KG
11366
116

1924phae.proj.1117

29

C 19098 δ Cephei, Vega
19087 53 Cas Pi 54
52 Cas ε Aur
Pi 52 β Camelopardelis } β Ori

x 4733 x Carinae

C 19096 δ Cep, SU Cas, Deneb

C 19108 δ Cep, η Aql, Vega

x 4064 x Carinae, ER Carinae

C 19104, δ Cep, η Aql, Vega field

C 19103, π Sgr, μ Sgr, Vega

C 19133, η Aquilae

C 19118, δ Cep, η Aql, Vega

x 6259 a and b Velorum and field

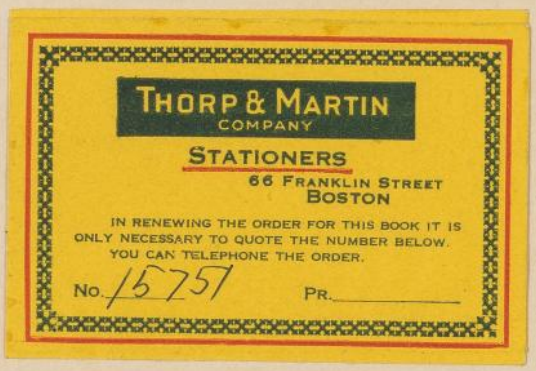
C 19140, 19141 (check measures)

All c stars out in Bk 43

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Material from internal reduction is in green

C19098 δ Cephei, ~~Sta~~ Vega

Vega Aperture 1, exp 1626

Reduced to 63

Line	n	mm	hmm	ñ	m̃m	[n]	[mm]	dm	dl	[m-n]	[mm]-3	[mm]-5	Σ 1 and 2	Σ 1 and 5
						297	420			420	420-642	420-160		
β	48	58	64	47	57	196	110	86	55	110	78	71	181	415
							512			512	512-67	512-170		
γ	53	61	64	52	60	162	14	[48]	74	14	−5	12	26	502
							485			485	485-30	485-153		
δ	50	60	64	49	59	184	40	144	73	40	−5	20	60	484
							455			455	455-35	455-158		
ε	45	59	64	44	58	212	70	142	73	70	35	46	116	451
							455			455	455-55	455-175		
κ	57	59	64	56	58	126	70	456	40	70	51	57	127	443
							400			400	400-32	400-158		
ζ	37	57	64	36	56	245	126	119	67	126	71	82	8	396
							332			332	332-45	332-146		
η	26	52	64	25	51	290	170	120	67	170	127	124		334
							280			280	280-50	280-159		
θ	18	46	64	17	45	330	207	123	68	207	165	168		275
							218			218	218-45	218-146		
ι	17	36	64	16	35	330	248	82	53	248	207	204		220
							180			180	180-47	180-142		
κ	13	28	64	13	28	354	278	76	50	278	233	231		184
							146			146	146-49	146-142		
λ	11	23	63	11	23	368	257	111	64	257	260	259		160
							114			114	114-42			
μ	11	18	63	11	18	368	324	44	33	324	279	–		114
							90			90	90-36			
ν	11	15	64	11	15	368	342	26	21	342	293	–		90
										13	587	11	1709	
											45		155	
											75		150	

Aperture 3, exp 1625

							356							
β	42	54	64	41	53	224	153	71	48					
							455							
γ	48	59	64	47	58	196	70	126	69					
							455							
δ	44	58	63	44	58	212	70	142	73					
							420							
ε	37	57	63	37	57	240	110	130	70					
							400							
κ	52	56	63	52	56	162	126	436	28					
							308							
ζ	26	54	63	26	54	286	146	140	72					
							287							
η	16	46	63	16	46	335	202	133	71					
							230							
θ	10	37	63	10	37	376	240	136	72					
							173							
ι	7	27	63	7	27	400	282	118	66					
							133							
κ	8	21	63	8	21	390	308	82	53					
							97							
λ	8	16	63	8	16	390	335	55	40					
							72							
μ	6	13	63	6	13	409	354	55	40					
							54							
ν	6	11	63	6	11	409	368	41	31					

theory: This aperture 3 is clearly somehow in error, and an external reduction curve should be made from 1 and 5 only. This should duplicate the internal reduction curve.

It does so, accurately

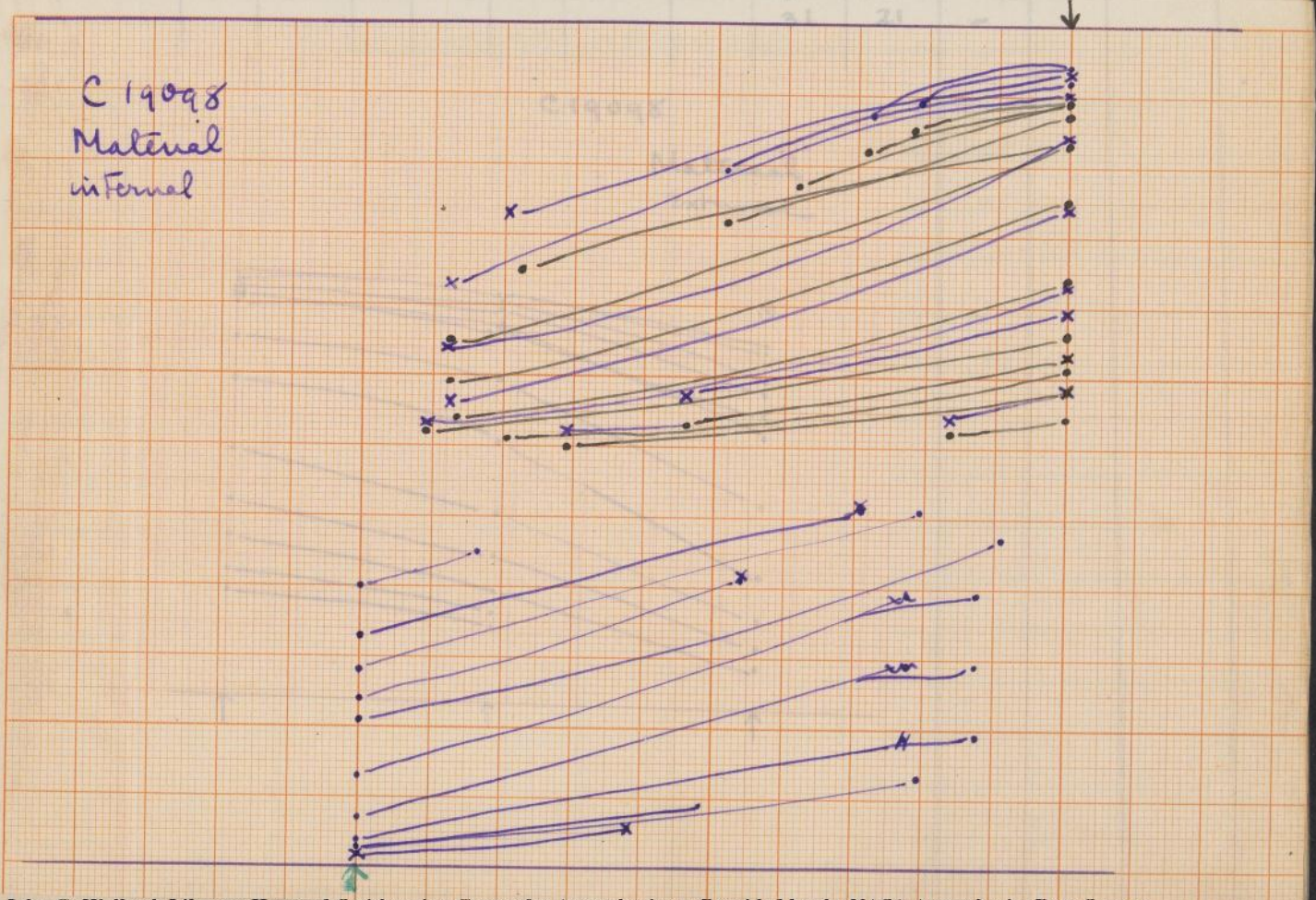
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Aperture 5 μμ 1626 ✓

Levie		n	mm	l mm	$\bar{n}$	$\overline{mm}$	[n]	[mm]	dm	dl_3	dl_1	dl_5	Σ	Mean
	β	24	43	64	24	42	294	260 221	72	48	55	48		
	γ	33	52	63	33	52	257	342 162	95	69	74	58		
	δ	28	51	63	28	51	278	332 170	108	73	73	63		
	ε	40	45	63	21	47	308	297 196	102	70	73	61		
	κ	21	47	63	40	45	228	280 207	21	28	40	18		
	ζ	13	39	63	13	39	355	242 232	123	72	67	68		
	η	7	29	63	7	29	400	186 274	126	71	67	69		
	θ	4	19	63	4	19	–	121 318	–	72	68	–		
	ι	3	13	63	3	13	–	72 354	–	66	53	–		
	κ	3	9	63	3	9	–	38 381	–	53	50	–		
	λ	2	6	63	2	6	–	409	-	40	64	≈		
											33	≈		

