1924phae.proj.1123P

KG
11366
122

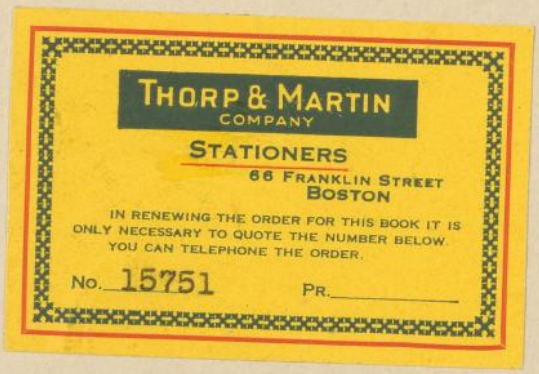
37

Line Areas.

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KG 1366.122



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1924phae.proj.112aP

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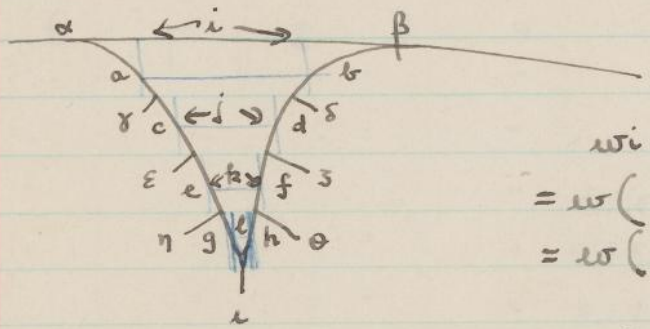
KG 11366.122

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Measurement of line areas.



Area of segment
= approximately

$$wi + wj + wk + wl + \ldots\ldots$$
$$= w(ab + cd + ef + gh)$$
$$= w\left(\frac{\alpha\beta+\gamma\delta}{2} + \frac{\gamma\delta+\varepsilon\zeta}{2} + \frac{\varepsilon\zeta+\eta\theta}{2} + \frac{\eta\theta+\iota}{2} \ldots\right)$$
$$= w\left(\frac{\alpha\beta}{2} + \gamma\delta + \varepsilon\zeta + \ldots\ldots + \frac{\iota}{2}\right)$$

The relative areas are then obtained by multiplying by dl and simple addition.
For the absolute areas, a frequency correction must be applied.

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2

✓

sep 1755 X14968 ζ_1 Scorpii. For reduction curve see Bk 29

Line	β	γ	δ	ε	ζ	ɜ	η	θ
Level 1	-	-(1.2)1.2	-	-	-			
tenths 2	-	2.9 2.6	-	-	-			
of a magnitude 3	-	1.9 1.5	(2.3) 2.3	-				
4	-	1.7 1.4	3.3 3.0	-	-			
5	-	1.3 0.9	2.3 1.8	-	-			
6	-	1.1 0.7	1.8 1.4	1.0 1.0	-			
7	0.8 0.8	0.9 0.4	1.2 0.8	3.9 3.5	0.1 0.1	-		
8	2.2 2.0	0.6 0.3	0.9 0.6	5.0 4.0	1.0 0.9	-		
9	3.9 3.1	0.4 0.2	0.7 0.4	4.1 3.3	5.0 4.0	-		
10	2.0 1.6	0.1 0.1	0.5 0.2	3.3 2.3	7.0 5.6	-		
11	1.1 0.8	-	0.2 0.1	3.0 1.8	5.2 3.6	0.1 0.1		
12	0.8 0.5	-	0.1 0.0	2.7 1.6	4.0 2.4	2.6 2.3	-	
13	0.6 0.4	-	-	2.3 1.2	3.4 2.0	4.1 3.3	-	
14	0.3 0.2	-	-	2.1 1.0	3.1 1.6	4.7 3.8	-	
15	0 -	-		2.0 0.8	2.8 1.4	3.3 2.3	-	
16	-	-		1.8 0.7	2.6 1.0	2.6 1.5	0.1 0.1	
17	-	-		1.3 0.5	2.2 0.9	1.9 1.1	1.0 0.9	
18	-			1.1 0.3	1.9 0.8	1.1 0.6	2.9 2.6	
19	-			0.9 0.3	1.5 0.4	0.1 0.0	4.7 3.8	-
20	-			0.7 0.2	1.2 0.4	-	6.7 4.7	-
21	-			0.4 0.1	0.9 0.3	-	4.0 2.4	0.1 0.1
22	-			0.1 0.0	0.6 0.1		3.4 2.0	1.9 1.7
23	-			-	0.2 0.0		2.6 1.3	4.5 3.6
24	-			-	-		1.0 0.5	3.4 2.8
25	-				-		0.3 0.1	0.9 0.6
	11.7 9.4	12.9 10.3	13.9 9.6	35.7 22.6	42.7 26.5	20.5 15.0	26.9 18.4	10.8 8.8
1st + last / 2	0.3 0.5	0.3 0.6	1.2 1.2	0.6 0.5	0.1	0.1	0.2	0.5
Diff.	11.4	11.8	12.2	35.1	42.6	20.4	26.5	10.3
Corrected sum	8.9	8.7	9.4	22.1	26.4	15.0	18.3	8.4

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4 C19082 δ Cephei ✓ μΦ1544

Level		β		γ		δ		ε		ζ		η		θ	
Interval 0.m2	1	1.0	1.0	out		out of									
	2	1.6	1.4 (2.7)	of		range									
	3	1.0	0.8 (1.4)	range				0.4	0.4 (0.4)						
	4	0.6	0.4 (0.7)					3.0	2.7 (5.1)						
	5	0.2	0.1 (0.2)	θ		ι		3.1	2.5 (4.3)	0.1	0.1 (0.1)				
	6							2.4	1.7 (2.6)	3.3	3.0 (5.6)	0.6	0.6 (0.6)		
	7							1.9	1.3 (1.9)	4.0	3.2 (5.6)	2.9	2.6 (4.9)	0.1	0.1 (0.1)
	8							1.5	0.9 (1.2)	2.9	2.0 (3.2)	1.8	1.4 (2.5)	1.4	1.3 (2.4)
	9							1.1	0.7 (0.8)	2.3	1.6 (2.3)	0.8	0.6 (0.9)	3.4	2.7 (4.8)
	10			0.1	0.1 (0.1)			0.8	0.4 (0.4)	1.9	1.1 (1.5)	0.0	0.0 (0.0)	5.7	4.0 (6.3)
	11			1.8	1.7 (3.1)			0.4	0.2 (0.2)	1.6	1.0 (1.1)			2.4	1.7 (2.4)
	12			3.9	3.1 (5.5)	0.1	0.1 (0.1)	0.1	0.0 (0.0)	1.1	0.6 (0.6)			0.9	0.6 (0.7)
	13			1.9	1.3 (2.0)	2.5	2.2 (4.3)			0.8	0.4 (0.4)			0.0	0.0 (0.0)
	14			0.4	0.3 (0.4)	2.0	1.6 (2.8)			0.4	0.2 (0.2)				
	15					0.3	0.2 (0.3)			0.1	0.0 (0.0)				
	16														
	17														
Sums			3.7 (6.0)		6.5 (11.1)		5.1 (7.5)		10.8 (16.9)		13.2 (20.6)		5.2 (9.9)		10.4 (16.7)
Corrected sum			3.1 (5.4)		6.3 (10.9)		5.1 (7.3)		10.6 (16.7)		13.2 (20.6)		4.9 (9.6)		10.4 (16.7)
			6.4		11.0		7.4		17.1		20.7		10.2		16.8

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C 19082, 22 And ✓ μ Per 1544

	β		γ		δ		ε		k		–		–	
5			6.0	~~6.0~~ 12.0	1.4	~~1.4~~ 2.8								
6			1.8	3.1	5.6	9.5								
7	0.2	0.4	1.2	1.7	2.4	3.4	1.8	~~1.8~~ 3.6						
8	2.3	3.9	0.7	0.8	1.4	1.5	6.3	10.4	0.4	0.8				
9	1.2	1.7	0.1	0.1	0.8	0.8	3.7	5.2	4.6	7.8				
10	0.5	0.6			0.1	0.1	2.0	2.2	2.4	3.4				
11	0.0	0.0					1.6	1.6	1.8	2.0				
12							1.2	1.0	1.7	1.7				
13							1.0	0.7	1.2	1.0				
14							0.8	0.4	1.0	0.7				
15							0.4	0.2	0.7	0.4				
16							0.2	0.1	0.3	0.2				
17							0.0	0.0	0.1	0.0				
Sums		6.6		17.7		18.1		25.4		18.0				
Corrected		6.4		11.7		16.6		23.6		17.6				

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1924phae.proj.1123P

6

Cl 9129 Vega ✓

	β		γ		δ		ε		κ		ζ		η		θ		ι	
Lukwal	1																	
0m.2	2			13.0 ~~6.5~~	26.0													
	3			4.9	8.3	11.0	22.0											
	4	0.1	0.2	3.3	4.8	5.0	8.5	1.1	2.2									
	5	1.1	1.9	2.4	2.6	3.3	4.8	9.0	15.1	0.1	0.2	0.5	1.0					
	6	2.7	3.8	1.9	1.9	2.8	3.1	5.1	7.2	0.6	1.0	2.6	4.4					
	7	3.3	3.6	1.4	1.1	1.9	1.9	3.6	4.0	0.1	0.1	6.0	8.4					
	8	1.9	1.9	0.3	0.2	1.1	0.9	2.5	2.5			4.1	4.5					
	9	1.2	~~1.6~~ 1.0	0.1	0.1	0.7	0.5	1.5	1.2			2.9	2.9	0.5	1.0			
	10	0.6	0.4			0.2	0.1	1.0	0.7			2.1	1.7	3.4	5.8			
	11	0.2	0.1			0.0	0.0	0.6	0.4			1.7	1.2	5.0	7.0	0.1	0.2	
	12	0.0	0.0					0.4	0.2			1.1	0.7	5.0	5.5	1.9	3.2	
	13							0.2	0.1			1.0	0.5	3.7	3.7	3.4	4.8	
	14							0.1	0.0			0.7	0.3	3.0	2.4	4.8	5.3	
	15											0.4	0.1	2.1	1.5	4.8	4.8	0.1 0.2
	16													1.8	1.3	2.9	2.3	1.9 3.2
	17													1.4	0.7	2.7	1.9	3.2 4.5
	18													1.2	0.5	2.1	1.3	4.4 4.8
	19													1.0	0.3	1.9	1.0	6.5 5.5
	20													0.8	0.2	1.2	0.5	2.4 1.8
	21													0.0	0.0	0.8	0.2	1.9 1.3
	22															0.3	0.1	1.0 0.6
	23															0.0	0.0	0.1 0.0
Sums		12.9		~~45.9~~ 44 ~~21.0~~		41.8		33.6		8.3		25.7		29.9		25.6		21.9
Corrected		12.8		31.9		30.8		32.5		8.2		25.1		29.4		25.5		21.8
								4.1										
								(28.4)										

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C 19129 η Aquilae ✓

Interval 0m.2	β		γ		δ		ε		k		ζ	
1												
2												
3												
4												
5			3.9	5.8								
6	0.4	0.8	1.7	2.9								
7	2.1	3.6	1.0	1.4	1.7	3.4						
8	1.2	1.7	0.6	0.7	2.7	4.6						
9	0.4	0.4	0.0	0.0	1.4	2.0						
10	0.0	0.0			0.9	1.0						
11					0.2	0.2	0.2	0.4				
12							5.0	8.5	0.1	0.2		
13							3.8	5.3	3.1	5.3		
14							3.3	3.6	5.0	7.0		
15							3.1	3.1	3.9	4.3	0.1	0.2
16							2.0	1.6	3.0	3.0	2.1	3.6
17							1.7	1.2	2.8	2.2	2.3	3.2
18							1.5	0.9	2.5	1.8	1.3	1.4
19							1.2	0.6	2.0	1.2	1.0	1.0
20							1.1	0.4	1.9	1.0	0.2	0.2
21							0.8	0.2	1.8	0.7		
22							0.7	0.2	1.6	0.5		
23							0.3	0.1	1.4	0.4		
24							0.1	0.0	0.9	0.2		
25									0.6	0.1		
									0.1	0.0		
		6.5		10.8		11.2		26.1		27.9		9.6
		6.1		6.9		9.4		25.9		27.8		9.4

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8 X12380 q Velorum esp 1829 ✓

β		γ		δ		ε		k		ζ		η		θ		ι		k
1.4	28.	2.9	58.0	5.7	114.0	1.7	34.0	0.1	2.0	1.3	26.0	0.1	2.0	3.8	76.0	0.9	18.0	
2.5	42.5	4.3	73.1	4.1	69.7	4.8	81.6	2.1	65.7	4.8	81.6	1.2	20.4	5.5	93.5	2.3	39.1	
1.6	2.24	2.2	30.8	2.4	3.36	3.5	49.0	0.4	5.6	4.2	58.8	1.9	26.6	4.9	68.6	3.7	51.8	
1.1	12.1	1.6	17.6	2.1	23.1	2.7	29.7	0.0	0.0	3.1	34.1	4.9	53.9	3.4	37.4	3.2	35.2	
0.7	4.0	1.1	11.0	1.6	16.0	2.1	21.0			2.1	21.0	5.7	57.0	2.8	28.0	2.1	21.0	
0.0	0.0	0.9	7.2	0.9	7.2	1.3	10.4			1.0	8.0	3.3	26.4	1.4	11.2	1.6	12.8	
		0.5	3.5	0.3	2.1	0.8	5.6			0.0	0.0	2.6	18.2	0.1	0.7	0.0	0.0	
		0.0	0.0	0.0	0.0	0.1	0.6					1.9	11.4	0.0	0.0			
						0.0	0.0					1.3	6.5					
												0.0	0.0					

91.59 201.2

77.6 — 162.2 2255

1685 231.9 73.3

194.7 — 72.7 229.5 282.4 35.4 184.9

216.5 — 221.4 277.4 — 175.9

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1924phae.proj.1123P

X12380 H.D. 75821. μ Sgr 1821

β		γ		δ		4026		ε		ζ		η	
0.4	8.0	4.9	98.0	1.9	38.0	1.4	28.0	0.1	2.0	1.4	28.0	0.1	2.0
1.9	32.3	1.8	30.6	3.1	52.7	0.8	13.6	4.3	73.1	3.8	64.6	1.7	28.9
0.7	9.8	0.6	6.4	1.6	22.4	0.0	0.0	2.9	40.6	1.1	15.4	3.2	44.8
0.0	0.0	0.1	1.1	0.7	7.7			0.0	0.0	0.0	0.0	4.4	48.4
		0.0	0.0	0.0	0.0							0.6	6.0
												0.0	0.0
	50.1		136.1		120.8		41.6		115.7		108.0		130.1
	46.1		131.2		101.8		27.6		44.7		94.0		129.1

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1924phae.proj.1123P

✓

X12380 g Velorum mp 1884

β		γ		δ		ε		ζ		η	θ	ι	κ
0.8	14.0	3.4	68.0	4.0	80.0	1.5	30.0	2.2	44.0	2.8	56.0	4.9	
2.8	47.6	5.6	95.2	4.7	79.9	6.8	115.6	2.1	35.7	5.9	100.3	3.7	
4.4	61.6	4.8	68.6	3.3	46.2	5.0	70.0	0.7	9.8	7.7	107.8	5.9	
1.9	20.9	2.5	27.5	2.6	28.6	3.7	40.7	0.1	1.1	4.9	53.9	5.4	
1.3	13.0	2.1	21.0	1.9	19.0	2.9	29.0	0.0	0.0	4.0	40.0		
0.7	5.6	1.6	12.8	1.2	9.6	2.1	16.8			3.2	25.6		
0.4	2.8	0.9	6.3	0.7	4.9	1.8	12.6			1.9	13.3		
0.0	0.0	0.2	1.2	0.0	0.0	1.3	7.8			1.3	7.8		
		0.0	0.0			0.9	4.5			0.8	4.0		
						0.7	2.8			0.0	0.0		
						0.0	0.0						
	167.5		300.6		268.2		329.8		90.6		408.7		
	159.5		266.6		228.2		314.8		68.6		380.7		

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1924phae.proj.1123P

X12380 H.D. 75[illegible]76 ? ✓ Fop

β		γ		δ		ε		ζ	
0.1	2.0	5.8	116.0	7.1	142.0	1.3	26.0	0.3	6.0
2.9	49.3	3.6	61.2	4.5	76.5	4.9	83.3	4.1	69.7
4.1	57.4	2.4	33.6	3.4	47.6	5.1	71.4	4.9	68.6
~~2.3~~		1.9	20.9	2.3	25.3	2.4	48.4	3.1	34.1
1.3	14.3	1.4	14.0	1.7	17.0	2.3	23.0	2.4	24.0
0.9	0.9	1.2	9.6	~~1.2~~ 1.2	9.6	1.0	8.0	1.9	15.2
0.6	4.8	~~0.4~~		0.6	4.2	0.1	0.7	0.0	0.0
0.1	0.7	0.5	3.5	0.2	1.2	0.0	0.0		
0.0	0.0	0.2	1.2	0.0	0.0				
		0.0	0.0						
	129.4		260.8		323.4		260.8		217.6
	128.4		202.0		252.4		247.8		214.6

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1924phae.proj.1123P

12

12830

HD. 75199 μΦ 1820

β		γ		δ		ε	
1.3	26.0	1.3	26.0	1.1	22.0	1.3	26.0
0.9	15.3	2.9	49.3	3.1	52.7	4.6	78.2
0.0	0.0	0.7	9.8	0.9	12.6	1.8	25.2
		0.1	1.1	0.4	4.4	0.9	9.9
		6.0	0.0	0.0	0.0	0.0	0.0
	41.3		86.2		91.7		139.3
	283		73.2		80.7		126.3

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1924phae.proj.1123P

C 19133 η Aquilae u φ 1873

B		γ		δ		ε		K		ζ		η		θ	
0.1	2.0	3.8	76.0	3.1	62.0	0.1	2.0	0.3	6.0	0.1	2.0	2.2	44.0	1.3	26.0
2.9	49.3	1.4	23.8	1.5	26.5	3.1	53.7	4.1	69.7	1.5	26.5	4.6	78.2	2.8	47.6
1.3	18.2	0.7	9.8	0.8	11.2	5.9	82.6	6.3	88.2	2.7	37.8	2.7	37.8	3.4	47.6
0.4	4.4	0.0	0.0	0.2	2.2	4.3	47.3	4.9	53.9	1.2	13.2	1.9	20.9	1.4	15.4
0.0	0.0			0.0	0.0	3.6	36.0	4.3	43.0	0.6	6.0	1.3	13.0	0.2	2.0
						3.1	24.8	3.9	31.2	0.2	1.6	0.4	3.2	0.0	0.0
						2.9	20.3	3.5	24.5	0.0	0.0	0.2	1.4		
						2.4	14.4	2.8	16.8			0.0	0.0		
						2.1	10.5	2.4	12.0						
						1.8	7.2	2.1	8.4						
						1.6	4.8	2.0	6.0						
						1.5	4.5	1.8	5.4						
						1.3	2.6	1.5	3.0						
						1.1	2.2	1.3	2.6						
						1.0	2.0	1.1	2.2						
						0.9	0.9	0.9	0.9						
						0.8	0.8	0.7	0.7						
						0.6	0.6	0.3	0.3						
						0.4	0.4	0.0	0.0						
						0.2	0.2								
						0.0	0.0								
		73.9	109.6	100.9		317.8		374.8		86.1		198.5		138.6	
72.9		71.6		69.9		316.8		371.8		85.1		176.5		125.6	

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14

19136

η Aquilae n φ 1889

99		103	
2.3	46.0	0.3	6.0
6.9	117.3	3.6	61.2
4.9	68.6	5.8	81.2
3.8	41.8	6.1	67.1
2.9	29.0	4.9	49.0
2.0	21.6	4.2	33.6
2.6	18.2	3.3	23.1
2.3	13.8	2.9	17.4
1.9	9.5	2.2	11.0
1.4	5.6	1.7	6.8
1.1	3.3	1.1	3.3
0.7	2.1	0.1	0.3
0.1	0.2	0.0	0.0
0.0	0.0		
	379.0		360.0
	354.0		354.0

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1924phae.proj.1123P

C 19136 d Aquarii μ Φ 1889

99		103	
1.2	24.0	0.1	2.0
3.1	62.7	3.2	64.4
5.2	79.8	5.7	79.8
3.5	38.5	4.8	52.8
3.1	31.0	3.7	37.0
2.9	23.2	3.0	24.0
2.6	18.2	2.3	16.1
2.3	13.8	2.1	12.6
1.9	9.5	1.8	9.0
1.4	6.6	1.2	4.8
0.8	2.4	0.9	2.7
0.0	0.0	0.3	0.9
		0.0	0.0
	291.7		297.1
	279.7		296.1

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1924phae.proj.1122P

C 19136

41 Cygni. MO 1888

ε		K	
0,2	4.0	0.1	2.0
3.7	62.9	3.1	52.7
3.9	54.6	2.9	40.6
3.1	34.3	2.4	26.4
2.1	21.0	1.9	19.0
1.7	13.6	1.6	12.8
1.1	7.7	1.2	8.4
0.8	4.8	1.0	6.0
0.6	3.0	0.4	2.0
0.2	1.8	0.1	0.4
0.0	0.0	0.0	0.0
	206.7		170.3
	204.7		169.3

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1924phae.proj.1123P

C 19136 β Delphini m 1888

	E		K	
0.1	2.0	2.8	56.0
2.2	37.4	5.4	91.8
5.4	75.6	4.8	67.2
3.9	42.9	3.3	36.3
3.3	33.0	2.7	27.0
2.8	22.4	2.2	17.6
2.6	18.2	1.9	13.3
2.1	12.6	1.6	9.6
1.8	9.0	1.4	7.0
1.3	5.2	1.2	4.8
1.1	3.3	1.1	3.3
0.9	2.7	0.9	2.7
0.7	1.4	0.7	1.4
0.6	1.2	0.5	1.0
0.4	0.8	0.2	0.4
~~0.3~~		0.1	0.1
0.2	0.2	0.0	0.0
0.1	0.1		
0.0	0.0		
	268.0		340.6
Corr	267.0		312.6

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1924phae.proj.112SP

Ci 9086 m 0 15 56 δ Cephei

β		γ		δ		ε		κ		ζ		η	
1.6	32.0	1.4	28.0	1.8	36.0	0.2	4.0	0.1	2.0	2.2	44.0	0.1	2.0
1.2	20.4	1.0	17.0	1.9	32.3	5.1	86.7	3.4	58.8	1.6	27.2	2.9	49.3
0.2	2.8	0.3	4.2	0.9	12.6	4.6	64.6	6.3	88.1	0.0	0.0	1.3	18.2
0.0	0.0	0.0	0.0	0.4	4.4	3.3	36.3	5.1	56.1			0.2	2.2
				0.0	0.0	2.7	27.0	4.0	40.0			0.0	0.0
						2.1	16.8	3.3	26.4				
						1.0	10.5	2.8	19.6				
						1.2	7.2	2.2	13.2				
						0.6	3.0	1.6	8.0				
						0.0	0.0	0.9	3.6				
								0.0	0.0				
	55.2		49.2		85.3		256.1		315.8		71.2		71.1
	39.2		35.2		67.3		254.1		314.8		49.2		70.7

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1924phae.proj.1123P

C 19086 ρ Cassiopeiae μ Q 1556

β		γ		δ		ε		κ	
0.7	14.0	1.7	34.0	1.7	34.0	1.5	30.0	1.9	38.0
1.8	30.6	2.1	35.7	1.5	25.5	4.3	73.1	5.8	98.6
0.9	12.6	1.0	14.0	0.9	12.6	4.8	67.2	6.8	95.2
0.1	1.1	0.8	8.8	0.4	4.4	3.8	41.8	5.3	58.3
0.0	0.0	0.4	4.0	0.2	2.0	2.9	29.0	4.7	47.0
		0.0	0.0	0.0	0.0	2.6	20.8	3.9	31.2
						2.4	16.8	3.4	23.8
						2.1	12.6	2.9	17.4
						1.9	9.5	2.6	13.0
						1.7	6.8	2.4	9.6
						1.5	4.5	2.2	6.6
						1.3	3.9	2.1	6.3
						1.2	2.4	2.0	4.0
						1.1	2.2	1.8	3.6
						1.0	2.0	1.6	3.2
						0.8	0.8	1.4	1.4
						0.6	0.6	1.2	1.2
	58.3		96.5		78.5		324.0		458.4
	51.3		79.5		61.5		309.0		439.4

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1924phae.proj.112aP

C 19086 2 Andromedae

β		γ		δ		ε		κ	
0.1	2.0	7.5	150.0	6.9	138.0	1.3	26.0	2.7	54.0
1.3	22.1	4.4	74.8	4.3	73.1	5.8	98.6	1.8	30.6
3.2	44.8	2.8	39.2	3.2	44.8	5.2	72.8	1.1	15.4
2.4	26.4	2.3	25.3	2.4	26.4	4.1	45.1	0.4	4.4
1.6	16.0	1.5	15.0	1.8	18.0	3.3	33.0	0.0	0.0
0.9	7.2	1.0	8.0	1.3	10.4	2.5	20.0		
0.3	2.1	0.6	4.2	0.9	6.3	2.1	14.7		
0.0	0.0	0.0	0.0	0.4	2.4	1.4	8.4		
				0.0	0.0	1.2	6.0		
						0.9	3.6		
						0.6	1.8		
						0.1	0.3		
						0.0	0.0		
	120.6		316.5		319.4		330.3		104.4
	119.6		241.5		200.4		227.3		77.4

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22 X-4064
μφ 1527
#2

δ		ε		k		ζ		η		θ		ι		κ	
0.2	3.3	0.6	2.4			1.2	0.2	2.0	1.1	2.4	1.1	2.8	3.0	3.0	0.9
0.4	1.8	0.8	1.9			1.4	3.4	2.2	2.7	2.6	2.8	3.0	2.0	3.2	1.6
0.6	0.9	1.0	1.1			1.6	1.6	2.4	1.1	2.8	1.0	3.2	0.7		
		1.2	0.2			1.8	6.8								
	6.6		4.8				0.4		2.2		2.2		6.0		1.8
	3.0		3.2				5.8		4.6		4.8		3.4		2.7
	1.3		1.5				2.2		1.5		1.4		1.0		—
			0.2				0.9								
	10.9		9.7				9.3		8.3		8.4		10.4		4.5
	3.8		2.4				0.2		1.1		1.1		3.0		0.9
	9.3		7.3				9.1		7.2		7.3		7.4		3.6
	7.6														

