.7									
	1.1									
	10.2	8.2	6.8	10.4	12.8	9.5	25.9	18.1	29.3	34.5
	7	5	5	6	7	4	12	8	11	12
	1.46	1.64	1.36	1.73	1.83	2.37	2.16	2.26	2.66	2.87
	2.5	1.4	.6	2.0	2.2	.9	3.1	1.9	3.0	1.9
	.36	.28	.12	.33	.31	.22	.26	.24	.27	.16

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II

51 Cephei without film

5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5	6.6
0.0		0.0	0.2	0.0	0.9		0.8		
0.0		0.0	0.3	0.5					
		0.1		0.6					
0.0	0.0	0.2	0.0	0.7	0.0	0.5		03	
0.0	0.4	0.8	0.1		0.6				

0.0

	0.0	0.4	1.1	0.6	1.8	1.5	0.5	0.8	0.3	0.0
Tbk	4	2	5	4	4	3	1	1	1	1
	0.00	0.20	0.22	0.15	0.45	0.50	0.50	0.80	0.30	0.00
	0	.4	1.1	.4	1.0	1.0	0.0	0	0	0
Tabk	.00	.20	.22	.10	.25	.33	.00	.00	.00	.00

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6.7	6.8	6.9	7.0	7.1	7.3	7.3	7.4	7.5	7.6	7.7	7.8
0.4		1.2	1.3		1.0			1.1	1.4		1.7
0.7			1.5						0.6		
		1.0	1.4		0.9	1.3	1.2	1.7			2.1
		1.1			1.6	2.5	1.5	2.4			2.2
		1.9									3.0
		2.0									
0.0	0.0	0.0	0.3		0.4	1.1	0.9	0.6	1.0	1.7	2.4
0.1	0.2	0.0					1.2	0.8	1.3	1.8	
		0.5					1.9	1.4			
		0.7									

1.2	0.2	8.4	4.5	...	3.9	4.9	6.7	8.0	5.3	3.5	9.0
4	2	9	4	0.	4	3	5	6	4	2	4
0.30	0.10	0.93	1.12	...	0.97	1.63	1.34	1.33	1.32	1.45	2.25
.10	.2	4.50	1.7		1.3	1.7	1.4	3.0	.7	.1	.9
.25	.10	.56	.42		.33	.57	.28	.50	.17	.05	.22

8.4

9

0.93

5.1

4.6

5.7

1.14

5

2.28

17

.34

1890phae.proj.1848.

7.9	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7
1.9	1.8	2.0			2.5	2.3	2.2	2.1
	2.4					2.6	2.7	3.0
1.8			2.3		2.7	2.8	2.9	
			2.6		3.5			
2.0	2.5		1.6	3.0	2.2	2.7	2.1	
2.3					1.5 +	3.5		
8.0	6.7	2.0	4.9	3.0	10.9	13.9	9.9	5.1
4	3	1	2	1	4	5	4	2
2.00	2.23	2.00	2.45	3.00	2.72	2.78	2.47	2.52
.6	.9	0	.3	.0	.15	.15	.3	.9
.15	.30	.00	.15	.00	.37	.30	.32	.45

65	12.4
3	5
2.17	2.48
11	2.5
.37	.50

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8.8	8.9	9.0	9.1	9.2	9.3	9.4	9.5	9.6
2.8	2.9	4.0			4.5			
	3.5							
4.0					4.5			5.0
2.6	2.9		7.8		4.5	4.0		5.0
9.4	9.3	4.0	2.8	....	13.5	4.0	....	10.0
3	3	1	1	0	3	1	0	2
3.13	3.10	4.00	2.80	....	4.50	4.00	....	5.00
17	.8	0	0		0	0		0
.57	.27	.00	.00		.00	.00		.00

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1890phae.proj.1848.

16

51 Cephei (with prisms)

	6.4	6.5	6.6	6.7	6.8	6.9	7.0	7.1	7.2	7.3
	0.0	0.0		0.0	0.0	0.0	0.0	0.9	0.1	0.8
		0.0		0.2	0.0	0.0	0.0	0.0	0.9	
				0.3	0.1	0.2	0.4	0.0	1.1	
				0.5	0.3	0.4	0.5		0.2	
				0.6		0.7	0.6		0.4	
						1.2	0.7		0.6	
							0.8			
	0.0	0.0	....	1.6	0.4	2.5	3.0	0.9	3.3	0.8
	1	2	0	5	4	6	7	3	6	1
	0.00	0.00	....	0.32	0.10	0.42	0.43	0.30	0.55	0.80
±87	.87	.87		1.19	.97	1.29	1.30	1.17	1.42	1.67
	.0	.0	—	.9	.4	2.1	1.8	1.2	1.9	.00
	.00	.00	—	.18	.10	.35	.26	.40	.32	.00

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7.4	7.5	7.6	7.7	7.8	7.9	8.0	8.1	8.2	8.3
0.9	0.8	1.0	0.5	1.0	1.8	1.2	1.6	1.6	1.1
	1.3	1.3	1.0		1.1	1.4	1.6	1.8	2.0
	0.4	1.7	1.7		1.5	1.5			2.2
	1.8	0.3				0.0			0.1
						1.3			

0.9	4.6	4.3	3.2	1.0	4.4	5.4	3.7	3.4	5.4
1	4	4	3	1	3	5	2	2	4
0.90	1.15	1.04	1.04	1.00	1.34	1.08	1.60	1.70	1.35
1.77	2.02	1.94	1.94	1.87	2.34	1.95	2.47	2.57	2.22
.00	1.6	1.7	1.3	0.0	.7	2.1	0.0	.2	2.0
.00	.40	.42	.43	.00	.23	.42	.00	.10	.50

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8.4	8.5	8.6	8.7	8.8	8.9	9.0	9.1	9.2	9.3
2.1	1.9	2.4	2.2	2.4	2.6	3.9 4.4	1.9	3.5	3.5
1.5	1.4	2.8	2.3	2.6	2.9	3.0		2.1	
2.1	2.5	2.9	2.5	2.3	2.0	1.4			
2.2		2.3	1.2		2.5	2.8			
		2.4			2.4	2.9			
		2.6				3.0			
7.9	6.1	15.4	8.2	7.6	12.4	16.1	1.9	5.6	3.5
4	3	6	4	3	5	6	1	2	1
1.97	2.03	2.62	2.05	2.53	2.54	2.68	1.90	2.80	3.50
284	290	349	292	340	341	3.55	277	3.67	4.37
.9	.9	1.1	1.6	.5	1.2	2.5	.0	1.4	.0
.22	.30	.18	.40	.17	.24	.37 .42	.00	.70	.00

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9.4	9.5	9.6
3.5	4.5	5.0
4.0	4.0	2.4
		4.0

7.5	8.5	11.4
2	2	3
3.75	4.25	3.80
4.62	5.12	4.67
.5	.5	2.8
.25	.25	.93

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IV

λ Ursae Minoris

(without prism)

6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0	7.1	7.2	7.3
0.0	0.3	0.0	0.0	1.2	0.9	0.0	0.0	1.8	1.3	0.7
0.1	0.0	0.0	0.4	0.0	0.1	0.0	1.4		2.0	1.2
	0.0	0.0	0.5	0.4	0.0	0.0	0.2		0.7	1.4
	0.0	0.2	0.6	0.0	0.1	0.0	0.3			0.3
	0.0	0.0	0.0	0.6	0.4	0.0	0.5			0.4
	0.0	0.0	0.1			0.5	0.1			
						0.0	0.2			
						0.0	0.8			
						0.2	0.0			
						0.9	0.7			
	0.2	0.1	1.5				0.3			
	4	5	5				0.8			
0.0	0.3	0.2	1.60	2.2	1.5	1.6	5.3	1.8	4.0	4.0
1	6	6	6	5	5	10	12	1	3	5
0.00	0.06	0.03	0.27	0.44	0.30	0.16	0.44	1.80	1.33	0.80
.0	.3	.2	1.4	1.8	1.4	2.4	3.9	.0	1.3	2.0
.00	.05	.03	.23	.36	.28	.24	.33	.00	.43	.40

0.1

2 .1

.05

1

.05

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7.4	7.5	7.6	7.7	7.8	7.9	8.0	8.1	8.2	8.3
0.7	1.5	1.0	1.1	2.1	1.7	2.3	1.7	2.6	2.2
0.8	0.6	1.4	1.0	1.2	1.1	1.6		1.5	2.4
0.4	0.7	0.8	0.6	1.4	0.3	1.7		1.5	1.4
0.9	0.8	1.3		1.1		1.8			1.3
1.0	1.0	0.9		1.7		1.2			
0.6	0.2	0.5		1.1		1.3			
0.9		1.4				0.5			
						1.0			
						1.1			
						1.5			

5.3	4.8	7.5	2.7	8.6	3.1	14.0	1.7	5.6	7.3
7	6	4	3	6	3	10	1	3	4
0.76	0.80	1.07	0.90	1.43	1.03	1.40	1.70	1.87	1.82
1.1	1.8	2.2	.6	1.8	1.5	3.8	.0	1.5	1.9
.16	.30	.31	.20	.30	.50	.38	.00	.50	.48

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8.4	8.6	8.6	8.7	8.8	8.9	9.0	9.1	9.2	9.4
24	23	22	25	23	21	22	28	35	...
24	16	29	28	24	26	28	35	29	
18	20	30	24	24	30	29	24	26	
19	22	25	19	24	21	28	24	29	
20	17	15	25	21	30	30	24	35	
13		19	23	26	26	23		25	
20		21	20	30	19	28			
16		25	22		24	35			
18		18							
12									
16									
203	9.8	204	19.6	17.5	20.0	22.3	14.1	17.9	...
11	5	9	8	7	8	8	5	6	
1.845	1.96	2.27	2.36	2.50	2.50	2.79	2.82	2.98	
35	12	37	21	16	28	21	13	21	
.32	.24	.41	.26	.23	.35	.26	.26	.35	

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9.4	9.5	9.6	9.7
4.0	4.0	...	4.5
3.5	4.0		4.0
4.0			4.5
2.9			

14.4	8.0	...	13.0
4	2		3
3.60	4.00		4.33
1.6	0.0		.7
.40	.80		.23

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V

λ Ursae Minoris

(with prism)

7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9
0.0	...	0.4	0.0	0.0	0.0	0.7	0.0	0.5	0.3
0.1		0.0	0.1	0.2	0.0	0.4	0.8	0.6	1.2
0.1		0.0	0.2	0.0	0.0	0.4	0.0	2.1	
		0.0	0.0	0.2	0.2	0.6	0.4	0.8	
		0.0	0.3	0.3	0.1	0.0	0.3		
		0.0	0.0	0.0			0.4		
		0.0	0.0	0.5			0.9		
		0.0		0.0			0.2		
				0.0			1.1		
				0.1					
				0.4					
				0.0					
0.2	...	0.4	0.6	1.7	0.3	2.4	4.4	4.0	1.5
3		8	7	12	5	5	9	4	2
0.07		0.05	0.09	0.14	0.06	0.64	0.49	1.00	0.75
+0.87 = 0.94		0.92	0.96	1.01	0.93	1.41	1.36	1.87	1.62
.1		.4	.7	1.7	.4	1.2	3.1	2.2	.9
.03		.05	.10	.14	.08	.24	.34	.55	.45