C 19098
Material
in Fernal

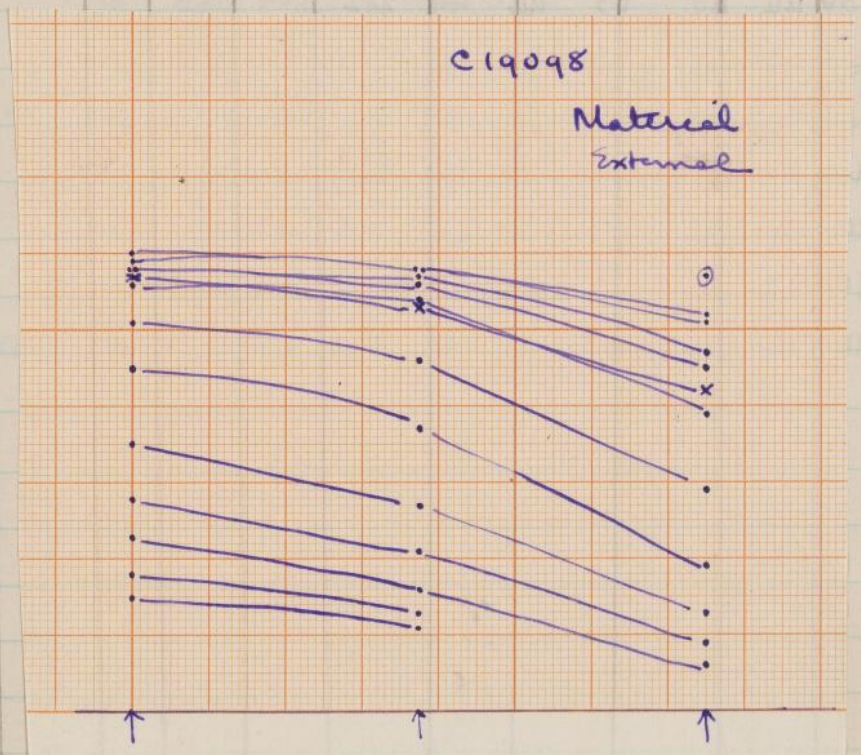


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Aperture 5 μμ 1626 ✓

Line	n	mtn	ltmtn	n̄	m̄tn	[n]	[mtn]	dm	dl 3	dl 1	dl 5	Σ	Mean
β	24	43	64	24	42	294	260 221	72	48	55	48		
γ	33	52	63	33	52	257	342 162	95	69	74	58		
δ	28	51	63	28	51	278	332 170	108	73	73	63		
ε	40	45	63	21	47	308	297 196	102	70	73	61		
κ	21	47	63	40	45	228	280 207	21	28	40	18		
ζ	13	39	63	13	39	355	242 232	123	72	67	68		
η	7	29	63	7	29	400	186 274	126	71	67	69		
θ	4	19	63	4	19	–	121 318	–	72	68	–		
ι	3	13	63	3	13	–	72 354	–	66	53	–		
κ	3	9	63	3	9	–	38 381	–	53	50	–		
λ	2	6	63	2	6	–	409	–	40	64	″		
									40	33	″		
									31	21	″		

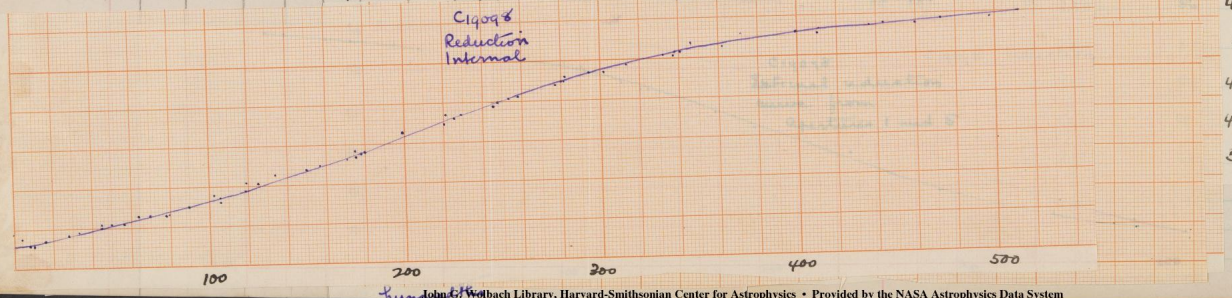


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First reductions rejected see p 2. second reductions made in green

C 19098 δ Cephei Few lines measured; low weight

Line	n	mon	lmon	ñ	mon	[m]	[mm]	dm	dl	Mean	Vega	Diff
						287	342	55	40			
1	45	51	62	46	52	201	162	39	30	415		63
						400	455	55				
22	55	57	62	56	58	124	90	34	40			
						382	393	61	43			
49	51	55.5	63	51	55.5	170	120	50	37	502		109
						368	410	42				
50	54	56.5	63	54	56.5	146	118	28	32			
						313	386	73				
54	49	55	63	49	55	184	138	46	49			
						304	388	84	44			
80	48	54	63	48	54	190	146	44	33	484		116
						332	367	36				
82	51	54	63	51	54	170	146	24	28			
						280	368	88				
83	43	54	63	43	54	207	140	61	56			
						304	356	52				
84	46	53	63	46	53	190	154	36	38			
						322	356	34				
85	50	53	63	50	53	176	154	22	27			
						304	356	52				
86	48	53	63	48	53	190	154	36	38			
						304	349	45				
90	48	52.5	63	48	52.5	190	158	32	34			
						247	322	25				
95	47	50	63	47	50	196	176	20	21			
						273	313	40				
96	44	49	63	44	49	212	184	28	31			
						304	304	38				
98	43	48	63	43	48	246	190	26	30			
						127	287	160	77			
99	20	46	63	20	46	312	201	111	64	451		164
						223	273	50				
100	36	44	63	36	44	245	212	33	37			
						223	273	50				
101	36	44	63	36	44	245	212	33	31			
						201	273	72				
102	32	44	63	32	44	201	212	49	48			
						90	254	164	78			
103	15	41	63	15	41	342	222	120	67	443		189



C 19098
Reduction table
Internal; confirmed by external 1 and 5

lines (dl)

5	..	21	133	41	254
6	4	22	140	42	260
7	17	23	146	43	266
8	27	24	153	44	273
9	38	25	160	45	280
10	46	26	167	46	287
11	54	27	173	47	297
12	63	28	180	48	304
13	72	29	186	49	313
14	80	30	191	50	322
15	90	31	196	51	332
16	97	32	201	52	342
17	106	33	207	53	356
18	114	34	212	54	368
19	121	35	218	55	386
					400
					420
					455
					435
					512

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First reductions rejected see p 2
second reductions made in green

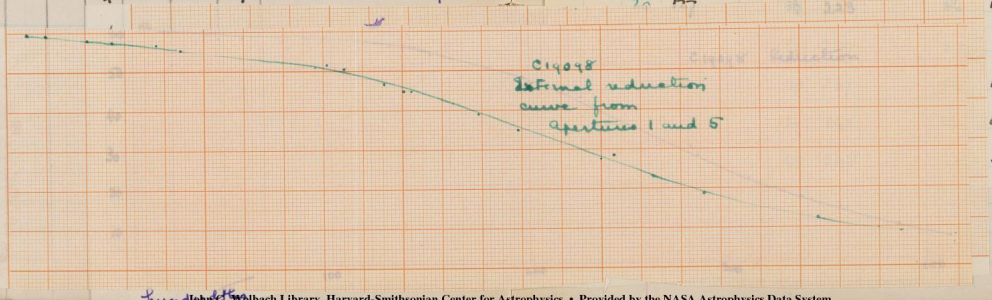
C 19098 δ Cephei Few lines measured; low weight

line	n	mm	l mm	n̄	m̄m	[5]	[1 mm]	dm	dl	Mean Vega	Diff
						287	342	55	40		
7	45	51	62	46	52	201	162	39	30	415	63
						400	455	55			
22	55	57	62	56	58	124	90	34	40		
						382	393	61	43		
49	51	55.5	63	51	55.5	170	120	50	~~87~~	502	109
						368	410	42			
50	54	56.5	63	54	56.5	146	118	28	32		
						313	386	73			
54	49	55	63	49	55	184	138	46	49		
						304	388	64	44		
80	48	54	63	48	54	190	146	44	~~33~~	484	116
						332	368	36			
82	51	54	63	51	54	170	146	24	28		
						280	368	88			
83	45	54	63	45	54	207	140	61	56		
						304	356	52			
84	46	53	63	48	53	190	154	36	38		
						322	356	34			
85	50	53	63	50	53	176	154	22	21		
						304	356	52			
86	48	53	63	48	53	190	154	36	38		
						304	349	45			
90	48	52.5	63	48	52.5	190	158	32	34		
						247	322	25			
95	47	50	63	47	50	196	176	20	21		
						273	313	40			
96	44	49	63	44	49	212	184	28	31		
						304	304	38			
98	43	48	63	43	48	246	190	26	30		
						127	287	160	77		
99	20	46	63	20	46	312	201	111	~~64~~	451	164
						223	273	50			
100	36	44	63	36	44	245	212	33	37		
						223	273	50			
101	36	44	63	36	44	245	212	33	31		
						201	273	72			
102	32	44	63	32	44	261	212	49	47		
						90	234	144	78		
103	15	41	63	15	41	342	222	120	~~69~~	443	189

C 19098
Reduction table
Internal, confirmed by external 1 and 5

lines (dl)

5	..	21	133	41	254
6	4	22	140	42	260
7	17	23	146	43	266
8	27	24	153	44	273
9	38	25	160	45	280
10	46	26	167	46	287
11	54	27	173	47	297
12	63	28	180	48	304
13	72	29	186	49	313
14	80	30	191	50	322
15	90	31	196	51	332
16	97	32	201	52	342
17	106	33	207	53	356
18	114	34	212	54	368
19	121	35	218	55	386
20	[illegible]	[illegible]	[illegible]	[illegible]	400
					420
					455
					435
					512