X-4046
μφ 1528
#1 ✓

β		γ		δ		ε		ζ		β	γ	δ	ε	3
1.0	2.9	0.2	3.1	0.4	8.0	0.4	3.8	1.0	2.9	5.8	6.2	16.0	7.6	5.8
1.2	5.9	0.4	3.4	0.6	3.8	0.6	10.1	1.2	6.0	10.0	5.8	6.5	17.4	10.1
		0.6	2.4	0.8	2.1	0.8	4.4	1.4	5.1	—	3.4	2.9	6.2	7.1
		0.8	1.5	1.0	1.7	1.0	3.1	1.6	3.4	—	1.6	1.8	3.4	3.7
		1.0	1.2	1.2	1.6	1.2	2.4	1.8	2.1		1.2	1.6	2.4	2.1
		1.2	0.6	1.4	1.1	1.4	1.6	2.0	2.0		0.5	0.9	1.3	1.6
				1.6	0.8	1.6	1.0					0.6	0.7	
				1.8	0.5	1.8	0.6					0.3	0.4	
						2.0	0.2						0.1	
										15.8	18.7	30.6	39.5	30.4
										2.9	3.1	8.0	3.8	2.9
										12.9	15.6	22.6	35.3	27.5

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X-4064
μφ 1522
5

β		γ		δ		ε		k		ζ		η		θ		
1.0	1.1	0.0	9.0	0.2	1.9	0.4	4.6	0.6	=	1.0	0.9	1.6	0.9	2.2	1.0	
1.2	1.8	0.2	2.0	0.4	1.2	0.6	2.7	0.8	1.6	1.2	3.5	1.8	3.0	2.4	1.2	
1.4	0.6	0.4	0.8	0.6	0.6	0.8	1.3	1.0	0.2	1.4	1.3	2.0	1.2	2.6	0.2	This measure very doubtful
		0.6	0.1			1.0	0.6			1.6	0.7	2.2	0.9			
						1.2	0.2									
	1.1		9.0		1.9		4.6		..		0.9		0.9		1.0	
	3.1		3.4		2.0		4.6		1.6		6.0		5.1		2.0	
	0.8		1.0?		0.8		1.8		8.3		1.8		1.7		0.3	
	—		0.1		—		0.7		–		0.8		1.0			
	5.0		13.5		4.7 ?		11.7		1.9		9.5		8.7		3.3	

X-4064 ✓
μφ 1524
1

ε	k
1.2	1.0
5.3	6.6
6.7	10.6
7.0	10.0
5.4	5.4
3.4	3.3
2.4	2.5
1.6	1.8
1.0	1.2
0.6	0.8
0.4	0.5
0.3	0.4
0.2	0.2
0.1	0.1
0.1	0.1
0.0	0.1
	0.0
35.7	44.6

β		γ		δ		ε		k		k (Cont'd)		ε (Cont'd)	
κ Gam.		1.6	2.0	0.2	3.0	1.4	2.3	2.0	—	2.8	1.0	5.6	0.6 ✓	5.0	0.7 ✓
		1.8	1.0	0.4	2.3	1.6	1.2	2.2	1.2	3.0	3.9 ✓	5.8	0.2 ✓	5.2	0.5 ✓
		2.0	0.1	0.6	2.0 ✓	1.8	0.6	2.4	3.1 ✓	3.2	7.6 ✓			5.4	0.2
		β	γ	0.8	1.6 ✓	2.0	0.2 ✓	2.6	4.8 ✓	3.3	9.2 ✓			5.6	—
		2.0	2.0	1.0	1.4 ✓		2.3	2.8	6.4 ✓	3.4	7.0 ✓	This measure made of width of absorption line halfway between indicated steps in magnitude.			Plus measure made thru "clear" mark
		1.7	3.9	1.2	1.1 ✓		2.0	3.0	5.4 ✓	3.6	5.4 ✓				
		0.1	2.8	1.4	1.0 ✓		0.8	3.2	4.3 ✓	3.8	4.1 ✓				
			1.7	1.6	0.9 ✓		0.2	3.4	3.4 ✓	4.0	3.6 ✓				
			1.4	1.8	0.2 ✓			3.6	2.7 ✓	4.2	3.0 ✓				
			0.9					3.8	2.0 ✓	4.4	2.3 ✓				
			0.7					4.0	1.5 ✓	4.6	2.0 ✓				
			0.4					4.2	1.2 ✓	4.8	1.6 ✓				
			0.1					4.4	1.0 ✓	5.0	1.3 ✓				
							5.3	4.6	1.0 ✓	5.2	0.8 ✓				
								4.8	0.7 ✓	5.4	0.7 ✓				

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X-4064 ✓

MQ 1525 #3

β		γ		δ		ε		ζ	
0.8	3.0	0.4	2.0	0.6	4.0	1.0	1.0		
1.0	0.8	0.6	1.0	0.8	1.1	1.2	4.3	1.6	5.1
1.2	0.2	0.8	0.7	1.0	0.7	1.4	2.8	1.8	4.0
		1.0	0.1	1.2	0.2	1.6	3.1	2.0	3.0
						1.8	2.7	2.2	2.0
						2.0	2.1	2.4	1.4
						2.2	1.5		
	3.0		2.0		4.0		1.0		5.1
	1.3		1.7		1.9		3.4		6.8
	0.3		1.0		1.0		4.2		4.2
	4.6		0.1		0.2		3.4		2.2
			4.8		7.1		2.7		1.4
							1.7		19.7
							1.0		
							17.4		

measured to a point ½ way between H & K

X-4064

MQ 1523 #4 ✓

B8

β		γ		δ		ε		ζ	
1.0	2.9	0.2	6.0			0.6	7.3	1.0	1.0
1.2	2.0	0.4	4.1	0.4	3.6	0.8	3.1	1.2	4.0
1.4	1.1	0.6	2.1	0.6	2.0	1.0	2.0	1.4	3.5
1.6	0.2	0.8	1.1	0.8	1.0	1.2	1.3	1.6	2.1
1.8	0.1	1.0	0.8	1.0	0.5	1.4	0.8	1.8	1.5
						1.6	0.1	2.0	1.1
	2.9		6.0		3.6		7.3		1.0
	3.4		7.0		3.4		5.3		6.8
	1.5		2.9		1.4		2.8		4.9
	0.2		1.5		0.5		1.8		2.9
	0.1		0.8				0.8		1.5
	8.1		17.9		8.9		0.1		0.9
							17.7		17.4

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1924phae.proj.112SP

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1924phae.proj.1123P

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1924phae.proj.1123P

C-19071
μφ 1517 ✓
#2
α Cygni

β		γ		δ		ε		k		ζ		η		θ	
		0.2	1.8	0.4	0.6	0.6	0.6	0.8	0.5	1.2	1.9	1.6	2.4	2.0	2.0
0.8	0.8	0.4	0.7	0.6	0.6	0.8	0.8	1.0	0.2	1.4	0.8	1.8	1.2	2.2	1.4
1.0	0.2	0.6	0.2	0.8	0.2	1.0	0.8			1.6	0.3	2.0	0.8	2.4	1.1
						1.2	0.7			1.8	0.1	2.2	0.4	2.6	0.8
						1.4	0.3					2.4	0.2	2.8	0.6
	0.8		1.8		0.6		0.6		0.5		1.9		2.4		2.0
	0.3		1.2		1.1		1.3		0.3		1.3		2.0		2.4
	—		0.3		0.3		1.1		—		0.4		1.1		1.5
	1.1		3.3		2.0		0.8				0.1		0.4		0.9
							0.3						0.2		0.6
							4.1		0.8		3.7		6.1		7.4

#2 μφ 1517 Cont'd ✓
α Cygni

L		K		λ		μ		ν		ξ	
2.4	2.0	2.8	2.8	3.0	1.9	3.2	1.8	3.4	1.4	3.6	1.3
2.6	1.1	3.0	1.6	3.2	1.2	3.4	1.1	3.6	1.0	3.8	0.7
2.8	0.7	3.2	0.9	3.4	0.9	3.6	0.6	3.8	0.9		
3.0	0.6	3.4	0.2	3.6	0.2	3.8	0.2				
3.2	0.1	3.6	—								
	2.0		2.0		1.9		1.8		1.4		1.3
	1.8		2.7		2.0		1.8		1.7		1.2
	1.0		1.3		1.3		0.8		1.3		—
	0.7		0.2		0.2		0.2		—		
	0.1		—		—		—				
	5.6		6.2		5.4		4.6		4.4		2.5

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	β		γ		δ		ε		k		ζ		ε	k
C-19071	1.0	1.9	0.4	0.4	1.0	2.0	1.4	1.5	1.6	0.3	2.2	0.5	1.5	0.3
μ Cep 1515	1.2	0.2	0.6	1.2	1.2	0.3	1.6	1.1	1.8	2.5	2.4	1.8	7.0	4.2
# 4			0.8	0.8			1.8	3.1	2.0	6.8	2.6	0.3	4.3	9.5
δ Cephei							2.0	2.4	2.2	4.5			2.5	5.0
		1.9		0.4		2.0	2.2	2.0	2.4	2.8		0.5	2.0	2.8
		0.3		2.0		0.4	2.4	1.5	2.6	2.1		2.5	1.2	1.2
		—		1.1		—	2.6	1.1	2.8	2.0		0.6	0.8	1.4
		2.2		—			2.8	0.9	3.0	1.6		3.6	0.5	0.9
				3.5		2.4	3.0	0.3	3.2	1.3			0.2	0.6
							3.2	—	3.4	1.0			20.0	0.4
									3.6	0.2				0.1
														26.7

	β		γ		δ		ε		k		ζ		η		θ	
C-19071																
μ Cep 1516	1.6	0.9	0.8	1.5	1.0	1.2	1.2	2.9	1.4	0.4	1.8	1.2	2.2	1.2	2.8	1.3
# 3	1.8	0.4	1.0	1.0	1.2	0.9	1.4	1.1	1.6	0.4	2.0	0.9	2.4	1.9	3.0	0.7
α Cyg?			1.2	0.5	1.4	0.6	1.6	0.7	1.8	0.1	2.2	0.5	2.6	1.4		
			1.4	0.2	1.6	0.2	1.8	0.5			2.4	0.2	2.8	0.9		
							2.0	0.4			2.6	—	3.0	0.5		
							2.2	0.2					3.2			
							2.4									
		0.9		1.5		1.2		2.9		0.4		1.2		1.2		1.3
		0.7		1.7		1.5		1.8		0.7		1.5		3.2		1.2
				0.7		0.8		1.0		0.1		0.7		1.8		—
				0.2		0.2		0.6				0.2		1.0		
								0.4						0.5		
								0.2								
		1.6		4.1		3.7		6.9		1.2		3.6		7.1		2.5

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	β		γ		δ		ε		h		ζ	
X-4065	0.8	0.4	0.2	1.6	0.6	1.5	1.0	1.9	1.2	0.6	1.8	1.8
μ9 1785	1.0	1.0	0.4	1.3	0.8	0.9	1.2	1.7	1.4	1.9	2.0	1.6
#1	1.2	0.1	0.6	0.9	1.0	0.6	1.4	1.2	1.6	1.3	2.2	1.0
γ Cas Fsp			0.8	0.5	1.2	0.1	1.6	1.0	1.8	0.9		
							1.8	0.7				
							2.0	0.3				
		0.4		1.6		1.5		1.9		0.6		1.8
		1.7		2.2		1.5		2.9		3.2		2.7
		0.1		1.3		0.8		1.7		1.8		1.4
				0.6		0.1		1.1		1.0		
								0.7				
								0.2				
		2.2		5.7		3.9		8.5		6.6		5.9

	β		γ		δ		ε	
X-4065	0.8	1.5	0.4	3.5	0.8	4.5	1.2	0.8
μ9 1785	1.0	2.7	0.6	2.0	1.0	3.0	1.4	4.1
#3	1.2	1.5	0.8	1.5	1.2	2.0	1.6	3.0
Bq			1.0	0.9	1.4	1.0	1.8	2.3
HD. 97398					1.6	0.1	2.0	0.7
	2	1.5		3.5		4.5		0.8
		4.6		3.4		5.1		7.0
		2.1		2.1		2.8		4.2
				1.0		1.1		2.4
						0.1		0.7
		8.2		10.0		13.6		15.1

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	β		γ		δ		ε		ζ		ζ	
X-4065	1.0	0.9	0.2	4.8	0.2	1.8	0.6	2.9			1.2	1.0
μφ 1786	1.2	1.5	0.4	0.7	0.4	1.5	0.8	1.7			1.4	2.7
#2	1.4	0.9			0.6	0.5	1.0	1.0			1.6	1.8
							1.2	0.2			1.8	1.1
B3 HD97670		0.9		4.8		1.8		2.9				1.0
		2.5		1.2		2.5		2.7				4.6
		1.3		—		0.7		1.4				2.5
								0.2				1.2
		4.7		6.0		5.0		7.2				9.3

	γ		δ	
X-4065	0.2	1.6	0.4	2.4
μφ 1786	0.4	1.3	0.6	0.9
#7	0.6	0.2	0.8	0.2
B5, 7.4 HD.97557		1.6		2.4
		2.2		1.5
		0.3		0.3
		4.1		4.2

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1924phae.proj.112sp

X - 4065
μφ 1784
#4 ✓
HD 96446
B3p

β	γ		δ		ε		k		ζ	
	0.2	2.8	0.2	1.7	0.6	0.7	1.0	1.5	1.4	1.5
	0.4	1.4	0.4	2.3	0.8	4.3	1.2	2.3	1.6	2.0
	0.6	0.6	0.6	1.2	1.0	2.5			1.8	0.9
			0.8	0.7	1.2	0.8				
		2.8		1.7		0.7		1.5		1.5
		2.5		3.9		7.3		3.9		3.4
		0.8		1.7		3.5		—		1.3
				0.8		0.9				
		6.1		8.1		12.4		5.4		6.2

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No 5?

B0 ✓

HD96248

β		γ		δ		ε		ζ	
1.2	1,0	0.2	1.0	0,4	0.7	1.0	2.0	1.6	2,0
1.4		0.4	1.1	0.6	1.3	1.2	0.9		
		0.6	0.5			1.4	0.2		
	1.0		1.0		0.7		2.0		2.0
	—		1.8		2.2		1.5		
			0.7		—		0.3		—
	1.0		3.5		2.9		3.8		2.0

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1924phae.proj.112aP

C-19086
μφ 1557
#7 Oand
HD127476

β		γ		δ		ε		ζ		η		θ		ι	
0.6	0.3	0.2	2.0	0.4	1.5	0.6	1.5	1.2	1.5	1.8	1.2	2.2	1.1	2.6	1.8
0.8	1.3	0.4	1.5	0.6	1.5	0.8	2.1	1.4	2.7	2.0	2.5	2.4	2.5	2.8	2.0
1.0	0.7	0.6	0.9	0.8	1.0	1.0	1.5	1.6	1.3	2.2	1.6	2.6	1.6	3.0	1.1
1.2	0.1	0.8	0.2	1.0	0.5	1.2	1.0	1.8	0.6	2.4	0.7	2.8	1.0	3.2	0.1
	0.3		2.0		1.5	1.4	0.5		1.5		1.2		1.1		1.8
	2.2		2.5		2.5		1.5		4.6		4.2		4.2		3.4
	1.0		1.3		1.4		3.6		1.8		2.2		2.2		1.5
	0.1		0.2		0.6		2.1		0.7		0.8		1.1		0.1
	3.6		6.0		6.0		1.1		8.6		8.4		8.6		6.8
							0.6								
							8.8								

κ		λ	
2.8	1.4	3.0	1.7
3.0	2.3	3.2	1.4
3.2	1.1	3.4	-
	1.4		1.7
	3.9		2.4
	1.4		-
	6.7		4.1

C-19086
μφ 1557
#5
~~Oand~~
HD224151

β		γ		δ		ε		ζ		η	
1.0	0.7	0.2	2.4	0.4	1.3	0.6	0.7	1.2	0.3	2.0	1.0
1.2	0.6	0.4	0.2	0.6	0.5	0.8	1.5	1.4	1.5	2.2	1.6
1.4	-					1.0	0.5	1.6	0.8	2.4	0.4
						1.2	-	1.8	—	2.6	0.3
											-
	0.7		2.4		1.3		0.7		0.3		1.0
	1.0		0.3		0.8		2.5		2.5		1.7
	—		—		—		0.7		1.1		0.5
	1.7		2.7		2.1		3.9		3.9		0.3
											3.5

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	β		γ		δ		ε		k	
C-1908	0.6	0.3	0.4	2.5	0.8	1.4	1.2	1.2	1.4	0.8
μφ 1728	0.8	2.0	0.6	0.7	1.0	0.6	1.4	4.1	1.6	6.7
#5	1.0	0.5					1.6	2.1	1.8	5.3
							1.8	2.7	2.0	4.0
							2.0	2.1	2.2	3.7
							2.2	1.5	2.4	3.2
							2.4	1.2	2.6	2.3
							2.6	0.7	2.8	1.3
									3.0	0.7
									3.2	—

	β		γ		δ		ε		k		ζ	
C-1908	0.4	0.9	0.2	2.1	0.6	2.0	1.2	2.9	1.4	2.1	1.8	1.1
μφ 1727	0.6	1.1	0.4	1.2	0.8	1.3	1.4	3.3	1.6	5.6	2.0	2.6
#4 η Aql.	0.8	0.6	0.6	0.5	1.0	0.7	1.6	3.0	1.8	4.0	2.2	1.8
	1.0	—			1.2	—	1.8	2.6	2.0	3.2	2.4	1.2
							2.0	2.2	2.2	2.8	2.6	0.5
							2.2	1.9	2.4	2.3	2.8	—
							2.4	1.6	2.6	2.1		
							2.6	1.4	2.8	1.8		
							2.8	1.2	3.0	1.5		
							3.0	0.9	3.2	1.3		
							3.2	0.7	3.4	1.2		
							3.4	0.6	3.6	0.9		
							3.6	0.2	3.8	0.3		
							3.8	0.1	4.0	0.1		

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	β		γ		δ		ε		k	
C-19118	0.4	1.2	0.2	3.9	1.5	1.3			1.2	1.8
μφ 1768	0.6	0.5	0.4	1.9	1.2	3.2			1.4	6.1
#5			0.6	0.9	1.4	2.4			1.6	4.1
					1.6	1.5			1.8	2.8
					1.8	0.5			2.0	1.5
									2.2	—

	β		γ		δ		ε		k	
	0.2	0.7	0.2	1.3	0.8	0.7	1.6	2.2	1.8	1.5
C-19118	0.4	2.7	0.4	1.0	11.0	1.0	1.8	4.0	2.0	6.2
μφ 1767	0.6	1.3	0.6	0.8	1.2	0.6	2.0	3.4	2.2	5.7
#4	0.8	0.3	0.8	—	1.4	—	2.2	3.0	2.4	4.1
	1.0	—					2.4	2.5	2.6	3.2
							2.6	2.2	2.8	2.9
							2.8	1.9	3.0	2.5
							3.0	1.6	3.2	2.2
							3.2	1.3	3.4	1.6
							3.4	1.0	3.6	1.4
							3.6	0.9	3.8	1.3
							3.8	0.9	4.0	1.0
							4.0	0.7	4.2	0.8
									4.4	0.3

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	β		γ		δ		ε		k		ξ	
X-4502	0.6	1.2	0.2	1.4	0.4	2.1	1.0	3.5	1.2	1.5	1.6	2.9
μφ 1851	0.8	1.1	0.4	1.0	0.6	1.4	1.2	2.4	1.4	2.7	1.8	2.3
#1	1.0	–	0.6	0.7	0.8	0.8	1.4	1.9	1.6	2.1	2.8	0.6
					1.0	0.2	1.6	1.3	1.8	1.7		
							1.8	0.9	2.0	1.3		
							2.0	0.7	2.2	0.2		

	β		γ		δ		ε		k		ξ	η
	0.8	1.2	0.2	3.0	0.2	2.0	0.6	4.1	0.8	0.5		
X-4502	1.0	2.0	0.4	2.0	0.4	3.3	0.8	3.9	1.0	2.1		
μφ 1851	1.2	1.1	0.6	1.5	0.6	2.1	1.0	2.9	1.2	1.3		
#2	1.4	0.5	0.8	1.1	0.8	1.7	1.2	2.5				
			1.0	0.4	1.0	1.0	1.4	1.6				
					1.2	0.6	1.6	1.3				
					1.4	–	1.8	0.9				
								+				

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Half widths of H and K lines

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Hand K lines: H first

Sup	Star	w	mm	lmm	[A]	[mm]	$\bar{n}$	$\overline{mm}$	dm	dl	$\frac{dl}{2}$	dlm
2533	τ Ceti	50	190	390	26	98	337	195	142	73	36	49
		35	150	390	18	77	374	229	145	74	37	51
2282	ξ_1 Ceti	15	210	570	5	74	487	234	253	90	45	65
		10	140	570	4	49	500	278	222	87	44	64
2157	C15513.2	20	210	535	7	78	456	228	228	88	44	64
		15	160	535	5	60	487	258	229	88	44	64
7295	β 2 Mi	10	190	480								
		5	140	480								
	α Cen											
266	α CMi	120	330	500	48	132	280	141	139	72	36	48
		95	295	495	38	119	303	162	141	73	36	48
2019	22 And	30	165	360	17	92	379	205	174	80	40	56
		20	140	360	11	78	421	228	193	83	42	60
2020	λ Ser	20	200	380	11	106	421	182	239	90	45	65
		5	170	380	3	89		209		90?	45	65
2155		75	220	450	33	98	316	195	121	67	34	45
	16 0.5 m8.0	60	185	450	27	82	334	221	113	65	32	42
2164	K Aur	35	250	370	19	136	369	135	234	88	44	62
		20	210	365	11	115	421	168	253	90	45	65

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			w (mm)	Ratio	Class	
244	68	132	2.5	1.28	KO	
270	53	103	3.2			
299	39	111	3.1	~~1.74~~		
342	25	88	5.0	1.61		
292	42	112	2.8	1.36		
322	30	803	3.8			
			2.9	1.17	KO	✓
			3.4			
			6.0	1.63	dGO	✓
			9.8			
189	102	255	1.9	1.05	dF5	✓
200	95	237	2.0			
261	58	104	1.6	1.00	cF0	✓
288	44	79	1.6			
247	66	126	2.1	1.19	KO	
274	57	97	2.5			
240	70	157	2.2	1.22	KO	
263	57	128	2.7			
197	97	177	2.2	1.32	KO	
233	75	137	2.9			

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Sup	Star	n	mtn	ltmtn	$\bar{n}$	$\overline{mtn}$	[w]	[w tn]	dm	dl	$\frac{dl}{2}$	$\frac{dm}{2}$	
2040	t27° 888	15	200	475	6	84	469	217	252	90	45	65	27
		15	150	475	6	63	469	253	216	86	43	61	31
2659	ρ Pup	100	465	610	33	152	316	110	206	85	43	61	17
		65	420	610	21	138	358	132	226	88	44	63	19
1889	α Aql	Previously standardized											
1889	η Aql C19136	Previously standardized											
1888	β Del	Previously standardized											
1888	41 Cyg	Previously standardized											
277	α Per	75	610	680	22	180	353	357	296	94	47	69	1
		46	580	680	13	170	406	79	327	95	48	71	1
2629	ζ Gem	55	275	480	23	114	349	170	179	81	40	56	22
	C19350	40	235	480	17	98	379	195	184	82	41	58	25
2617	ζ Gem	60	230	320	38	144	303	122	181	81	40	56	17
	C19344	40	200	320	25	125	341	153	188	82	41	58	21
1515	δ Cep	Previously standardized											

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~~obs~~ mtn	red. mtn	mtn to mtn	w	Ratio	Class	
272	52	124	3.2	1.16		
314	34	81	3.7			
171	113	345	2.6* (2.2)	1.00	cF8	1.6 ✓
195	98	300	2.2			1.6
			2.7	1.11	cG0	✓
			3.0			
			2.8	1.14		
			3.2			
			1.6	1.00	cF5	✓
			1.6			
			1.85	1.00	cF5	✓
			1.5			
126	142	425	2.0	1.05	cF5	✓
150	126	370	2.1			
226	79	190	2.8	1.14		
253	63	151	3.2			
178	109	174	3.1	1.16		
211	88	141	3.6			
			2.1	1.05		
			2.2			

* Partly He?

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Hour	Star	n	mtn	lmtn	$\bar{n}$	mtn	[n]	[mtn]	dm	dl	½ dl	Corr dm	Cor mt
1544	22 And	Previous standardization											
	δ Cep C19082	Previous standardization											
1768	δ Cep C19118	Previous standardization											
1755	ι Sco	Previous standardization											
1727	η Aql C19108	Previous standardization											
2422	ε Indi	30	165	375	16	88	385	211	174	80	40	56	26
		20	105	375	11	56	421	265	156	76	38	52	31
2207	α Ari	40	350	465	17	150	379	113	266	92	46	67	18
		20	310	465	9	134	437	138	299	94	47	69	20
382	α Ori	95	315	680	28	93	330	203	127	69	34	46	24
		85	220	680	25	65	341	249	92	57	29	36	28

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Corr mtn	Counts	W mm	Ratio	Class	
		1.6	1.07	CF5	
		1.5			
		1.9	1.16		
		2.2			
		2.5	1.64		
		4.1			
		3.1	1.23	CF5	
		3.8			
		2.2	1.32		
		2.9			
267	55	99	4.1	1.15	dK5
317	33	62	4.7		
180	108	250	2.0	1.45	gK2
207	90	209	2.9		
249	65	221	2.8	1.18	cM0
285	46	156	3.3		

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1924phae.proj.1123p

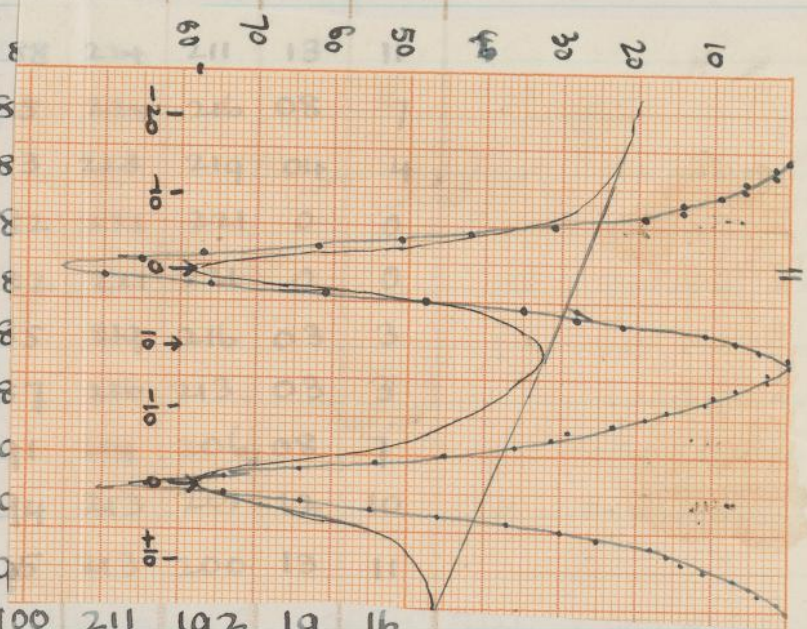
Line Contour.