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8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9.0
0.9	1.3	0.3	1.0	1.8	1.4	2.2	0.6	1.9	2.0	2.5
1.1		1.2	1.5	1.3	2.6	0.5	0.8	2.0	1.0	2.7
1.6		1.7	1.1	1.5	0.8	1.7	1.3	1.4	1.1	2.8
1.0		0.9	0.4	1.1	1.6	1.5	1.4	1.5	1.6	1.2
0.6		1.2	1.2	0.9	2.1		1.3	1.7	1.8	1.9
0.5		0.8			1.4		1.8	1.7	1.9	2.2
1.0					1.0			2.0	1.6	2.3
0.4									1.9	2.4
0.5									2.0	2.2
0.6									2.1	2.4
0.7									1.6	1.8
1.3									2.3	2.3
1.4									2.5	1.5
										1.9
11.6	1.3	6.1	5.2	6.6	10.9	5.9	7.2	12.2	23.4	30.4
13	1	6	5	5	7	4	6	7	13	14
0.89	1.30	1.02	1.04	~~1.54~~ 1.32	1.56	1.47	1.20	1.74	1.80	2.17
1.76	2.17	1.89	1.91	2.41	2.43	2.34	2.07	2.61	2.67	2.17 2.04
4.1	.0	2.1	1.4	1.5 3	3.3	1.9	2.0	1.3	4.2	5.0
.32	.00	.35	.28	~~.30~~ .26	.47	.48	.33	.19	.32	.36

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9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8
2.4	2.3	3.0	2.9	3.5	2.5	4.5	3.5
2.0	2.5	1.8	0.9	1.4	2.9	2.8	
2.3	2.2	2.6	2.4	3.0	3.0	3.0	
2.4	2.5	2.9	2.6	2.7		3.5	
2.2	2.8	2.7	2.2	2.8			
	2.4	2.1	2.6	4.0			
	2.7	2.6		3.0			
				2.8			
				2.9			
11.3	14.8	14.2	13.6	26.4	8.4	13.8	4.4
5	4	4	6	9	3	4	1
2.26	2.54	2.46	2.27	2.82	2.80	3.45	3.40
3.13	3.41	2.33	3.14	3.69	3.67	4.32	4.34
.6	.9	2.7	2.8	3.6	.6	2.2	.0
.12	.13	.39	.47	.40	.20	.55	.00

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λ Ursae Minoris (2nd set of 5).

Est	No	Interval
6.3	1	0.00
6.4	6	0.05
6.5	6	0.03
6.6	6	0.24
6.7	5	0.44
6.8	5	030
6.9	10	0.16
7.0	12	040
7.1	1	1.80
7.2	3	1.33
7.3	5	0.80
7.4	4	0.46
7.5	6	0.80
7.6	4	1.04
7.7	3	0.90
7.8	6	1.43
7.9	3	1.03
8.0	10	140
8.1	1	1.40
8.2	3	1.84
8.3	4	1.87
8.4	11	1.86
8.5	5	1.96
8.6	9	2.24
8.7	8	2.38
8.8	4	250

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89	8	2.50
90	8	2.79
91	6	2.82
92	6	2.98
93	0	...
94	4	3.60
95	2	4.00
96	0	...
97	3	4.33

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	1 without	51 Capt. without	1 with	1 without	1 with	
57		4				4
58		2				2
59		5				5
60		4				4
61		4				4
62		3				3
63		1		1		2
64		1	1	6		8
65	2	1	2	6		11
66	1	1		6		8
67	7	4	5	5		21
68	7	2	4	5		18
69	15	9	6	10		40
70	11	4	1	12	3	37
71	4	0	3	1	8	8
72	4	4	4	3	8	25
73	4	3	1	5	4	20
74	1	5	1	1	12	26
75	4	4	4	6	5	25
76	1	4	4	1	5	27
77	6	2	3	3	9	23
78	5	4	1	6	4	20
79	1	4	3	3	2	19
80	1	3	5	10	13	38
81	5	1	2	1	1	10
82	5	1	2	3	6	18

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	A		57 Cephei. 51		λ	
	without	with	without	with	without	with
8.3	6	6	1	4	4	5
8.4	7	4	4	4	11	5
8.5	4	4	5	3	5	4
8.6	12	12	4	6	9	4
8.7	9	9	2	4	8	6
8.8	11	11	3	3	4	4
8.9	12	12	3	5	8	13
9.0	6	6	1	6	8	14
9.1	4	3	1	1	5	5
9.2	1	1		2	6	4
9.3	1	1	3	1		4
9.4	1	1	1	2	4	6
9.5	1	1	0	2	2	9
9.6	2	2	2	2		3
9.7	1	1			3	4
9.8						1

8.3	20
8.4	31
8.5	24
8.6	35
8.7	28
8.8	31
8.9	41
9.0	35
9.1	15
9.2	16
9.3	12
9.4	14
9.5	14
9.6	10
9.7	8
9.8	1

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Est.	λ without	5th Cph without	5th Cph with	λ without	λ with
5.4	~~x.xx~~	0.00			
5.5	~~x.xx~~	020			
5.4	~~x.xx~~	0.22			
6.0	~~x.xx~~	0.15			
6.1	~~x.xx~~	0.46			
6.2	~~x.xx~~	0.50			
6.3	~~x.xx~~	0.50		0.00	
6.4	~~x.xx~~	~~0.80~~	0.84	0.05	
6.5	5.09 ~~4.66~~	0.30	0.87	0.03	
6.6	0.40	0.00		0.27	
6.7	0.06	0.30	1.19	0.46	
6.8	0.14	0.10	0.97	0.30	
6.9	0.36	0.92	1.29	0.16	
7.0	0.56	1.12	1.30	0.44	0.94
7.1	0.54		1.17	1.80	
7.2	0.70	0.94	1.42	1.33	0.92
7.3	0.85	1.63	1.67	0.80	0.96
7.4	0.60	1.34	1.17	0.76	1.01
7.5	1.22	1.33	2.02	0.80	0.93
7.6	1.14	1.32	1.94	1.04	1.41
7.7	1.13	1.75	1.94	0.90	1.36
7.8	1.04	2.25	1.84	1.43	1.84
7.9	1.59	2.00	2.34	1.03	1.62
8.0	1.46	2.23	1.95	1.40	1.76
8.1	1.64	2.00	2.44	1.70	2.14
8.2	1.36	2.42	2.54	1.84	1.89

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λ = 6.5

I	IV	V	II	III
			-.10	
			+20	
			+.12	
			-.05	
			+.15	
			+.10	
	+20		0	
	+.15		+20	+27
0.00	+.00		-40	+17
+.30	+.17		-80	
-.16	+.24		-60	+29
-.16	00		-90	-3
-.04	-.24		-18	+19
+.06	-.06	+44	-08	~~+16~~ +10
-.03	+1.20			-13
+.00	+.63	+.22	-.43	+02
+.05	00	+.16	+13	+17
-.30	-.14	+.11	-26	+17
+.22	-.20	-.07	-.37	+32
+.04	-.07	+.31	-.48	+04
-.07	-.30	+.16	-15	+04
-.26	+.13	+.57	+25	-13
+.19	-.37	+.22	-10	+24
-.04	-.10	+.26	+03	-25
+.04	+.10	+.57	-30	+17
-.34	+.17	+.19	+02	+17

51 = 5.8

Mean.

II	III		
+10	+10		
+.124	+.207		
-.046	-.047		
-.066	-.077		
-.046	-.057		
-.218	-.272		
-.054	-.067		
+.110	+.110		
+.208	+.347		
	+.088		
	+.102		
	-.084		
	-.020		
	-.004		
	-.064		
	+.112		
	+.036		
	-.020		
	+.116		
	+.042		

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Rot.	λ without	61 without	61 with	λ without	λ with
93	1.94	3.00	2.22	1.82	1.91
94	1.83	2.72	2.84	1.84	2.44
95	2.37	2.78	2.90	1.96	2.43
96	2.14	2.47	3.49	2.27	2.34
97	2.76	2.52	2.92	2.38	2.04
98	2.66	3.13	3.40	2.50	2.61
99	2.84	3.10	3.41	2.50	2.67
00	3.22	4.00	3.45	2.79	3.04
01	3.27	2.80	2.77	2.82	3.13
02	4.00		3.64	2.98	3.41
03	4.00	4.50	4.34		3.93
04	4.00	4.00	4.62	3.60	3.14
05	4.00		5.12	4.00	3.69
06	4.50	4.00	4.67		3.67
07	4.6			4.33	4.32
08					4.34

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	6.5		5.8			
I	IV	V	II	III	Mean	
-.07	+2	+11	+50	-28	+.056	
-.07	-5	+51	+12	+24	+.15	
+.37	-4	+43	+8	+20	+.26	
+.06	+17	+24	-33	+69	+.164	+.064
+.06	+18	-13	-.38	+2	-.05	-.25
+.36	+20	+31	+13	+.40	+.28	-.02
+.47	+10	+27	0	+.31	+.23	-.17
+.72	+29	+54	+.80	+.35	+.54	+.04
+.47	+22	+53	-.50	-.43	+.43	-.17
+1.30	+28	+71		+27	+.64	-.06
+120		+53	+1.00	+87	+90	+.10
+1.10	+30	+34	+.40	+102	+.732	-.168
+1.00	+1.00	+69		+142	+1.037	+.137
+1.40		+57	+1.20	+97	+1.035	+.035
+1.30	1.13	1.12			+1.183	-.083
		1.17			+1.17	-.03

6.0	+.104
	+.026
7.0	+.041
	-.014
8.0	+.057
	+.056
9.0	-.076
	+.094

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VI

51 Cephei

	5h	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0
Aug 14											0.0	0.0		0.0	0.1	0.4	0.8
											0.0	0.0			0.3	0.5	
												0.2			0.7	0.9	
															1.0		
18		0.0	1.0	0.5	0.2	0.0	0.6	0.8	0.7		1.7		1.1	1.5	0.9		1.3
			0.4	0.1	0.0			0.0							1.9		1.2
			0.0		0.3												
20		0.0		0.0	0.0	0.1	0.2	0.8				0.0				0.6	1.0
					0.4	0.3	0.7										0.9
						0.0	1.2										
26		0.0			0.2	0.0	0.1	0.8 ~~0.8~~	0.5	0.6	1.0		0.7	~~1.1~~		1.3	2.1
						0.0	0.3	0.0			0.4						0.9
						0.0											1.7
																	1.4
27			0.0	0.0	0.2	0.5	1.2	1.0		0.0	0.1		0.8	0.7		1.9	
				0.3	0.4			0.6			1.1		1.6				
					0.0												
					0.0												
	0.0	0.0	1.4	1.1	1.5	1.3	4.7	3.7	1.3	1.4	2.7	.9	4.6	2.2	4.9	5.6	11.7
	1	2	4	6	12	7	7	6	2	3	5	5	4	3	6	6	9
	0.0	0.0	.35	.18	.12	.19	.67	.62	.65	.47	.58	.18	1.15	.73	.82	.93	1.2
	.0	.0	1.4	.9	.11 1.7	.14 1.1	2.4	.52 1.5	.1	1.1	.97 3.9	30 1.11	.8	1.10 1.95	2.7	2.6	3.6
	.00	.00	.35	.15	.14	.16	.34	.25	.05	.37	.24 .66	.28 22	.20	.63 .50	.45	.43	.3

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7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0	8.1	8.2	8.3	8.4
0.8	1.3		1.9		0.6		1.5	1.1			2.1		1.8	1.6
							2.0	1.2						

Wachburn
Wright

1.3			1.6									1.4	1.8	2.5
1.2														2.3
1.0		0.5										1.8	2.0	2.7
0.9		1.7											2.5	1.3
		1.6												2.3
														2.4
2.1	1.8	1.6										2.2	2.8	3.0
0.9														2.5
1.7														2.4
1.4														
		1.3	1.5	2.1	0							2.6	2.7	2.9
		1.4		1.7										2.4
				2.2										