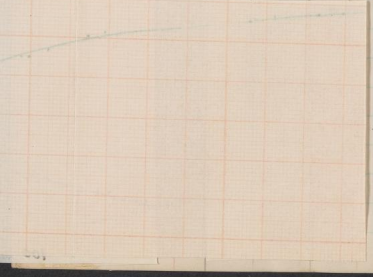


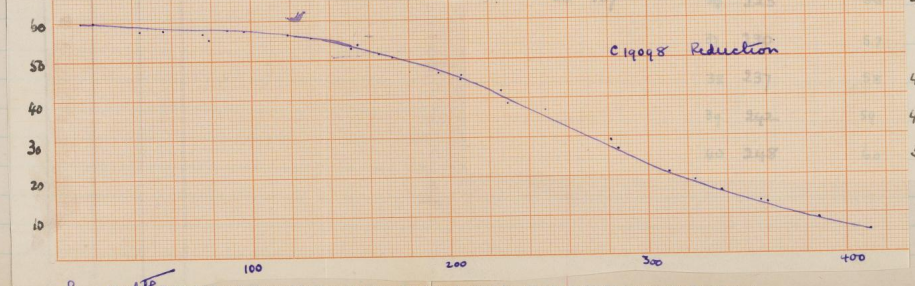
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First reductions rejected see p 2.
Second reductions made in green

C 19098 δ Cephei Few lines measured; low weight

line	n	mm	[mm]	n	mm	[mm]	dm	dl	Mean	Vega	Diff
7	45	51	62	46	52	201 (287)	162 (342)	39 (55)	40	415		63
22	55	57	62	56	58	124 (400)	90 (455)	34 (55)	40			
49	51	55.5	63	51	55.5	170 (382)	120 (393)	50 (61)	43	502		109
50	54	56.5	63	54	56.5	146 (368)	118 (410)	28 (42)	32			
54	49	55	63	49	55	184 (313)	138 (396)	46 (73)	49			
80	48	54	63	48	54	190 (304)	146 (358)	44 (64)	~~33~~ 44	484		116
82	51	54	63	51	54	170 (332)	146 (365)	24 (36)	28			
83	43	54	63	43	54	207 (280)	140 (368)	61 (88)	56			
84	46	53	63	48	53	190 (304)	154 (356)	36 (52)	38			
85	50	53	63	50	53	176 (322)	154 (356)	22 (34)	27			
86	48	53	63	48	53	190 (304)	154 (366)	36 (52)	38			
90	48	52.5	63	48	52.5	190 (304)	158 (349)	32 (45)	34			
95	47	50	63	47	50	196 (247)	176 (322)	20 (25)	21			
96	44	49	63	44	49	212 (273)	184 (313)	28 (40)	31			
98	43	48	63	43	48	216 (334)	190 (304)	26 (38)	30			
99	20	46	63	20	46	312 (127)	201 (287)	111 (160)	~~64~~ 77	451		164
100	36	44	63	36	44	245 (223)	212 (273)	33 (50)	37			
101	36	44	63	36	44	245 (223)	212 (273)	33 (50)	31			
102	32	44	63	32	44	261 (201)	212 (273)	49 (72)	47			
103	15	41	63	15	41	342 (90)	222 (234)	120 (164)	~~67~~ 78	443		189





C 19098
Reduction table
Internal, confirmed by external 1 and 5

lines (dl)

5	..	21	133	41	254
6	4	22	140	42	260
7	17	23	146	43	266
8	27	24	153	44	273
9	38	25	160	45	280
10	46	26	167	46	287
11	54	27	173	47	297
12	63	28	180	48	304
13	72	29	186	49	313
14	80	30	191	50	322
15	90	31	196	51	332
16	97	32	201	52	342
17	106	33	207	53	356
18	114	34	212	54	368
19	121	35	218	55	386
20	127				

400
420
455
485
512

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First reductions rejected see p. 2. Second reductions made in green

C1g098 δ Cephei Few lines measured; low weight

Line	n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	[n]	[m+n]	dm	dl	Mean Vega	Diff
						287	342	~~55~~	40		
7	45	51	62	46	52	201	162	39	30	415	63
						400	455	55			
22	55	57	62	56	58	124	90	34	40		
						332	393	61	43		
49	51	55.5	63	51	55.5	170	120	50	~~57~~	502	109
						368	410	42			
50	54	56.5	63	54	56.5	146	118	28	32		
						313	386	73			
54	49	55	63	49	55	184	138	46	49		
						304	368	64	44		
80	48	54	63	48	54	190	146	44	~~33~~	484	116
						332	368	36			
82	51	54	63	51	54	170	146	24	28		
						280	368	88			
83	45	54	63	45	54	207	146	61	56		
						304	356	52			
84	46	53	63	~~48~~	53	190	154	36	38		
						322	356	34			
85	50	53	63	50	53	176	154	22	27		
						304	356	52			
86	48	53	63	48	53	190	154	36	38		
						304	349	45			
90	48	52.5	63	48	52.5	190	158	32	34		
						247	322	25			
95	47	50	63	47	50	196	176	20	21		
						273	313	40			
96	44	49	63	44	49	212	184	28	31		
						304	304	38			
98	43	48	63	43	48	246	190	26	30		
						127	287	160	77		
99	20	46	63	20	46	312	201	111	~~64~~	451	164
						223	273	50			
100	36	44	63	36	44	245	212	33	37		
						223	273	50			
101	36	44	63	36	44	245	212	33	37		
						201	273	72			
102	32	44	63	32	44	261	212	49	48		
						90	254	164	78		
103	15	41	63	15	41	342	222	120	~~67~~	443	189

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C 19098

Reduction table

Internal, confirmed by external 1 and 5

lines (dd)

5	..	21	133	41	254
6	4	22	140	42	260
7	17	23	146	43	266
8	27	24	153	44	273
9	38	25	160	45	280
10	46	26	167	46	287
11	54	27	173	47	297
12	63	28	180	48	304
13	72	29	186	49	313
14	80	30	191	50	322
15	90	31	196	51	332
16	97	32	201	52	342
17	106	33	207	53	356
18	114	34	212	54	368
19	121	35	218	55	386
20	127	36	223	56	400
		37	230	57	420
		38	237	58	455
		39	242	59	485
		40	248	60	512

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δ Cephei; ledger of hydrogen and ~~Ca~~ + lines (dl)

Plate	C19098	19071	19082	19086	19096	19102
	1927	1927	1927	1927	1927	1927
Date	Sep 11	Aug 25	Sep 4	Sep 5	Sep 8	Sep. 12
Phase						
β	~~30~~ 40	34	48	44		
γ	~~37~~ 43	41	56	(41)		
δ	~~33~~ 44	37	61	(45)		
ε	~~64~~ 77	82	79	78		
ζ	-		44	34		
η	-		49	40		
θ	-		43	31		
ι	-		41			
κ	-		33			
λ	-		35			
K	~~67~~ 78	85	80	80		

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1924phae.proj.117P

α Lyrae from C 19086

Line	dl	dm
β	63	108
γ	73	142
δ	77	159
ε	81	182
κ	26	33
ζ	80	175
η	80	175
θ	80	175
ι	77	159
κ	59	97
λ	51	77
μ	40	56
ν	32	42
ξ	19	23

Used for material for internal reduction curve.

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1924phae.proj.11?P

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V

C 19087. Std β Orionis 3 apertures Reduced to 83

Also 53 Cas, Pi 51, Pi 54, ξ Aur, β Cam.

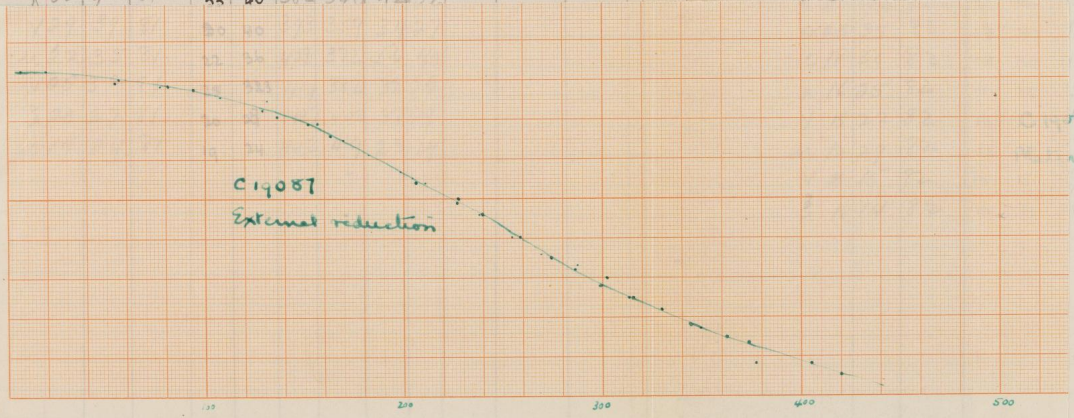
β Orionis Aperture 1

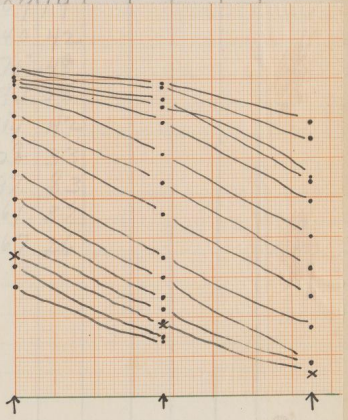
Line	n	mtn	btm tn	n̄	m̄tn	[D]	[mtn]	dm	dl	[mtn]$_1$	[mtn]$_2$	[mtn]$_3$	Σ	Mean
β	79	81	83	79	81	177	150	27	22					
δ	80	82	82	81	83	150	–							
δ	78	82	82	79	83	177	–							
4	79	80	82	80	81	164	150	14	12					
ε	73	79	82	74	80	222	164	58	41					
K	75	78	82	76	79	268	177	21	18					
3	64	74	81	66	76	264	208	56	40					
5	67	69	81	69	71	252	242	10	09					
7	50	64	81	51	66	320	287	33	26					
8	40	55	81	41	57	356	298	58	41					
ε	35	49	81	36	50	372	324	48	36					
K	32	45	81	33	46	382	340	42	32					

C 19087

Aperture 3

Line	n	mtn	btm tn	n̄	m̄tn	[D]	[mtn]	dm	dl$_3$	dl$_1$	dl$_5$	Σ	Mean
β	71	76	84	70	75	247	215	32					
1	80	80	84	79	79	177	177	00					
2	80	80	84	79	79	177	177	00					
δ	76	80	84	75	79	215	177	38					
3	78	79	83	78	79	188	177	11					
δ	72	78	83	72	78	336	188	48					
4	75	77	83	75	77	215	198	17					
ε	60	73	83	60	73	287	230	57					
K	65	69	83	65	69	368	252	16					
3	48	61	83	48	61	332	283	39					
5	49	54	83										





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V

C 19087. Std β Orionis 3 apertures Reduced to 83

Also 53 Cas, Pi 51, Pi 54, ε Aur, β Cam.