α Centauri A, μep 2443 × 7901 total deflection = 78″

	Reading from Center	n	mm	$\bar{n}$	$\overline{mm}$	[n]	[mm]	dm	dl
red ←	-20	21	21						0
	-19	21	21						0
	-18	21	21						0
	-17								0
	-16								0
	-15	22.0	23.0	56	56	265	265	0	0
	-14	22.5	23	58	59	262	260	02	2
	-13	22.5	23	58	59	262	260	02	2
	-12	23	24.5	59	63	260	253	07	6
	-11	23.5	25	60	64	258	251	07	6
	-10	24	26	61	67	256	246	10	9
	-9	24.5	27.5	63	71	253	239	16	14
	-8	24.5	28.5	63	73	253	236	17	14
	-7	25	30.5	64	78	251	228	23	19
	-6	25.5	35	65	90	249	208	41	31
	-5	26	40	67	103	246	187	59	42
	-4	26	45	67	115	246	168	78	51
	-3	26.5	52	68	134	244	138	106	62
	-2	27	65	69	167	243	85	158	77
	-1	27.5	73.5	71	188	239	31	208	85
Hζ	0	28	78	72	200	238	..	..	
	1	28	76	72	195	238	..	[250]	90:
	2	28.5	66	73	170	236	79	157	76
	3	29	54	74	138	234	132	102	61
	4	29.5	47	76	120	231	160	71	48
	5	29.5	41	76	105	231	184	47	35
	6	30	38.5	77	99	229	193	36	28
	7	30.5	36.5	78	94	228	201	27	22

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1924phae.proj.11...

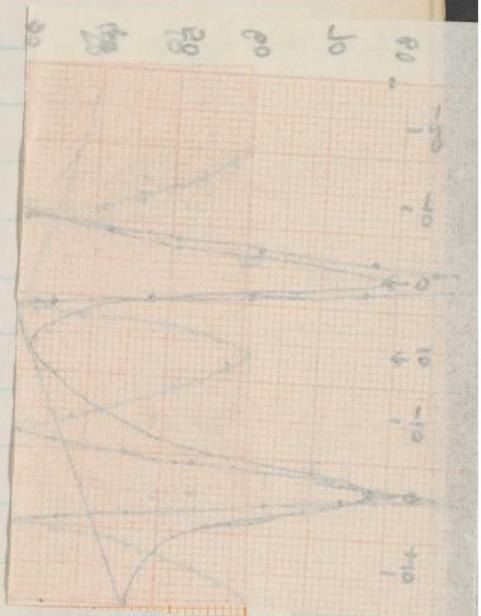


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	9	31	33	80	8				
	10	31.5	32.5	81	8				
	+11	32	32	82	8				
	-17	32	32	82	8				
	-16	32.5	33	83	8				
	-15	33	34	85	8				
	-14	33.5	35.5	86	c				
	-13	34	36.5	87	c				
	-12	34	37	87	9				
	-11	34.5	39	88	100	211	192	19	16
	-10	35	40.5	90	104	208	185	23	19
	-9	35.5	42.5	91	109	206	178	28	23
	-8	36	45	92	115	205	168	37	29
	-7	36.5	47	94	120	201	160	41	31
	-6	37	49	95	126	200	151	49	36
	-5	37	53	95	136	200	135	65	45
	-4	37.5	58.5	96	150	198	113	85	54
	-3	38	65	97	166	197	86	111	64
	-2	38.5	72	99	184	193	46	147	74
	-1	39	76	100	194	192	(-4)	196	84
K	0	39.5	78	101	200	190	..	..	..
	+1	40	76.5	102	196	188	..	..	..
	+2	40	73	102	187	188	36	152	75
	+3	40.5	67.5	104	173	185	73	112	64
	+4	41	62.5	105	160	184	97	87	55
	+5	41.5	57.5	106	148	182	116	66	46
	+6	42	54.5	108	140	180	129	51	37
	+7	42.5	52	109	133	178	140	38	30
	+8	43	50.5	110	130	176	145	31	25

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8	31	34.5	80	88	224	211	13	11
9	31	33	80	85	224	216	08	7
10	31.5	32.5	81	83	223	219	04	4
+11	32	32	82	82	221	221	0	0
−17	32	32	82	82	221	221	0	0
−16	32.5	33	83	85	219	216	03	3
−15	33	34	85	87	216	213	03	3
−14	33.5	35.5	86	91	214	206	08	7
−13	34	36.5	87	94	213	201	12	10
−12	34	37	87	95	213	200	13	11
−11	34.5	39	88	100	211	192	19	16
−10	35	40.5	90	104	208	185	23	19
−9	35.5	42.5	91	109	206	178	28	23
−8	36	45	92	115	205	168	37	29
−7	36.5	47	94	120	201	160	41	31
−6	37	49	95	126	200	151	49	36
−5	37	53	95	136	200	135	65	45
−4	37.5	58.5	96	150	198	113	85	54
−3	38	65	97	166	197	86	111	64
−2	38.5	72	99	184	193	46	147	74
−1	39	76	100	194	192	(−4)	196	84
K 0	39.5	78	101	200	190	..	..	..
+1	40	76.5	102	196	188	..	..	..
+2	40	73	102	187	188	36	152	75
+3	40.5	67.5	104	173	185	73	112	64
+4	41	62.5	105	160	184	97	87	55
+5	41.5	57.5	106	148	182	116	66	46
+6	42	54.5	108	140	180	129	51	37
+7	42.5	52	109	133	178	140	38	30
+8	43	50.5	110	130	176	145	31	25



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+9	43.5	49	112	126	173	151	22	18
+10	43.5	48.5	112	124	173	154	19	16
+11	44	48.5	113	124	171	154	17	14
+12	44.5	47.5	114	122	170	157	13	11
+13	45	47	115	120	168	160	8	7
+14	45.5	47	116	120	166	160	6	5
+15	45.5	46.5	116	119	166	162	4	4
+16	46	46.5	118	119	163	162	1	1
+17	46.5	46.5	119	119	162	162	0	0

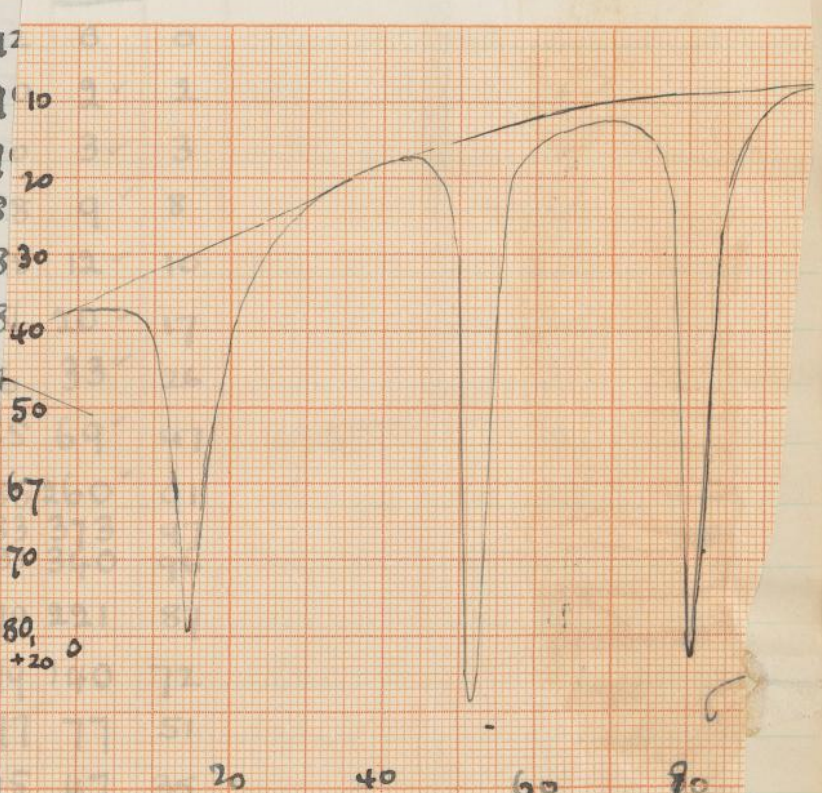
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2	55	56	120	122	160	157	3	3
3	55	56.5	120	123	160	156	4	4
4	55	57	120	124	160	154	6	5
5	55	57.5	120	125	160	153	7	6
6	54.5	58	119	126	162	151	11	10
7	54	58.5	118	127	163	149	14	12
8	54	59	118	128	163	148	15	13
9	53	59.5	115	130	168	145	23	19
10	51	60	111	131	175	143	32	26
11	46	60.5	100	131	192	143	49	36
12	40	60.5	87	131	213	143	70	48
13	30	61	65	132	249	141	108	63
14	16	61.5	33	134	316	138	178	81
H3 15	(13) 16	(62) 62	28 33	135 135	330 316	137 137	193 179	83 81
16	25	62.5	54	136	269	135	134	71
17	34	63	74	137	234	133	101	61
18	41	63.5	89	138	209	132	77	51

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19	46	64	100	139	192	130	62	44
20	51	64.5	111	140	175	129	46	34
21	54	64.5	118	140	163	129	34	27
22	57	65	124	141	154	127	27	22
23	59	65.5	128	142	148	125	23	19
24	61	66	133	144	140	122	18	15
25	63	66.5	137	145	133	121	12	10
26	64	67	139	146	130	119	11	10
27	65	67.5	142	147	125	117	8	7
28	66.5	68	145	148	121	116	5	4
29	67	68.5	146	149	119	11[illegible]	5	4
30	68	69	148	150	116	11[illegible]	3	3
31	69	69.5	150	151	113	111	2	2
32	70	70	152	152	110	110	0	0
43	75	75	163	163	92	92		
44	75	75.5	163	164	92	9[illegible]		
45	74.5	75.5	162	164	93	9[illegible]		
46	73.5	76	160	165	97	8[illegible]		
47	72.5	76	158	165	100	8[illegible]		
48	71	76.5	154	166	106	8[illegible]		
49	67	76.5	146	166	119	8[illegible]		
50	57	77	124	167	154	8[illegible]		
51	11	77	24	167	345	[illegible]67		
	(3)	77	7	168	456	8[illegible]		
52	5	77.5	11	169	421	[illegible]70		
53	18	78	39	170	300	7[illegible]		
54	38	78	83	170	219	7[illegible]		
55	57	78.5	124	171	154	7[illegible]		
56	66	79	144	172	122	7[illegible]		
57	72	79	156	172	103	75	28	23
58	74	79	161	172	95	75	20	17
59	75	79.5	163	173	92	73	19	16



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19	56	64	100	139	192	130	62	44
20	51	64.5	111	140	175	129	46	34
21	54	64.5	118	140	163	129	34	27
22	57	65	124	141	154	127	27	22
23	59	65.5	128	142	148	125	23	19
24	61	66	133	144	140	122	18	15
25	63	66.5	137	145	133	121	12	10
26	64	67	139	146	130	119	11	10
27	65	67.5	142	147	125	117	8	7
28	66.5	68	145	148	121	116	5	4
29	67	68.5	146	149	119	114	5	4
30	68	69	148	150	116	113	3	3
31	69	69.5	150	151	113	111	2	2
32	70	70	152	152	110	110	0	0
43	75	75	163	163	92	92	0	0
44	75	75.5	163	164	92	90	2 ✓	2
45	74.5	75.5	162	164	93	90	3 ✓	3
46	73.5	76	160	165	97	88	9 ✓	8
47	72.5	76	158	165	100	88	12 ✓	10
48	71	76.5	154	166	106	86	20 ✓	17
49	67	76.5	146	166	119	86	33 ✓	26
50	57	77	124	167	154	85	69 ✓	47
51	11	77	24	167	345	85	260 ✓	91
	(3)	77	7	168	456	83	373	97
52	5	77.5	11	169	421	81	340	96
53	18	78	39	170	300	79	221	87
54	38	78	83	170	219	79	140	72
55	57	78.5	124	171	154	77	77	51
56	66	79	144	172	122	75	47	35
57	72	79	156	172	103	75	28	23
58	74	79	161	172	95	75	20	17
59	75	79.5	163	173	92	73	19	16

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Transpus cont

60	76	80	165	174	88	71	17	14
61	77	80	167	174	85	71	14	12
62	77.5	80.5	168	175	83	69	14	12
63	78	80.5	170	175	79	69	10	9
64	78.5	81	171	176	77	67	10	9
65	78.5	81	171	176	77	67	10	9
66	79	81.5	172	177	75	64	11	10
67	79	81.5	172	177	75	64	11	10
68	79.5	82	173	178	73	62	11	10
69	79.5	82	173	178	73	62	11	10
70	79.5	82	173	178	73	62	11	10
71	79.5	82	173	178	73	62	11	10
72	79	82.5	172	180	75	57	18	15
73	79	82.5	172	180	75	57	18	15
74	78	82.5	170	180	79	57	22	18
75	77	83	169	181	81	55	26	21
76	76	83	168	181	83	55	28	23
77	73	83	159	181	98	55	43	33
78	68	83	148	181	116	55	61	43
79	38	83	83	181	219	55	164	78
80	12	83	26	181	337	55	282	92
	9	83	20	181	363	55	308	94
81	14	83	30	181	324	55	269	92
82	23	83	50	181	276	55	221	87
83	43	83	94	181	201	55	146	74
84	60	83.5	130	182	145	52	93	58
85	68	83.5	148	182	116	52	64	44
86	72	83.5	156	182	103	52	51	37
87	75	83.5	163	182	92	52	40	31
88	77	83.5	168	182	83	52	31	25
89	79.5	83.5	173	182	73	52	21	18

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	90	80.5	84	175	183	69	49	20	17
	91	81.5	84	178	183	64	49	15	13
	92	82	84	178	183	62	49	13	11
	93	82.5	84	179	183	60	49	11	10
	94	83	84	180	183	57	49	8	7
	95	83.5	84.5	181	184	55	46	9	8
	96	84	84.5	182	184	52	46	6	5
	97	84	84.5	182	184	52	46	6	5
	98	84.5	84.5	184	184	46	46	0	0
	99	84.5	84.5	184	184	46	46	0	0
	100	84.5	84.5	184	184	46	46	0	0
	125	88	88	192	192	8	8	0	0
	126	87.5	88	190	192	21	8	13	11
	127	87.5	88	190	192	21	8	13	11
	128	87	88	189	192	27	8	19	16
	129	87	88	189	192	27	8	19	16
	130	87	88	189	192	27	8	19	16
	131	86.5	88	188	192	31	8	23	19
	132	86	88	187	192	36	8	28	23
	133	85	88	185	192	43	8	36	28
	134	82	88	178	192	62	8	54	39
	135	79	88	172	192	75	8	67	46
	136	74	88	161	192	95	8	87	55
H8	137	69	88	150	192	113	8	105	62
	138	74	88	161	192	95	8	87	55
	139	81	88	176	192	67	8	59	42
	140	84	88	183	192	49	8	41	31
	141	85	88	185	192	43	8	35	28
	142	85.5	88	186	192	40	8	32	26

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Groups (cont.)	143	86	88	188	192	31	8	23	19
	144	86.5	88	188	192	31	8	23	19
	145	87	88	189	192	27	8	19	16
	146	87.5	88	190	192	21	8	13	11
	147	88	88	192	192	8	8	0	0
	148	88	88	192	192	8	8	0	0
	149	88	88	192	192	8	8	0	0
	150	88	88	192	192	8	8	0	0

θ Scorpii — Total deflection = 79

	0	7	7	17	17	379	379	0	0
	1	6	7	15	17	392	379	13	11
	2	5	7.5	13	19	406	~~437~~ 369	37	29
	3	3.5	7.5	9	19	437	~~437~~ 369	68	46
Hε	4	3	7.5	8	19	446	369	77	51
	5	4.5	8	11	20	421	363	58	41
	6	5.5	8	14	20	399	363	36	28
	7	6.5	8	16	20	385	363	22	18
	8	7.5	8.5	19	21	369	358	11	10
	9	8.5	8.5	21	21	358	358	0	0
	10	9	9	23	23	349	349	0	0
	11	-	-	-	-				
	12	-	-	-	-				
	13	10	10	25	25	341	341	0	0
	14	9.5	10	24	25	345	341	4	4
	15	9.0	10.5	23	27	349	334	15	13
	16	8.5	10.5	21	27	358	334	24	20
	17	8.0	11	18	28	374	330	44	33
	18	9.0	11.5	15	29	392	327	65	45
	19	5.0	12	13	30	406	324	82	53
Hθ	20	4.0	12	10	30	428	324	104	62

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21	4.5	12.5	11	32	32	421	319	102	61
22	6	13	15	33	33	392	316	76	50
23	8	13	20	33	33	363	316	47	35
24	10	13.5	25	34	34	341	313	28	23
25	12	14	30	35	35	324	311	13	11
26	13.5	14.5	34	37	37	313	305	8	7
27	14.5	15	37	38	38	305	303	2	2
28	15	15	38	38	38	303	303	0	0
29	-	-							
30	-	-							
31	17	17	43	43	290	290	0	0	
32	17	17.5	43	44	290	288	2	2	
33	17	18	43	45	290	286	4	4	
34	17	18.5	43	47	290	282	8	7	
35	16	19.5	40	49	297	278	19	16	
36	15.5	20.5	39	52	300	273	27	22	
37	15	21	38	53	303	271	32	26	
38	14.5	22	37	56	305	265	40	31	
39	13.5	23	34	58	313	262	51	37	
40	12	23.5	30	59	324	260	64	44	
41	11	24	28	61	330	256	74	49	
42	9	25	23	63	349	253	96	59	
Hm 43	7	26	18	66	374	248	126	69	
44	9	26.5	23	67	349	246	103	61	
45	12	27	30	68	324	244	80	52	
46	17	28	43	71	290	239	51	37	
47	20	29	50	73	276	236	40	31	
48	23	29.5	58	75	262	233	29	23	
49	25	30	63	76	253	231	22	18	
50	27	31	68	78	244	228	16	14	
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1924phae.proj.1123P

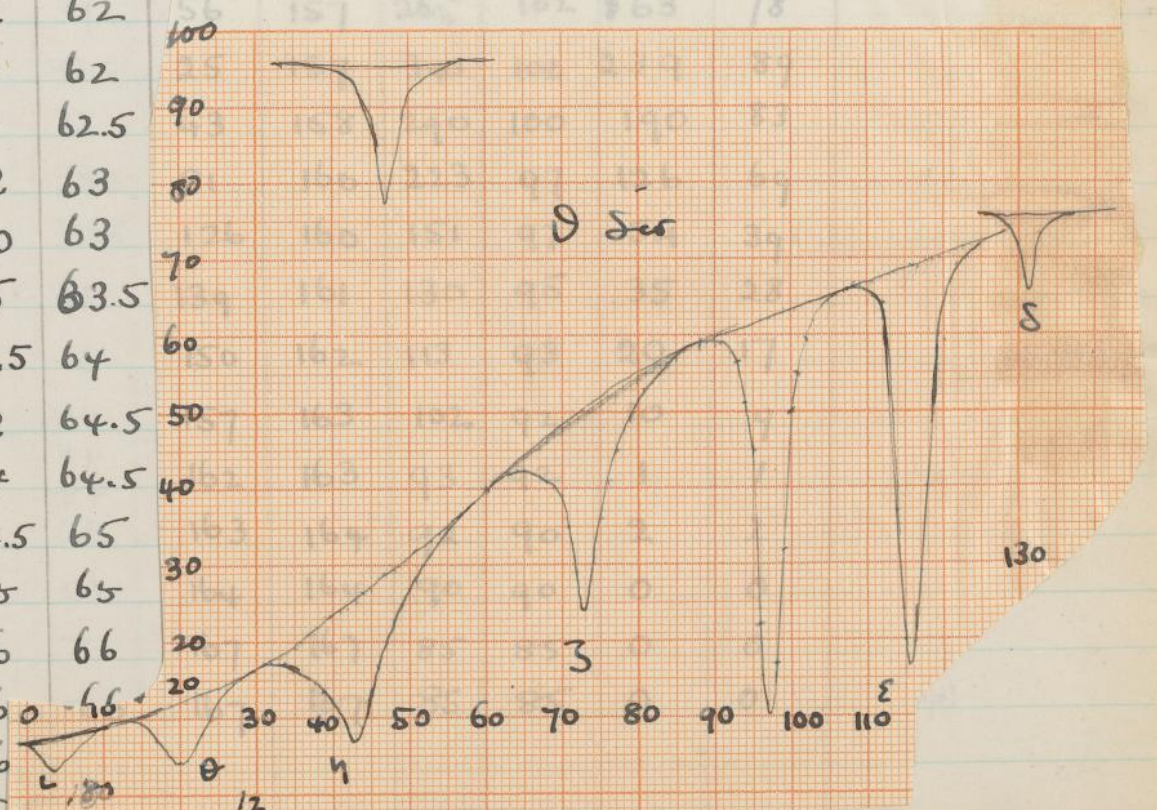
θ Scorpii

51	28	32	71	81	239	223	16	14
52	30	32.5	76	82	231	221	10	9
53	31.5	33	80	83	224	219	5	4
54	33	34	83	86	219	214	5	4
55	34.5	35	87	89	213	209	4	4
56	35.5	36	90	91	208	206	2	2
57	37	37	94	94	201	201	0	0
58	-	-	-					
59	-	-	-					
60	40	40	101	101	190	190	0	0
61	41	41	104	104	185	185	0	0
62	41.5	41.5	105	105	184	184	0	0
63	42	42.5	106	108	182	180	2	2
64	42	43.5	106	110	182	176	6	5
65	42	44	106	112	182	173	9	8
66	42	44.5	106	113	182	171	11	10
67	41.5	45	105	114	184	170	14	12
68	41	46	104	116	185	166	19	16
69	40	47	101	119	190	162	28	23
70	39	48	99	122	193	157	36	28
71	35	48.5	89	123	209	156	43	33
72	29	49	73	124	236	154	82	53
73	24	49.5	61	125	256	153	103	61
74	30	50.5	76	128	231	148	83	53
75	36	51	91	129 ~~132~~	206	146	60	42
76	~~41~~	51.5	104	130	185	145	40	31
77	45	52.5	114	133	170	140	30	24
78	48	53	122	134	157	138	19	16
79	49	53.5	124	135	154	137	17	14
80	51	54.5	129	138	146	132	14	12

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81	53	55	134	140	138	129	9	8
82	54	55.5	136	141	135	127	8	7
83	55	56	140	142	129	125	4	4
84	56	56.5	142	143	125	124	1	1
85	57	57.5	144	146	122	119	3	3
86	58	58	147	147	117	117	0	0
87	-	-	-					
88	59	59	150	150	113	113	0	0
89	59	59.5	150	151	113	111 ~~113~~	2	2
90	59	60	150	152	113	110	3	3
91	59	60	150	152	113	110	3	3
92	58	60.5	146	153	119	108	11	10
93	56.5	60.5	143	153	124	108	16	14
94	51	61	129	154	146	106	40	31
95	45	61.5	114	155	170	105	65	45
96	22	62	56	157	265	102	163	78
97	10	62						
98	17	62.5						
99	32	63						
100	50	63						
101	55	63.5						
102	59.5	64						
103	62	64.5						
104	64	64.5						
105	64.5	65						
106	65	65						
107	66	66						
108	66	66						
109	66							
110	65.5							



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1924phae.proj.112pp

81	53	55	134	140	138	129	9	8
82	54	55.5	136	141	135	127	8	7
83	55	56	140	142	129	125	4	4
84	56	56.5	142	143	125	124	1	1
85	57	57.5	144	146	122	119	3	3
86	58	58	147	147	117	117	0	0
87	-	-	-					
88	59	59	150	150	113	113	0	0
89	59	59.5	150	151	113	111 ~~113~~	2	2
90	59	60	150	152	113	110	3	3
91	59	60	150	152	113	110	3	3
92	58	60.5	146	153	119	108	11	10
93	56.5	60.5	143	153	124	108	16	14
94	51	61	129	154	146	106	40	31
95	45	61.5	114	155	170	105	65	45
96	22	62	56	157	265	102	163	78
97	10	62	25	157	341	102	239	89
98	17	62.5	43	158	290	100	190	83
99	32	63	81	160	223	97	126	69
100	50	63	126	160	151	97	54	39
101	55	63.5	139	161	130	95	35	28
102	59.5	64	150	162	113	93	20	17
103	62	64.5	157	163	102	92	10	9
104	64	64.5	162	163	93	92	1	1
105	64.5	65	163	164	92	90	2	2
106	65	65	164	164	90	90	0	0
107	66	66	167	167	85	85	0	0
108	66	66	167	167	85	85	0	0
109	66							
110	65.5							



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θ Scorpii

111	65	67	164	170	90	79	11	10
112	642	67.5	157	171	102	77	25	21
113	52	68	132	172	141	75	66	46
114	37	68.5	94	174	201	71	130	70
115	20	68.5	51	174	274	71	203	85
	17	69	43	175	290	69	221	87
116	20	69	51	175	274	69	205	85
117	29	69	74	175	234	69	165	78
118	40	69.5	101	176	190	67	123	68
119	55	70	139	177	130	64	66	46
120	64	70.5	162	178	93	62	31	25
121	67	71	170	180	79	57	22	18
122	69	71	175	180	69	57	12	10
123	70	71.5	177	181	64	55	9	8
124	71	72	180	182	57	52	5	4
125	72	72	182	182	52	52	0	0
135	75.5	75.5	191	191	15	15	0	0
136	75.5		191	191	15	15	0	0
137	75.5		191	191	15	15	0	0
138	74.5		189		27	15	12	10
139	74		188		31	15	16	14
140	71.5		181		55	15	40	31
141	67		170		79	15	64	44
	65.5		166		86	15	71	48
142	67		170		79	15	64	44
143	78		185		43	15	28	23
144	74.5		189		27	15	12	10
145	75		190		21	15	6	5
146	75.5	75.5	191		15	15	0	0

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α Arietis, total = 46.5

								dl
−1	28	28	120	120	160	160	00	00
0	27.5	28	118	120	163	160	03	03
1	27.5	29	118	124	163	154	09	08
2	26	30	112	129	173	146	27	22
3	24	30.5	103	131	187	143	44	33
	15	31	65	134	249	138	111	64
4	3	31	13	134	406	138	268	91
	2.5	31.5	11	136	421	135	286	92
5	7	32	30	138	324	132	192	83
6	18	32.5	77	140	229	129	100	60
7	26	33	112	142	173	125	48	36
8	31	34	134	146	138	119	19	16
9	33.5	34.5	144	148	122	116	06	05
10	33	35	142	150	125	113	12	10
11	25	35.5	108	153	180	103	77	51
	15	36	65	155	249	105	144	73
12	4.5	36	19	155	369	105	264	91
	15	36.5	65	157	249	102	147	74
13	25	36.5	108	157	180	102	78	51
14	32	37	138	159	132	98	34	27
15	35	37.5	150	161	113	95	18	15
16	36	38	155	163	105	92	13	11
17	37	38.5	160	166	97	86	11	10
18	38	38.5	163	166	92	86	06	05
19	39	39	169	169	81	81	00	00
20								

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α Orionis Total = 68

2	19.5	19.5	57	57	263	263	0	0
3	19	20.5	56	60	265	258	7	6
4	16	21.5	47	63	282	253	29	23
5	13	22	38	65	303	249	54	39
6	10	23	29	68	327	244	83	53
7	11	24	32	71	319	239	80	52
8	14	25	41	73	295	236	59	42
9	19	26	56	76	265	231	34	27
10	26.5	26.5	78	78	228	228	0	0
11	24	28	71	82	239	221	18	15
12	18	29	53	85	271	216	55	40
13	13	30.5	38	90	303	208	95	58
	10	31.5	29	92	327	205	122	67
14	13	32	38	94	303	201	102	61
15	23	33.5	68	99	244	193	51	37
16	30	35	88	103	211	187	24	20
17	33.5	36.5	99	108	193	180	13	11
18	37	38	109	112	178	173	5	4
19	39.5	39.5	116	116	166	166	0	0

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ε Indi Total = 37

3	8	8	43	43	290	290	0	0
4	8	8.5	43	46	290	284	6	5
5	7	9	38	49	303	278	25	21
6	5.5	9	30	49	324	278	46	34
7	4	9.5	22	51	353	274	79	52
8	2.5	10	13	54	406	269	137	72
9	3	11	16	59	385	260	125	68
10	4	11.5	22	62	353	255	98	59
11	6	12	32	65	319	249	70	48
12	8.5	12.5	46	68	284	244	40	31
13	11.5	13.5	62	73	255	236	19	16
14	10	14	54	76	269	231	38	30
15	8	15	43	81	290	223	67	46
16	5	15.5	27	84	334	217	117	66
17	3.5	16	19	86	369	214	155	76
18	5	17	27	92	334	205	129	70
19	10	18	54	97	269	197	72	48
20	15	18.5	81	100	223	192	31	25
21	17	19	92	102	205	188	17	14
22	19	20	102	108	188	180	8	7
23	20	21	108	114	180	170	10	9
24	21.5	21.5	116	116	166	166	0	0

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1924phae.proj.1123P

Ceplei C1907 Total = 65

	1	-	-						
	2	47.5	47.5	146	146	119	119	0	0
	3	46.5	46.5	143	143	124	124	0	0
	4	45	46	138 9	142	130 ~~132~~	125	~~5~~	4
	5	43.5	45	134	138 9	138	130 ~~132~~	8	7
	6	40	44	123	136	156	135	21	18
	7	30	43.5	92	134	205	138	67	46
He	8	13	43	40	132	297	141	156	76
	9	25	42	77	129	229	146	83	53
	10	35	41	108	126	180	151	29	23
	11	39	40.5	117	124	165	154	11	10
	12	40	39.5	123	122	156	157	9	0
	13	25	38.5	77	118	229	163	66	46
	14	13	37.5	40	~~117~~ 115	297	168 ~~165~~	139	72
K	15	9	36.5	28	112	330	173	157	76
	16	20	35.5	62	109	255	178	77	51
	17	28	34	86	104	214	185	29	23
	18	29	33	89	102	209	188	21	18
	19	30	32	92	98	205	195	10	9
	20	30	31	92	95	205	200	5	4
	21	30	30	92	92	205	205	0	0
	22	30	30	92	92	205	205	0	0

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1924phae.proj.1123P

Sep 1918 Total = 25

1	8.5	8.5	68	68	244	244	0	0
2	8.5	8.5	68	68	244	244	0	0
3	9	9	72	72	238	238	0	0
4	9.5	10	76	80	231	224	7	6
5	10	10.5	80	84	224	217	7	6
6	10	11	80	88	224	211	13	11
7	10	11.5	80	92	224	205	18	15
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19	12.5	13.5	100	116	192	166	26	21
20	14	14.5	112	116	173	166	07	6
21	14.5	15	116	120	166	160	6	5
22	15.5	15.5	124	124	154	154	0	0

1490

5 54.0 35 18 7064 γ Col 4.4 36 B_3

n 4 −263

K

5-45-9 5.9 1 n.g Burned out

4432 mt 2 ft —

5314 too black.