11.3	3.1	8.1	5.0	6.0						0		8.0	13.6	28.3	2
9	2	6	3	3						1		4	6	12	
1.26	1.55	1.35	1.67	2.00						.0	10	2.00	2.27	2.36	
3.0	.5	1.9	.5	.6	1.0	1.4	1.1	3.5	1.5	1.1	.0	1.6	2.4	3.7	
.33	.25	.32	.17	.20	.33	.46	.14	.44	.38	.37	.00	.40	.40	.81	

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7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0	8.1	8.2	8.3	8.4
0.8	1.3		1.9		0.6		1.5	1.1			2.1		1.8	1.6
							2.0	1.2						
								1.4						
1.3			1.6			2.2	2.1	2.0	2.6	2.7		1.4	1.8	2.5
1.2														2.3
1.0		0.5				1.1	2.1	2.6	2.2	1.9		1.8	2.0	2.7
0.9		1.7						1.5	1.4				2.5	1.3
		1.6												2.3
														2.4
2.1	1.8	1.6			1.5	1.2	2.0			2.7		2.2	2.8	3.0
0.9							1.9							2.5
1.7							2.3							2.4
1.4														
		1.3	1.5	2.1	0.9		2.0	2.3	2.5			2.6	2.7	2.9
		1.4		1.7				1.8						2.4
				2.2										

11.3	3.1	8.1	5.0	6.0	3.0	4.5	15.9	13.9	8.7	7.3	21	8.0	13.6	28.3
9	2	6	3	3	3	3	8	8	4	3	1	4	6	12
1.26	1.55	1.35	1.67	2.00	1.00	1.50	1.99	1.74	2.17	2.43	2.10	2.00	2.27	2.36
30	.5	1.9	.5	.6	1.0	1.4	1.1	3.5	1.5	1.1	.0	1.6	2.4	3.7
.33	.25	.32	.17	.20	.33	.46	.14	.44	.38	.37	.00	.40	.40	.81

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	8.5	8.6	8.7	8.8	8.9	9.0	9.1	9.2	9.3	9.4	9.5	9.6	∞
Aug 14th	2.5	2.6		2.7	2.9			4.0			4.5		5.0
	1.7	2.2		2.3	3.0			3.5					
		2.8		2.4									
Aug 15th.	2.9	2.4	3.0	3.5				4.5	4.0		5.0		5.0
			~~2.0~~	2.8									
25	2.8	3.0	2.9			4.0		3.5			5.0		
								4.5					
26		2.9	2.6		3.5	4.0							5.0
													4.5
27	2.8		3.0		3.5							4.0	5.0
													4.5

	12.7	15.9	11.5	13.7	12.9	8.0	0.0	10.0	4.0	0	4.5	9.0	–
	5	6	4	5	4	2	0	5	1	0	1	2	6
	2.54	2.65	2.87	2.74	3.22	4.0	0	4.0	4.0	0	4.5	4.5	
	1.8	1.5	.5	1.6	1.1	.0	0	2.0	.0	0	.0	1.0	
	.36	.25	.12	.32	.27	.00	.00	.40	.00	.00	.00	.50	

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VII

	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8
Aug 14th														
18													0.0	
25th										0.0		0.0	0.2	0.0
												0.1		0.0
26												0.0	0.0	0.0
												0.0		
27										0.0	0.0	0.0		0.2

0.0	0.0	0.1	0.2	0.2
2	1	5	3	4
0.0	0.0	.02	.07	.05
.87	.87	.89	.94	.92
.0	.0	.1	.3	.2
.00	.00	.02	.10	.05

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51 Cephei with plates

6.9	7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0	8.1	8.2	8.3	8.4
0.0	0.0		0.2	0.0					0.8	0.6	0.1	1.1	1.0	0.9	1.4
	0.0			0.4							0.3	1.6			
				1.2							0.5				
											0.7				
0.0	0.0	0.2	0.6	0.3			1.1			1.5	1.8		1.4	1.2	1.3
	0.0		0.0	0.4			0.8			0.5	0.7		0.9	1.0	
			0.1												
0.0	0.3	0.7	0.8		0.5				1.1	1.7	1.0	1.2	1.4	2.2	1
0.6	0.9												1.9	2.5	2
0.4													1.5	2.0	
0.0	0.3	0.4	0.1	0.7	0.8	1.1		1.0	1.5		1.4	2.0	1.6	1.7	1
	0.6	0.9												1.3	
	0.2														
	0.5														
	1.1				0.0	1.2	0.0	0.8	1.5		1.8		2.2	1.4	2
0.4	0.6					0.3		0.5	1.3		1.7				2
	0.7										0.9				
	0.1										1.0				
1.4	4.3	2.2	1.8	3.0	1.3	2.6	1.9	2.3	6.2	4.3	11.9	5.9	11.9	14.2	11.
7	14 3	4	6	6	3	3	3	3	5	4	12	4	8	9	7
.20	.31	.55	.30	.50	.43	.87	.63	.77	1.24	1.07	.99	1.47	1.49	1.58	1.6
1.07	1.18	1.42	1.17	1.37	1.30	1.74	1.50	1.64	2.11	1.94	1.86	2.34	2.36	2.45	2.5
1.6	4.1	1.0	1.6	1.8	.9	1.1	1.3	.5	1.2	2.1	5.5	1.3	2.5	4.2	2.6
.23	.29	.25	.27	.30	.30	.37	.43	.17	.24	.52	.46	.32	.31	.47	.38

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8.4	8.5	8.6	8.7	8.8	8.9	9.0	9.1	9.2	9.3	9.4	9.5	9.6	∞
1.4	0.0	1.8	2.4	2.3	1.9	2.5	2.2	2.8	2.6			4.0	4.5
	1.5	1.3	1.7			2.7	2.1	2.9	3.0				3.5
			2.0										5.0

1.3	2.4	1.9	2.2	2.3	2.8	2.7	2.5	2.9	3.0	3.5	4.5	4.0
	1.6			1.7	2.6							5.0
				2.0	2.1							

1.3	1.6	2.3	2.9	1.8	2.4	2.8		3.5				9.7 9.8 4.5 5.0
2.1				3.0		2.6	4.0					
				2.7								

1.2	2.5	2.6	1.8	2.4	2.8	2.2	3.0			4.0		9.7 3.5	4.5
			1.9	2.5	2.3							5.0	
			2.7	2.9									

2.0	1.5		2.3.	2.8	2.4	2.5	2.9	3.5		4.0	4.5		5.0
2.1				1.6	2.6	2.7							
					3.0								

11.4	10.7	9.9	19.9	28.0	24.9	20.7	16.7	15.6	8.6	3.5	8.0	13.0	31.5
7	7	5	9	12	10	8	6	5	3	1	2	3	1
1.63	1.53	1.98	2.21	2.33	2.49	2.59	2.71	3.12	2.87	3.5	4.0	4.33	
2.50	2.40	2.85	3.08	3.20	3.36	3.46	3.64	3.99	3.74	4.37	4.87	5.20	5.87
2.6	3.2	1.9	2.9	4.6	2.7	1.1	3.1	1.5	.5	.0	.0	7.47	.0
.38	.46	.38	.32	.38	.27	.14	.52	.30	.17	.00	.00	.23	.57	.00

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VIII

λ Ursae Minoris. (without filter).

	6.5	6.6	6.7	6.8	6.9	7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8
Aug 20			0.0	0.0	0.2	0.5		0.8	0.7			1.0		1.3
			0.0	0.4	0.1	1.1		0.0	0.6					
					0.3									
					0.0									
Aug 29		0.0	1.0	0.6	0.0	0.1		0.8	1.4		0.9	~~0.7~~ 0.6	0.2	0.4
		0.5	0.0			0.3						1.5	1.3	
		0.0	0.0										1.2	
Sept. 12		0.0		0.0	0.0	0.2		0.7		0.1	1.0	0.5	0.9	0.8
		0.0				0.0								
						0.4								
Sept. 14		0.0	0.1	0.0		0.2	0.8			0.9	0.7	0.0		1.3
		0.0	0.3	0.4								0.5		1.1
				0.0						~~0.8~~		0.6		
Sept. 18		0.0	0.0	0.0	0.6	0.1		0.0		0.8	0.4	0.2		0.9
		0.3		0.0										
		.8	1.4	1.4	1.2	2.9	0.8	2.3	2.7	1.8	3.0	5.0	3.6	5.8
		9	8	9	7	9	1	5	3	3	4	8	4	6
		.09	.17	.15	.17	~~2.1~~ 3.2	~~0.80~~	.46	.90	.60	75	.62	.90	.97
		1.3	2.0	1.7	1.2	2.0	.0	1.8	1.0	1.0	.8	2.6	1.4	1.6
		.14	.25	.19	.17	.22	.00	.36	.33	.33	.20	33	.35	.27

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7.8	7.9	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9.0	9.1	9.2	9.3	9.4	9.5	∞
1.3	0.9	1.5	2.0	1.7	1.4	1.9	2.1	2.2	2.6	2.9	2.7	2.5	3.5					8.7 5.0
					1.8	1.6	1.2	2.3	2.4	3.0								7.7 6.0
							2.8											4.5
0.4		1.7	2.1	1.9		2.3	2.0	2.2		2.9		2.7		4.0				5.0
				1.6		1.8	2.4			2.6		3.0						4.5
				1.1			2.8			2.5		3.5						
0.8			0.3	2.7	0.6	2.1	2.0	1.3	1.9	3.0	2.6	2.9		2.5	3.5			5.0 7.6
				1.1	1.6	1.5	1.4	1.7	2.2	2.4								4.0
					1.8	1.2		2.3	2.8									4.5
1.3	1.0 1.9	1.6		1.2	1.8		1.5	2.1	2.7	2.6	2.9	3.0		2.8	4.0	3.5		
1.1		1.4					2.2	2.0	1.7	2.3	2.5	2.4						5.0
								1.9										4.5
0.9	0.5	1.3	1.2	1.0	1.6	2.2	2.1	2.0	2.8		2.9	2.7	2.5		3.5	3.0		5.0 9.7
	1.5		1.1	0.7	1.4	2.4	1.7	2.3	~~2.8~~		2.6							4.0 9.8
						1.8	1.9											4.5

5.8	3.9	7.5	6.7	13.0	12.0	18.8	26.1	22.3	19.1	24.2	16.2	22.7	6.0	9.3	11.0			4.0 4.0 4.0
6	4	5	5	9	8	10	13	11	8	9	6	8	2	3	3	2	3	
.97	.97	1.50	1.34	1.44	1.52	1.88	2.01	2.03	2.39	2.69	2.70	2.84	3.00	3.10	3.67	3.75	4.67	4.00
1.6	1.1	.6	2.8	4.2	2.2	3.0	4.8	2.5	2.7	2.1	.8	2.1	1.0	1.8	.7	.5	1.7	0
.27	.28	.12	.56	.47	.28	.30	.37	.23	.34	.23	.13	.26	.50	.60	.23	.25	.57	.0

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IX. λ Ursae Minoris (with Field)

	6.7	6.8	6.9	7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0	8.1	8.2
Aug. 20				0.0	0.0		0.0	0.0	0.6		0.1		0.4	1.1		1.3
							0.0		0.2				0.5	2.2		1.0
														0.3		
														0.8		
Aug. 29		0.0	0.0	0.1			0.0	0.0	0.0		0.3	0.4		0.6	1.1	0.7
								0.2				0.8		0.5		
Sept. 12				0.0	0.0	0.0	0.1	0.8	0.4					1.1		1.2
					0.0	0.0			0.2					0.5		~~1.2~~
Sept. 14.					0.0	0.0		0.0	0.0	~~0.1~~	0.1	0.6			0.3	0.7
						0.0		0.4	0.2	~~0.2~~		~~0.6~~				
												0.8				
Sept. 18					0.0	0.0		0.0	0.3	0.2	0.5	0.6		1.2		1.5
						0.1			0.0			0.8		0.0		0.9
									0.7							