β Orionis Aperture 1

Line	n	n+tn	l+m+tn	n̄	m+tn	[n]	[m+tn]	dm	dl	[m+tn]₁	[m+tn]₂	[m+tn]₃	Σ	Mean
P	79	81	83	79	81	177	150	27	22					
δ	80	82	82	81	83	150	-							
8	78	82	82	79	83	177	-							
4	79	80	82	80	81	164	150	14	12					
ε	73	79	82	74	80	222	164	58	41					
4	75	78	82	76	79	208	177	21	18					
3	64	74	81	66	76	264	208	56	40					
5	67	69	81	69	71	252	242	10	09					
7	50	64	81	51	66	320	287	33	26					
θ	40	55	81	41	57	356	298	58	41					
ε	35	49	81	36	50	372	324	48	36					
K	32	45	81	33	46	382	340	42	32					
Y	29	39	81	30	40	393	359	34	27					
u	22	35	81	22	36	428	372	56	40					
v	25	32	81	25	323	414	382	32	26					
3	20	27	81	20	28	437	400	37	29					
0	19	24	81	19	24	442	419	23	19					

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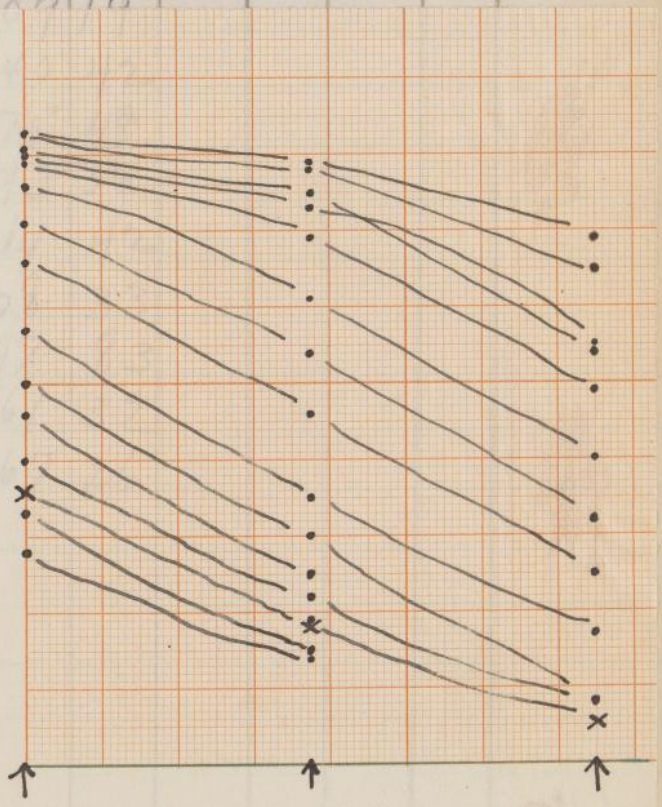
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Aperture 3

Line	n	mtn	ltmtn	$\bar{n}$	$\overline{mtn}$	[n]	[mtn]	dm	dl_3	dl_1	dl_5	Σ	Mean
P	71	76	84	70	75	247	215	32					
1	80	80	84	79	79	177	177	00					
2	80	80	84	79	79	177	177	00					
8	76	80	84	75	79	215	177	38					
3	78	79	83	78	79	188	177	11					
8	72	78	83	72	78	336	188	48					
4	75	77	83	75	77	215	198	17					
C	60	73	83	60	73	287	230	57					
K	65	69	83	65	69	368	252	16					
3	48	61	83	48	61	332	283	39					
5	49	54	83	49	54								
9	33	46	83	33	46								
O	23	35	83	23	35								
C	18	30	82	18	30								
K	16	25	82	16	25								
Y	15	22	82	15									
M	12	29	82	12									
V	10	15	82	10	15								
3	10	14	82	10	14								

C 19087
Material



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C 19087

Aperture 3

Line	n	m+n	h+m+n	$\bar{n}$	$\overline{m+n}$	[n]	[m+n]	dm	dl_3	dl_1	dl_5	Σ	Mean
β	71	76	84	70	75	247	215	32					
1	80	80	84	79	79	177	177	00					
2	80	80	84	79	79	177	177	00					
δ	76	80	84	75	79	215	177	38					
3	78	79	83	78	79	188	177	11					
ε	72	78	83	72	78	236	188	48					
4	75	77	83	75	77	215	198	17					
ζ	60	73	83	60	73	287	230	57					
K	65	69	83	65	69	268	252	16					
3	48	61	83	48	61	332	283	39					
5	49	54	83	49	54	328	309	19					
η	33	46	83	33	46	382	340	42					
θ	23	35	83	23	35	423	375	48					
ι	18	30	82	18	30	446	393	53					
κ	16	25	82	16	25	456	414	42					
γ	15	22	82	15	22	461	428	33					
μ	12	29	82	12	29	480	397	83					
ν	10	15	82	10	15	393	461	35					
3	10	14	82	10	14	393	467	26					

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Orionis aperture 5

Line	n	m+n	l+m+n	ñ	m+n	[n]	[m+n]	dn	dl
β	47	55	84	46	54	336	309	27	22
1	68	70	83	68	70	256	247	09	08
2	68	70	83	68	70	256	247	09	08
γ	58	69	83	58	69	294	252	42	32
3	60	64	82	61	65	283	268	15	13
δ	51	64	82	52	65	317	268	49	36
4	56	60	82	57	61	298	283	15	13
ε	38	54	82	38	55	366	305	61	43
K	41	48	82	41	49	356	328	28	23
×	3	26	40	82	26	40	409	359	50	37
5	2	3	82	2	32	405	385	20	17
ζ	15	25	82	15	25	461	414	47	35
θ	19	17	82	19	17	456	451	05	04
c	6	8	82	6	8	516	504	12	10
K	5	11	82	5	11	523	487	36	28
r	5	8	81	5	8	523	504	19	16

Means β Ori

			Sums	Mu
β	215	309	524	262
γ	177	252	429	214
δ	188	268	456	228
ε	230	305	535	268

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B 19087

$1^h 52^m.2$, $+64° 8'$, A0, 5.18 No. 16 μφ 1640

Line	n	mm	l-m-n	$\bar{n}$	$\overline{mn}$	[n]	[mm]	dn	dl
β	32	59	81	33	61	382	283	99	60
γ	47	73	82	48	74	332	222	110	64
δ	39	71	84	39	70	362	247	115	65
ε	28	65	84	28	64	400	272	128	64
κ	55	60	84	54	59	309	291	18	15
ζ	20	50	85	20	49	437	328	109	63
η	10	32	85	10	31	493	389	104	62
θ	9	20	85	9	20	499	437	62	44
ι	7	13	85	7	13	510	476	34	27
κ	4	9	85	4	9	531	499	32	26

52 Cas, μφ 1639

? β									
γ	27	52	86	26	50	409	324	75	50
δ	20	54	85	20	53	437	312	125	68
ε	10	115	85	10	44	493	347	146	74
κ	30	39	84	30	39	393	362	31	25
ζ	5	18	84	5	18	523	446	77	51
η	1	15	84	1	15	-	461		
θ	1	14	84	1	14	-	467		
ι	1	4	84	1	4	-	531		
κ	0	4	83	0	4	-	531		

Please check:—

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C19087

53 Cas 1 55.6+63.54

B5

Line	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dm	dl
β	34	45	82	34	46	378	340	38	30
γ	45	58	82	46	59	340	291	49	36
δ	35	42	83	35	42	375	353	22	18
4026	44	49	83	44	49	347	328	19	16
ε	23	44	83	23	44	423	347	76	50
κ	32	38	83	32	38	385	366	19	16
ζ	19	28	83	19	28	442	400	42	32
η	8	17	83	8	17	504	451	53	39
θ	5	11	83	5	11	523	487	36	28
ι	5	9	83	5	9	523	499	24	20
λ	4	7	83	4	7	531	510	21	18

	1a [m+n]	1b [m+n]	l [m+n]	-l+1a	-l+1b
β	-	283	340	-	-57
γ	324	242	291	33	-49
δ	312	247	353	59	-106
ε	347	272	347	0	-75
κ	362	291	366	-4	-75
ζ	446	328	400	+46	-72
η	461	389	451	+10	-62
θ	467	437	487	-20	-50
ι	531	476	499	+32	-23
κ	531	499	510	+21	-11