6219 n 2-too black

7236 m 3

nm

He

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1924phae.proj.1129P

Sep C19118 Total = 25

	1	8.5	8.5	68	68	244	244	0	0
	2	8.5	8.5	68	68	244	244	0	0
	3	9	9	72	72	238	238	0	0
	4	9.5	10	76	80	231	224	7	6
	5	10	10.5	80	84	224	217	7	6
	6	10	11	80	88	224	211	13	11
	7								
	8								
	9								
	10								
K	11								
	12								
	13								
	14								
	15								
	16								
He	17								
	18	10	14	80	112	224	173	51	37
	19	12.5	13.5	100	116	192	166	26	21
	20	14	14.5	112	116	173	166	07	6
	21	14.5	15	116	120	166	160	6	5
	22	15.5	15.5	124	124	154	154	0	0

B3

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1924phae.proj.112ap

Sep 1918 Total = 25

	1	8.5	8.5	68	68	244	244	0	0
	2	8.5	8.5	68	68	244	244	0	0
	3	9	9	72	72	238	238	0	0
	4	9.5	10	76	80	231	224	7	6
	5	10	10.5	80	84	224	217	7	6
	6	10	11	80	88	224	211	13	11
	7	10	11.5	80	92	224	205	18	15
	8	9.5	11.5	76	92	231	205	26	21
	9	8.5	12	68	96	244	198	46	34
	10	6.5	12	52	96	273	198	75	50
K		5	12	40	96	297	198	99	60
	11	5.5	12.5	44	100	288	192	96	59
	12	7	12.5	56	100	265	192	73	49
	13	9.5	13	76	104	231	185	46	34
	14	11	13	88	104	211	185	26	21
	15	12.5	13.5	100	108	192	180	12	10
	16	10	13.5	80	108	224	180	44	33
He	17	7	14	56	112	265	173	92	57
	18	10	14	80	112	224	173	51	37
	19	12.5	14.5	100	116	192	166	26	21
	20	14	14.5	112	116	173	166	07	6
	21	14.5	15	116	120	166	160	6	5
	22	15.5	15.5	124	124	154	154	0	0

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δ Cep C 17853 Total = 34

	0	15	15	88	88	211	211	0	0
	1	15	16	88	94	211	201	10	9
	2	15	16.5	88	97	211	197	14	12
	3	12	17	71	100	239	192	47	35
	4	8	18	47	106	289	182	107	63
K		5	18	29	106	327	182	145	74
	5	6	18.5	35	109	311	178	133	71
	6	10	19	59	112	260	173	87	55
	7	14	19.5	82	115	221	168	53	39
	8	19	20	112	118	173	163	10	9
		20	20.5	118	122	163	157	6	5
	9	19.5	20.5	115	122	168	157	11	10
	10	17.5	21	103	124	187	154	33	26
	11	10	21.5	59	126	260	151	109	63
		7	22	41	130	295	145	140	72
	12	10	22	59	130	260	145	115	65
	13	16	22.5	94	132	201	141	60	42
	14	20	23	118	135	163	137	26	21
	15	22	23.5	130	138	145	132	13	11
	16	23	24	136	141	135	127	8	7
	17	24	24.5	141	144	127	122	5	4
	18	24.5	24.5	144	144	122	122	0	0
	19	–	–						
	20	–							

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δ Cep C 19082 Total = 44

	1	40	40	182	182	52	52	0	0
	2	40	40	182	182	52	52	0	0
	3	39.5	40	180	182	57	52	5	4
	4	38	40	173	182	73	52	21	18
	5	33	39.5	150	180	113	57	56	40
Σ		18	39.5	82	180	221	57	164	78
	6	25	39.5	114	180	170	57	113	65
	7	35	39	159	178	98	62	36	28
	8	38	38.5	173	175	73	69	4	4
	9	38.5	38.5	175	175	69	69	0	0
	10	37	38	168	173	83	73	10	9
	11	34	38	154	173	106	73	33	26
	12	20	38	91	173	206	73	133	71
K		12	37.5	55	170	267	79	188	82
	13	18	37	82	168	221	83	138	72
	14	31	37	141	168	127	83	44	33
	15	35	37	159	168	98	83	15	13
	16	36	36.5	164	166	90	86	4	4
	17	36.5	36.5	166	166	86	86	0	0

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α Pavonis. Total = 84

	4	13.5	13.5	32	32	319	319	0	0
	5	13	14	31	33	321	316	5	4
	6	12	14	29	33	327	316	11	10
	7	10	14.5	24	35	345	311	34	27
λ	8	9	14.5	21	35	358	311	47	35
	9	10.5	15	25	36	341	308	33	26
	10	13	15.5	31	37	321	305	16	14
	11	14.5	15.5	34	37	313	305	8	7
	12	15.5	16	37	38	305	303	2	2
	13	16	16	38	38	303	303	0	0
	14	16.5	16.5	39	39	300	300	0	0
	15	16	17	38	40	303	297	6	5
	16	14	17.5	33	42	316	293	23	19
	17	11.5	18	27	43	334	290	44	33
K		10.5	18	25	43	341	290	51	37
	18	11	18.5	26	44	337	288	49	36
	19	12	18.5	29	44	327	288	39	30
	20	14	19	33	45	316	286	30	24
	21	16	19.5	38	46	303	284	19	16
	22	17.5	20	42	48	293	280	13	11
	23	19.5	20.5	46	49	284	278	6	5
	24	21	21	50	50	276	276	0	0
	25	21.5	21.5	51	51	274	274	0	0
	26	21.5	22	51	52	274	273	1	1
	27	20.5	22	49	52	278	273	5	4
	28	19	22.5	45	54	286	269	17	14
	29	17	23	40	55	297	267	30	24
	30	15	23	36	55	308	267	41	31
L	31	11	23.5	26	56	337	265	72	48
	32	12.5	24	30	57	324	263	61	43
	33	15	24.5	36	58	308	262	46	34

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34	18	24.5	43	58	290	262	28	23
35	20.5	25	49	59	278	260	18	15
36	22.5	25.5	54	61	269	256	13	11
37	24	26	57	62	263	255	8	7
38	25	26	60	62	258	255	3	3
39	26	26.5	62	63	255	253	2	2
40	26.5	26.5	63	63	253	253	0	0
41	26.5	27	63	64	253	251	2	2
42	26.5	27.5	63	65	253	249	4	4
43	26	27.5	62	65	255	249	6	5
44	25	28	60	67	258	246	12	10
45	23	28.5	55	68	267	244	23	19
46	20.5	29	49	69	278	243	35	28
47	17	29.5	40	70	297	241	56	40
θ 48	14	30	33	71	316	239	77	57
49	16	30.5	38	72	303	238	65	45
50	20	31	48	74	280	234	46	34
51	24	31.5	57	75	263	233	30	24
52	27	32	64	76	251	231	20	17
53	29.5	32.5	70	77	241	229	12	10
54	31.5	33	75	79	233	226	7	6
55	32.5	33.5	77	80	226	224	2	2
56	34	34	81	81	223	223	0	0
57	35	35	83	83	219	219	0	0
58	35.5	35.5	84	85	217	216	1	1
59	35	36	83	86	219	214	5	4
60	32	36.5	76	87	231	213	18	15
61	28	37	67	88	246	211	35	28
62	31	37.5	74	89	234	209	25	21
63	34	38	81	90	223	208	15	13
64	35.5	39	84	93	217	203	14	12

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α Pavonis

	65	37	39.5	88	94	211	201	10	9
	66	37	40	88	95	211	200	11	10
	67	36	40.5	86	96	214	198	16	14
	68	33.5	41	80	98	224	195	29	23
	69	30.5	41.5	73	99	236	193	43	33
	70	26	42.5	62	101	255	190	65	45
η	71	24	43	57	102	263	188	75	50
	72	28	43.5	67	104	246	185	61	43
	73	34	44	81	105	223	184	39	30
	74	38	44.5	90	106	208	182	26	21
	75	40.5	45	96	107	198	181	17	14
	76	43	45.5	102	108	188	180	8	7
	77	45	46	107	110	181	176	5	4
	78	46.5	47	111	111	175	175	0	0
	79	47	47	112	111	173	175	-2	0
	80	48	48	114	112	170	173	-3	0
	90	54.5	54.5	130	130	145	145	0	0
	91	55	55	131	131	143	143	0	0
	92	55.5	56	132	134	141	138	3	3
	93	56	56.5	134	135	138	137	1	1
	94	56	57	134	136	138	135	3	3
	95	56.5	57.5	135	137	137	133	4	4
	96	57	58	136	138	135	132	3	3
	97	56.5	59.5	135	140	137	129	8	7
	98	56	59	134	141	138	127	11	10
	99	55	59	131	141	143	127	16	14
	100	52	59.5	124	142	154	125	29	23
	101	49	60	117	143	165	124	41	31
	102	44	60.5	105	144	184	122	62	44
3		42.5	61	101	145	190	121	69	47
	103	45	61	107	145	181	121	60	42

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	104	50	61.5	119	146	162	119	43	33
	105	54	62	128	148	148	116	32	26
	106	58	62.5	138	149	132	114	18	15
	107	60.5	63	144	150	122	113	9	8
	108	62	63	148	150	116	113	3	3
	109	63	63.5	150	151	113	111	2	2
	110	63.5	64	151	152	111	110	1	1
	111	64	64.5	152	153	110	108	2	2
	112	64.5	65	154	155	106	105	1	1
	113	65	65	155	155	105	105	0	0
	135	70.5	70.5	168	168	83	83	0	0
	136	70.5	70.5	168	168	83	83	0	0
	137	70.5	71	168	169	83	81	2	2
	138	70.5	71	168	169	83	81	2	2
	139	70.5	71	168	169	83	81	2	2
	140	70.5	71.5	168	170	83	79	4	4
	141	705	71.5	168	170	83	79	4	4
	142	70	71.5	166	170	85	79	6	5
	143	70	71.5	166	170	86	79	7	6
	144	69	72	164	171	90	77	13	11
	145	66.5	72	158	171	100	77	23	19
	146	63	72	150	171	113	77	36	28
E	147	59	72	140	171	129	71	58	41
	148	65	72.5	155	172	105	75	30	24
	149	68	72.5	162	172	93	75	18	15
	150	70	72.5	166	173	86	73	13	11
	151	71	72.5	169	173	81	73	8	7
	152	72	73	172	174	75	71	4	4
	153	72	73	172	174	75	71	4	4
	154	72.5	73	173	174	73	71	2	2
	155	73	73	174	174	71	71	0	0

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1924phae.proj.1123P

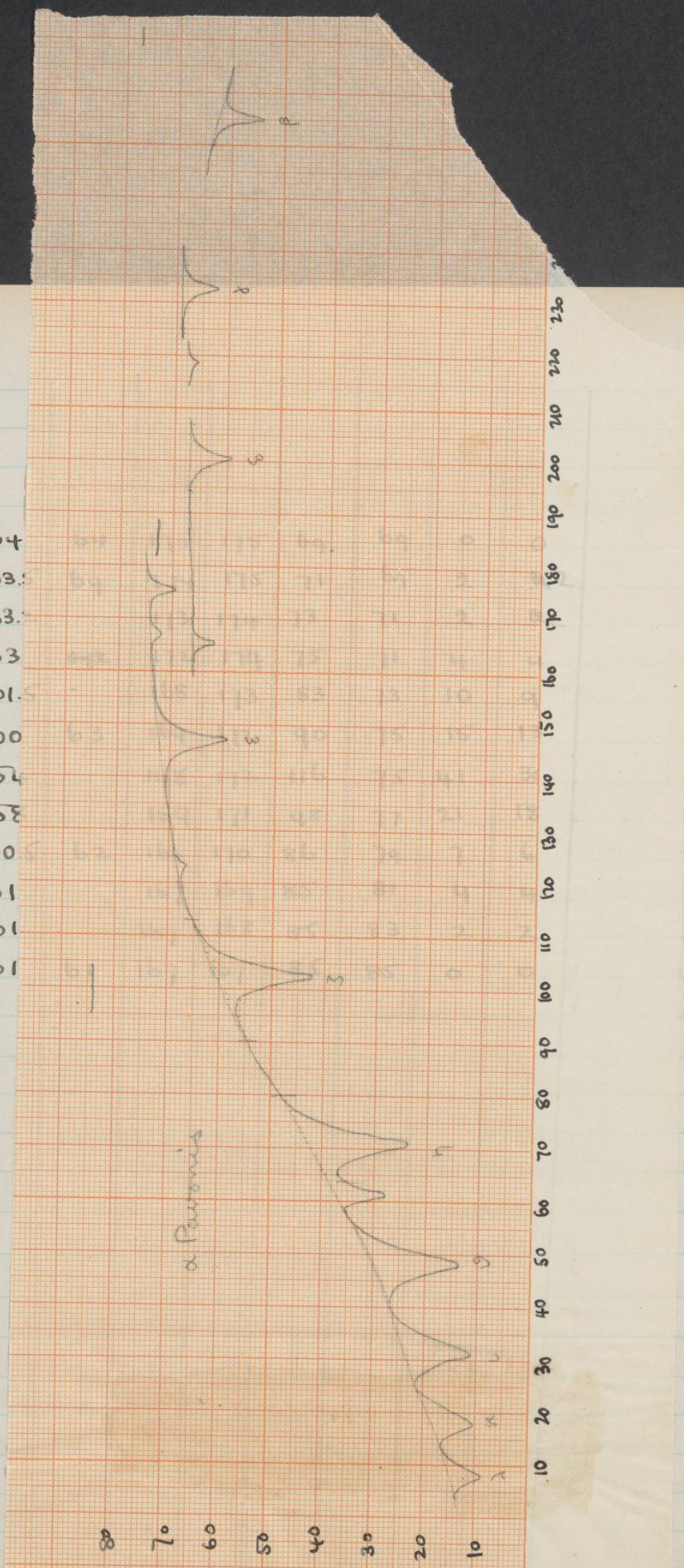
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α Pavonis	195	67	67	184	184	46	46	0	0
	196	66.5		182	184	52	46	6	5
	197	66		181	184	55	46	9	8
	198	65		178		62	46	16	14
	199	63.5		174		71	46	25	21
	200	61		169		81	46	35	28
S		59		162		93	46	47	35
	201	61		169		81	46	35	28
	202	64		176		67	46	21	18
	203	65.5		180		57	46	11	10
	204	66		181		55	46	9	8
	205	66.5		182		52	46	6	5
	206	67	67	184	184	46	46	0	0
	224	69	69	189	189	27	27	0	0
	225	69		189		29	27	2	2
	226	69		189		30	27	3	3
	227	68.5		188		31	27	4	4
	228	68.5		188		33	27	6	5
	229	68.2		187		36	27	9	8
	230	68		186		40	27	13	11
	231	67		184		46	27	19	16
	232	64		175		69	27	42	32
X	233	62		170		79	27	52	38
	234	66		181		55	27	28	23
	235	68		186		40	27	13	11
	236	68.5		188		31	27	4	4
	237	68.5		188		30	27	3	3
	238	68.7		188		28	27	1	1
	239	69		189		27	27	0	0
	240	69	69	189	189	27	27	0	

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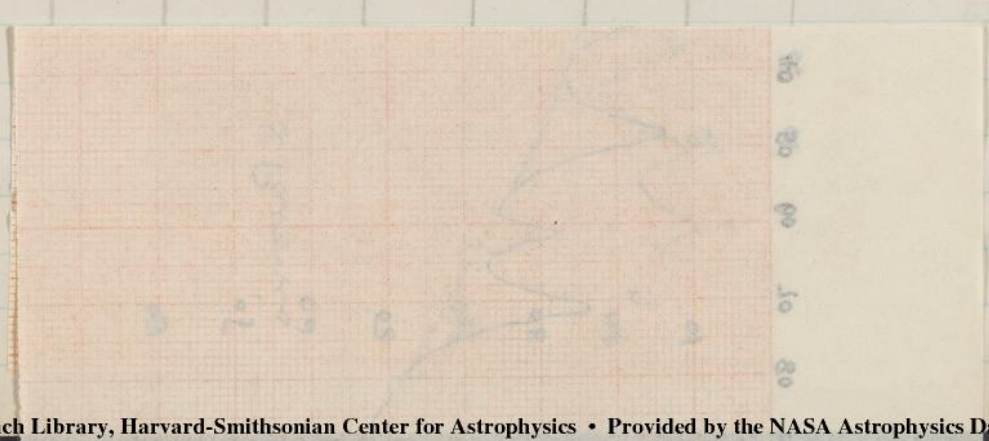
1024phae.proj.1123P

245	
246	
247	
248	
249	64
250	63.
251	63.
252	63
253	61.
254	60
β 255	54
256	58
257	60
258	61
259	61
260	61



1924phae.proj.1123P

245								
246								
247								
248								
249	64	64	175	175	69	69	0	0
250	63.5	64	174	175	71	69	2	2
251	63.2		173	174	73	71	2	2
252	63	~~72~~	172	174	75	71	4	4
253	61.5	·	168	173	83	73	10	9
254	60	63	164	172	90	75	15	13
β 255	54		148	172	116	75	41	31
256	58		159	171	98	77	21	18
257	60.5	62	166	170	86	79	7	6
258	61		167	169	85	81	4	4
259	61		167	168	85	83	2	2
260	61	61	167	167	85	85	0	0



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1924phae.proj.1124P

a Cygni

	Total = 96							
0	15.5	15.5	32	32	319	319	0	0
1	15.2	15.8	32	35	319	316	3	3
2	14.5	16.5	30	34	324	313	11	10
3	11.5	17	24	35	345	311	34	27
	8.5	17.6	18	37	374	305	69	47
4	5	18.2	10	38	428	303	125	68
	7	18.6	15	39	392	300	92	57
5	12	19	25	40	341	297	44	33
6	16	20	33	42	316	293	23	19
7	18.5	20.5	38	43	303	290	13	11
8	20	21	42	44	293	288	5	4
9	21.8	22	46	46	284	284	0	0
10	23	23	48	48	280	280	0	0
11	-							
12	37.5	37.5	78	78	228	228	0	0
13	36.5	38.5	76	80	231	224	7	6
	35		73	82	236	221	15	13
14	33	40	69	83	243	219	24	20
	22		46	84	284	217	67	46
15	13.5	41	28	85	330	216	114	65
	17		35	86	311	214	97	59
16	25	42	52	87	273	213	60	42
	31		65	88	249	211	38	30
17	38	43	79	90	226	209	17	14
18	41	44	85	92	216	205	11	10
19	43	45	90	94	208	201	7	6
20	45	46	94	96	201	198	3	3
21	46.5	47	97	98	197	195	2	2
22	47.5	47.5	99	99	193	193	0	0
23								
24								
25								
26	K line too narrow for accuracy							
27								
28								
29								

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1924phae.proj.1123P

30								
31								
32								
33								
34								
35								
36								
37	63.5	63.5	132	132	141	141	0	0
38	62.5	64	130	134	145	138	7	6
39	61	64.5	127	135	149	138	11	10
	60		125	135	153	137	16	14
40	50	65	104	136	185	135	50	37
	29,17		60, 35	136	258,311	135	123,276	68, 92
41	30	65.2	62	136	255	135	120	67
	45		94	137	201	133	68	46
42	55	65.7	114	137	170	133	37	29
43	63	66	132	138	141	132	09	8
44	65.5	66.2	136	138	135	132	3	3
45	66.5	66.5	139	139	130	130	0	0
46	67	67	140	140	129	129	0	0

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1924phae.proj.112P

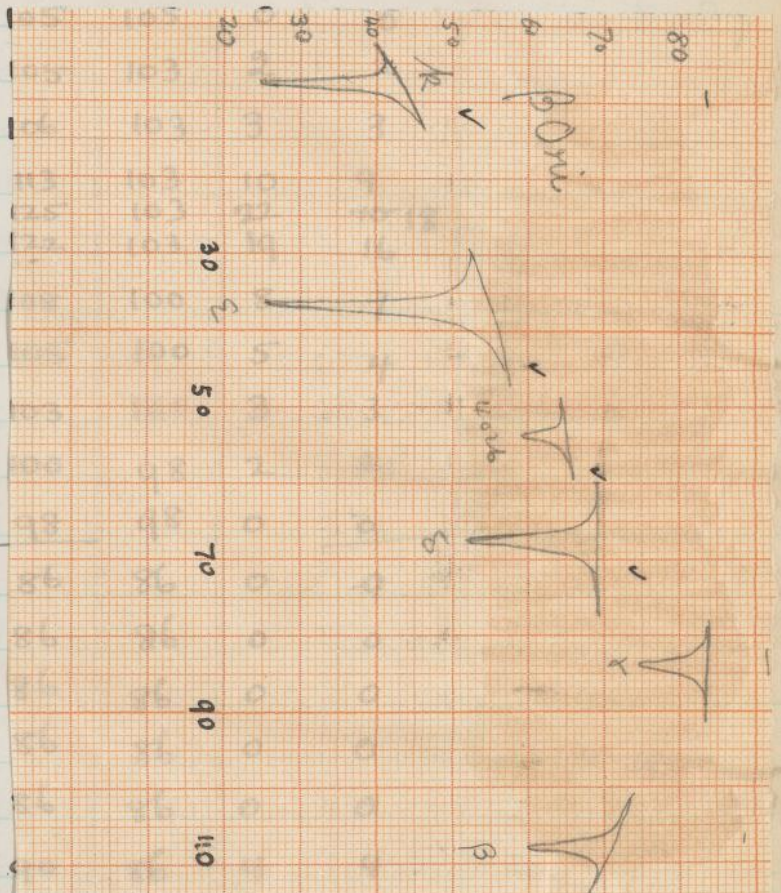
β Orionis Total = 83

4	41	41	99	99	193	193	0	0
5	41	42	99	1021	193	190	3	3
6	40.5	42.5	98	102	195	188	7	6
7	36	43	87	104	213	185	18	15
	25		60	104	258	185	63	44
8	29	43.5	70	105	241	184	57	41
9	40	44	96	106	198	182	16	14
10	42.5	44.5	102	107	188	181	7	6
11	44	45	106	108	182	180	2	2
12	45	45.5	108	110	180	176	4	4
13	46	46	111	111	175	175	0	0
14	46.5	46.5	112	112	173	173	0	0
30	52.5	525	127	126	149	151	0	0
31	525	53	127	128	149	148	1	1
32	52	53.5	126	129	151	146	5	4
33	51.5	54	124	130	154	145	9	8
34	51	54	123	130	156	145	11	10
35	49	54.5	118	131	163	143	20	17
36	42	55	101	132	190	141	49	36
	25.5	55	62	132	255	141	114	65
37	33	55.5	79	134	226	138	88	56
38	44	55.5	106	134	182	138	44	33
39	50	56	120	135	160	137	23	19
40	52	56	125	135	153	137	16	14
41	54	56.5	130	136	145	135	10	9
42	55	56.5	132	136	141	135	6	5
43	56.5	57	135	137	137	133	4	4
44	56.5	57	136	137	135	133	2	2
45	57	57.5	138	138	132	130	2	2
46	57.5	57.5	139	138	130	130	0	0