	0.0	0.0	0.1	0.0	0.1	0.1	1.4	2.6	0.2	10	4.0	0.9	8.3	1.4	7.3
	1	1	3	5	6	4	7	10	1	4	6	2	10	2	7
	.00	.00	.03	0.0	.02	.02	.20	.26	0.2	.25	.67	.45	.83	.70	1.04
	0	.0	.1	.1	.1	.1	1.6	2.0	.0	.6	.8	.1	45	.8	1.7
	.00	.00	.03	.00	.02	.02	.23	.20	.00	.15	.13	.05	.45	.40	.24

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83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	∞
1.9	1.2	1.1														4.0
1.5																5.0
1.5	1.2	1.1														4.5
1.0	0.9															4.0
																5.0
0.9	0.7	1.1													4.0	4.5
		0														5.0
		1.														
1.1		1.2														2.8
0.5		1.0														4.5
																4.0
																5.0
0.4	1.6	1.														4.5
1.0		1.1														3.5
																4.0
																5.0
9.8	5.6	11.														
9	5	1														1
1.09	1.12	1.1														40
33	13	3														.0
.37	.26	.3														.90

$$\begin{array}{r} 39_3 \\ \hline 117 \end{array}$$

$$\begin{array}{r} 195 \\ 7 \\ \hline 1365 \\ 117 \\ \hline 1599 \end{array}$$

$$1583$$

am.	∞
8	7
	1
7	4
	8
1	16
	6
	7
	8
	15
16	72

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8.3	8.4	8.5	8.6	8.7	8.8	8.9	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	∞
1.9	1.2	1.4	1.7		1.8		2.4	2.8		2.3	2.5	2.6	3.5	4.5		4.0
1.5			0.7		1.6					2.7	2.9		3.0			5.0
			0.9		2.1											
			2.0													
1.5	1.2	1.7	1.8	1.4	2.2	2.5	2.4	3.0	2.8	2.6				3.5		4.5
1.0	0.9		1.3	1.6		2.1	2.3	2.7		2.9						4.0
			2.0	1.9												5.0
0.9	0.7	1.6	1.7	0.6	1.8	2.0	1.4			2.4	2.6	2.9	2.8		4.0	4.5
		0.3		1.3	2.3	2.1	1.5				2.7		3.5			5.0
		1.0			2.2		2.5						3.0			
					1.9											
1.1		1.2	~~1.1~~	1.3		1.4	2.2	1.8	1.9		2.4	2.1	3.0	2.9		2.8
0.5		1.0	1.6			1.5		2.3	3.5		2.6					4.5
			1.7			2.0		2.5			2.7					4.0
			0.9													5.0
0.4	1.6	1.1	2.2		1.4	1.7	2.4	2.0	2.6	2.9		1.8		2.8		4.5
1.0		1.9	1.3		2.3	~~2.3~~ 3.0	2.5					2.7				3.5
					2.1											4.0
																5.0

9.8	5.6	11.2	19 8	8·1	21.7	18.3	19.6	17.1	10.8	15 .8	18 .4	12. 1	18.8	13.7		
9	5	9	13	6	11	9	9	7	4	6	7	5	6	4	1	
1.09	1.12	1.24	1.52	1.35	1.98	2.03	2.18	2.44	2.70	2.63	2.63	2.42	3.13	3.43	40	
33	13	32	5.1	17	27	3.1	28	2.5	18	12	.8	1.9	14	2.3	.0	
.37	.26	.36	.39	.28	.25	.34	.31	.36	.45	.20	.11	.38	.23	.58	.90	

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.4	2.5
.9	1.3
1.3	1.6
.6	1.2
.8	1.4
4.0	8.0
.16	.32
2.2	2.2
.6	.7
.8	1.0
.5	.9
2.4	2.4
6.5	7.2
260	.288
.8	.7
.4	.7
.7	.7
1.5	1.2
.7	.7
41	40
.164	.16
.4	.6
1.2	1.1
.3	.9
.7	.7
1.2	1.3
41	46
.164	.184

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λ	51		λ	
6.80	5.86	6.80	6.77	7.40
683	5.88	6.62	690	7.36
660	6.78	7.30	6.52	730
6.77			6.86	7.36
708			640	736
408	352	272	345	28
6.816	6.173	6.907	6.690	7.393

51 .734 λ = 7.393
6.690
.703

λ − 51 = .517
.486
.856
.368
2.227
.557

Mittel Meier. 734
703
932
.444
2.813
.703

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51 Cephei.

Aug

I	II	III	IV	V
6.4	5.9	5.7	5.4	5.6
6.5	5.8	5.8	5.8	6.3
6.4	5.5	6.5	5.8	5.7
6.5	6.1	5.5	6.0	5.8
6.7	5.6	5.9	5.8	5.8
32.5	28.9	29.4	28.8	29.2
6.50	5.78	5.88	5.76	5.84

5.952

I	II	III	IV	V
7.0	7.0	6.4	6.7	6.4
6.9	6.7	6.8	6.9	6.6
7.0	7.0	6.6	6.8	6.5
7.3	7.2	6.9	6.6	7.4
8.5	6.9	6.8	6.6	7.6
36.7	34.8	33.5	33.6	34.5
7.34	6.96	6.70	6.72	6.90

6.924

6.50	7.34
5.78	6.96
5.88	6.70
5.76	6.72
5.84	6.90
4.76	4.72
5.952	6.924
	~~6.884~~
	5.952
	~~.992~~
	0.972
326	328
5.052	6.652
	1.600

6.86	7.22
6.70	7.20
6.78	7.12
6.88	7.28
6.82	7.44
4.04	1.26
6.808	7.252
	6.808
	.444

.972
.444
.734
.703
2853
71

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2 Ursae Minoris

I	II	III	IV	V
6.7	6.6	6.6	7.6	6.6
6.8	6.7	7.0	6.8	7.2
7.2	6.7	6.6	6.6	6.7
6.7	6.6	6.9	6.6	6.8
6.9	6.9	6.8	6.8	6.8
343	635	39	44	41
6.86	6.70	6.78	6.88	6.82

6.808

I	II	III	IV	V
7.0	6.9	7.1	7.1	7.2
7.3	7.5	7.1	7.2	7.1
7.4	7.4	7.2	7.2	7.5
7.3	6.9	7.0	7.4	8.0
7.1	7.3	7.2	7.3	7.4
36.1	36.0	6	14	22
7.22	7.20	7.12	7.28	7.44

7.252

51	51	1	2
6.173	6.907	6.816	
5.952	6.924	6.690	7.393
		6.808	7.252
12.125		2314	645
6.062	6.915	6.771	7.322

Cyg. 45. 9.6532
3468
.867 mag.

$a = 6.062$

$a+2 = 6.915$ (867)

$b = 6.771$

$b+2 = 7.322$ (867)

.853

.551

1404

.702

6.062
6.048 } 6.055

6.771
6.455 } 6.613

1226

6.771	6.613 (867)	158
7.322	7.480	158
6.062	6.055	+7
6.915	6.922	-7

165
.082

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Roy. Complete 5, 10, 14, 18 | 20 | 25 30, 40

Σ 124 266. 375, 489 | 542 | 680

1641 $A = 10.5$?

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1.0				
2.0	2.0, 2.0 2.8	2.7		
3.0	3.0	3.0 3.1		
		3.8	3.7	
4.0	4.0	4.0, 4.0, 4.0		
	4.2 4.4, 4.2	4.2, 4.2, 4.2	4.4	
4.5		4.5		
	4.7	4.7 4.8		
	4.9	4.9		
5.0	III	III	II	
1	I			
2		I		
3	II	I	I	
4				
5		I		
6				
7		II		
8		I		
9	I			
6.0	~~HHII~~ III	~~HHIII~~ I	II	IIII
1		II		I
2	~~HHII~~	I		I
3	I	II	I	
4			I	
5	I	~~HH~~		
6.6	II	II		

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Count of Dan Echo Obs I

	1 – 10	11 – 20	1 – 10	11 – 20
6.7	𝍸	I	I	II
.8	𝍸		II	I
.9	I	III	I	
7.0	𝍸 𝍸	𝍸 𝍸	III	III
1		II	I	III
2	𝍸	𝍸	IIII	I
3	IIII	𝍸	I	I
4		III	I	II
5	𝍸	𝍸	𝍸	I
6	I		II	
7	𝍸	𝍸	II	𝍸
8	IIII	𝍸	IIII	III
9	IIII	II	I	I
8.0	𝍸 𝍸	𝍸 𝍸 𝍸	𝍸	𝍸 𝍸
1		II	II	III
2	𝍸 𝍸	𝍸 𝍸	𝍸	𝍸
3	𝍸	𝍸	IIII	𝍸
4	II	II	II	I
5	𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸	𝍸	𝍸 IIII
6	𝍸		I	I
7	𝍸	𝍸	𝍸	𝍸
8	IIII	IIII	𝍸	𝍸
9	I	I	III	
9.0	𝍸	𝍸	𝍸 𝍸 𝍸	𝍸 𝍸
.1	II		II	I
2	II	III	𝍸	𝍸
.3	I	I	III	𝍸

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9.4	1		1		
5			𝍸 1	𝍸 𝍸 𝍸	
6			1	11	
7			𝍸 111	𝍸 𝍸 11	
8			𝍸 11	111	
9			11	1	
10.0			𝍸 𝍸 1	𝍸 1111	
1			≠ 11	111	
2			𝍸	11	
3	1	1	1	𝍸 111	
4			11		
5			11	𝍸 𝍸	
6			111	11	
7			𝍸	𝍸 11	
8			111	1111	
9					
11.0			𝍸 111	𝍸 11111	
1			1		
2			1111	111	
3			1	11	
4					
5			11	1	
6					
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8				1	
9					
12.0					