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Pi 5-1 C 19087

Line	n	m+n	l+m+n	n̄	m̄+n	[n]	[m+n]	dm	dl	Bq
β	54	61	81	55	63	305	276	29	23	
γ	63	71	81	65	73	268	230	38	30	
3	64	68	81	66	70	264	247	17	14	
δ	54	67	81	55	69	305	252	53	39	
H	60	64	81	62	66	279	264	15	13	
ε	37	58	81	38	60	366	287	79	52	
K	43	49	81	44	50	347	324	23	19	
3	27	45	81	27	46	405	340	65	45	
5	32	37	81	33	38	382	366	16	14	
η	19	30	81	19	31	442	389	53	39	
Θ	12	20	81	12	20	480	437	43	33	
c	10	17	82	10	17	493	451	42	32	
ι	89	14	81	9	14	499	467	32	26	
λ	9	13	81	9	13	499	476	23	19	
μ	8	11	81	8	11	504	487	17	14	

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Pi 5-4 C 19087

Lines	n	m+n	l+m+n	n̄	m+n̄	[n]	[m+n]	dm	dl	AO
β	35	44	82	36	45	372	344	28	23	
δ	47	57	81	48	59	332	291	41	31	
δ	35	50	80	36	52	372	317	55	40	
4	42	47	80	44	49	347	328	19	16	
ε	22	40	80	23	41	423	356	67	46	
K	27	55	80	28	36	400	372	28	30	
3	15	25	79	15	26	461	409	52	38	
?? 4	14	15	79	19	15	442				

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E Aur CF 6 c 19087

Line	n	m+n (arbitary)	l+m+n	$\bar{n}$	m+$\bar{n}$	[n]	[m+n]	dm	dl
1	64	65	83	64	65	272	268	04	04
2	63	67	83	63	67	276	261	15	13
3	67	69	83	67	69	261	252	09	08
4	68	69	83	68	69	256	252	04	04
5	70	72	83	70	72	247	236	11	10
6	70	72	83	70	72	247	236	11	10
β 7	66	74	83	66	74	264	222	42	32
8	78	74	83	73	74	230	222	08	07
9	74	74	83	74	74	222	222	00	00
10	69	71	83	69	71	252	242	10	09
11	75	77	83	75	77	215	198	17	14
12	70	72	83	70	72	247	236	11	10
13	77	77	83	77	77	198	198	00	00
" 14	76	77	83	76	77	208	198	10	09
" 15	76	78	83	76	78	208	188	20	17
" 16	~~78~~ 77	~~79~~ 77	83	77	77	198	198	00	00
" 17	77	79	83	77	79	198	177	21	18
" 18	78	79	83	78	79	188	177	11	10
" 19	78	79	83	78	79	188	177	11	10
" 20	78	79	83	78	79	188	177	11	10
" 21	78	79	83	78	79	188	177	11	10
" 22	79	80	83	79	80	177	164	13	11
" 23	78	79	83	78	79	188	177	11	10
" 24	78	79	83	78	79	188	177	11	10
" 25	77	79	82	78	80	188	164	24	20
" 26	78	79	82	79	80	177	164	13	11
" 27	78	79	82	79	80	177	164	13	11
" 28	~~76~~ 77	79	82	77	80	198	164	34	27
" 29	~~76~~ 77	79	82	77	80	198	164	34	27
" 30	79	79	82	80	80	164	164	00	00

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Line	h	m+h	l+m+h	$\bar{h}$	$\overline{m+h}$	[h]	[m+h]	dm	dl
31	77	79	82	78	80	188	164	24	20
32	76	79	82	77	80	198	164	34	27
33	77	78	82	78	79	188	177	11	10
34	77	79	82	78	80	188	164	24	20
35	76	78	82	77	79	198	177	21	18
36	77	78	82	78	79	188	177	11	10
37	75	78	82	76	79	208	177	31	25
38	75	78	82	76	79	208	177	31	25
39	74	78	82	75	79	215	177	38	30
40	74	77	82	75	78	215	188	27	22
41	74	77	82	75	78	215	188	27	22
42	75	76	82	76	77	208	198	10	09
43	75	76	82	76	77	208	198	10	09
44	—	—	—	—	—	—	—	—	—
45	—	—	—	—	—	—	—	—	—
46	—	—	—	—	—	—	—	—	—
47	—	—	—	—	—	—	—	—	—
48	75	76	82	76	77	208	198	10	09
49	68	76	82	69	77	252	198	54	39
50	75	76	82	76	77	208	198	10	09
51	—	—	—	—	—	—	—	—	—
52	—	—	—	—	—	—	—	—	—
53	—	—	—	—	—	—	—	—	—
54	70	76	82	71	77	242	198	44	33
55	70	75	82	71	76	242	208	34	27
56	72	76	82	73	77	230	198	32	26
57	73	76	82	74	77	222	198	24	20
58	73	75	82	74	76	222	208	24	20
59	74	75	82	75	76	215	208	07	06
60	71	73	82	72	74	236	222	14	12

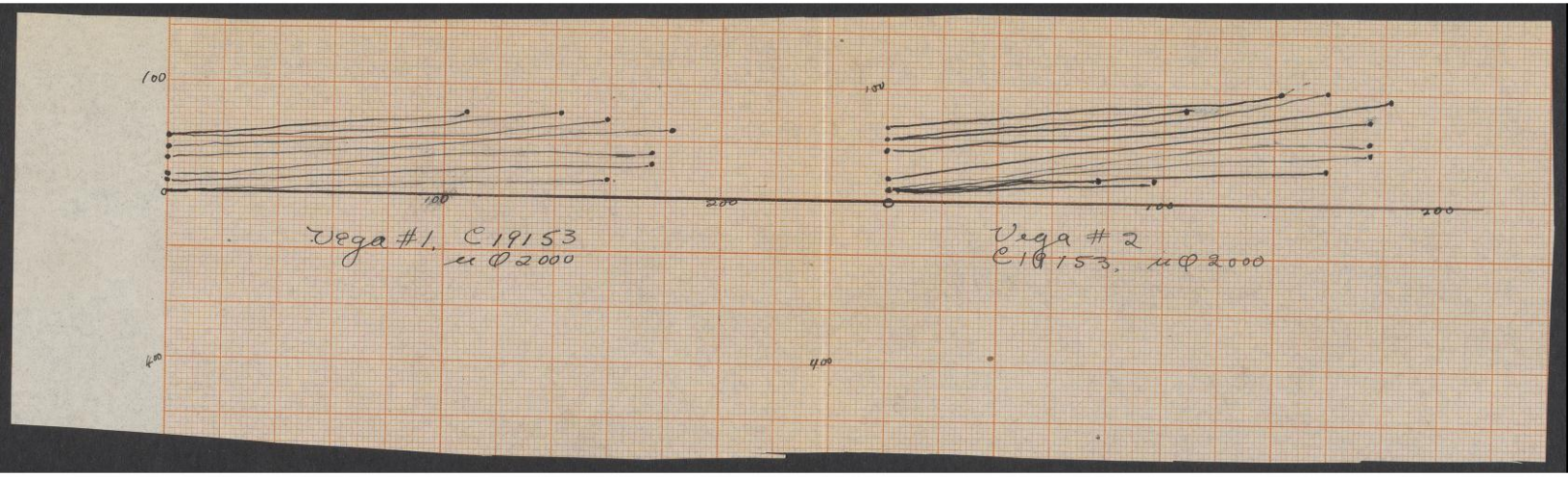
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Line	n	m+n	l+m+n	$\bar{n}$	$\bar{m+n}$	[n]	[m+n]	dm	dl
61	71	74	81	73	76	230	208	22	18
62	73	74	81	75	76	215	208	07	06
63	72	74	81	74	76	222	208	14	12
64	72	74	81	74	76	222	208	14	12
65	71	74	81	73	76	230	208	22	18
66	68	74	81	70	76	247	208	39	30
67	68	74	81	70	76	247	208	39	30
68	71	74	81	73	76	230	208	22	18
69	71	73	81	73	75	230	215	15	13
70	69	73	81	71	75	242	215	27	22
71	70	73	81	72	75	236	215	21	18
72	71	72	81	73	74	230	222	08	07
73	—	—	—	—	—	—			
74	—	—	—	—	—	—			
75	—	—	—	—	—	—			
76	—	—	—	—	—	—			
77	—	—	—	—	—	—			
78	—	—	—	—	—	—			
79	—	—	—	—	—	—			
80	61	73	81	63	75	276	215	61	43
81	72	73	81	74	75	222	215	07	06
82	68	73	81	70	75	247	215	32	26
83	69	72	81	71	74	242	222	20	17
84	70	72	81	72	74	236	222	14	12
85	70	72	81	72	74	236	222	14	12
86	68	72	80	71	75	242	215	27	22
87	69	71	80	72	74	236	222	14	12
88	68	71	80	71	74	242	222	20	17
89	67	70	80	70	73	247	230	17	14
90	65	70	80	68	73	256	230	26	21

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Line	h -	m+n	l+m+n	n̄	m+n̄	[h]	[m+n]	dm	dl
91	66	70	80	69	73	252	230	22	18
92	66	70	80	69	73	252	230	22	18
93	66	68	80	69	71	252	242	10	09
94	66	67	80	69	70	252	247	05	04
95	64	66	80	67	69	261	252	09	08
96	-	-	-	-	-	-	-	-	-
97	-	-	-	-	-	-	-	-	-
98	-	-	-	-	-	-	-	-	-
99	26	65	80	27	68	405	256	149	75
100	62	65	80	65	68	268	256	12	10
101	61	64	80	64	67	272	261	11	10
102	59	63	80	61	66	283	264	19	16
103	22	60	80	23	62	423	279	144	73
104	-	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-	-
106	-	-	-	-	-	-	-	-	-
107	47	57	80	49	59	328	291	37	29
108	49	55	80	51	57	320	298	22	18
109	45	55	80	47	57	336	298	38	30
110	34	53	80	35	55	375	305	70	48
111	45	50	80	47	52	336	317	19	16
112	45	49	80	47	51	336	320	16	14
113	41	46	80	43	48	350	332	18	15
114	37	44	79	39	46	362	340	22	18
115	38	42	79	40	44	359	347	12	10
116	28	37	79	31	39	432	362	70	48
117	26	35	79	27	37	405	369	36	28
118	27	34	79	28	36	400	372	28	23
119	24	33	79	25	35	414	375	39	30
120	20	34	79	21	35	432	375	57	41