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1924phae.proj.1123P

	49	64.5	64.5	155	155				
	50	64.5	65	155	156				
	51	64	65	154	156				
	52	62	65	150	156				
4026		59	65	142	156				
	53	60	65	144	156				
	54	63.5	65.5	153	158				
	55	64.5	65.5	155	158				
	56	65	65.5	156	158				
	57	65.5	66	158	159				
	58	66	66	159	159				
	59	69	69	166	166				
	60	69	69	166					
	61	69		166					
	62	69		166					
	63	68.7		166					
	64	68		164					
	65	67.5		163		92	86	6	5
	66	65		156		103	86	17	14
	67	58		140		129	86	43	33
				125		153	86	67	46
6	68	52		132		141	86	55	40
	69	55		152		110	86	24	20
	70	63 67		162		93	86	7	6
	71	68		164		90	86	4	4
	72	68.5		165		88	86	2	2
	73	68.5		165		88	86	2	2
	74	69		166		86	86	0	0
	75	69	69	166	166	86	86	0	0



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	49	64.5	64.5	155	155	105	105	0	0
	50	64.5	65	155	156	105	103	2	2
	51	64	65	154	156	106	103	3	3
	52	62	65	150	156	113	103	10	9
4026		59	65	142	156	125	103	22	~~10~~ 18
	53	60	65	144	156	122	103	19	16
	54	63.5	65.5	153	158	108	100	8	7
	55	64.5	65.5	155	158	105	100	5	4
	56	65	65.5	156	158	103	100	3	3
	57	65.5	66	158	159	100	98	2	2
	58	66	66	159	159	98	98	0	0
	59	69	69	166	166	86	86	0	0
	60	69	69	166		86	86	0	0
	61	69		166		86	86	0	0
	62	69		166		86	86	0	0
	63	68.7		166		86	86	0	0
	64	68		164		90	86	4	4
	65	67.5		163		92	86	6	5
	66	65		156		103	86	17	14
	67	58		140		129	86	43	33
				125		153	86	67	46
6	68	52		132		141	86	55	40
	69	55		152		110	86	24	20
	70	63 67		162		93	86	7	6
	71	69		164		90	86	4	4
	72	68.5		165		88	86	2	2
	73	68.5		165		88	86	2	2
	74	69		166		86	86	0	0
	75	69	69	166	166	86	86	0	0

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1924phae.proj.1123P

ε Eridani

0	8	8	21	21	358	358	0	0
1	8	9	21	23	358	349	9	8
2	8	9.5	21	25	358	341	17	14
3	7.5	9.5	19	25	369	341	28	23
4	7	10	18	26	374	337	37	29
5	7	10.5	18	27	374	334	40	31
6	8.5	11	22	29	353	327	26	21
7	9.5	11.5	25	30	341	324	17	14
8	10	12	26	31	337	321	16	14
9	11	12.5	29	32	327	319	8	7
10	11.5	13	30	34	324	313	11	10
11	11.5	13.5	30	35	324	311	13	11
12	11.5	14	30	36	324	308	16	14
13	11.5	14.5	30	38	324	303	21	18
14	11	15	29	39	327	300	27	22
15	10	15.5	26	40	337	297	40	31
16	9	16	23	42	349	293	56	40
17	7	16.5	18	43	374	290	84	54
18	5	17	13	44	406	288	118	66
19	4	17.5	10	46	428	284	144	73
20	4	18	10	47	428	282	146	74
21	7	18.5	18	48	374	280	94	58
22	9	19	23	49	349	278	71	48
23	11.5	19.5	30	51	324	274	50	37
24	14.5	~~19.5~~ 20	38	52	303	273	30	24
25	16.5	20.5	43	53	290	271	19	16
26	17.5	21	46	54	284	269	15	13
27	19	21.5	49	56	278	265	13	11
28	20	22	52	57	273	263	10	9
29	21	23	54	60	269	258	11	10

Total = 77

389

7

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1924phae.proj.1123P

	30	22	23.5	57	61	263	256	7	6
	31	23	24	60	62	258	255	3	3
	32	24	24.5	62	64	255	251	4	4
	33	24.5	25	64	65	251	249	2	2
	34	25	25.5	65	66	249	248	1	1
	35	26	26	67	67	246	246	0	0
	36	→			→				
	37	—			—				
	5~~8~~	40.5	~~40.5~~ 44	102	111	188	175	13	11
	5~~9~~	~~39~~ 40	44.5	101	113	190	171	21	18
	~~60~~	39	45	99	114	193	170	23	19
Total	61	37.5	46	95	116	200	166	34	27
=79	62	35	46.5	88	118	211	163	48	36
	63	32.5	47	82	119	221	162	59	42
	64	29	48	73	122	236	157	79	52
	65	23	48.5	58	123	262	156	106	62
		22	49	56	124	265	154	111	64
J	66	23	49.5	58	126	262	151	111	64
	67	29	50	73	127	236	149	87	55
	68	37	50.5	94	128	~~234~~ 201	148	53	39
	69	42	51	106	129	182	146	36	28
	70	45	51.5	114	130	170	145	25	21
	71	47.5	52	120	132	160	141	19	16
	72	50	52.5	126	133	151	140	11	10
	73	52	53	132	134	141	138	3	3
	74	52.5	5~~3~~.5	133	136	140	135	5	4
	75	53.5	54	135	137	137	133	4	4
	76	54	54.5	137	138	133	132	1	1
	77	55	55	140	140	129	129	0	0
	78	56	56	142	142	125	125	0	0

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1924phae.proj.112aP

ε Eridani

continued

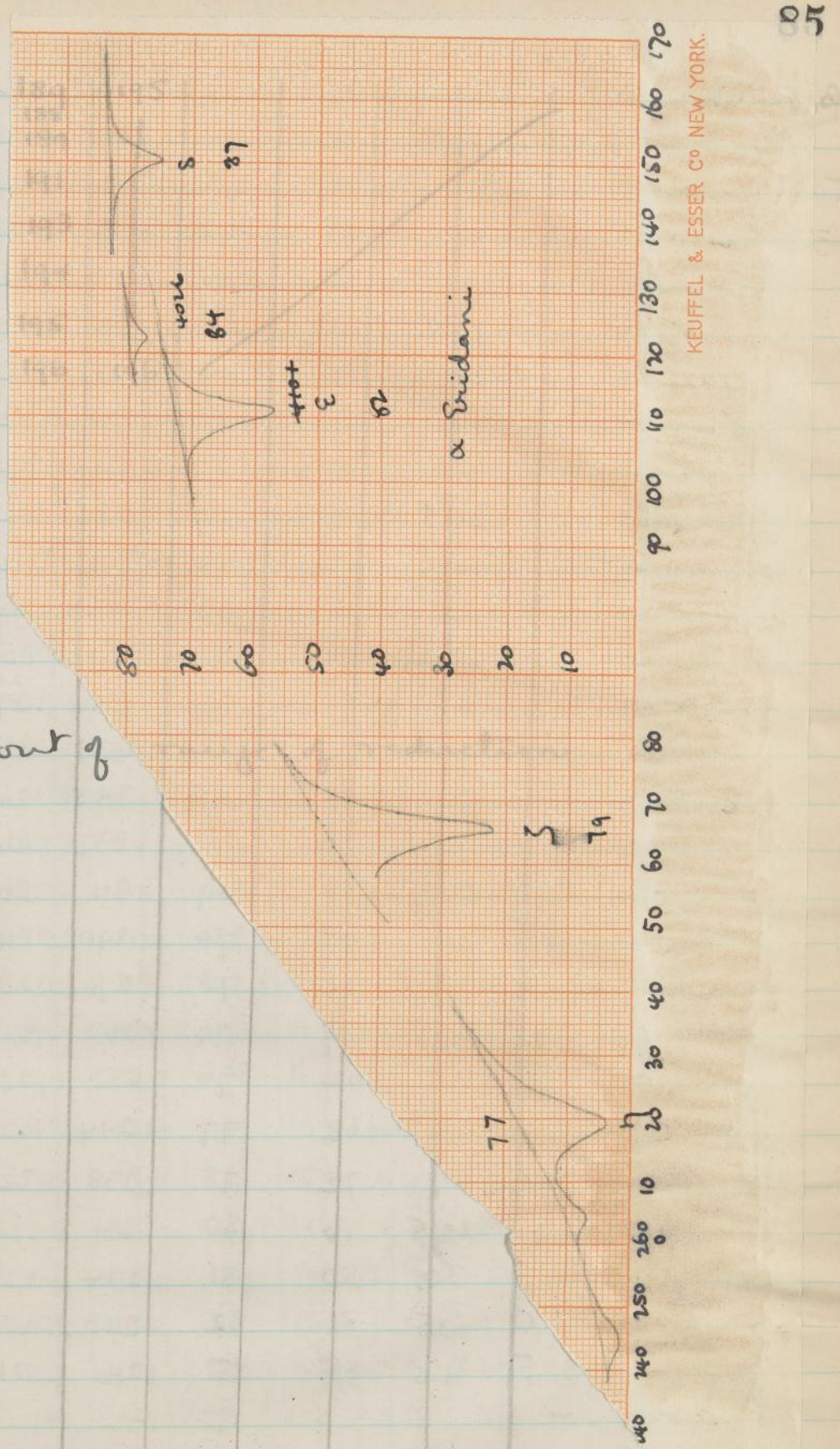
	97	70	70	171	171	77	77	0	
	98	70	70	171	171	77	77	0	
Total = 82	99	70	70	171	171	77	77	0	
	100	70.5	70.5	172	172	75	75	0	
	101	70.7	70.5	172	172	75	75	0	0
	102	71	70.5	173	172	73	75	2	2
	103	71	70.5	173	172	73	75	2	2
	104	71.5	70.2	174	172	71	75	4	4
	105	71.5	69.5	174	170	71	79	8	7
	106	72	69	175	168	69	83	14	12
	107	72	67.5	175	165	69	88	19	16
	108	72	65.5	176	160	67	97	30	24
	109	72.5	62.5	177	153	64	108	44	33
	110	72.5	59	177	144	64	122	58	41
ε	111	73	57	178	139	62	130	68	46
	112	73	59.5	178	145	62	121	59	42
	113	73	66	178	161	62	95	33	26
	114	73.5	69.5	179	169	60	81	21	18
	115	73.5	71	179	173	60	73	13	11
	116	74	72.5	180	177	57	64	7	6
	117	74	73	180	178	57	62	5	4
	118	74.5	73.5	182	179	52	60	8	7
	119	74.5	74	182	180	52	57	5	4
	120	74.7	74.5	182	181	52	55	3	3
	121	75	75	183	182	49	52	0	0
	117	79.6	79.5	194	194	-24	-24		
	118	79.2		193		2			
	119	79		192					
	120	79		192					
	121	78		190					

out of range

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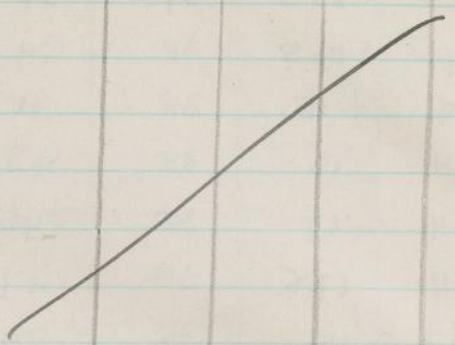
122	77.5	80
123	77.5	
124	78.5	
125	79.2	
126	79.7	
127	80	
128	80.5	80.5
138		
139		
140		
141		
142		
143		
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122	77.5	80	189	195
123	77.5		189	
124	78.5		191	
125	79.2		193	
126	79.7		194	
127	80		195	
128	80.5	80.5	196	196



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145 out of range of reduction
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1924phae.proj.1123P

β Pavonis

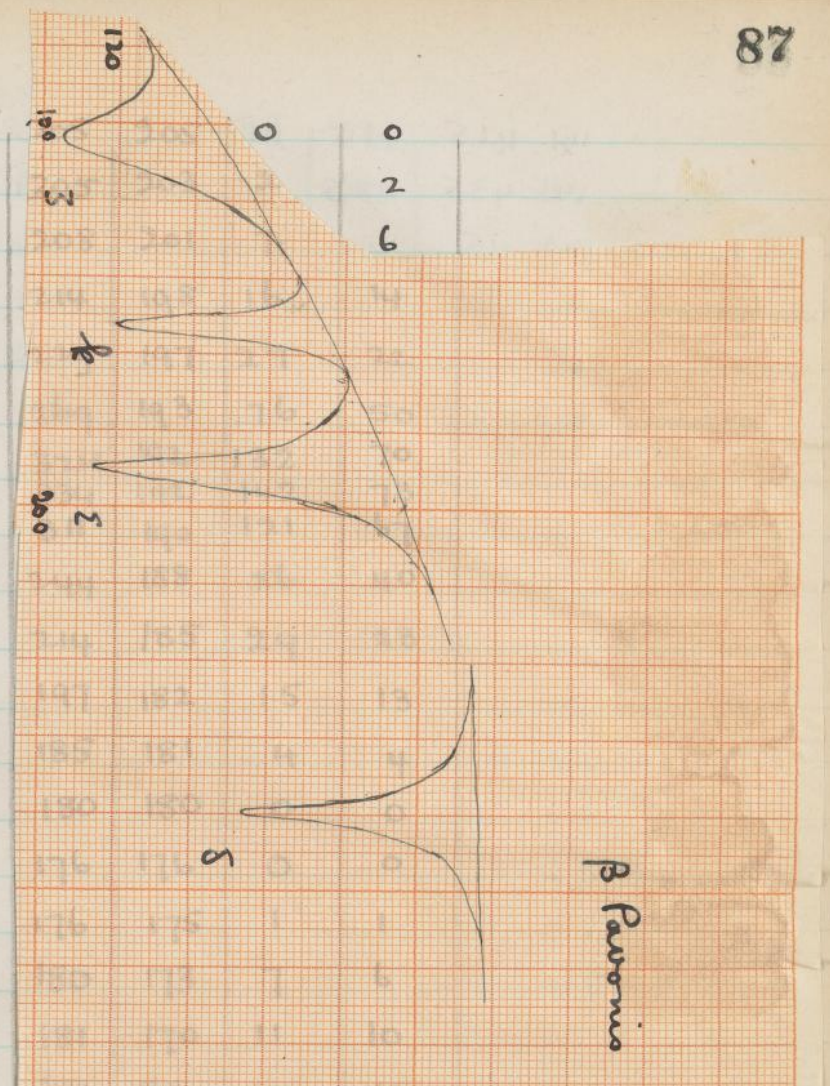
Total = 74

79	13.5	13.5	37	37	305	305	0	0
80	14	14.5	38	39	303	300	3	3
81	14	15	38	41	303	295	8	7
82	14	16	38	43	303	290	13	11
83	14	17	38	46	303	284	19	16
84	14	17.5	38	47	303	282	21	18
85	13	18	35	49	311	278	33	26
86	12.5	19	34	51	313	274	39	30
87	11.5	19.5	31	53	321	271	50	37
88	9.5	20.5	26	55	337	267	70	48
89	8	21	22	57	353	263	90	56
90	6	22	16	59	385	260	125	68
91	3.5	22.5	9	61	437	256	181	81
92	2.7	23	7	62	456	255 ~~273~~	201 ~~183~~	84
93	3.5	23.5	9	64	437	269	168	79
94	6	24	16	65	385	267	118	66
95	9.5	25	26	67	337	263	74	49
96	13	25.5	35	69	311	260	51	37
97	16	26	43	70	290	241	49	36
98	18.5	27	50	73	276	236	40	31
99	21	27.5	57	74	263	234	29	23
100	23	28	62	76	255	231	24	20
101	25	28.5	68	77	244	229	15	13
102	26.5	29	72	78	238	228	10	9
103	28	29.5	76	80	231	224	7	6
104	29.5	30	80	81	224	223	1	1
105	30.5	30.5	81	82	223	221	2	2
106	31.5	31.5	85	85	216	216	0	0
107	–							
108	–							
109	–							

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1924phae.proj.1123P

110	34	34	92	92			0	0
111	34	34.5	92	93				2
112	33.5	35	90	94				6
113	32	35.5	86	96				
114	29.5	36	80	97				
115	20	36.5	54	99				
116	11	37	30	100				
	10	37	27	100				
117	13	37.5	35	101				
118	25	38	68	102				
119	32	38.5	86	104				
120	36	39	97	106				
121	38.5	39.5	104	107				
122	40	40	108	108				
123	40.5	40.5	110	110				
124	40.5	41	110	111				
125	40	41.5	108	112				
126	39.5	42	107	114				
127	39	42.5	106	115	182	168	14	12
128	38	43	103	116	187	166	21	18
129	37	43.5	100	118	192	163	29	23
130	35.5	44	96	119	198	162	36	28
131	33.5	44.5	90	120	208	160	48	36
132	30.5	45	82	122	221	157	64	44
133	26	45	70	122	241	157	84	54
134	24	45.5	65	123	249	156	93	58 (63)
135	7	46	19	124	369	154	215	86
136	13	46.5	35	126	311	151	160	77
137	20	47	54	127	269	149	120	67
138	28	47	76	127	231	149	82	53
139	35	47.5	94	128	201	148	53	39
140	39	48	106	130	182	145	37	29



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110	34	34	92	92	205	205	0	0
111	34	34.5	92	93	205	203	2	2
112	33.5	35	90	94	208	201	7	6
113	32	35.5	86	96	214	198	16	14
114	29.5	36	80	97	224	197	27	22
115	20	36.5	54	99	269	193	76	50
116	11	37	30	100	324	192	132	70
	10	37	27	100	334	192	142	73
117	13	37.5	35	101	311	190	121	67
118	25	38	68	102	244	188	56	40
119	32	38.5	86	104	214	185	29	23
120	36	39	97	106	197	182	15	13
121	38.5	39.5	104	107	185	181	4	4
122	40	40	108	108	180	180	0	0
123	40.5	40.5	110	110	176	176	0	0
124	40.5	41	110	111	176	175	1	1
125	40	41.5	108	112	180	173	7	6
126	39.5	42	107	114	181	170	11	10
127	39	42.5	106	115	182	168	14	12
128	38	43	103	116	187	166	21	18
129	37	43.5	100	118	192	163	29	23
130	35.5	44	96	119	198	162	36	28
131	33.5	44.5	90	120	208	160	48	36
132	30.5	45	82	122	221	157	64	44
133	26	45	70	122	241	157	84	54
134	24	45.5	65	123	249	156	93	58 63
135	7	46	19	124	369	154	215	86
136	13	46.5	35	126	311	151	160	77
137	20	47	54	127	269	149	120	67
138	28	47	76	127	231	149	82	53
139	35	47.5	94	128	201	148	53	39
140	39	48	106	130	182	145	37	29

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141	41.5	48.5	112	131	173	143	30	24
142	43.5	48.5	118	131	163 ~~148~~	143	20 5	17
143	45	49	122	132	157	141	16	14
144	46.5	49.5	126	134	151	138	13	11
145	47.5	49.5	128	134	148	138	10	9
146	48.5	50	131	135	143	137	6	5
147	49.5	50.5	134	136	138	135	3	3
148	50	51	135	138	137	132	~~4~~5	4
149	51	51.5	138	139	132	130	2	2
150	51.5	51.5	139	139	130	130	0	0
151	52	52	140	140	129	129	0	0
220	57	57	154	154	106	106	0	0
221	57		154		106	106	0	0
222	57		154		106	106	0	0
223	57		154		106	106	0	0
224	56.7		153		108	105	3	3
225	56.5		152		110	105	5	4
226	56.2		152		110	105	5	4
227	56.2		152		110	105	5	4
228	56		151		111	105	6	5
229	55.7		150		113	105	8	7
230	55.5		150		113	104	9	8
231	55		149		114	104	10	9
232	54.5		147		117	104	13	11
233	54		146		119	104	15	13
234	53		143		124	104	20	17
235	51		138		132	104	28	23
236	49.5		134		138	104	34	27
237	47		127		149	103	46	34
238	44		119		162	103	59	42
239	35		95		200	103	97	59

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	27		73		236			
240	27	58	73	156	236	103	133	71
241	37		100		192	103	89	56
242	43		116		166	103	63	44
243	47		127		149	102	47	35
244	49.5		134		138	102	36	28
245	52		140		129	102	27	22
246	54		146		119	102	17	14
247	54.5		147		117	102	15	13
248	55.5		150		113	101	12	10
249	56		151		111	101	10	9
250	56.5		152		110	101	9	8
251	56.7		153		108	101	7	6
252	57		154		106	101	5	4
253	57.5		155		105	101	4	4
254	58		156		103	100	3	3
255	58.2		157		102	100	2	2
256	58.5	58.5	158	158	100	100	0	0

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1924phae.proj.1123P

δ Cephei continued from p.68

C17793		5	14	14	84	84	217	217	0	0
phase = 4.025		6	13	14.5	78	87	228	213	15	13
Total		7	11	15	66	90	248	208	40	31
= 33.2		8	9.5	15.5	57	93	263	203	60	42
	K		8.2	16	49	96	278	198	80	52
		9	8.5	16	51	96	274	198	80	52
		10	11.5	16.5	69	100	243	192	51	37
		11	14.5	17	88	102	211	188	23	19
		12	17	17.5	102	106	188	182	6	5
		13	17.5	18	105	108	184	180	4	4
		14	16	18.5	96	112	198	173	25	21
		15	13	19.5	78	117	228	165	63	44
	H	16	11.5	20	69	120	243	160	83	53
		17	17	20.5	102	124	188	154	34	27
		18	20	21	120	127	160	149	11	10
		19	21.5	22	130	132	145	141	4	4
		20	22	22	132	132	141	141	0	0
C17874 (wt. 2)		15	11	13.5	65	79	249	226	13	11
phase = 3.905		16	9	14	53	82	271	221	50	37
Total = 34		17	7	14.5	41	85	295	216	79	52
	K		6	14.8	35	87	311	213	98	59
		18	7	15	41	88	295	211	84	54
		19	10	15.5	59	91	260	206	54	39
		20	12.7	16	75	94	233	201	32	26
		21	14	16.5	82	97	221	197	24	20
		22	14.5	17	85	100	200	192	8	7
		23	12	17.5	71	103	239	187	52	38
		24	9	18	53	106	271	182	89	56
	H		8	18.5	47	109	282	178	104	62
		25	9.5	18.7	56	110	265	176	89	56
		26	16.5	19	97	112	197	173	24	20
		27	18.5	19.5	109	115	178	168	10	9
		28	19.5	20	115	118	168	163	5	4
		29	20	20	118	118	163	163	0	0

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C1730	17	19	19	102	102	173	173	0	0
2d.44	18	19	19.5	102	115	173	168	5	4
Total	19	18	20	106	118	182	163	19	16
=34	20	16	20.5	94	121	201	159	42	32
	21	13	21.2	76	124	231	154	77	51
K	22	8.3	21.7	49	128	278	148	130	70
	23	9	22.2	53	131	271	143	128	69
	24	12.5	22.7	74	134	234	138	96	59
	25	17.5	23.0	103	135	187	137	50	37
	26	20	23.5	118	138	163	132	31	25
	27	20	24.0	118	141	163	127	36	28
	28	15.5	24.2	91	142	206	125	81	53
	29	13	24.8	76	146	231	119	112	64
H	30	20	25.2	118	148	163	116	47	35
	31	23.5	25.5	138	150	132	113	19	16
	32	24.5	26.0	144	153	122	108	14	12
	33	25.7	26.4	152	155	110	105	5	4
	34	26.3	26.7	155	157	105	102	3	3
	35	27	27.0	159	159	98	98	0	0
C17057	9	31	31	182	182	52	52	0	0
2.684	10	29.2	31	172	182	75	52	23	19
Total=34	11	26	1+29.9	153	182	108	52	56	40
H		24.4	1+29.8	144	181	122	55	67	46
	12	24.7	1+29.8	145	181	121	55	66	46
	13	28.7	1+29.7	169	181	81	55	26	21
	14	28.6	1+29.5	168	180	83	57	26	21
	15	27.9	1+29.3	164	179	90	60	30	24
	16	26	30	153	176	108	67	41	31
	17	22.6	29.9	133	176	140	67	73	49
K	18	21.2	29.5	125	174	153	71	82	53
	19	22	29.1	130	171	145	77	68	46
	20	25.2	28.9	148	170	116	79	37	29
	21	27	28.6	159	168	98	83	15	13
	22	27.6	28.2	164	166	90	86	4	4

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1924phae.proj.1123P

92

δ Cephei

@ 19098

phase = 1.97

Total = 32

	9	18.5	18.5	116	116	166	166	0	0
	10	18	19.2	112	120	173	160	13	11
	11	17	20	106	125	182	153	29	23
	12	15	20.4	94	128	201	148	53	39
	13	10	21	62	131	255	143	112	64
K		8	21.1	50	132	276	141	135	71
	14	8.5	21.2	53	132	271	141	130	70
	15	11.5	21.7	72	135	238	137	101	61
	16	15.5	22.1	97	138	197	132	65	45
	17	19	22.5	119	141	162	127	35	28
	18	19.7	22.9	123	143	156	124	32	26
	19	15.5	23.1	97	144	197	122	75	50
	20	12	23.4	75	146	233	119	114	65
H	21	10.2	23.6	64	147	251	117	134	71
		12	23.8	75	149	233	114	129	70
	22	20.1	24	131	150	143	113	30	24
	23	23	24.2	144	151	122	111	11	10
	24	24	24.4	150	153	113	108	5	4
	25	24.5	24.5	154	154	106	106	0	0

@ 19108

phase = 1.56

Total = 42

1	
2	
3	
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1924phae.proj.1123P

15
16
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Cl 9104 7
phase = 0.66 8
Total = 43.5 9
10