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Omit A 5.0 Insert all B 5.1

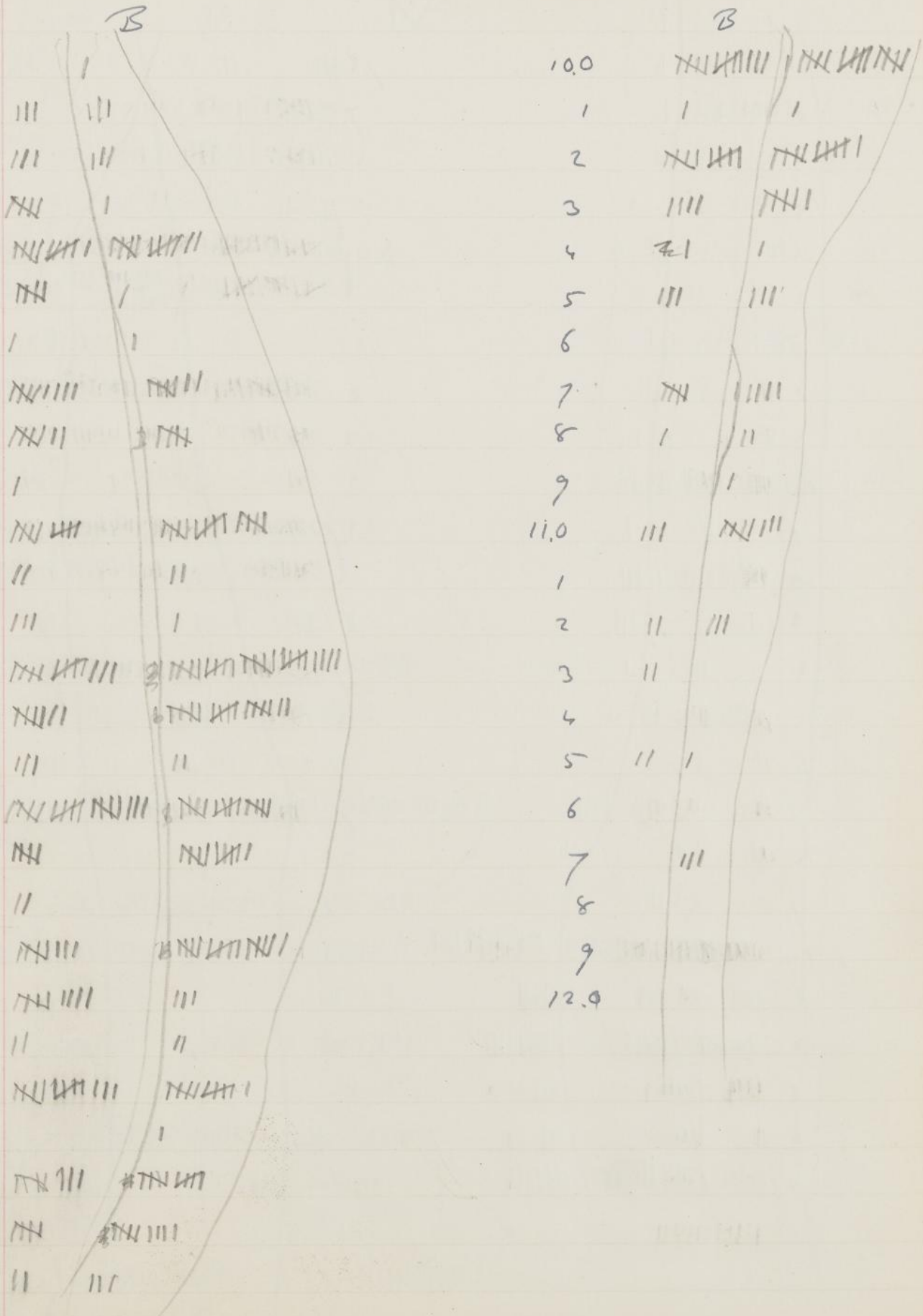
21-30

	A	B
5.1	2	
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7		2
8	4	
9	1	
6.0	9	3
1		2
2	6	2
3	7	
4	1	1
5	7	3
6	4	1
7	12	3
8	4	6
9	2	1
7.0	12	7
	4	
1	2	2
2	12	4
3	8	3
4	6	3
5	12	9
	2	

	A
7.6	1
.7	11
.8	8
.9	9
8.0	22
1	9
2	23
3	17
4	8
5	17
6	4
7	16
8	9
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.1	1
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5	2
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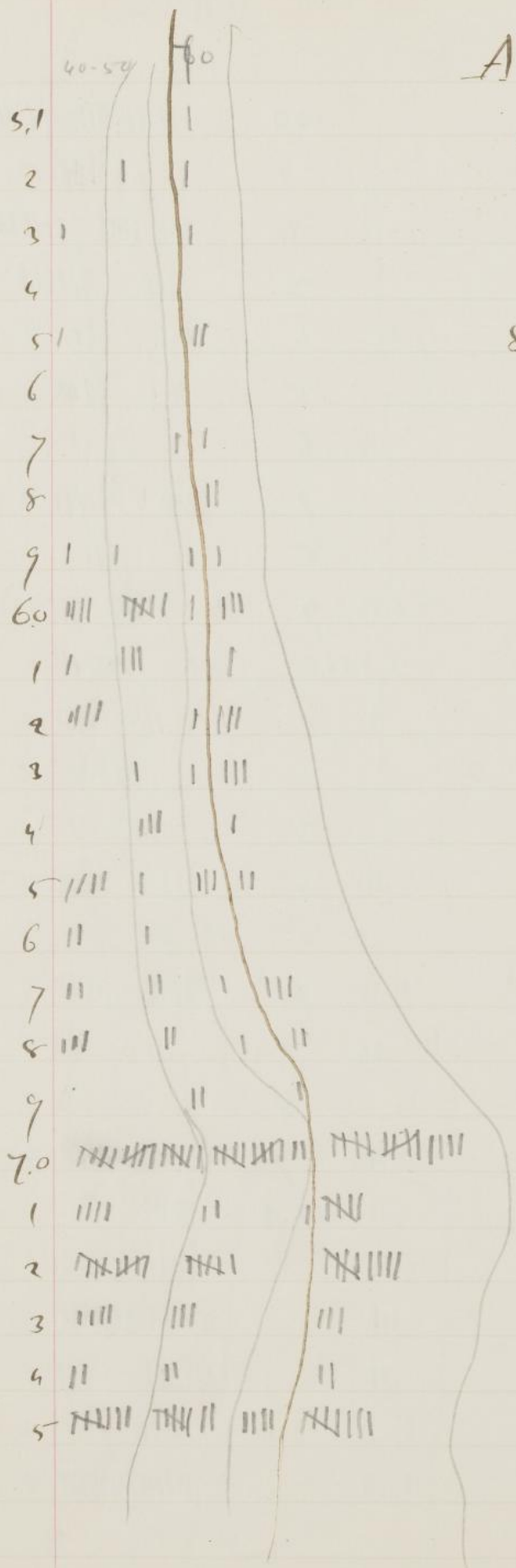
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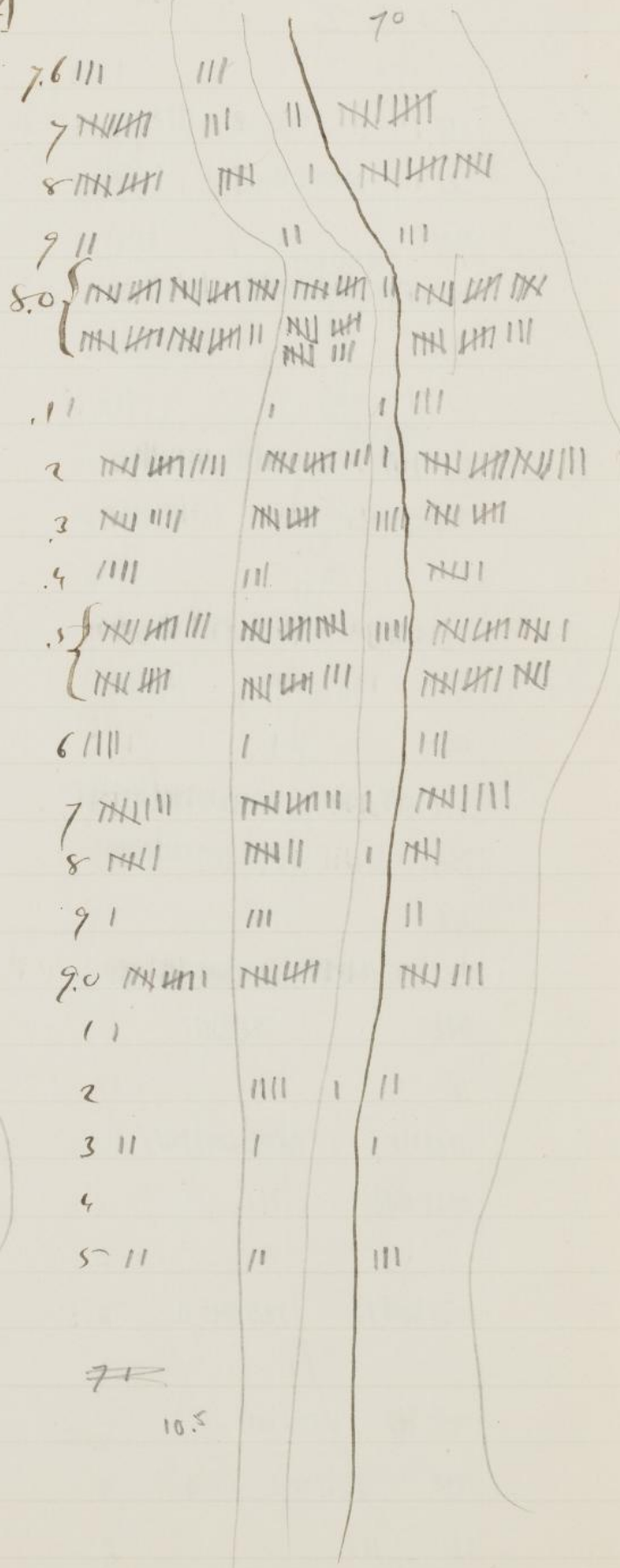


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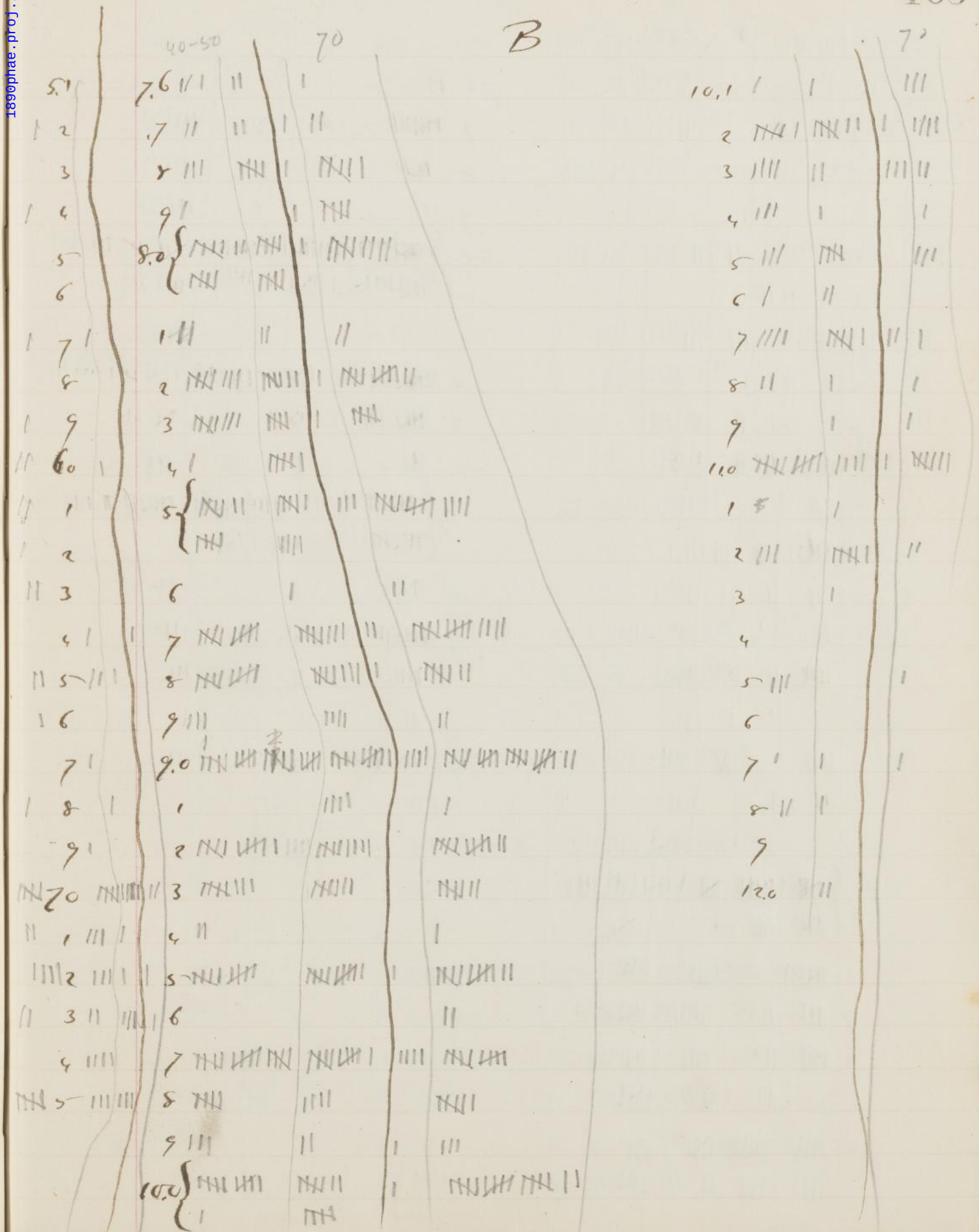
A



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B



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1890phae.proj.1848.