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Pair	n	m+n	d+m+n	$\bar{n}$	$\overline{m+n}$	[n]	[m+n]	dm	dl
121	24	28	78	25	30	414	393	21	18
122	24	26	78	25	27	414	405	09	08
123	22	24	78	23	25	423	414	09	08
124	17	23	78	18	24	446	419	27	22
125	15	21	78	16	22	456	428	28	23
126	17	20	78	18	21	446	432	14	12
127	15	19	78	16	20	456	437	19	16

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β Camelopardalis C 19087

Line	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dm	dl
1	46	50	85	45	51	344	320	24	20
2	50	60	85	48	58	332	294	38	30
3	52	62	85	50	60	324	287	37	29
4	55	58	85	53	56	312	301	11	10
5	55	60	85	53	58	312	294	18	15
6	56	62	85	54	60	309	287	22	18
7	47	64	85	46	62	340	279	61	43
8	62	65	85	60	63	287	276	11	10
9	65	67	85	63	65	276	268	08	07
10	67	69	85	65	67	268	261	07	06
11	67	70	85	65	68	268	256	12	10
12	68	71	85	66	69	264	252	12	10
13	67	72	85	65	70	268	247	21	18
14	69	72	86	67	70	261	247	14	12
15	70	73	85	68	71	256	242	14	12
16	70	73	85	68	71	256	242	14	12
17	72	74	85	70	72	247	236	11	10
18	70	74	84	69	73	252	230	20	17
19	73	74	84	72	73	236	230	06	05
20	72	74	84	71	73	242	230	12	10
21	69	74	84	68	73	256	230	26	21
22	69	70	84	66	69	264	252	12	10
23	71	74	84	70	73	247	230	17	14
24	72	74	84	71	73	242	230	12	10
25	71	74	84	70	73	247	230	17	14
26	70	74	84	69	73	252	230	22	18
27	70	74	84	69	73	252	230	22	18
28	71	74	84	70	73	247	230	17	14
29	71	74	84	70	73	247	230	17	14
30	69	74	84	68	73	256	230	26	21

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1924ApJ...59..21P

Line	n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	$[n]$	$[\overline{m+n}]$	dm	dl
31	70	74	84	69	73	252	230	22	18
32	69	74	84	68	73	256	230	26	21
33	68	74	84	67	73	261	230	31	25
34	71	74	84	70	73	247	230	17	14
35	67	73	84	66	72	264	236	28	23
36	68	73	84	67	72	261	236	25	21
37	65	72	84	64	71	272	242	30	24
38	65	72	84	64	71	272	242	30	24
39	62	71	84	61	70	283	247	36	28
40	62	71	84	61	70	283	247	36	28
41	64	70	84	63	69	276	252	24	20
42	62	70	84	61	69	283	252	31	25
43	64	69	84	63	68	276	256	20	17
44	62	69	84	61	68	283	256	27	22
45	57	68	84	56	67	301	261	40	31
46	61	68	84	60	67	287	261	26	21
47	65	67	84	64	66	272	264	08	07
48	61	67	84	60	66	287	264	23	19
49	47	66	84	46	65	340	268	72	48
50	59	66	84	58	65	294	268	26	21
51	57	65	84	56	64	301	272	29	23
52	52	65	84	51	64	320	272	48	36
53	50	65	84	49	64	328	272	56	40
54	45	64	84	44	63	347	276	71	48
55	51	64	84	50	63	324	276	48	36
56	55	64	84	54	63	309	276	33	26
57	56	62	84	55	61	305	283	22	18
58	53	62	84	52	61	317	283	34	27
59	53	61	84	52	60	317	287	30	24
60	46	60	83	46	60	340	287	53	39

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C 19087

Line	n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	[n]	[m+n]	dm	dl
61	45	60	83	45	60	344	287	57	41
62	50	60	83	50	60	324	287	37	29
63	47	60	83	47	60	336	287	49	36
64	46	59	83	46	59	340	291	49	36
65	48	59	83	48	59	332	291	41	31
66	45	59	83	45	59	344	291	53	39
67	42	58	83	42	58	353	294	59	42
68	41	59	83	41	59	356	291	65	45
69	48	57	83	48	57	332	298	34	27
70	50	56	83	50	56	324	301	23	19
71	46	56	83	46	56	340	301	39	30
72	53	56	83	53	56	312	301	11	10
73	45	55	83	45	55	344	305	39	30
74	44	55	83	44	55	347	305	42	32
75	48	56	83	48	56	332	301	31	25
76	45	55	83	45	55	344	305	39	30
77	48	55	83	48	55	332	305	27	22
78	50	55	83	50	55	324	305	19	16
79	—	—	—	—	—				
80	35	54	83	35	54	375	309	66	46
81	43	53	83	43	53	350	312	38	30
82	32	52	83	32	52	385	317	68	46
83	45	52	83	45	52	344	317	27	22
84	45	52	83	45	52	344	317	27	22
85	40	51	83	40	51	359	320	39	30
86	40	51	83	40	51	359	320	39	30
87	45	51	83	45	51	344	320	24	30
88	39	50	83	39	50	362	324	38	30
89	44	50	83	44	50	347	324	23	19
90	34	49	83	34	49	378	328	50	37

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3	5 437	27	405	51	320	75	215
4	5 431	28	400	52	317	76	208
5	5 423	29	397	53	312	77	198
6	5 416	30	393	54	309	78	188
7	5 410	31	389	55	305	79	177
8	5 404	32	385	56	301	80	164
9	499	33	382	57	298	81	150
10	493	34	378	58	294	82	130
11	487	35	375	59	291	83	—
12	480	36	372	60	287		
13	476	37	369	61	283		
14	467	38	366	62	279		
15	461	39	362	63	276		
16	456	40	359	64	272		
17	451	41	356	65	268		
18	446	42	353	66	264		
19	442	43	350	67	261		
20	437	44	347	68	256		
21	432	45	344	69	252		
22	428	46	340	70	247		
23	423	47	336	71	242		
24	419	48	332	72	236		
25	414	49	328	73	230		
26	409	50	324	74	222		

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C 19087

Line	n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	$[n]$ l+m+n	$[\overline{m+n}]$	dw	dl
91	40	48	83	40	48	359	332	27	22
92	43	47	83	43	47	350	336	14	12
93	41	46	83	41	46	356	340	16	14
94	33	44	83	33	44	382	347	35	28
95	30	42	83	30	42	393	353	40	31
96	35	40	83	35	40	375	359	16	14
97	35	40	83	35	40	375	359	16	14
98	29	39	83	29	39	397	362	35	28
99	7	35	83	7	35	570	375	135	71
100	22	33	83	22	33	428	382	46	34
101	18	30	83	18	30	446	393	53	39
102	10	27	83	10	27	393	405	88	56
103	4	26	83	4	26	531	409	122	67

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x Carinae ~~n-S lines~~ Reduced to 107 4733 ×~~4064~~

m = 5.92

Line	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dm	dl
1	60	65	100	64	70	201	165	164	78
2	53	68	100	57	73	228	144	84	54
3	65	70	100	~~70~~ 70	75	165 52	130	35	28
4	67	72	100	72	77	52	116	32	26
5	65	74	100	78	79	165	100	65	45
6	68	76	100	73	81	144	76	68	46
7	60	77	100	64	82	~~201~~	60	141	78
8	75	79	100	80	85	91	20	70	48
9	78	80	100	84	86	36	—	—	
10	~~73~~ 2	82	~~100~~ 100	82	88	60	—	—	
11	81	84	100	87	90	—	—	—	
12	83	86	101	88	91	—	—	—	
13	80	87	101	85	92	20	—	—	
14	85	89	101	90	94	—	—	—	
15	81	89	101	89	94	—	—	—	
16	89	90	101	94	96	—	—	—	
17	89	90	101	94	96	—	—	—	
18	78	90	101	83	85	48	—	—	
19	82	90	101	87	96	—	—	—	
20	85	91	101	90	97	—	—	—	
21	87	91	101	92	97	—	—	—	
22	87	91	101	92	97	—	—	—	
23	87	91	101	92	97	—	—	—	
24	86	91	101	91	97	—	—	—	
25	87	90	101	92	96	—	—	—	
26	84	91	101	89	97	—	—	—	
27	83	91	101	88	97	—	—	—	
28	82	91	101	87	91	—	—	—	
29	79	91	101	84	97 (96)	36	—	—	
30	81	91	101	86	97	—	—	—	