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1924phae.proj.1122P

η Scorpii

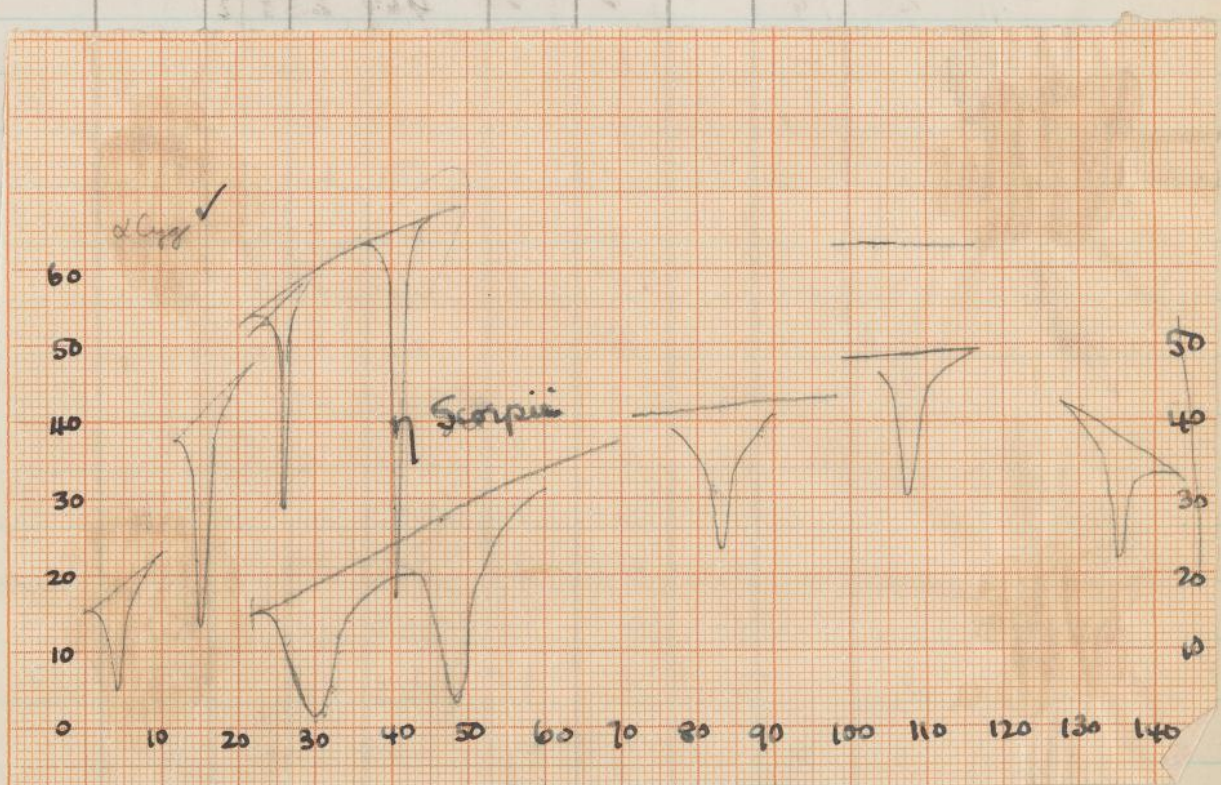
Reduce to 200

	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dm	dl
22	15	15	63	48	48	280	280	00	0
23	15	15	63	48	48	280	280	00	0
24	15	16	63	48	51	280	274	06	5
25	14	16	63	45	51	286	274	12	10
26	10	17	63	32	54	319	269	50	37
27	7	17	63	22	54	353	269	84	54
28	5	18	63	16	57	385	263	122	67
29	2	18	63	6	57	469	263	206	85
30	2	19	63	6	60	469	258	211	86
31	2	19	63	6	60	469	258	211	86
32	5	20	63	16	63	385	253	132	70
33	10	20	63	32	63	319	255	64	44
34	14	21	63	45	67	286	246	40	31
35	15	21	63	48	67	280	246	34	27
36	17	22	63	54	70	269	241	28	23
37	18	22	63	57	70	263	241	22	18
38	18	23	63	57	73	263	236	27	22
39	19	23	63	60	73	258	236	22	18
40	20	24	63	63	76	253	231	22	18
41	20	24	63	63	76	253	231	22	18
42	20	25	63	63	80	253	224	31	25
43	20	26	63	63	83	253	219	34	27
44	20	26	63	63	83	253	219	34	27
45	16	27	63	51	86	274	214	60	42
46	12	27	63	33	86	316	214	102	61
47	5	28	63	16	89	385	209	176	80
48	3	28	63	10	89	428	209	219	87
49	3	29	63	10	92	428	205	223	87
50	7	29	63	22	92	353	205	148	74
51	17	30	63	54	95	269	200	69	47

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52	20	30	63	64	95	251	200	51	37
53	23	31		73	99	236	193	43	33/49
54	25	31		79	99	226	193	33	26
55	27	32		86	102	214	188	26	21
56	28	32		84	102	209	188	21	18
57	29	33		92	105	205	184	21	18
58	30	33		95	105	200	184	16	14
59	31	33		99	105	193	184	09	8
60	31	34		99	108	193	180	13	11
61									



75									
76									
77	39	41	~~124~~	124	130	154	145	09	8
78	38	41	~~120~~	120	130	160	145	15	13
79	36	41	~~114~~	114	130	170	145	25	21
80	35	42	~~110~~	110	134	176	138	38	30
81	34	42	~~108~~	108	134	180	138	42	32

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1924phae.proj.1123P

n Scorpii

82	31	42	63	99	134	193	140	53	39
83	23	42		73	134	236	140	96	59
84	27	42		86	134	214	140	74	49
85	34	42		108	134	180	140	40	31
86	36	42		115	134	168	140	28	23
87	37	43		118	137	163	133	30	24
88	38	43		122	137	157	133	24	20
89	40	43		128	137	148	133	15	13
90	41	43		130	137	145	133	12	10
91									
92									
93									
94									
95									
96									
97									
98									
99									
100									
101									
102									
103									
104	46	48		146	152	119	110	09	8
105	45	49		143	156	124	103	21	18
106	41	49		130	156	145	103	42	32
107	30	49		95	156	200	103	97	59
108	31	49		99	156	193	103	90	56
109	40	49		127	156	149	103	46	34
110	44	49		140	156	129	103	26	21
111	46	49		146	156	119	103	16	14

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1924phae.proj.1123P

π Scorpii

112	46	49	63	146	156	119	103	16	14
113	47	49		149	156	114	103	11	10
114	48	49		152	156	110	103	07	6
115	49	49		156	156	103	103	00	0
116									
117									
118									
119									
120									
121									
122									
123									
124									
125									
126									
127									
128	42	42		133	134	140	138	02	2
129	41	42		130	134	145	138	07	6
130	40	42		127	130	149	138	11	10
131	38	41		120	130	160	145	15	13
132	37	40		118	127	163	~~133~~ 149	~~30~~ 14	~~24~~ 12
133	36	39		114	124	170	154	16	14
134	31	39		99	124	193	154	39	30
135	22	38		70	121	241	159	82	53
136	27	37		86	118	214	163	51	37
137	32	37		102	118	188	163	25	21
138	32	36		102	114	188	170	18	15
139	33	36		105	114	184	170	14	12
140	33	35		105	112	184	173	11	10
141	33	34		105	108	184	180	04	4
142	33	34		105	108	184	180	04	4
	33	33		105	105	184	184	00	0

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1924phae.proj.1123P

P-9996
α Eridani

Reduced to 200

X7729

11			83						
12									
13									
14									
15									
16	11	11	83	27	27	334	334	00	00
17	11	12		27	28	334	330	04	04
18	11	13		27	32	334	319	15	13
M 19	11	13		27	32	334	319	15	13
20	10	14		24	34	345	313	32	26
21	10	15		24	36	345	308	37	29
22	11	16		27	39	334	300	34	27
23	14	17		~~27~~ 34	40	~~327~~ 313	297	~~30~~ 16	14
24	16	17		39	40	300	297	03	03
25	18	18		44	44	288	288	00	00
26	17	19		40	46	297	284	13	11
27	15	20		36	48	308	280	28	23
28	13	21		32	51	319	274	45	28
29	13	21		32	51	319	274	45	28
30	15	22		36	53	308	271	37	29
λ 31	17	23		40	56	297	265	32	26
32	20	24		48	58	280	262	18	15
33	23	24		56	58	265	262	03	03
34	25	25		60	60	258	258	00	00
35	24	26		58	63	262	253	09	08
36	21	26		51	63	274	253	21	18
37	18	27		44	65	288	249	39	30
38	16	28		39	68	300	244	56	40
K 39	15	28		36	68	308	244	64	44
40	16	29		39	70	300	241	59	42

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1924phae.proj,1123P

K9996
ζ Eridani

41	20	29	83	48	70	280	241	39	30
42	24	30		58	73	260	236	24	20
43	28	31		68	75	244	233	11	10
44	30	32		73	77	236	229	07	06
45	32	32		77	77	229	229	00	00
46	32	33		77	80	229	224	05	04
47	31	33		75	80	233	224	09	08
48	30	34		73	82	236	221	15	13
49	27	35		65	85	249	216	33	26
50	22	35		53	85	271	216	55	40
51	19	36		46	87	284	213	71	48
52	19	37		46	90	284	208	76	50
53	20	38		48	92	280	205	75	50
54	25	38		60	92	258	205	53	39
55	28	39		68	94	244	201	43	33
56	32	39		77	94	229	201	28	23
57	37	40		89	97	209	197	12	10
58	39	41		94	99	201	193	08	07
59	40	41		97	99	197	193	04	04
60	41	42		99	102	193	188	05	04
61	41	43		99	104	193	185	08	07
62	41	43		99	104	193	185	08	07
63	40	44		97	106	197	182	15	13
64	40	45		97	108	197	180	17	14
65	38	45		92	108	205	180	25	21
66	34	46		82	111	221	175	46	34
67	30	47		73	114	236	170	66	46
68	27	47		65	114	249	170	79	52
69	26	48		63	116	253	166	87	55
70	28	48		68	116	244	166	78	51

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1924phae.proj.1123P

2 Eridani Y 9996

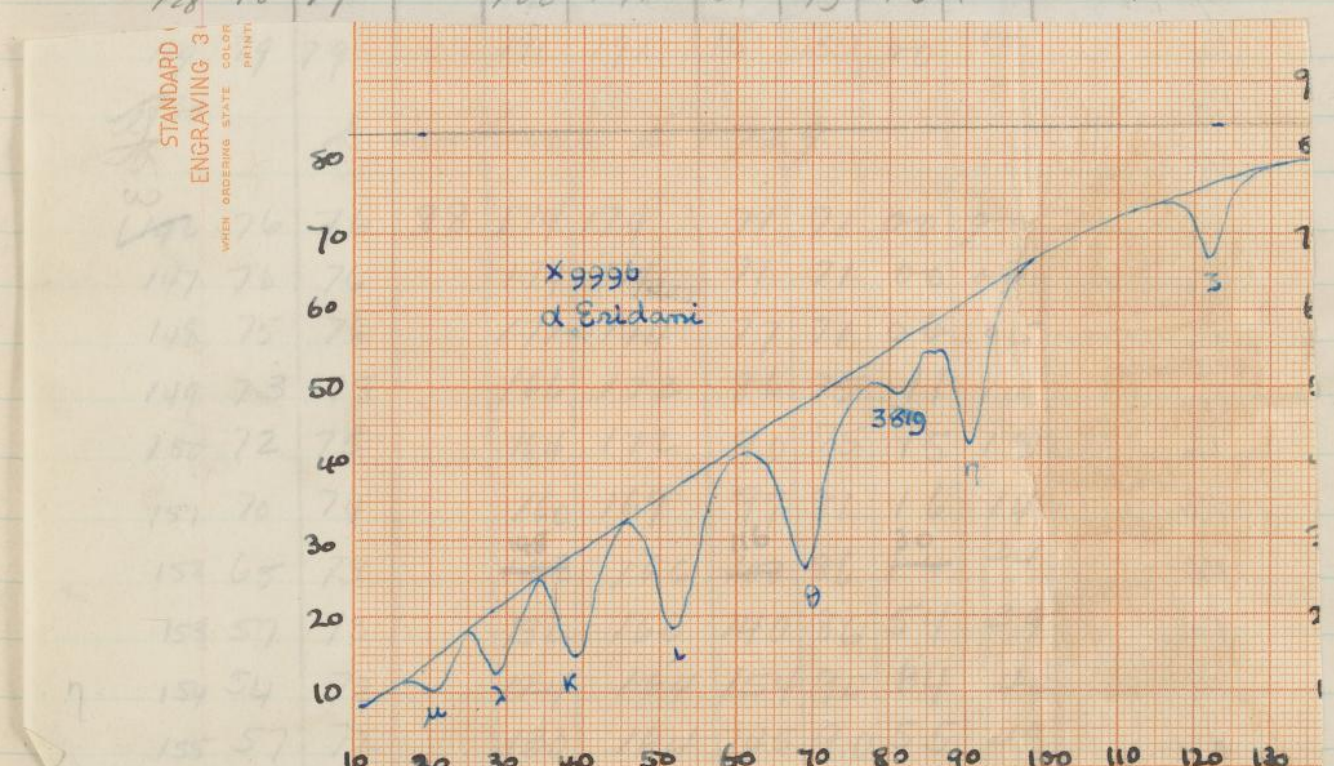
71	32	49	83	77	118	229	163	66	46
72	39	50		94	120	201	160	41	31
73	44	50		106	120	182	160	22	18
74	46	51		111	123	175	156	19	16
75	48	52		116	126	166	151	15	13
76	49	52		118	126	163	151	12	10
77	50	53		120	128	160	148	12	10
78	51	54		122	130	157	145	12	10
79	50	54		120	130	160	145	15	13
80	50	55		120	132	160	141	19	16
81	49	56		118	135	163	137	26	21
3819 82	49	56		118	135	163	137	26	21
83	51	57		122	138	157	132	25	21
84	54	58		130	140	145	129	16	14
85	55	58		132	140	141	129	12	10
86	55	59		132	142	141	125	16	14
87	55	59		132	142	141	125	16	14
88	52	60		125	145	153	121	32	26
89	47	60		113	145	171	121	50	37
90	43	61		104	147	185	117	68	46
7 91	43	62		104	149	185	114	71	48
92	47	62		113	149	171	114	57	41
93	54	63		130	152	145	110	35	28
94	59	64		142	154	125	106	19	16
95	61	64		147	154	117	106	11	10
96	63	65		152	156	110	103	07	06
97	65	66		156	159	103	98	05	04
98	66	66		159	159	98	98	00	00
99									
100									
101									

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1924phae.proj.1123P

α Eridani

	116	74	74	83	179	179	60	60	0	0
	117	74	75		179	182	60	52	08	07
	118	74	75		179	182	60	52	08	07
	119	73	75		176	182	67	52	15	13
	120	71	76		172	184	75	46	29	23
	121	68	76		164	184	90	46	44	33
3	122	67	76		162	184	93	46	47	35
	123	69	77		167	186	85	40	45	34
	124	72	77		174	186	71	40	31	25
	125	75	77		182	186	52	40	12	10
	126	76	78		184	188	46	31	15	13
	127	77	78		186	188	40	31	09	08
			78.5			189		21	10	
	128	78	79		188	191	31	15	16	?09



	156	60	71		137	162	133	93	40	31
	157	63	70		144	160	122	97	15	13
	158	65	70		148	160	116	97	19	16
	159	67	69		153	158	108	100	23	17

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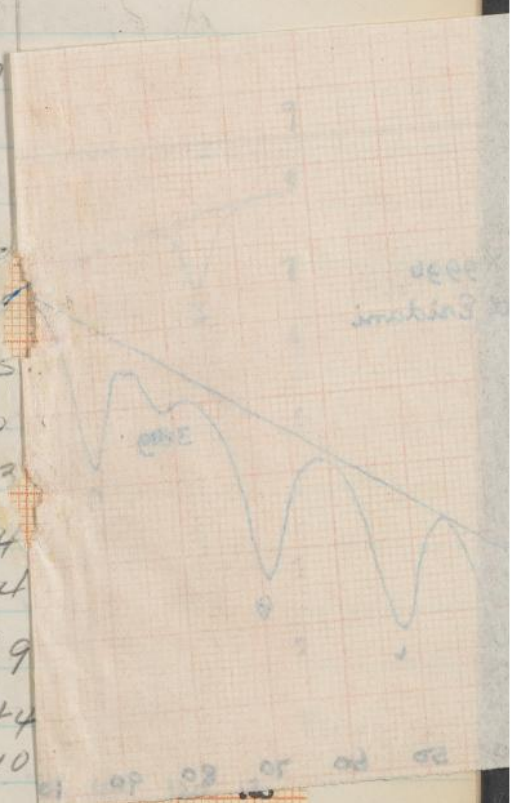
1924phae.proj.1123P

ζ Eridani

	116	74	74	83	179	179	60	60	0	0
	117	74	75		179	182	60	52	08	07
	118	74	75		179	182	60	52	08	07
	119	73	75		176	182	~~60~~ 67	52	~~08~~ 15	13
	120	71	76		172	184	75	46	29	23
	121	68	76		164	184	90	46	44	33
3	122	67	76		162	184	93	46	47	35
	123	69	77		167	186	85	40	45	34
	124	72	77		174	186	71	40	31	25
	125	75	77		182	186	52	40	12	10
	126	76	78		184	188	46	31	15	13
	127	77	78		186	188	40	31	09	08
	128	78	~~79~~ 78.5		188	~~191~~ 189	31	~~45~~ 41	~~16~~ 10	~~09~~ 09
	129	79	79		191	191	15	15	00	00
	130									

ζ Eridani X 7729

	146	76	76	88	174	174	71	71	00	00
	147	76	76		174	174	71	71	00	00
	148	75	76		171	174	77	71	06	05
	149	73	75		166	172	86	75	11	10
	150	72	75		164	172	90	75	15	13
	151	70	74		160	169	97	81	16	14
	152	65	73		~~150~~ 148	166	~~60~~ 116	86	~~14~~ 30	24
	153	57	73		132	166	140	86	54	39
η	154	54	72		124	164	154	90	64	44
	155	57	72		130	164	145	90	55	40
	156	60	71		137	162	133	93	40	31
	157	63	70		144	160	122	97	15	13
	158	65	70		148	160	116	97	19	16
	159	67	69		153	158	108	~~93~~ 100	23	17

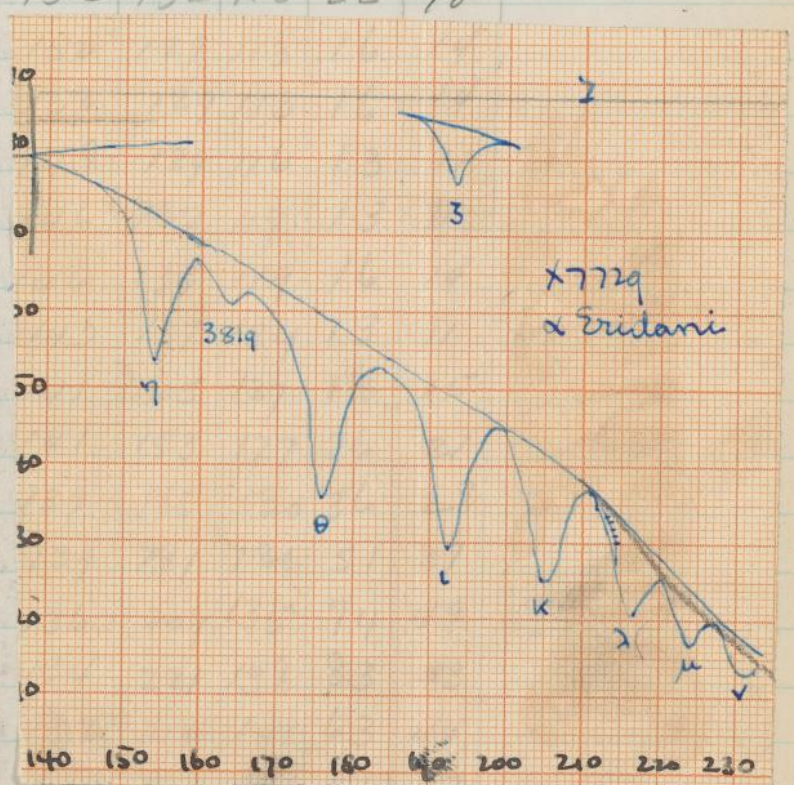


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1924phae.proj.1129P

α Eridani K 7729

160	66	69	88	150	157	113	102	11	10
161	65	68		148	155	116	105	11	10
162	64	68		146	155	119	105	14	12
163	62	68		140	155	129	105	24	20
164	61	67		138	152	132	110	22	18
165	62	66		140					
166	62	66		140					
167	62	65		140					
168	61	64		138					
169	60	64		136					
170	59	63		134					
171	57	62		130					
172	55	62		125					
173	51	61		116					
174	47	61		107					
175	39	60		89					
176	36	59		82					
177	38	58		86					
178	44	58		100					
179	48	57		109	130	178	145	33	26
180	50	57		114	130	170	145	25	21
181	52	56		118	128	163	148	15	13
182	52	55		118	125	163	153	10	09
183	53	55		120	125	160	153	07	06
184	52	54		118	123	163	156	07	06
185	52	54		118	123	163	156	07	06
186	51	53		116	120	166	160	06	05
187	50	52		114	118	170	163	07	06
188	48	52		109	118	178	163	15	13
189	45	51		102	116	188	166	22	18



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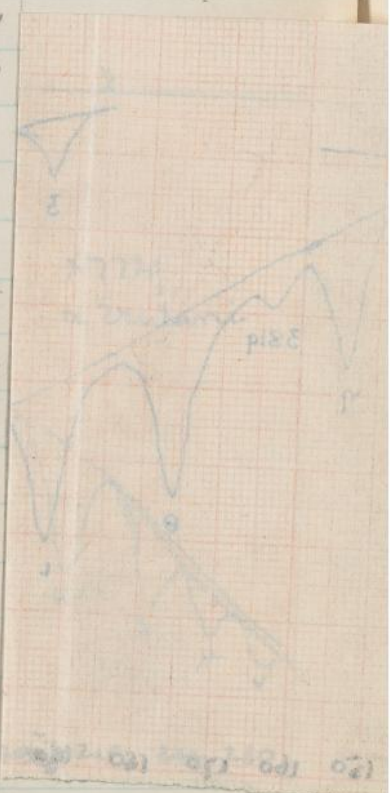
1924phae.proj.1123P

α Eridani K 7729

160	66	69	88	150	157	113	102	11	10
161	65	68		148	155	116	105	11	10
162	64	68		146	155	119	105	14	12
163	62	68		140	155	129	105	24	20
164	61	67		138	152	132	110	22	18
165	62	66		140	150	129	113	16	14
166	62	66		140	150	129	113	16	14
167	62	65		140	148	129	116	13	11
168	61	64		138	146	132	119	13	11
169	60	64		136	146	135	119	16	14
170	59	63		134	143	137	124	13	11
171	57	62		130	141	145	127	18	15
172	55	62		125	141	153	127	26	21
173	51	61		116	139	166	130	36	28
174	47	61		107	139	181	130	51	37
175	39	60		89	136	209	135	74	49
176	36	59		82	134	221	138	83	53
177	38	58		86	132	214	141	63	44
178	44	58		100	132	192	141	51	37
179	48	57		109	130	178	145	33	26
180	50	57		114	130	170	145	25	21
181	52	56		118	128	163	148	15	13
182	52	55		118	125	163	153	10	09
183	53	55		120	125	160	153	07	06
184	52	54		118	123	163	156	07	06
185	52	54		118	123	163	156	07	06
186	51	53		116	120	166	160	06	05
187	50	52		114	118	170	163	07	06
188	48	52		109	118	178	163	15	13
189	45	51		102	116	188	166	22	18

384

9



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1924phae.proj.1123P

2 Eridani 47729

190	40	51	88	91	116	206	166	40	31	
191	35	50		80	114	224	170	54	39	
192	29	49		66	112	248	173	75	63	
193	30	49		68	112	244	173	71	48	
194	35	48		80	110	224	176	48	36	
195	38	48		86	110	214	176	38	30	
196	41	47		93	107	203	181	22	26	
197	44	47		100	107	192	181	11	10	
198	45	46		102	105	188	184	04	04	
199	45	45		102	102	188	188	00	00	
200	45	45		102	102	188	188	00	00	
201	41	45		93	102	203	188	15	13	
202	38	44		86	100	214	192	22	18	
203	35	43		80	98	224	195	29	23	
204	28	42		64	96	251	198	53	39	
205	25	42		57	96	263	198	65	45	
206	25	41		57	93	263	203	60	42	
207	29	40		66	91	248	206	42	32	
208	33	39		75	89	233	209	22	18	
209	36	39		82	89	221	209	12	10	
210	37	38		84	87	217	213	04	04	04
211	37	37		84	84	217	217	00	37	00
212	35	36		80	82	224	221 (213)	03	36	03
213	33	35		75	80	233	224 (216)	09 (20) (35)	34	17
214	28	34		64	77	251	213 (219)	38 (48)	33	28
215	24	33		55	75	267	216 (249)	51 (36)	32	36
216	21	32		48	73	280	219 (248)	61 (28)	30	28
217	22	31		50	71	276	223 (251)	53 (22)	24	23
218	23	30		52	68	273	244 (250)	29 (11)	24	18
219	24	29		55	66	267	248	19	27	10

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1924phae.proj.112sp

α Eridani K 7729.