A

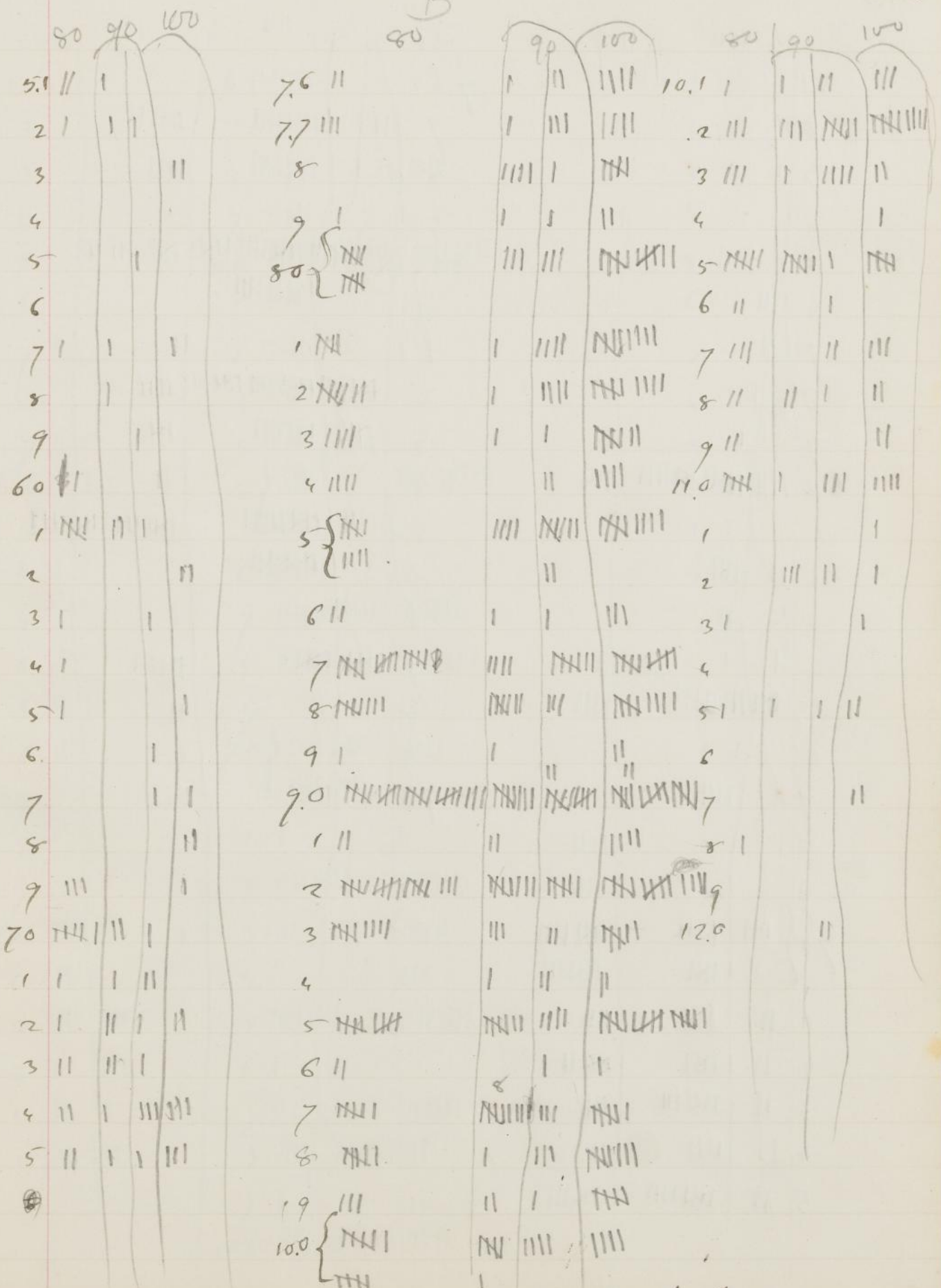
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1	111		1
2	1111	11	111	1111
3	111	1	1	11
4	11			1
5	1111	1		1111
6			1	1
7	1111		111	1111
8	1	1	1	11
9		11		1111
70	1111	1111	11	1111 1111
	1111	1111	1	
1	1111		111	1111
2	11	11	1111	1111 1111
3	1111	11	1111	1111 111
4	1	11	11	1111
5	1111	1111	1111	111
	1111	1111	11	1111

	80	90	100
7.6	1		1	111
7	1111	1	1111	1111 11
8	1111	1111	1	1111 1111
9	11		1	1111 11
8.0	1111 1111	1111 11	1111	1111 1111 1111
	1111 111	1111	1111	1111 111
1		1	11	1111 1
2	1111 1111	1111 1	1111 111	1111 1111 1111 IV
3	1111 111	1111 11	1111	1111 11
4	13	1	111	111
5	1111 1111 11	1111 111	1111 11	1111 1111 1111 111
	1111 111 1	1111	1111	
6	1111 1	11		1111
7	1111 1111 11	11	111	1111
8	1111	11	111	1111
9	11	1	1	1
90	1111 1111	111	1	1111 1
1				
2	1	1111		
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293		99		

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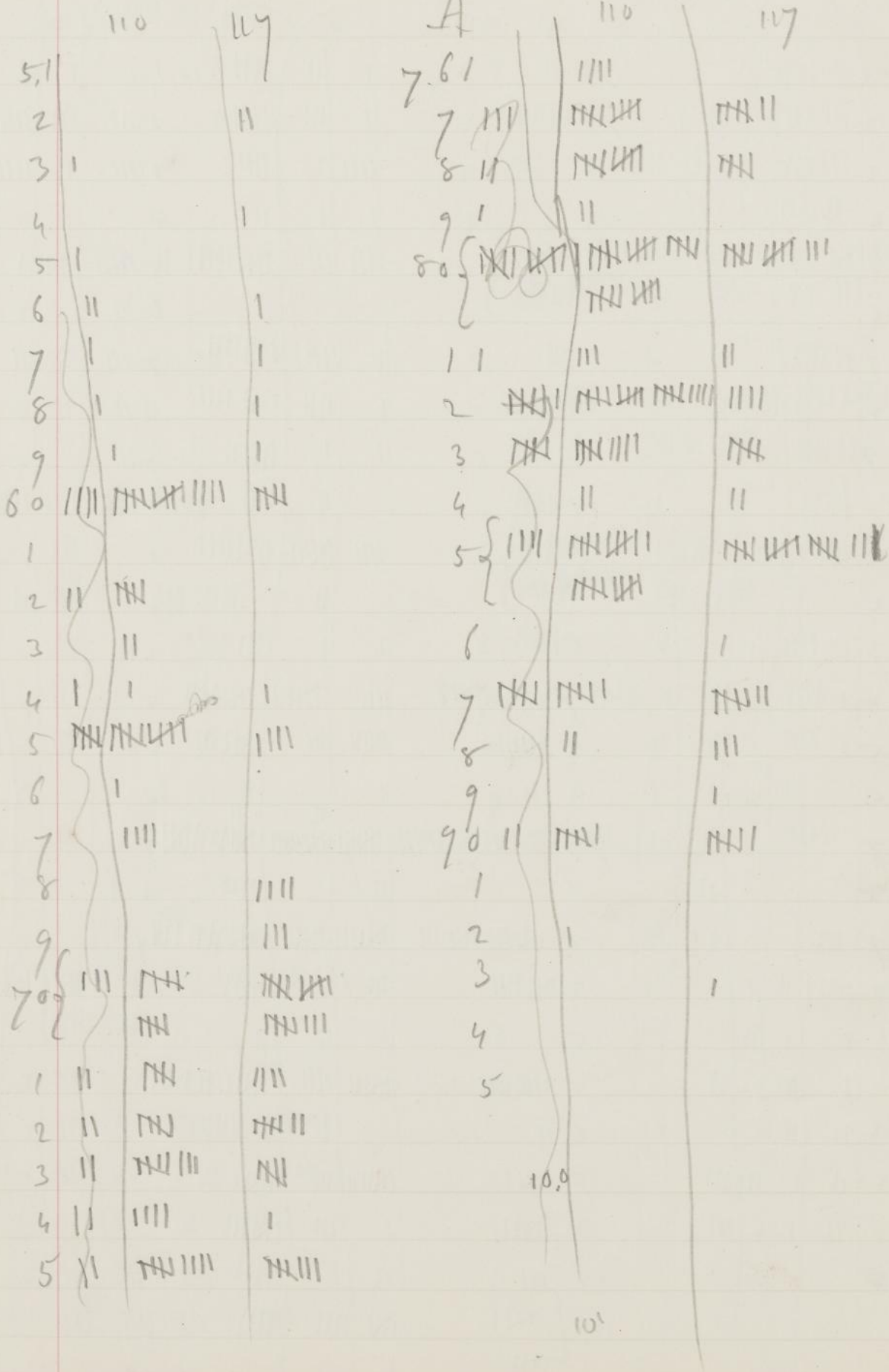
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B



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110		110	117	110	117
5.7		7.6 III		10.1 III	
2		7 II		2 II	II
3	I	8 I	IIII	3 III	
4		9 III		4	II
5		8.0 IIII IIII II	IIII IIII	5 II	II
6		1 IIII	I	6 II	I
7	I	2 IIII IIII	IIII	7 III	II
8		3 IIII		8 II	II
9	I	4 II		9	
60	I I	5 IIII / II	IIII II	10.0 IIII	
1	I			1 I	
2	I	6 II	I	2 II	I
3		7 IIII IIII I	IIII	3 I	
4		8 IIII II	III IIII	4	
5	II II	9 III	I	5	
6	II	9.0 IIII II / IIII III	II / III	6	
7				7	
8		1 I	I	8 I	
9		2 IIII I	IIII I	9	
70	IIII III	3 IIII	IIII II	12.0 I	
1	II	4 II	III		
2	IIII IIII	5 IIII III	IIII II		
3	I III	6 I			
4	II I	7 III	IIII		
5	II II	8 III	II		
		9 I	II		
		10.0 IIII	III		

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7	7. 1	1, 2
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4	3	1, 2
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6	1,	2
7	7. 10	2, 5
8	4, 7	4, 3
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1	2	2, 3
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3	13, 13	4, 5
4	2, 2	2, 1
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6	5,	1, 1
7	7, 7	16, 14

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8.8	4, 4	9, 11
8.9	1, 1	3.
9.0	6, 9	31, 18
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3	1, 1	3, 6
4	1,	1 2
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6		1, 2
7		8, 12
8		6, 3
9		2, 1
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2		5, 2
3	,1	1, 8
4		2
5		2, 10
6		3, 2
7		5, 7
8		3, 4
9		
11.0	A	7, 9
1	1	11.6
2	4, 3	.7 , 1
3	1, 2	.8 , 1
4		.9
5	2, 1	12.0

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1890phae.proj.1848.