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44733

Line	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dm	dl
31	81	91	101	86	97	—	—	—	
32	87	91	101	92	97	—	—	—	
33	80	90	101	85	96	20	—	—	
34	84	90	101	89	96	—	—	—	
35	75	90	101	80	96	91	—	—	
36	78	90	101	84	96	36	—	—	
37	79	89	101	85	94	20	—	—	
38	73	89	101	87	94	-	—	—	
39	78	89	101	83	94	48	—	—	
40	67	89	101	71	94	156	—	—	
41	75	88	101	80	93	91	—	—	
42	72	88	101	76	93	122	—	—	
43	72	88	101	76	93	122	—	—	
44	67	88	101	71	93	158	—	—	
45	77	87	101	82	92	60	—	—	
46	79	89	101	84	92	36	—	—	
47	80	87	101	85	92	20	—	—	
48	75	87	101	80	92	91	—	—	
49	62	86	101	~~66~~ 62	91 ~~86~~	~~190~~ 211	0	~~211~~	
50	81	86	101	86	91	—	—	—	
51	75	86	101	80	91	91	—	—	
52	64	85	101	88	90	—	—	—	
53	66	85	101	70	90	165	—	—	
54	55	85	101	58	90	325	—	—	
55	63	85	101	67	90	184	—	—	
56	75	85	101	80	90	91	—		
57	65	84	101	69	89	172	—	—	
58	75	84	101	80	89	91	—	—	
59	69	83	101	73	88	144	—	—	
60	65	83	101	69	88	172	—	—	

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X4733

Line	n	m+n	l+m+n	$\bar{n}$	m+n	[n]	[m+n]	dm	dl
61	62	82	101	66	87	190	—		—
62	61	82	101	65	87	196	—		
63	65	81	101	69	86	172	—		—
64	57	81	101	60	86	214	—		—
65	63	81	101	67	86	184	—		—
66	64	80	101	68	85	178	20	158	77
67	61	80	101	65	85	196	20	176	80
68	50	79	101	53	84	239	36	203	85
69	47	79	101	50	84	247	36	211	86
70	73	79	101	77	84	116	36	80	32
71	65	79	101	69	84	172	36	136	71
72	63	78	101	67	83	184	48	136	71
73	62	78	101	66	83	190	48	142	73
74	58	78	101	61	83	214	48	166	78
75	51	76	101	54	81	236	76	160	77
76	45	76	101	48	81	253	76	177	80
77	53	76	101	56	81	230	76	154	76
78	57	76	101	60	81	218	76	142	73
79	56	75	101	59	80	222	91	131	70
80	53	75	101	~~56~~ 53	~~79~~ 80 ~~75~~	~~230~~ 239	91	139 ~~130~~ ~~109~~	72
81	70	75	101	74	80	138	91	47	35
82	54	74	101	57	79	228	100	128	69
83	36	72	101	~~38~~ 36	~~76~~ 72	~~286~~ 293	127 ~~152~~	164 ~~141~~	78
84	50	70	101	53	74	239	138	101	61
85	49	70	101	52	74	241	138	103	61
86	49	67	101	52	71	241	158	93	58
87	50	66	101	53	70	239	165	74	49
88	47	65	101	50	69	247	172	75	50
89	58	64	101	56	68	230	178	52	38
90	37	60	101	39	64	282	201	81	53

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Line	m	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	[n]	[m+n]	dw	dl
91	45	58	101	48	61	253	214	39	30
92	55	57	101	58	60	225	218	07	06
93	45	54	101	48	57	253	228	25	21
94	–	–	–						
95	35	51	101	37	54	289	236	53	39
96	30	48	101	32	51	308	244	64	41
97	30	44	101	32	46	308	259	49	36
98	22	41	101	23	43	349	268	81	53
99	–	~~35~~	–	–	~~35~~ 37	~~550?~~ 289	~~296~~	~~250?~~	?
100	13	22	101	13	23	413	349	64	44
101	10	29	101	10	20	434	365	69	47
102	5	25	101	5	16	550	390	160	64
~~103~~									
~~104~~									
~~105~~									
~~106~~									

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1924phae.proj.1117P

x4733. Provisional scale

1	–	24	344	47	256	70	165
2	–	25	338	48	253	71	158
3	–	26	332	49	250	72	152
4	–	27	328	50	247	73	144
5	500	28	324	51	244	74	138
6	480	29	320	52	241	75	130
7	464	30	316	53	239	76	122
8	450	31	312	54	236	77	116
9	441	32	308	55	233	78	108
10	434	33	304	56	230	79	100
11	427	34	300	57	228	80	91
12	420	35	296	58	225	81	76
13	413	36	293	59	222	82	60
14	406	37	289	60	218	83	48
15	398	38	286	61	214	84	36
16	390	39	282	62	211	85	20
17	384	40	278	63	207		
18	377	41	274	64	201		
19	372	42	271	65	196 ↓low		
20	365	43	268	66	190		
21	360	44	265	67	184		
22	355	45	262	68	178		
23	349	46	259	69	172		

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1924phae.proj.117P

Trial reductions are from curve 2, ii violet

Reduced to 62

C1909b, δ Cephei, SU Cas. Std three on α Cygni

	Line	n	mn	lmn	ñ	m̄n	[n]	[mn]	dm	dl
α Cyg No. 1	1	50	54	60	52	56	150	80	[70]	
	2	53	57	60	55	59	106	..		
	3	51	57	60	53	59	138	..		
	4	46	56	61	47	57	193	..		
	5	50	55	61	51	56	159	80	79	
	6	44	53	61	45	54	205	124	81	
	7	37	48	61	38	49	240	177	63	
	8	30	44	61	30	45	268	205	63	
	9	26	39	62	26	39	282	236	46	
	10	23	35	62	23	35	291	251	40	
	11	21	31	62	21	31	296	264	32	
	12	19	27	62	19	27	301	279	22	
	13	16	23	62	16	23	..	..	..	
α Cyg No. 3	1	43	49	61	44	50	211	168	43	
	2	48	55	61	49	56	179	80	[99]	
	3	45	54	61	46	55	199	107	92	
	4	38	53	61	39	54	236	124	112	
	5	44	52	61	45	53	205	138	67	
	6	35	49	61	36	50	247	168	79	
	7	28	43	61	28	44	275	210	65	
	8	26	40	61	26	41	282	228	54	
	9									
	10									
	11									
	12									
	13									

Cut off

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Trial reductions are from curve 2, in violet

Reduced to 62

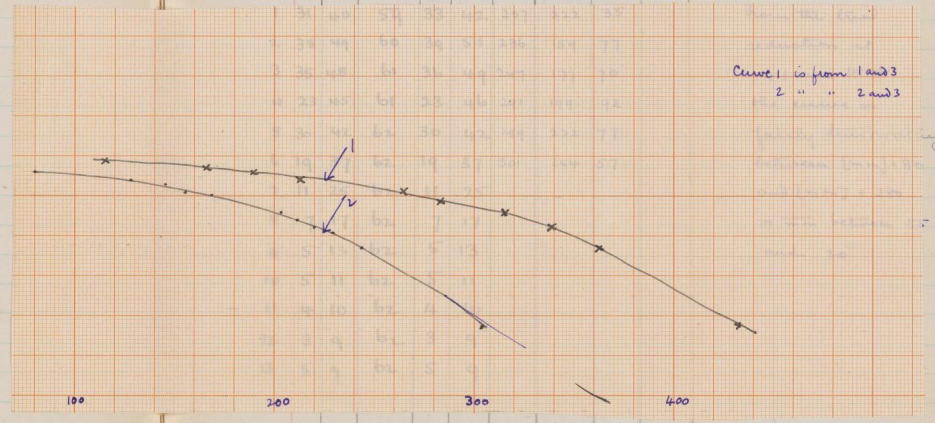
C19096, δ Cephei, SU Cas. Std three on α Cygni

C-19096

62

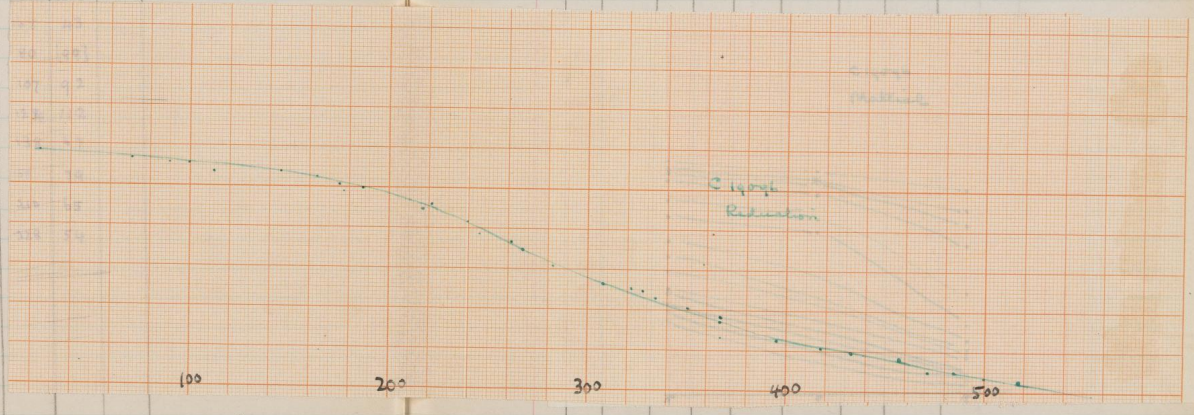
α Cyg No.5

α Cyg	Line	n	mm	l mm	n̄	mm	[n]	[mm]	dm	dl
No.1	1	50	54	60	52	56	150	80	[70]	
	2	53	57	60	55	59	106	..		
	3	51	57	60	53	59	138	..		
	4	46	56	61	47	57	193	..		
	5	50	55	61	51	56	159	80	79	
	6	44	53	61	45	54	205	124	81	
	7	37	48	61	38	49	240	177	63	
	8	30	44	61	30	45	268	205	63	
	9	26	39	62	26	39	282	236	46	
	10	23	35	62	23	35	291	251	40	
	11	21	31	62	21	31	296	264	32	
	12	19	27	62	19	27	301	279	22	
	13	16	23	62	16	23	--	--	--	