220	25	28	88	57	64	263	(263) 251	12°	0	25
221	24	27		55	61	267	(267) 256	11°	0	24
222	21	26		48	59	280	260	20	17	
223	18	25		41	57	295	263	32	26	
224	17	24		39	55	300	267	33	26	
225	18	23		41	52	295	273	22	18	
226	19	22		43	50	290	276	14	12	
227	20	21		46	48	284	280	04	04	
228	20	20		46	46	284	284	00	00	
229	15	19		34	43	313	296	23	19	
230	14	18		32	41	319	295	24	20	
31	13	18		30	41	324	295	29	23	
32	13	17		30	39	324	300	24	20	

3 α Eridani

186	86	86	88	196	196	—	—			
187	86	86		196	196	—	—			
188	85	85		193	193	2	2	0	0	
189	84	85		191	193	15	2	13	11	
190	83	85		189	193	27	2	25	21	
191	82	85		186	193	40	2	38	30	
192	80	84		182	191	55	15	40	31	
193	77	84		176	191	67	15	52	38	
194	79	84		180	191	57	15	42	32	
195	80	84		182	191	52	15	37	29	
196	81	83		184	189	46	27	19	16	
197	82	83		186	189	40	27	13	11	
198	82	83		186	189	40	27	13	11	
199	82	82		186	186	40	40	00	00	

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1924phae.proj.1123P

α Eridani 47893

10	79	79	86	184	184	46	46	00	00
11	79	79		184	184	46	46	00	00
12	79	79		184	184	46	46	00	00
13	78	79		182	184	52	46	06	05
14	78	80		182	186	52	40	12	10
15	77	80		179	186	60	40	20	17
16	76	80		176	186	67	40	27	22
17	75	80		174	186	71	40	31	25
18	73	80		170	186	79	40	39	30
19	71	80		165	186	88	40	48	36
20	74	80		172	186	75	40	35	28
21	75	80		174	186	71	40	31	25
22	76	80		177	186	64	40	24	20
23	77	80		179	186	60	40	20	17
24	78	80		182	186	52	40	12	10
25	78	80		182	186	52	40	12	10
26	79	80		184	186	46	40	06	05
27	79	80		184	186	46	40	06	05
28	79	80		184	186	46	40	06	05
29	80	80		186	186	40	40	00	00
32	79	79	86	184	184	46	46	00	00
33	79	79		184	184	46	46	00	00
34	78	78		182	182	52	52	00	00
35	77	78		179	182	60	52	08	07
36	76	78		176	182	67	52	15	13
37	75	78		174	182	71	52	19	16
38	75	78		174	182	71	52	19	16
39	76	78		176	182	67	52	15	13
40	77	78		179	182	60	52	08	07
41	77	78		179	182	60	52	08	07
42	77	78		179	182	60	52	08	07
43	78	78		182	182	52	52	00	07

4026

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1924phae.proj.1123P

ε α Eridani
4 7893

46	76	76	87	175	175	69	69	00	00
47	76	76		175	175	69	69	00	00
48	76	77		175	177	69	64	05	04
49	76	77		175	177	69	64	05	04
50	76	77		175	177	69	64	05	04
51	76	76		175	175	69	69	00	00
52	76	76		175	175	69	69	00	00
53	75	76		172	175	75	69	06	05
54	75	76		172	175	75	69	06	05
55	75	76		172	175	75	69	06	05
56	75	76		172	175	75	69	06	05
57	75	76		172	175	75	69	06	05
58	75	76		172	175	75	69	06	05
59	74	75		170	172	79	75	04	04
60	74	75		170	172	79	75	04	04
61	73	75		168	172	83	75	08	07
62	73	75		168	172	83	75	08	07
63	71	75		163	172	92	75	17	14
64	70	75		161	172	95	75	20	17
65	68	75		158	172	100	75	25	21
66	65	74		150	170	113	79	34	27
67	63	74		145	170	121	79	42	32
68	59	74		136	170	135	79	56	40
69	59	74		136	170	135	79	56	40
70	65	74		150	170	113	79	34	27
71	67	74		154	170	106	79	27	22
72	69	73		159	168	98	83	15	13
73	70	73		161	168	95	83	12	10
74	71	73		163	168	92	83	09	08
75	71	73		163	168	92	83	09	08

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1924phae.proj.1123P

ε α Eridani

76	71	73	87	163	168	92	83	09	08
77	71	72		163	166	92	86	06	05
78	71	72		163	166	92	86	06	05
79	71	72		163	166	92	86	06	05
80	71	72		163	166	92	86	06	05
81	71	71		163	163	92	92	00	00
82	71	71		163	163	92	92	00	00
			3	α Eridani					
93	60	60	87	138	138	132	132	00	00
94	60	60		138	138	132	132	00	00
95	59	60		136	138	135	132	03	03
96	58	59		134	136	138	135	03	03
97	58	59		134	136	138	135	03	03
98	57	58		132	134	141	138	03	03
99	57	58		132	134	141	138	03	03
100	56	57		129	132	146	141	05	04
101	55	57		127	132	149	141	08	07
102	54	56		124	129	154	146	08	07
103	52	56		120	129	160	146	14	12
104	49	55		113	127	171	149	22	18
105	45	55		104	125	185	153	33	26
106	43	54		99	124	193	154	39	30
107	39	54		90	124	208	154	54	39
108	34	53		78	122	228	157	71	48
109	30	53		69	122	243	157	86	55
110	33	52		76	120	231	160	71	48
111	37	52		85	120	216	160	56	40
112	40	51		92	118	205	163	42	32
113	42	51		97	118	197	163	34	27
114	43	50		99	115	193	168	25	21

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1924phae.proj.1129P

ε Eridani K 7890

115	45	50	87	104	115	185	168	17	14
116	46	49		106	113	182	171	11	10
117	47	48		108	110	180	176	04	04
118	47	48		108	110	180	176	04	04
119	46	47		106	110	182	180	02	02
120	45	47		104	108	185	180	05	04
121	44	46		102	106	188	182	06	05
122	44	46		102	106	188	182	06	05
123	43	45		99	104	193	185	08	07
124	42	45		97	104	197	185	12	10
125	41	44		94	102	201	188	13	11
126	41	43		94	99	201	193	08	07
127	40	43		92	99	205	193	12	10
128	40	42		92	97	205	201	04	04
129	40	42		92	97	205	201	04	04
130	40	41		92	94	205	201	04	04
131	40	41		92	94	205	201	04	04
132	40	40		92	92	205	205	00	00
				h, 3819, 0 u.					
120	36	36	87	82	83	219	219	00	00
121	35	35		81	81	223	223	00	00
122	34	35		78	81	228	223	05	04
123	33	34		76	78	231	228	03	03
124	33	34		76	78	231	228	03	03
125	32	33		74	76	234	231	03	03
126	31	32		71	74	239	234	05	04
127	30	32		69	74	243	234	09	08
128	30	32		69	74	243	234	09	08
129	29	31		67	71	246	239	07	07
130	28	31		64	71	251	239	12	10

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1924phae.proj.112P

α Eridani 4 - 7893

131	26	30	87	60	69	258	243	15	13
132	25	30		58	69	262	243	19	16
133	23	29		53	66	271	248	23	19
134	21	29		48	66	280	248	32	26
135	19	28		44	64	288	251	37	29
136	16	28		37	64	305	251	54	39
137	13	27		30	62	324	255	69	47
138	12	27		28	62	330	~~273~~ 255	57 78	51
139	09	26		21	60	358	258	100	60
140	09	26		21	60	358	258	100	60
141	11	26		25	60	341	258	83	53
142	13	25		30	58	324	262	62	44
143	16	25		37	58	305	262	43	33
144	18	24		42	55	293	267	26	21
145	18	24		42	55	293	267	26	21
146	19	23		44	53	288	271	17	14
147	19	23		44	53	288	271	17	14
148	19	22		44	51	288	274	14	12
149	19	22		44	51	288	274	14	12
150	19	21		44	48	288	280	08	07
151	18	21		42	48	293	280	13	11
152	16	20		37	46	305	284	21	18
153	15	20		35	46	311	284	27	22
154	14	20		32	46	319	284	35	28
155	14	19		32	44	319	288	31	25
156	15	19		35	44	311	288	23	19
157	16	18		37	42	305	293	12	10
158	16	18		37	42	305	293	12	10
159	17	17		39	39	300	300	00	00
160	16	17		37	39	305	300	5	04

3819

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1924phae.proj.1123P

α Eridani +78 93

161	16	17	87	37	39	305	300	05	04
162	16	17		37	39	305	300	05	04
163	15	16		35	37	311	305	06	05
164	14	16		32	37	319	305	14	12
165	14	15		32	35	319	311	08	07
166	13	15		30	35	324	311	13	11
167	12	15		28	35	330	311	29	23
168	12	15		28	35	330	311	29	23
169	11	15		25	35	341	311	30	24
© 170	9	15		21	35	358	311	47	35
171	8	14		18	32	374	319	55	40
172	7	14		16	32	385	319	66	46
173	5	14		12	32	413	319	94	58
174	4	14		9	32	437	319	118	66
175	5	13		12	30	413	324	89	56
176	6	13		14	30	399	324	75	50
177	7	13		16	30	385	324	61	43
178	8	13		18	30	374	324	50	37
179	9	12		21	28	358	330	28	23
180	9	12		21	28	358	330	28	23
181	9	12		21	28	358	330	28	23
182	9	12		21	28	358	330	28	23
183	10	12		23	28	349	330	19	16
184	10	11		23	25	349	341	08	07
185	10	11		23	25	349	341	08	07
186	9	11		21	25	358	341	17	14
187	9	11		21	25	358	341	17	14
188	9	11		21	25	358	341	17	14
189	9	10		21	23	358	349	09	08
190	9	10		21	23	358	349	09	08

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1924phae.proj.1123P

2 Eridani 47893

191	9	10	87	21	23	358	349	0	9	08
192	9	10		21	23	358	349	09		08
193	8	10		18	23	374	349	25		21
194	8	10		18	23	374	349	25		21
195	8	10		18	23	374	349	25		21
196	7	9		16	21	385	358	27		22
197	7	9		16	21	385	358	27		22
198	6	9		14	21	399	358	41		31
199	5	9		12	21	413	358	55		40
200	5	9		12	21	410	358	55		40
201	4	9		9	21	437	358	79		52
202	3	9		7	21	456	358	98		59
203	3	8		7	18	456	374	82		53
204	4	8		9	18	437	374	63		44
205	5	8		12	18	413	374	39		30
206	6	8		14	18	399	374	25		21
207	6	8		14	18	399	374	25		21
208	7	8		16	18	385	374	11		10
209	7	8		16	18	385	374	11		10
210	8	8		18	18	374	374	00		00

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1924phae.proj.112P

α Eridani X7943

1			97						
2	92	92	190	190	21	21	00	00	
3	92	92	190	190	21	21	00	00	
4	91	92	188	190	31	21	10	09	
5	90	92	186	190	40	21	19	16	
6	90	92	186	190	40	21	19	16	
7	89	92	184	190	46	21	25	21	
8	87	92	180	190	57	21	36	28	
9	85	92	176	190	69	21	46	34	
S 10	82	92	167	190	85	21	64	44	
11	84	92	173	190	73	21	52	38	
12	87	92	180	190	57	21	36	28	
13	88	92	182	190	52	21	31	25	
14	89	92	184	190	46	21	25	21	
15	90	92	186	190	40	21	19	16	
16	90	92	186	190	40	21	19	16	
17	91	92	188	190	31	21	10	09	
18	91	92	188	190	31	21	10	09	
19	91	92	188	190	31	21	10	09	
20	91	91	188	188	31	31	00	0	
21									
22									
23									
24									
25									
26									
27									
28	89	89	184	184	46	46	00	0	
29	88	89	182	184	52	46	06	05	
30	87	89	180	184	57	46	11	10	

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1924phae.proj.1123P

31	86	89		177	184	64	46	18	15
32	86	89		177	184	64	46	18	15
33	86	89		177	184	64	46	18	15
34	87	89		180	184	57	46	11	10
35	87	89		180	184	57	46	11	10
36	88	89		182	184	52	46	06	05
37	88	89		182	184	52	46	06	05
38	88	88		182	182	52	52	00	0
39									
45	85	85	96	178	178	62	62	00	00
46	85	85		178	178	62	62	00	00
47	84	85		176	178	67	62	05	04
48	84	85		176	178	67	62	05	04
49	83	85		174	178	71	62	09	08
50	83	85		174	178	71	62	09	08
51	82	84		171	176	77	67	10	09
52	81	84		169	176	81	67	14	12
53	79	84		165	176	88	67	21	18
54	77	84		161	176	95	67	28	23
55	73	83		152	174	110	71	39	30
56	68	83		142	174	125	71	54	39
57	64	83		134	174	138	71	67	46
58	64	83		134	174	138	71	67	46
59	70	83		146	174	119	71	48	36
60	73	82		152	171	110	77	33	26
61	74	82		154	171	106	77	29	23
62	76	82		159	171	98	77	21	18
63	78	82		163	171	92	77	15	13
64	79	81		165	169	88	81	07	06

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1924phae.proj.1123P

α Eridani K 7943

	m	E m+m	m+m+d (m)	(m+m)	[m]	[m+]	dm	dl
65	79	81	96	165	169	88	81	07	06
66	79	81		165	169	88	81	07	06
67	79	81		165	169	88	81	07	06
68	79	80		165	166	88	86	02	02
69	79	80		165	166	88	86	02	02
70	79	79		165	165	88	88	00	00

3

		m+m+d						
73	m	m+m	96 (m+)	(m+)	[m]	[m+]	dm	dl
74	62	62	130	130	145	145	00	00
75	61	61	128	128	148	148	00	00
76	60	60	125	125	153	153	00	00
77	59	60	123	125	156	153	03	03
78	58	59	121	125	159	153	06	05
79	56	58	117	121	165	159	07	06
80	54	58	112	121	173	159	14	12
81	52	57	108	119	180	162	18	15
82	48	56	100	117	192	165	27	22
83	41	56	86	117	214	165	49	36
84	34	55	71	115	239	168	71	48
85	28	54	59	112	260	173	87	55
86	27	54	56	112	265	173	92	57
87	31	53	65	110	249	176	73	49
88	37	52	77	108	229	180	49	36
89	41	52	86	108	214	180	34	27
90	44	51	92	106	205	182	23	19
91	45	50	94	104	201	185	16	14
92	46	49	96	102	198	188	10	09
93	47	48	98	100	195	192	03	03
94	47	48	98	100	195	192	03	03

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1924phae.proj.1123P

	m	m+u	[m]	[m+u]	[m]	[m+u]	dm	dl
95	47	47	98	98	195	195	00	
96	46	46	96	96	102	102	00	
97	45	45	94	94	104	104	00	
			m+u					dm
102	32	32	94	68	68	244	244	00
103	32	32		68	68	244	244	00
104	31	31		66	66	248	248	00
105	30	31		64	66	251	248	03
106	29	30		62	64	255	251	04
107	29	30		62	64	255	251	04
108	28	29		60	62	258	255	03
109	27	29		57	62	263	255	08
110	26	28		55	60	267	258	09
111	25	27		53	57	271	263	08
112	24	27		51	57	274	263	11
113	22	26		47	55	282	267	15
114	20	26		43	55	290	267	23
115	18	25		38	53	303	271	32
116	16	25		34	53	313	271	42
117	13	24		28	51	330	274	56
118	10	23		21	49	358	278	80
119	07	23		15	49	392	278	114
120	07	22		15	47	392	282	110
121	08	22		17	47	379	282	97
122	10	21		21	45	358	286	72
123	15	21		32	45	319	286	33
124	17	20		36	43	308	290	18
125	18	20		38	43	303	290	13
126	18	19		38	41	303	295	08
127	18	18		38	38	303	303	00

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1924phae.proj.1123P

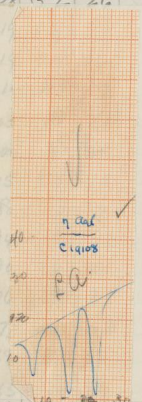
n Aql C-19,08

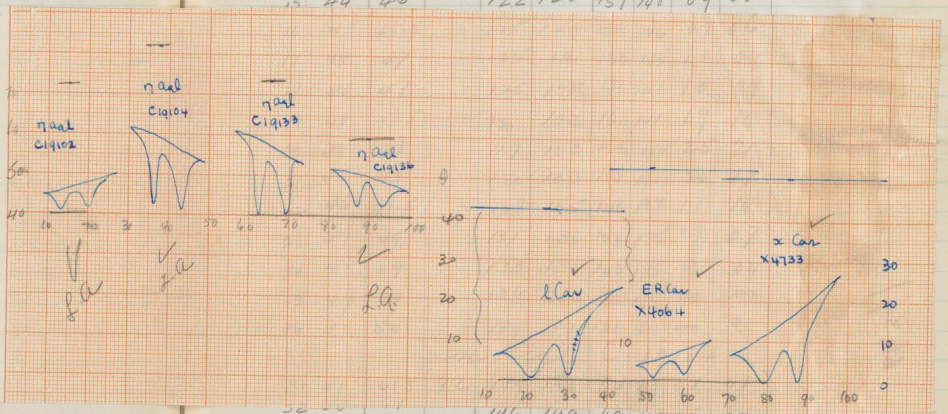
3	13	13	41	64	64	251	251	00	00
4	13	14		64	68	251	244	07	06
5	12	14.5		59	71	260	239	21	18
6	08	15		39	73	300	236	64	44
7	06	15.5		29	76	327	231	96	59
8	12	16		59	78	260	228	32	26
9	16	17		78	83	228	219	09	08
10	16.5	17		81	83	223	219	04	04
11	18	18		88	88	211	211	00	00
12	18	19		88	93	211	203	08	07
13	16	19.5		78	95	228	200	28	23
14	12	20		59	98	260	195	65	45
15	5	21		24	102	345	180	157	76
16	1.5	21.5		7	105	456	184	272	92
17	15	22		73	108	236	190	56	40
18	21.5	22.5		105	110	184	176	08	07
19	23	23		112	112	173	173	00	00
20	20	23.5		98	115	195	168	27	22
21	13	24		64	117	251	165	86	55
22	3	24.5		15	120	392	160	232	88
23	1	25		5	122	487	157	330	95
24	21	25.5		102	124	188	154	34	27
25	24	26		117	127	165	149	16	14
26	26	27		127	132	149	141	08	07
27	27	27		132	132	141	141	00	00

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η Aql C-19108

3	13	13	41	64	64	251	251	00	00
4	13	14		64	68	251	344	07	06
5	12	14.5		59	71	260	289	21	18
6	08	15		39	73	300	236	64	44
7	06	15.5		29	76	327	231	96	59
8	12	16		59	78	260	228	127	26
9	16	17		78	83	228	2		
10	16.5	17		81	83	223	2		
11	18	18		88	88	211	2		
12	18	19		88	93	211	2		
13	16	19.5		78	95	228	2		
14	12	20		59	98	260	1		
15	5	21		24	102	345	1		
16	1.5	21.5		7	105	456	1		
17	15	22		73	108	236	1		
18	21.5	22.5		105	110	184	1		
19	23	23		112	112	173	1		
20	20	23.5		98	115	195	1		
21	13	24		64	117	251	1		
22	3	24.5		15	120	392	160	232	88
23	1	25		5	122	487	157	330	95
24	21	25.5		102	124	188	154	34	27
25	34	26		117	127	165	149	16	14
26	26	27		127	132	149	141	08	07
27	27	27		132	132	141	141	00	00





η Aql C19102

10	45	45	72	125	125	153	153	00	00
11	44	45		122	125	157	153	04	02
12	42	45		117	125	165	153	12	10
13	41	45.5		114	126	170	151	19	16
14	42	46		117	128	165	148	17	14
15	44	46		122	128	157	148	09	08
33	59	61		144	149	122	114	08	07
34	56	61		136	149	135	114	21	18
35	52	60		127	146	149	119	30	24
36	43	60		105	146	184	119	65	45
37	50	59		122	144	157	122	35	28
38	55	59		134	144	138	122	16	14
39	54	58.5		132	143	140	124	16	14
40	53	58		129	142	146	125	21	18
41	50	57		122	139	157	130	27	22
42	45	56.5		110	138	176	132	44	33
43	41	56		100	136	192	135	57	41
44	45	55		110	134	176	138	38	30
45	51	55		124	134	154	138	16	14
46	52	54		127	132	149	141	08	07
47	53	54		129	132	146	141	05	04
48	53.5	53.5		130	130	145	145	00	00

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1924phae.proj.1123P

n Agl C 1910 2

10	45	45	72	125	125	153	153	00	00
11	44	45		122	125	157	153	04	02
12	42	45		117	125	165	153	12	10
13	41	45.5		114	126	170	151	19	16
14	42	46		117	128	165	148	17	14
15	44	46		122	128	157	148	09	08
16	45	46.5		125	129	153	146	07	06
17	45	47		125	131	153	143	10	09
18	45	47		125	131	153	143	10	09
19	43	47.5		120	132	160	141	19	16
20	42.	48		117	133	165	140	25	21
21	43	48		120	133	160	140	20	17
22	46	48.5		128	135	148	137	11	10
23	47	49		131	136	143	135	08	07
24	48	49		133	136	140	135	05	04
25	49	49		136	136	135	135	00	00
26	50	50		139	139	130	130	00	00

n Agl C-1910 4

31	61	61.5	82	149	150	114	113	01	01
32	60	61		146	149	119	114	05	04
33	59	61		144	149	122	114	08	07
34	56	61		136	149	135	114	21	18
35	52	60		127	146	149	119	30	24
36	43	60		105	146	184	119	65	45
37	50	59		122	144	157	122	35	28
38	55	59		134	144	138	122	16	14
39	54	58.5		132	143	140	124	16	14
40	53	58		129	142	146	125	21	18
41	50	57		122	139	157	130	27	22
42	45	56.5		110	138	176	132	44	33
43	41	56		100	136	192	135	57	41
44	45	55		110	134	176	138	38	30
45	51	55		124	134	154	138	16	14
46	52	54		127	132	149	141	08	07
47	53	54		129	132	146	141	05	04
48	53.5	53.5		130	130	145	145	00	00

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1924phae.proj.1123P

n Aquila C19,33

m+n+l = 73.3

	m	m+n	73.3	[m]	(m+n)	[n]	[m+n]	dm dl
56								
57	61	61	166	166	86	86	00	00
58	59	60	161	163	95	92	03	03
59	58	60	158	163	100	92	08	07
60	57	60	155	163	105	92	13	11
61	51	59.5	139	162	130	93	37	29
62	40	59	109	160	178	97	81	53
63	46	59	125	160	153	97	56	40
64	53	58	144	158	122	100	22	18
65	53	57	144	155	122	105	17	14
66	52	57	142	155	125	105	20	17
67	48	56	131	152	143	110	33	26
68	45	56	123	152	156	110	46	34
69	40	55	109	150	185	113	72	48
70	43	54.5	117	148	165	116	49	36
71	53	54	144	147	122	117	05	04
72	53.5	53.5	146	146	119	119	00	00

n Aql C19136

81	52	52	59.5	175	175	69	69	00	00
82	51	51.5		172	174	75	71	04	04
83	50	51.5		169	174	81	71	10	09
84	49	51.5		166	174	86	71	15	13
85	47	51		158	171	100	77	23	19
86	44	51		155	171	105	77	28	23
87	43	51		146	171	119	77	42	32
88	46	50.5		156	170	103	79	24	20
89	48.5	50		164	168	90	83	07	06
90	48	50		163	168	92	83	09	08
91	46	49.5		156	166	103	86	17	14
92	44	49.		150	165	113	88	25	21

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n Aquilae C 19136

93	43	49	59.5	104	165	122	88	34	27
94	43	48.5		144	163	122	92	30	24
95	45	48		151	161	111	95	16	14
96	46	48		154	161	106	95	11	10
97	46.5	47.5		156	160	103	97	06	05
98	46.5	47		156	158	103	100	03	03
99	46.5	46.5		156	156	103	103	00	00

B Crucis. γ - 7632

1	75	75	80	188	188	31	31	00	00
2	74.5	75		186	188	40	31	09	08
3	74	75		185	188	43	31	12	10
4	72	75		180	188	57	31	26	21
5	70	75		175	188	69	31	38	30
6	69	75		173	188	73	31	42	32
7	72	75		180	188	57	31	26	21
8	73	75		183	188	49	31	18	15
9	73	74.5		183	186	49	40	09	08
10	73	74		183	185	49	43	06	05
11	73.5	74		184	185	46	43	03	03
12	74	74		185	185	43	43	00	00
13	74	74		185	185	43	43	00	00
14	74	74		185	185	43	43	00	00
15									
16									
17									
18									
19									
20	69	69		173	173	73	73	00	00
21	69.5	69.5		174	174	71	71	00	00

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1924phae.proj.112SP

β Crucis γ 7632

	22	68	68	80	170	170	79	79	00	00
3	23	67	68		168	170	83	79	00	00
	24	66	67.5		165	169	83	81	02	02
	25	65	67		162	168	88	83	05	04
	26	64	67		160	168	97	83	14	12
	27	59	66.5		149	166	114	86	28	23
	28	56.5	66		141	165	127	88	39	30
	29	61	66		152	165	110	88	32	26
	30	62	65.		155	162	105	93	12	10
	31	63	65		158	162	100	93	07	06
	32	64	65		160	162	97	93	04	04
	33	64	64		160	160	97	97	00	00
	34	64	64		160	160	97	97	00	00
	30	60	60		150	150	113	113	00	00
	31	59.5	60		149	150	114	113	01	01
	32	59	60		148	150	116	113	03	03
	33	58	59.5		145	149	121	114	07	06
	34	57.5	59		144	148	122	116	06	05
	35	57	59		142	148	125	116	09	08
	36	56	58		140	145	129	121	08	07
	37	55.5	58		139	145	130	121	09	08
	38	55	58		138	145	132	121	11	10
	39	54.5	57.5		136	144	135	122	13	11
	40	54	57		135	142	137	125	12	10
	41	53	57		132	142	141	125	16	14
	42	52	56.5		130	141	145	127	18	15
	43	50	56		125	140	153	129	24	20
	44	46	55.5		115	139	168	130	38	20
	45	41	55		102	138	188	132	56	40

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1924phae.proj.1123P

B Crucis K 76 32

46	38	55	80	95	138	~~200~~	132	68	46
47	43	54.5		108	136	180	135	45	34
48	46	54		115	135	168	137	31	25
49	47	54		118	135	163	137	26	21
50	48	53.5		120	134	160	138	22	18
51	48	53		120	133	160	140	20	17
52	47	52.5		118	131	163	143	20	17
53	47	52		118	130	163	145	18	15
54	45	52		112	130	173	145	28	23
55	40.5	51		101	128	190	148	42	32
56	41	51		102	128	188	148	40	31
57	45	50.5		112	126	173	151	22	18
58	45	50		112	125	173	153	20	17
59	45	50		112	125	173	153	20	17
60	45	50		112	125	173	153	20	17
61	44	49		110	122	176	157	19	16
62	43	49		108	122	180	157	23	19
63	42	49		105	122	184	157	27	22
64	41	48		102	120	188	160	28	23
65	39	48		98	120	195	160	35	28
66	38	47.5		95	119	~~200~~	162	38	~~30~~
67	35	47		88	118	211	163	48	36
68	30	47		75	118	233	163	70	48
69	31	46.5		77	116	229	166	63	44
70	35	46		88	115	211	168	43	33
71	36	45.5		90	114	208	170	38	30
72	38	45		95	112	~~200~~	173	27	22
73	39	45		98	112	195	173	22	18
74	39.5	45		99	112	193	173	20	17
75	40	44		100	110	192	176	16	14

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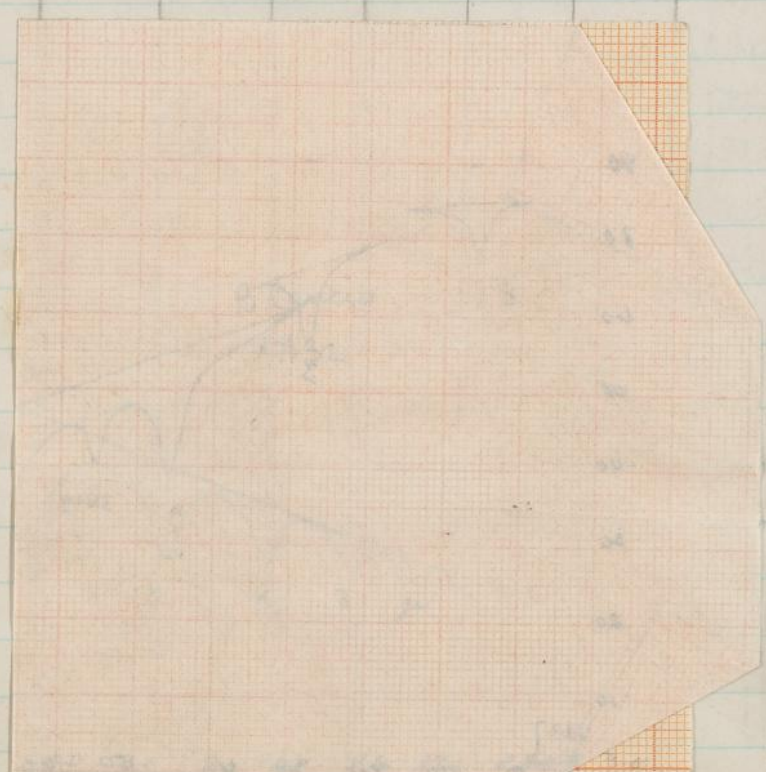
β Crucis

	m	m+n	(m)	(m+n)	Tm	Tm+n	Δm	
76	40	44	100	110	192	176	16	14
77	40	43.5	100	109	192	178	14	12
78	39.6	43	99	108	193	180	13	11
79	39	42.5	98	106	195	182	13	11
80	38	42	95	105	200	184	16	14
81	37	41.5	92	104	205	185	20	17
82	36	41	90	103	208	187	21	18
83	35	41	88	103	211	187	24	20
84	33	40.5	83	102	219	188	31	25
85	30	40	75	100	233	192	41	31
86	28	39.8	70	99	241	193	48	36
87	29.5	39.5	74	99	234	193	41	31
88	33	39	82	98	221	195	26	21
89	34.5	38.5	86	97	214	197	17	14
90	35.1	38.2	88	96	211	198	13	11
91	35.7	38	89	95	209	200	9	08
92	36	37.6	90	94	208	201	7	6
93	35.7	37.2	89	93	209	203	6	5
94	35	37	87	92	213	205	8	7
95	34.4	36.3	86	91	214	206	8	7
96	33.4	36	84	90	217	208	9	8
97	31.8	35.6	80	89	224	209	15	13
98	29	35.2	73	88	236	211	25	21
99	27	35	68	88	244	211	33	26
	27		68	87	244	213	31	25
100	27	34.6	68	86	244	214	30	24
101	30	34	75	85	233	216	17	14
102	32	33.7	80	84	224	217	7	6
103	32.6	33	82	83	221	219	2	2
104	32.6	32.6	82	82	221	221	0	0
105	32.2	32.2	81	81	223	223	0	0
106	31.6	32.0	79	80	226	224	2	2