A

	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4
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11 – 20		1	1		1		2	1		8	2	1	2	
30	2	3				1		3		4		4	7	
40		2		1				1	1	6		2		1
50					1				1	4	1	4		
60		1			2		1		1	6	3	1	1	3
70	1	1	1		2		1	2	1	3	1	3	3	1
80		2				1	3	1		2	3	6	3	2
90					2	2		1	1	2		2	1	
100	2	2		1	2	1	3	1	2	2		3	1	
110					2		3		1	6	1	4	2	1
117			1		1	2	1	1	1	14		5	2	1
		2		1		1	1	1	1	5				1

B

10			1							2			1	1
20										4	1	1		
30							2			2	1	2		
40					1					1	1			1
50										1				1
60														1
70		1		1			1		1	2	2	1	2	
80	2	1					1			2	5		1	1
	1	1					1	1			2			
90		1			1				1		1	1	1	
100			2				1					2		
110							1		1	1	1	1		
117			1							1				

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5		7	3	2	12	2	9	3	1	12	1	9	6	4	30
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3		1	1	1		1				4		2	1		2
2		3	2		14	5	9	3	2	8		10	15	3	28
4		4	1		9	7	2	5	1	10	1	8	5	2	24
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	1	4	1		6	3	9	5	2	7	1	5	1	1	11
6	1	5	2	5	14	5	11	8	4	8	3	7	8	7	28
10	1	4			10	5	5	8	4	9	4	10	10	2	25
4			4	3	18	4	7	5	1	7		7	5	1	13
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		2	1		3	3	1	1	2	1		5	3	1	17
3	1	2	2		6		4	3	2			3	3	5	16
		1	4	1	1	2			1	1	1	3	3	1	13
2		1		1	5	3	3	2	4	3	3	2	3	1	12
1			1		4	1	1	3		3	2	2	5		10
					2		1	1				1	1	1	1
2	1		1		5	2	4	2		5	1	2	6	5	9
1				3	6	1	1	2	2	2	2	3		1	9
					2	1	2	2	1	1	1	1	4	1	3
	1	1			1	2	1	1	3	1	2	3	1	1	3
1		1	2	1			2		3	3	4	4	5	2	11
2	2				4	2	4	1	2	2	3	2	1	3	17
													4		
2					3		4	3	1	2	[illegible]	[illegible]	[illegible]	[illegible]	14

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	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9.0	9.1	9.2	9.3	9.4	9.5
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30	4	24	13	3	23		11	7		4	1	1			
40	4	26 ~~28~~	17	3	26	3	17	4	2	11		2	1		1
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60	1	13	10	3	28	1	12	7	3	10		4	1		2
	1	1	4		4		1	1				1			
70	5	18	10	6	31	3	9	5	2	8		2	1		3
80		14	9	1	32	6	17	4	2	12		1			1
	1	6	7	1	13	2	2	2	1	3		5	1		
90	2	10	4	3	12		3	3	1	1					
100	6	19	7	3	18	4	4	5	1	6					1
110	3	19	9	2	21		6	2		6		1			
117	2	4	5	2	18	1	7	3	1	6			1		

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90	4	4	1	2	9	1	7	3		10		6	2	2	14
100	9	9	7	4	9	3	10	9	2	17	4	14	6	2	16
110	4	13	9	2	11	2	16	7	3	20	1	11	4	2	8
117	1	4			12	1	7	9	1	8	1	8	7	3	12

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B

9.6	9.7	9.8	9.9	10.0	10.1	10.2	10.3	10.4	10.5	10.6	10.7	10.8	10.9
1	8	6	2	11	2	5	1	2	2	3	5	3	
2	12	3	1	9	3	2	8		10	2	7	4	
	8	5	1 2	13	1	10	4	1	3	5	1		3
1	10	9	3	15	1	11	6	1	3		4	2	1
	15	5	3	11	1	6	4	3	3	1	4	2	
	11	4	2	17	1	7	2	1	5	2	6	1	1
	4		1	1		1	3				2		
2	10	6	3	17	3	4	2	1	3		1	1	1
2	6	6	3	11	1	3	3		6	2	3	2	2
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1	6	8	5	4	3	9	2	1	5		3	2	2
1	3	5	1	10	3	2	3		5	2	3	5	
	7	2	2	5		5		2	5	1	2	2	

11.0	11.1	11.2	11.3	11.4	11.5	11.6	11.7	11.8	11.9	12.0	A
7	1	4	1		2						
9		3	2		1		1	1			
3		2	2		2						10.3
8		3			1		3				10.5
10		3			3		1	2			
4	1	6	1				1	1		2	
1											
7		2			1		1				
5			1		1			1			
1		3			1						9.9
3		2			1					2	
4	1	1	1		2		2				
4		2	1					1		1	10.0
		1									

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	A		B			A	692	B	926
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2	6	7		4	9	15	15	9	14
3	4	2	1	3	8.0	187	143	77	67
4	1	2		1	1	12	18	11	26
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6	1	7			3	75	55	34	28
7	2	13	2	5	4	17	18	11	12
8	5	7		1	5	173	149	80	71
9	4	8		3	6	13	16	7	12
6.0	35	45	10	6	7	62	49	85	75
1	6	5	3	10	8	32	25	62	51
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3	11	13	1	4	9.0	51	42	129	112
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5	18	30	6	8	2	13	10	64	77
6	10	3	1	4	3	6	3	36	38
7	26	21	7	2	4	1		9	11
8	14	12	10	3	5	5	1	66	70
9	8	11	3	4	6			4	7
7.0	89	82	22	23 25	7			64	47
1	14	30	10	8	8			32	31
2	49	45	13	19	9			13	18
3	27	36	10	12	10.0			71	58
4	12	16	10	12 9	1			9	13
5	57	65	10	16	2			41	33
6	8	9	8	13	3			25	18
7	50	50	17	16	4			8	4
		561		142	5			26	21

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10.6	13	6	19
7	27	16	43
8	12	15	27
9	5	5	10
11.0	41	25	66
1	2	2	4
2	21	11	32
3	6	3	9
4			
5	9	6	15
6			
7	6	3	9
8	4	2	6
9			
12.0	2	3	5
			245

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Bootis Drac.

λ Orionis	α Andr.	α Cass.	α Ursa Min.	39 Drac.	ε Boot.	ε Drac.	θ Urs.	ξ Urs.	12 Can.	κ Lyn.	α Draconis
1			.35	2.92	.60	.70	1.90	1.25	.27	.47	.92
2			.65	1.57	2.25	.75	.40	.90	.82	.87	1.45
3			.22	.85	.12	1.10	.57	.87	.35	.52	.62
4			~~2.55~~ .45	.45	1.70	.55	1.22	.42	1.02	1.20	.90
5			.45	.65	2.35	.02	1.47	.82	.20	.20	.35
6			.22	1.72	1.02	1.50	2.07	1.00	.07	.70	~~.50~~
7			.55	.62	1.30	.85	.45	1.37	.57	1.07	1.30
8			.25	1.07	.45	.62	.80	2.40	1.02	.32	2.12
9			.30	1.15	1.07	.67	.77	1.15	.85	.17	2.82
10			.50	1.57	.42	1.45	.75	.60	.85	.22	1.85
11			.72		.92		.90			1.07	.90
12			.97							.37	.30
13											
14											

2.122 v 4.244 .0743 in 10.23 ~~7 Cree~~ 20 13.46 ~~51 236~~

1.24	2.72	2.79	15.45 18.14 13.20 31.18 26.01 16.63 9.87
2.48	5.44	5.58	
~~.0216~~ .0233	.0947	.0973	.5735 .5917 .4446 .8859 .7882 .5484 3.377
17.6		7.80	.148 ~~.1690~~ .125 .171 .086 ~~.0868~~ .096 .139 2.225
23.1			
~~16.13~~	10.56	10.28	1.947 1.690 2250 1129 1769 1823 2761
8.8	4.01	3.9	

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β Cyg.	39 Drac.	ε Boot.	ε Drac.	θ Eri.	ζ Ursa	12 Com	π Leyn.	β Cyg.	λ Orion
.75	.43	.05	.12	.16	.12	.04	.11	.08	
2.10	.23	.19	.13	.03	.09	.11	.20	.23	
.60	.13	.01	.19	.05	.08	.05	.12	.07	
1.20	.07	.14	.09	.10	.04	.14	.27	.13	
1.30	.10	.20	.03	.13	.08	.03	.05	.15	
.67	.25	.09	.17	.18	.10	.01	.16	.08	
.15	.09	.11	.14	.04	.13	.08	.24	.02	
.22	.16	.04	.11	.07	.23	.14	.07	.02	
1.75+	.17	.09	.11	.07	.11	.12	.054	.20	
1.02	.23	.04	.25	.06	.06	.12	.05	.11	
.07		.08		.08			.24	.01	
2.15-							.08	.24	
	186		134	97	104	84	163	134	
	sind übrig 186		.134	.087	.104	.084	.136	.112	
20 42 2 @ D	.18		.23	.12	.16	.17	.16	.14	

.6799
.112

1470

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	α And.	α Cass.	α UM.	39 Drac	ε Bootis	ε Drac.	θ Enid	ζ UMi.	12 Cam	η Lyn.	α Lyn.
Reduct.	.	.	.	.	.	.	—	.	.	.	
W. Equat.								:	:	:	
Prob ε,				.	.	.	.	.	.	.	
Diff Diff											.
Details	.	.	.	.	.	.	.	.	.	.	.

		Det.	Sets.	Sq.	D/D	Sets	Sq	D/D
	λ Ursae		19		32			
Jan	α And.		.13		27			
D. Feb	α Cass		.14		.19			
Jan	α U. M.		.12	39	19			
Dec.	39 Drac.		.18	.19	.25		18	25
Jan	ε Bootis		.19	~~.19~~ 15	.24 ~~.22~~			
D. Dec.	ε Drac.		.23	.13	14			
Feb	θ Enid.		.12	.09	.08			
Apr.	ζ UMi.		.16	.10	.10			
Apr.	12 Cam.		.17	.08	.06			
Dec.	η Lyn.		.16	.14	.18			
Dec.	α Lyn.		~~.24~~					
Dec.	β Cyg.		.14	.14	.11			
May	γ Draco		.13	.09	.10			
	α Cam Maj							
				147 / 39 / 108	145 / 19 / 126			
				99	116			
				~~9~~	~~9~~			
					~~.13~~			
				.124	.145			
				.12	.14			

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3 Cyg. & Lyr. ν Drac. α Can Maj.

ν Draconis

A+C	B+D	A-C	B-D	(A+C)-(B+D)
-.1	0	-2.7	-1.0	-1
.0	+.2	-3.4	-2.4	-2
-.1	0	-3	-2.2	-1
0	0	-1.4	+2.2	0
+.1	+.1	-1.3	-.1	0
+.1	+.1	-1.1	+.9	0
0	0	+3.8	-2.2	0
+.1	0	+2.7	-5.8	+1
0	-.1	+3.2	-8.1	+1
+.1	+.1	+2.7	-4.7	0
+.1	+.1	-.3	+3.3	0
.0	+.2	-.4	-.8	-2
.7	.9	23.3	33.7	.8

1.6

57.0
2.60
1,30

Mean .067
Mean Err = .033 = 2'
= .0025 = $\frac{1}{400}$ mag.

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	A	B
1.0	III	3
1.2		
1.5	I	1
1.7		
2.0	IIII I	6
2.1	I	1
2		
3		
4		
5	II	2
6		
7	II	2
8	I	1
9		
30	IIII III	13
1	I	1
2	IIII I	6
3	I	1
4		
5		1
6		
7	II	2
8	IIII	5
9	II	2
40	IIII IIII IIII I	21
1	IIII	4
2	IIII III	9

	A	B
4.3		
4	III	3
5	IIII	4
6	III	3
7	IIII IIII II	12
8	III	3
9	IIII III	8
5.0	IIII IIII IIII	20
1	II	II
2	II	II
3	I	III
4		I
5	I	II
6		
7	I	III
8	I	
9		I
60	I	IIII
1		IIII
2		I
3	I	III
4		I
5		IIII
6		I
7		III
8		II
9		

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B

7.0	IIII
1	III
2	II
3	II
4	I
5	III
6	III
7	I
8	III
9	III
8.0	IIII
1	III
2	IIII
3	I
4	II
5	III
6	I
7	
8	I
9	I
9.0	IIII III
1	I
2	III
3	I
4	
5	III
6	I

B

9.7	I
8	
9	
10.0	III
1	II
2	II
3	II
4	
5	II
6	
7	I
8	I
9	
11.0	II
1	
2	II
3	I
4	
5	
6	
7	
8	
9	
12.0	II

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	A			B		
	12	18	24			
10	11	1	1'	3 1 3	3	55
15	1		1	2 1 . –	2	ι Orionis
20	IIII			6 6	6	ν Tauri
21		1		1 1	1	Auriga
25			1	1 2 .	2	κ Tauri
27	11			2 2	2	11 Cam
28	1			1 1	1	14 Aur.
30	1	IIII	IIII	12 13 . ?	15	κ Leph.
1				1 .	1	VII 10 23 Orionis
2	III	II	1	6 6	6	11 Monoc
3			1	1 1	1	ζ Canis
5		1		1 . –	1	54 Leonis
7	1		1	2 2	2	XII τ 1.
8	III	1		4 5 .	4	35 Cam
9	1		1	2 2	2	5 Lacertæ
40	IIIIIII	IIII	IIII	22 21 . –	22	κ Herculis
1	1	II	1	4 4	4	σ Cor.
2	IIII		II	9 9	9	16 Draco
3					0	10 ?
4	II		1	3 3	3	14 Draco.
5	II		II	4 4	4	XVIII τ Ophiuch
6			II	2 3 .	3	4 Cygni
7	IIII	II	IIII	12 12	12	
8	II	II		4 3 .	4	
9	III	IIII	1	8 8	8	
50	IIIIIIIII	IIIIII	1	23 20 . –	22	

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1990phae.proj.1048.

407 10.3
1641 10.5

α Aq

Omitted

α Aquilae	1.5		— β Cyg
ε Ophiuchi	50 57		— δ "
ζ Bootis	35 39		— β Del.
ζ Herculis	30 6x		β Lyrae
ζ Ophiuchi	40 6?		β Cygni
Atlas Pleiadum			δ Cygni
			δ Herc.
α Cas = 2.5		ε Peg. 2.5? ≡	ζ "
ε Bootis = 3.1		β Cep. 2.5	α Her.
η Aql 3.8			β Serpentis
ε Hyd "		ν Cor. 4.8	δ Leporis
23 U Ursa "		17 Com.	ε Bootis
η Herc "		θ Ori	ν Virginis
		4 Camel.	— γ Cygni
ν Dra. 4.6			— γ Andro
ε Her. 4.6			
o Dra 4.6			

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B7 5.1 Dan & Ant

88, ψ Pisc 5.0 14 8 4 12.0
180 γ Arietis 4.4 15 6 - 12.0 / 30 7 3
α Pisc 3.9 - 23 4 4 12.0
γ Andr 5.0
δ Lacerta 5.0
α Cep 3.7 -
γ Cep 3.5 -
γ Virgin 3.10 - ξ Ursae 4.9 11 11 5
ξ Ursa 4.2 ~~ξ Sculp 4.0~~ 15 88,1
ξ Bootis 3.9 - ξ Aquar 4.1 22 22
16 Draco. 5.0 δ Sculptoris 4.0
γ Draco. 4.6
95 Herc 4.9
α Cep 4.2
γ Del 5.0
θ Sculp. 4.2

3.0			1	
3.5			1	
3.7			1	
3.9	HC.	DE.	2	
4.0	~~1~~	-	> 1	
1	1	-	> 1	
2	III	II	> 3	1
4		1	> 1	1
5			0	
6	1	1	1	1
7			0	
8			0	
9	II	1	> 2	
5.0	IIII	IIII	5	

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	0.2	.3-.7
1	3	2
	7	4
	24	6
	48	24
	67	55
	193	174
	452	438
	994	1042
	733	368
	319	174
	121	33
	11	
	2972	2320

2320

5292

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	0	1	2	3	4	5	6	7	8	9
1	3					2				
2	6	1				2		2	1	
3	16	1	6	1		2		3	4	4
4	23	5	12		4	4	4	12	4	10
5	~~27~~	9	17	~~10~~	4	13	8	22 ~~21~~	13	15 ~~16~~
6	~~96~~	~~25~~	~~49~~	29	15	~~55~~ 62	~~76~~ 18	56	39	26
7	216 ~~209~~	62 ~~60~~	126 ~~118~~	85 ~~81~~	50 ~~47~~	148 ~~146~~	38 ~~35~~	133 ~~131~~	134 ~~129~~	53 ~~50~~
8	474 ~~473~~	67	305	192	58	473	48	271	170	61
9	334	24	164	83	21	142	11	111	63	31
10	129	22	74	43	12	57	19	43	27	10
11	66	4	32	9		15		9	6	
12	5									
	1355	217	776	447	161	912	141	659	456	186
	1395	220	785	452	164	920	146	662	461	190

1355
217
776
456
186
2990
447
161
912
141
659
2320
5310

1355 217 776
161 447
912 141 659
186 456
2267 705 2338
2338
705
5310 | 28
28 190
25
252

0	6	1140	1355	1395
1	1	190	217	220
2	3	570	776	785
3	3	570	447	452
4	1	190	161	164
5	6	1140	912	920
6	1	190	141	146
7	3	570	659	662
8	3	570	456	461
9	1	190	186	190
	28		5310	5395

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	last Star in Hour	Σ				
0	83	90				3062 = all.
1	187	212	67	A	no mult.	6128
2	305	349	70	B		137
3	429	490	137		142	5991
4	554	640			6	852
5	735	844			852	5139
6	888	1018				
7	1035	1183				2771
8	1145	1309				5542
9	1233	1407				137
10	1319	1509				5405
11	1408	1601				
12	1520	1720				
13	1596	1801				
14	1693	1907				
15	1793	2009				
16	1896	2119				
17	2037	2276				
18	2192	2447				
19	2363	2625				
20	2488	2753				
21	2594	2859				
22	2697	2974				
23	2771	3062				

On Hh 41, 42 and 72 ** B has no mag.

In hours 0 to XII 27 ** A has no mag

XII to XXIII 40 . . . .

67

** B 70

137

B - 20 A - 91

+175 +148

+155 +57

57

+212

2726 51 2775 2816 56 2760

5310 212 5098 2550 212 2762

2549 2761 5310

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	0 – XII	XII – XXIII	0 – XXIII		
Corr-D.E.	1408	1363	2771	2726	3123
omitted A+B	27	40	67	81 / 2645	3127
" B	2	1	3		3129
Total	2760	2645	5405		3133
Mags & Intens	2750	2559 / 2635	5292	Corr-Sum Σ	3134
Sum limits Z. 13, 23			5310	" " Obs	10448
Σ limits	2750		5395		
Mags Intens			5377		

	A	B
Σ	+149	+116
	−91	−55
		−57
	+58	+61
	119	

5377 2748 5224
2688 2629
2624
2749 5377
119

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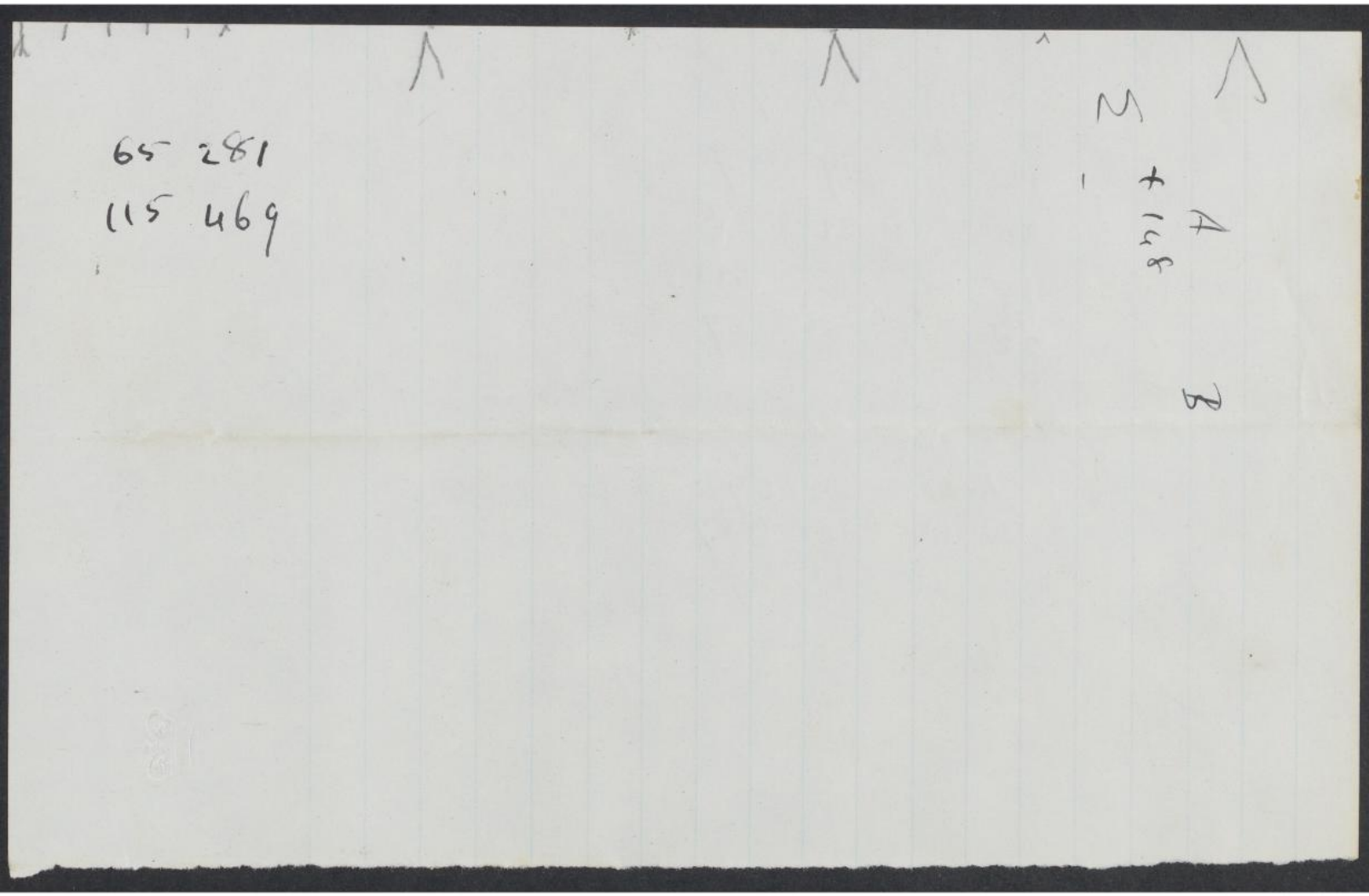
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		18	37	77.8	6	63	76.5
	d	h				89	24.2
May	13	9	19	8.9		44	42.1
	30	3	32	8.2			
June	15	21	44	42.1			
	32	13	56	59			
		18	12	59.3			
		18	12	33.9			
		18	12	17			

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astro.ph.proj 1248

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