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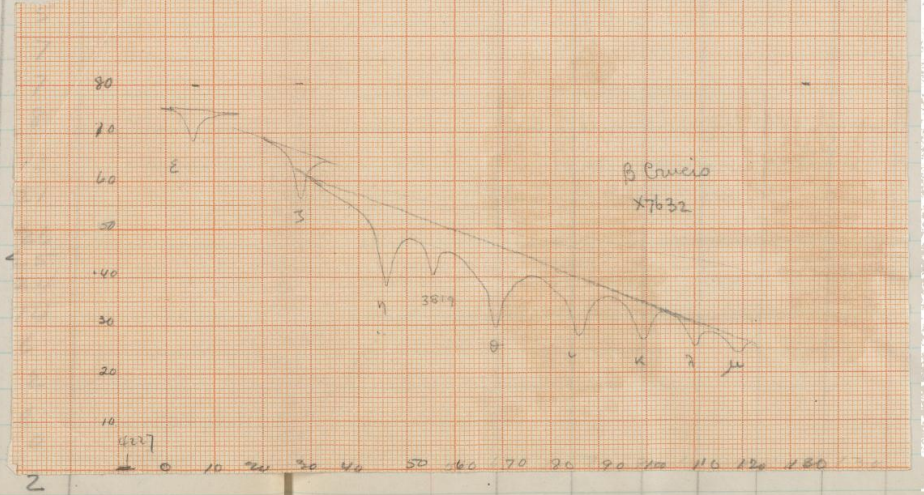
107	30.9	31.8	77	79	229	226	3	3
108	29	31.4	73	78	236	228	8	7
109	27.5	31.0	69	77	243	229	14	12
110	25.5	~~29.5~~ 30.5	64	76	251	231	20	17
111	27	30.2	67	75	246	233	13	11
112	28.2	30.0	70	75	241	233	8	7
113	28.3	29.5	71	74	239	234	5	4
114	28.0	29.0	70	73	241	236	5	4
115	27.9	28.7	~~72~~ 69	72	243	238	5	4
116	27	28.3	68	71	244	239	5	4
117	26	28.0	65	70	249	241	8	7
118	25	27.6	62	69	255	243	12	10
119	24.2	27.1	60	68	258	244	14	12
120	24.6	26.9	62	67	255	246	9	08
121	25.9	26.5	65	66	249	248	1	1
122	26	26.0	65	65	249	249	0	0



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β Crucis

	m	m+n	(m)	(m+n)	I	I+n	d m
76	40	44	100	110	192	176	16
77	40	43.5	100	109	192	178	14
78	39.6	43	99	108	193	180	13
79	39	42.5	98	106	195	182	13
80	38	42	95	105	200	184	16
81	37	41.5	92	104	205	185	20
82	36	41	90	103	208	187	21
83	35	41	88	103	211	187	24
84	33	40.5	83	102	219	188	31
85	30	40	75	100	233	192	41
86	28	39.8	70	99	241	193	48
87	29.5	39.5	74	99	234	193	41
88	33	39	82	98	221	195	26
89	34.5	38.5	86	97	214	197	17
90	35.1	38.2	88	96	211	198	13
91	35.7	38	89	95	209	200	9
92	36	37.6	90	94	208	201	7
93	35.7	37.2	89	93	209	203	6
94	35	37	87	92	213	205	8
95	34.4	36.3	86	91	214	206	8
96	33.4	36	84	90	217	208	9
97	31.8	35.6	80	89	224	209	15
98	29	35.2	73	88	236	211	25
99	27	35	68	88	244	211	33
100	27 27	34.6	68 68	87 86	244 244	213 214	31 30
101	30	34	75	85	233	216	17
102	32	33.7	80	84	224	217	7
103	32.6	33	82	83	221	219	2
104	32.6	32.6	82	82	221	221	0
105	32.2	32.2	81	81	223	223	0
106	31.6	32.0	79	80	226	224	2
107	30.9	31.8	77	79	229	226	3
108	29	31.4	73	78	236	228	8
109	27.5	31.0	69	77	243	229	14
110	25.5	30.5 29.5	64	76	251	231	20
111	27	30.2	67	75	246	233	13
112	28.2	30.0	70	75	241	233	8
113	28.3	29.5	71	74	239	234	5
114	28.0	29.0	70	73	241	236	5
115	27.9	28.7	69 72	72	243	238	5
116	27	28.3	68	71	244	239	5
117	26	28.0	65	70	249	241	8
118	25	27.6	62	69	255	243	12
119	24.2	27.1	60	68	258	244	14
120	24.6	26.9	62	67	255	246	9
121	25.9	26.5	65	66	249	248	1
122	26	26.0	65	65	249	249	0



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ρ Puppis n.g. 2763
K-8211

	8	15	17	46	65	74	249	234	15	13
	9	14	17.5		61	76	256	231	25	21
	10	10	18		44	78	288	228	60	42
	11	4	18.5		17	81	379	223	156	76
k	12	0	19		0	83	0	219	-	
	13	2	19.5		8	85	446	216	230	88
	14	4	20		17	87	378	213	165	78
	15	10	20		44	87	288	213	75	50
	16	14	21		61	92	256	205	51	37
	17	16	21		70	92	241	205	36	28
	18	18	21.5		78	94	228	201	27	22
	19	19	22		83	96	219	198	21	18
	20	20	22.5		87	98	213	195	18	15
	21	21	23		92	100	205	192	13	11
	22	21.5	23.5		94	102	201	188	13	11
	23	22	24		96	105	198	184	14	12
	24	22	24.5		96	107	198	181	17	14
	25	22	25		96	109	198	178	20	17
	26	22	25		96	109	198	178	20	17
	27	20	25		87	109	213	178	35	28
	28	18	26		78	111	228	175	53	39
	29	15	26		65	111	249	175	74	49
e	30	8	26.5		35	116	311	166	145	74
	31	4	27		17	118	379	163	216	86
	32	7	27		31	118	321	163	158	77
	33	13	27		57	118	263	163	100	60
	34	17	27.5		74	120	234	160	74	49
	35	20	28		87	122	213	157	56	40
	36	23	28		100	122	192	157	35	28
	37	25	28		109	122	178	157	21	18

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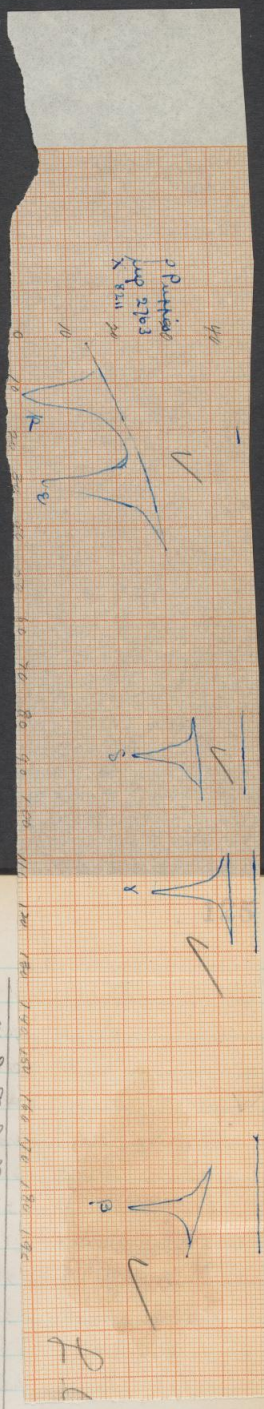
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ζ Puppis

38	26	28.5	46	111	124	175	154	21	18
39	26.5	29		116	126	166	157	15	13
40	27	29		118	126	163	157	12	10
41	27.5	29		120	126	160	151	09	08
42	28	29.5		122	128	157	148	09	08
43	29	29.5		126	128	157	148	03	03
44	29.5	30		128	130	148	145	03	03
45	30	30		130	130	145	145	00	00
					S				
81	35.5	35.5	46	154	154	106	106	00	0
82	35	36		152	156	110	103	07	06
83	35	36		152	156	110	103	07	06
84	35	36		152	156	110	103	07	6
85	35	36		152	156	110	103	07	6
86	33	36		144	156	122	103	19	16
87	30	36		130	156	145	103	42	32
88	23	36.5		100	158	192	100	92	57
89	25	36.5		109	158	178	100	78	51
90	31	37		135	161	137	95	42	32
91	33	37		144	161	122	95	27	22
92	34	37		148	161	116	95	21	18
93	34	37		148	161	116	95	21	18
94	35	37		152	161	110	95	15	13
95	36	37		156	161	103	95	08	07
96	37	37		161	161	95	95	00	0

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1924phae.proj.1123P



ρ Puppis

38	26	28.5	46	111	124	175	154	21	18
39	26.5	29		116	126	166	157	15	13
40	27	29		118	126	163	157	12	10
41	27.5	29		120	126	160	151	09	08
42	28	29.5		122	128	157	148	09	08
43	29	29.5		126	128	157	148	03	03
44	29.5	30		128	130	148	145	03	03
45	30	30		130	130	145	145	00	00
					S				
81	35.5	35.5	46	154	154	106	106	00	0
82	35	36		152	156	110	103	07	06
83	35	36		152	156	110	103	07	06
84	35	36		152	156	110	103	07	6
85	35	36		152	156	110	103	07	6
86	33	36		144	156	122	103	19	16
87	30	36		130	156	145	103	42	32
88	23	36.5		100	158	192	100	92	57
89	25	36.5		109	158	178	100	78	51
90	31	37		135	161	137	95	42	32
91	33	37		144	161	122	95	27	22
92	34	37		148	161	116	95	21	18
93	34	37		148	161	116	95	21	18
94	35	37		152	161	110	95	15	13
95	36	37		156	161	103	95	08	07
96	37	37		161	161	95	95	00	0

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c Puppis K-8211

δ

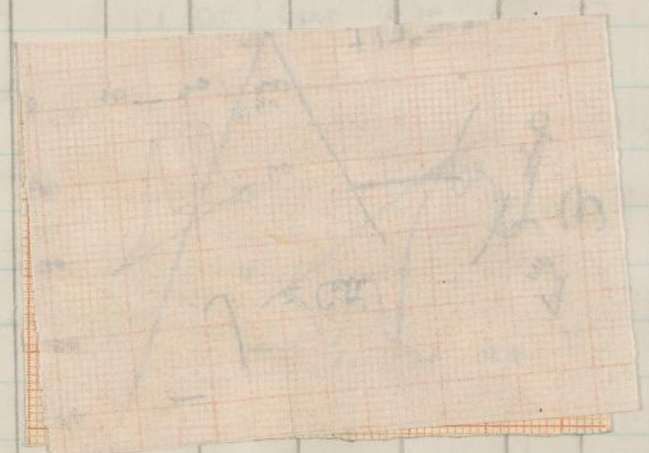
111	41.5	42.5	48	173	178	73	62	11	10
112	41	42.5		171	178	77	62	15	13
113	40	42.5		167	178	85	62	23	19
114	39.5	42.5		165	178	88	62	26	21
115	38	42.5		158	178	100	62	38	30
116	34	42.5		142	178	125	62	63	44
117	26.5	43		110	180	176	57	119	67
118	32	43		134	180	138	57	81	53
119	38	43		158	180	100	57	43	33
120	40	43		167	180	85	57	28	23
121	41	43		171	180	77	57	20	17
122	41	43		171	180	77	57	20	17
123	41.5	43		173	180	73	57	16	14
124	42	43		175	180	69	57	12	10
125	42	43		175	180	69	57	12	10
126	43	43		180	180	57	57	00	0
				B					
176	38	38	48	158	158	100	100	00	00
177	37	38		154	158	106	100	06	05
178	36.5	37.5		152	156	110	103	07	6
179	36	37		150	154	113	106	07	6
180	35	37		146	154	119	106	13	11
181	34	37		142	154	125	106	19	16
182	32	36.5		134	152	138	110	28	23
183	28	36		117	150	165	113	52	58
184	21	36		98	150	211	113	97	59
185	28	35.5		117	148	165	116	49	36
186	31	35		130	146	145	119	36	28
187	32	35		134	146	138	119	19	16
188	32.5	35		136	146	135	119	16	14
189	33	34.5		138	144	132	122	10	09
190	33	34		138	142	132	129	05	04
191	33	34		138	142	132	129	05	04
192	33.5	33.5		140	140	129	129	00	00
193									

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ζ Cet

9	21.5	21.5	39	110	110	176	176	00	0
10	20	21		102	108	188	180	08	7
11	19	21		97	108	197	180	17	14
12	18.5	20.5		95	105	200	~~180~~ 184	~~2~~ 16	~~10~~ 14
13	17	19.5		87	100	213	192	21	~~10~~ 18
14	10	19		51	97	274	197	77	51
15	5	18.5		26	95	337	200	137	72
16	10	18		51	92	274	205	69	47
17	14.5	18		74	92	234	205	29	23
18	14	17		72	87	238	213	25	21
19	14	16		72	82	238	221	17	14
20	13	16		67	82	246	221	25	21
21	8	15.5		41	79	295	226	69	47
22	3.5	15		18	77	374	229	145	74
23	8	14		41	72	295	238	57	41
24	11	13		56	67	265	246	19	16
25	12	13		62	67	255	246	09	8
26	12.5	13		64	67	251	246	05	4
27	12	12		62	62	255	255	00	0
28									

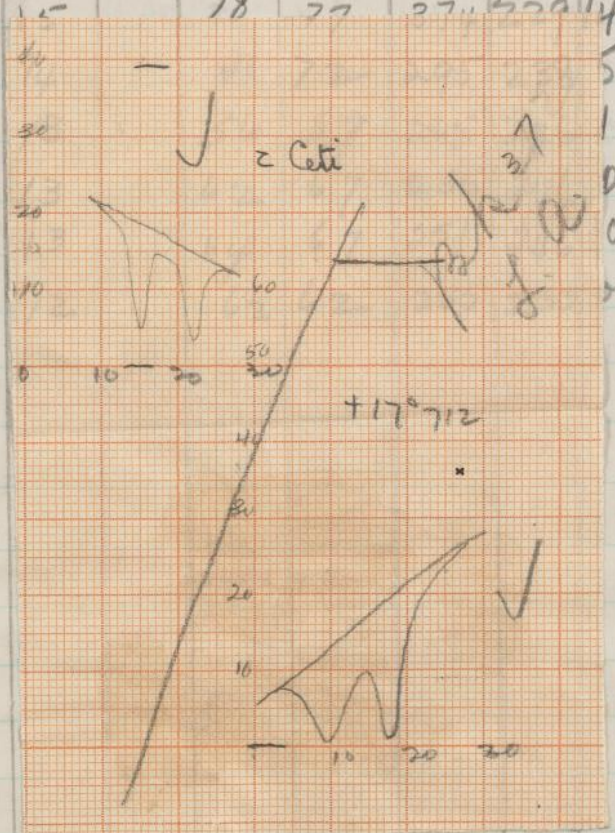


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ζ Ceti

9	21.5	21.5	39	110	110	176	176	00	0
10	20	21		102	108	188	180	08	7
11	19	21		97	108	197	180	17	14
12	18.5	20.5		95	105	200	~~180~~ 184	~~12~~ 16	~~14~~ 14
13	17	19.5		87	100	213	192	21	~~18~~ 18
14	10	19		51	97	274	197	77	51
15	5	18.5		26	95	337	200	137	72
16	10	18		51	92	274	205	69	47
17	14.5	18		74	92	234	205	29	23
18	14	17		72	87	238	213	25	21
19	14	16		72	82	238	221	17	14
20	13	16		67	82	246	221	25	21
21	8	15.5		41	79	295	226	69	47
22	3.5			18				45	74
23	8							57	41
24	11							19	16
25	12							09	8
26	12.5							05	4
27	12							00	0
28									



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+ 17° 7,2

	1	6	6	63,5	19	19	369	369	0	0
	2	7	7		22	22	353	353	0	0
	3	7.5	7.5		24	24	345	345	0	0
	4	7.5	8		24	25	345	341	4	4
	5	7	9		22	28	353	330	23	19
	6	6	9.5		19	30	369	324	45	34
	7	5	10.5		16	33	385	316	69	47
	8	3	11		9	35	437	311	126	66
K	9	1	12		3	38	..	303	(200)	(84)
	10	1	13		3	41	..	295	(200)	(84)
	11	2	14		6	44	469	288	181	81
	12	5	14.5		16	47	385	282	103	61
	13	8	15.5		25	49	341	278	63	44
	14	9.5	16		30	50	324	276	48	36
	15	10	17		32	54	319	269	50	37
	16	7	18		22	57	353	263	90	56
	17	2	19		6	60	469	258	111	64
H	18	1	19.5		3	62	..	255	(250)	(90)
	19	10	20		32	63	319	253	166	78
	20	14	21.5		44	68	288	244	44	33
	21	18	22		57	69	263	243	20	17
	22	20	23		63	73	253	236	17	14
	23	21	23.5		66	74	248	234	14	12
	24	22.5	24.5		71	77	239	229	10	9
	25	24	25		76	79	231	226	5	4
	26	24.5	26		77	82	229	224	5	4
	27	26	26.5		82	83	221	219	2	2
	28	27	27		85	85	216	216	0	0
	29									
	30									

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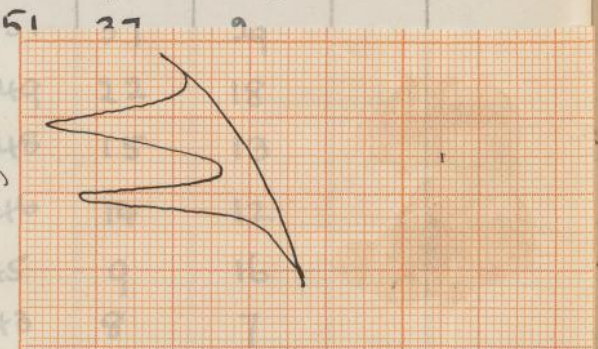
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1924phae.proj.1123p

γ Sagittarii, Total = 55

	4	21.5	21.5	78	78	228	228	0	0
	5	21.5	22.5	78	82	228	221	7	6
	6	21.5	23.5	78	86	228	214	14	12
	7	20.5	24.5	75	89	233	209	24	20
	8	18	25.5	66	93	248	203	45	34
K	9	14	26	51	95	274	200	74	49
	10	8	27	29	98	327	195	132	70
	11	3.5	28	13	102	406	188	218	87
	12	8	28.5	29	104	327	185	142	73
	13	14	29	51	106	274	182	92	57
	14	18.5	30	67	110	246	176	70	48
	15	23	31	84	113	217	171	46	34
	16	26	31.5	95	115	200	168	32	26
	17	26.5	32	97	116	197	166	31	25
	18	25	32.5	91	118	206	163	43	33
	19	19	33	69	120	243	160	83	53
H	20	10	33.5	36	122	308	157	151	75
	21	8 10	33.5 34	29 36	1243 124	327 308	156 154	171 154	79 76
	22	18	34	65	125	249	153	96	59
	23	28	34.5	102	126	188	151	37	9
	24	31	35	113	127	171			
	25	32.5	35	118	128	163			
	26	33	35.5	120	129	160			
	27	34	36	124	130	154			
	28	34.5	36	126	131	151			
	29	35.5	36.5	130	132	145	141	4	4
	30	36.5	36.5	133	132	140	140	0	0



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1924phae.proj.11239

γ Sagittarii, Total = 55

	4	21.5	21.5	78	78	228	228	0	0
	5	21.5	22.5	78	82	228	221	7	6
	6	21.5	23.5	78	86	228	214	14	12
	7	20.5	24.5	75	89	233	209	24	20
	8	18	25.5	66	93	248	203	45	34
K	9	14	26	51	95	274	200	74	49
	10	8	27	29	98	327	195	132	70
	11	3.5	28	13	102	406	188	218	87
	12	8	28.5	29	104	327	185	142	73
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	14	18.5	30	67	110	246	176	70	48
	15	23	31	84	113	217	171	46	34
	16	26	31.5	95	115	200	168	32	26
	17	26.5	32	97	116	197	166	31	25
	18	25	32.5	91	118	206	163	43	33
	19	19	33	69	120	243	160	83	53
H	20	10	33.5	36	122	308	157	151	75
		8	33.5	29	1243	327	156	171	79
	21	10	34	36	124	308	154	154	76
	22	18	34	65	125	249	153	96	59
	23	28	34.5	102	126	188	151	37	29
	24	31	35	113	127	171	149	22	18
	25	32.5	35	118	128	163	148	15	13
	26	33	35.5	120	129	160	146	14	12
	27	34	36	124	130	154	145	9	16
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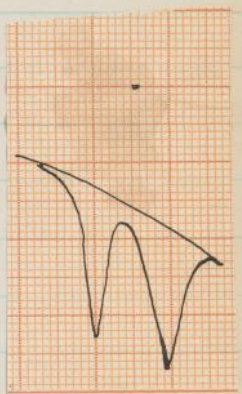


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5	28	29	140	145	129	123	6	5
6	27	28½.5	135	142	138	125	13	11
7	25.5	28	128	140	148	127	21	18
8	23	28	115	140	168	129	39	30
9	13	27.5	65	138	249	132	117	66
10	7	27	35	135	311	137	174	80
11	12.5	26.5	62	132	255	141	114	65
12	19	26	95	130	200	145	55	40
13	22	25	110	128	176	148	28	23
14	22	24.5	110	122	176	157	19	16
15	21	24	105	120	184	160	24	20
16	18	23.5	90	118	208	163	45	34
17	14.5	23	72	115	238	168	70	48
18	9.5	22.5	48	112	280	173	107	63
19	6	22	30	110	324	176	148	74
	3	21.5	15	108	392	180	212	86
20	5	21	25	106	341	182	159	77
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22	13.5	20	68	100	244	192	52	38
23	15.5	19.5	78	98	228	195	33	26
24	16.5	18.5	88	92	211	205	6	5
25	17	17.5	85	88	216	211	5	4
26	17	17	85	85	216	216	0	0



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-52 57

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Tot. 52.5

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13	9	12	34	46	313	284	29	23	77	30	
14	8	12.5	32	48	319	280	39	30	70	43	
15	6	13	23	50	349	276	73	49	51	77	
16	3	14	11	53	421	271	150	75	25	200	
k 17	1	14.5	4	55	..	267					
18	3	15.5	11	59	421	260	161	77	23	340	
19	7	16	27	61	334	256	78	51	49	104	
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24	13	19.5	50	75	276	233	43	33	67	49	
25	9	20	34	77	313	229	84	54	46	117	
ε 26	3.5	21	13	80	406	224	182	81	19	430	
27	4	22	16	84	385	217	168	79	21	380	
28	10	22.5	38	86	303	214	89	56	44	128	
29	17	23.5	65	90	249	208	41	31	69	45	
30	19.5	24	74	92	234	205	29	23	77	30	
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32	22	25.5	84	97	217	197	20	17	83	21	
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34	24.5	26.5	94	101	201	190	11	10	90	12	
35	25.5	27	97	103	197	187	10	09	91	9	
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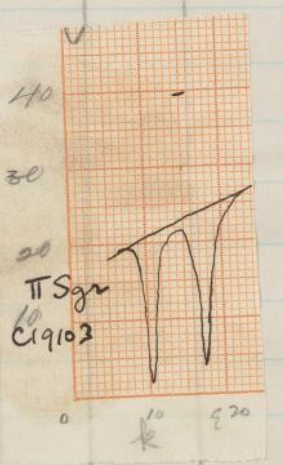
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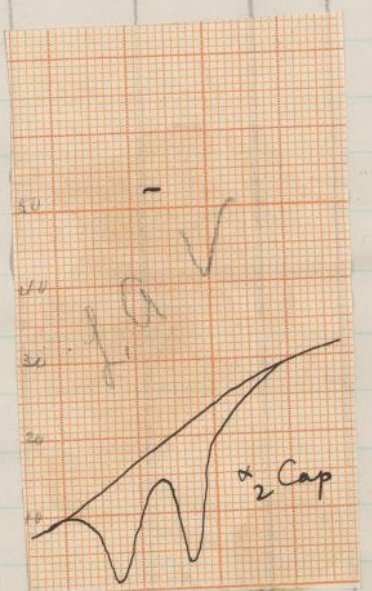
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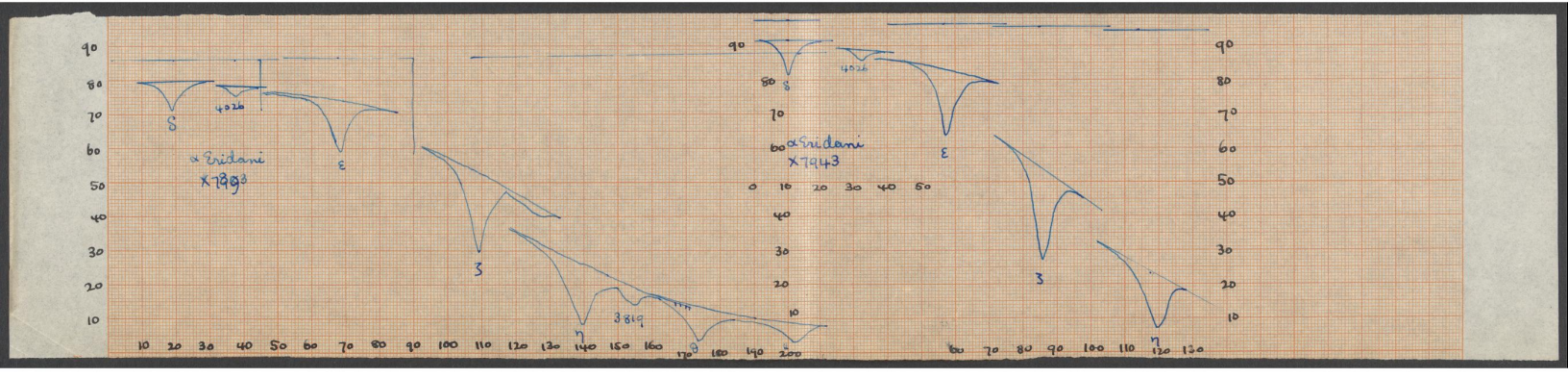
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16	17	23.5	87	120	213	160	53	39
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19	19	25	97	128	197	148	49	36
20	23	25	118	128	163	148	15	13
21	24	25.5	123	130	156	145	11	10
22	25.5	26	130	134	145	138	07	06
23	26.5	26.5	136	136	135	135	00	00





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