α Cyg No.3

1	43	49	61	44	50	211		
2	48	55	61	49	56	179		
3	45	54	61	46	55	199		
4	38	53	61	39	54	236		
5	44	52	61	45	53	205		
6	35	49	61	36	50	247		
7	28	43	61	28	44	275		
8	26	40	61	26	41	282		
9								
10								
11	cut off							
12								
13								



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1924phae.proj.117P

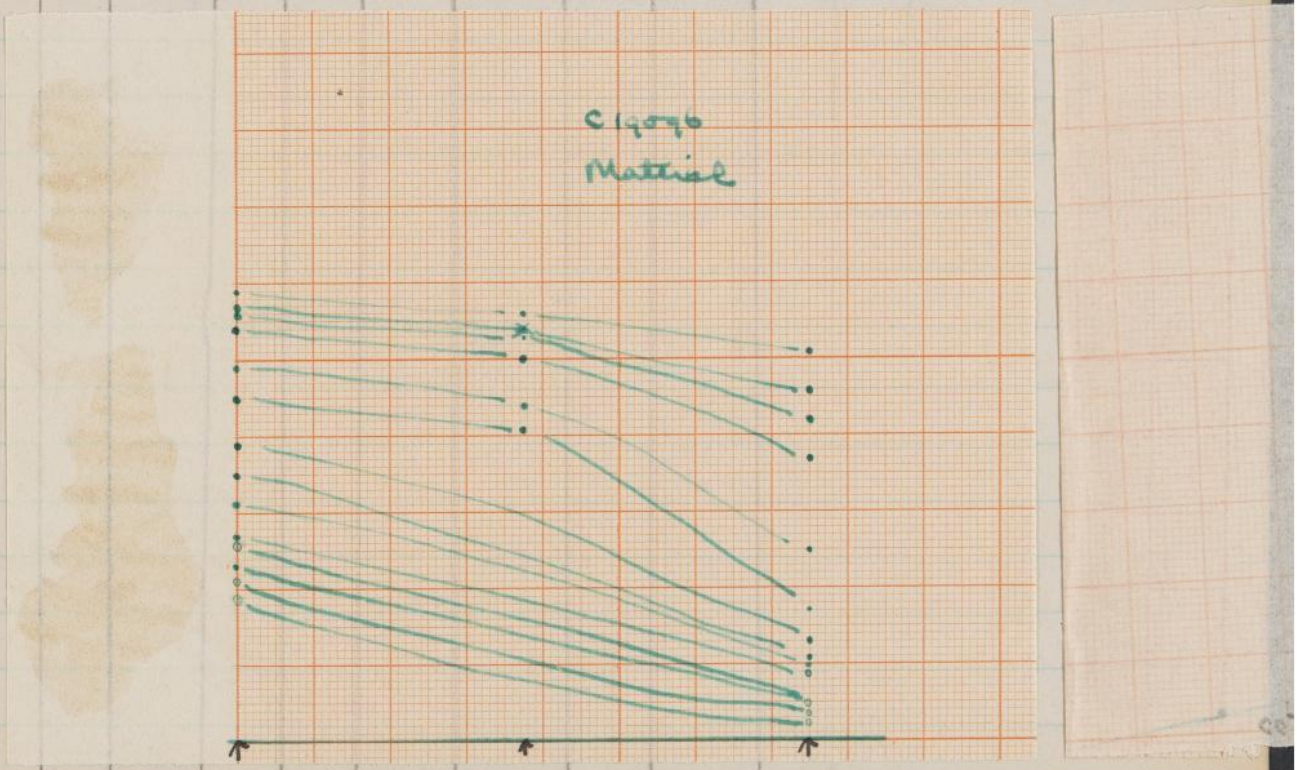
C-19096

62

α Cyg No. 5

Line	n	mtn	ltmtn	$\bar{n}$	$\overline{mtn}$	[n]	[mtn]	dm	dl
1	31	40	59	33	42	257	222	35	
2	38	49	60	39	51	236	159	77	
3	35	48	61	36	49	247	177	70	
4	23	45	61	23	46	291	199	92	
5	30	42	62	30	42	299	222	77	
6	19	37	62	19	37	301	244	57	
7	11	25	62	11	25				
8	7	17	62	7	17				
9	5	13	62	5	13				
10	5	11	62	5	11				
11	4	10	62	4	10				
12	3	9	62	3	9				
13	5	9	62	5	9				

From the trial reduction it appears that the curve is fairly trustworthy between [mtn] = 80 and [mtn] = 280 or $\overline{mtn}$ between 55 and 20



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C19096

δ Cephei

Revised reductions in violet

Line	n	m-n	l-m-n	$\bar{n}$	$\bar{m}$-n	[n]	[m-n]	dm	dl
						160	108	52	38
Hβ	52	56	63	51	55	178	122	56	40
						128	"	"	"
Hγ	55	58	63	54	57	140	(73)	67	46
						160	108	52	38
Hδ	52	56	63	51	55	178	122	56	40
						257	185	62	44
Hε	33	49	63	33	48	276	234	72	48
						279	211	68	46
K	27	45	63	27	44	306	227	79	52

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C. 14096

SU Cassiopeiae

All out of accurate range

Line	n	m tn	l tn tn	n̄	m tn	[n]	[m tn]	dn	dl
Hβ	11	19	63	11	19	(329) 418	303 354	(26) 64	21 44
Hγ	16	27	63	16	27	313 375	278 306	38 69	30 47
Hδ	11	22	63	11	22	329 418	294 335	35 83	28 53
HR	2	15	63	2	15	354 520	~~364~~ 316 380	38 140	72
K	1	12	63	1	12	533	407	126	69
H3	4	9	63	4	9	497	440	57	41

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$$\lim_{n} \; n^{m+n} \, \bar{n}^{m+n} \, \overline{m+n} \, [n^n] \, [\overline{m+n}^{m+n}] \, du \, dl$$

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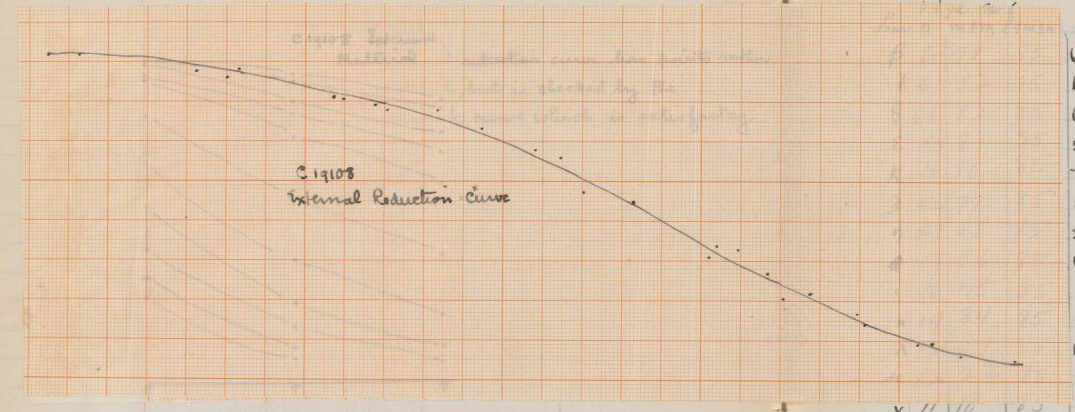
1924phae.proj.117P

$$\text{Lins} \quad n \quad m+n \quad l+m+n \quad \bar{n} \quad \overline{m+n} \quad [n]_k [m+n] \quad du\, dl$$

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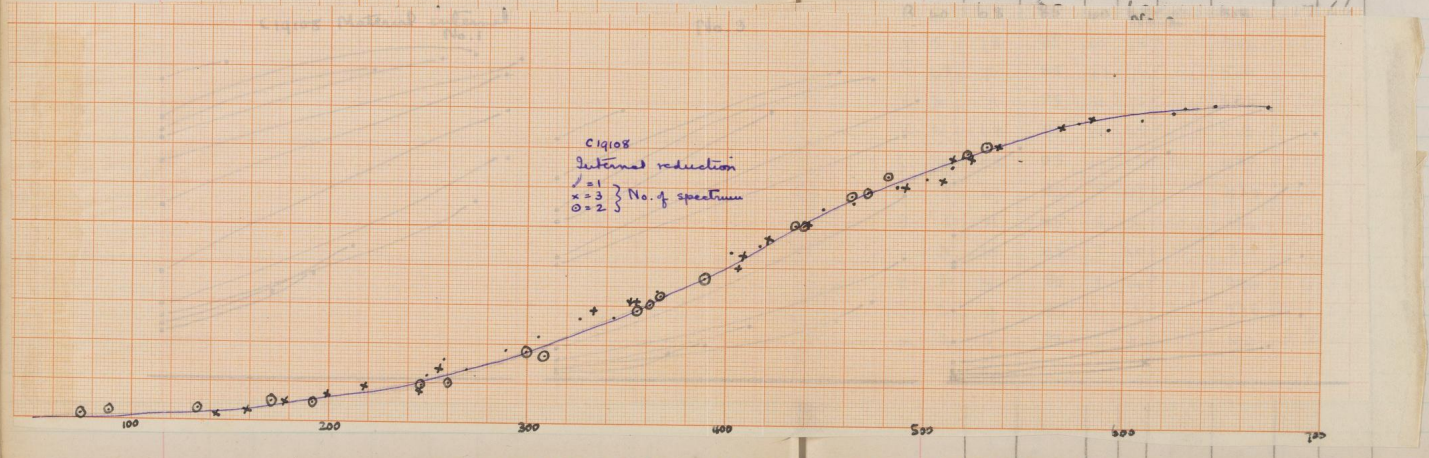
C 19108
α Φ 1726

Reduced to 85 ✓

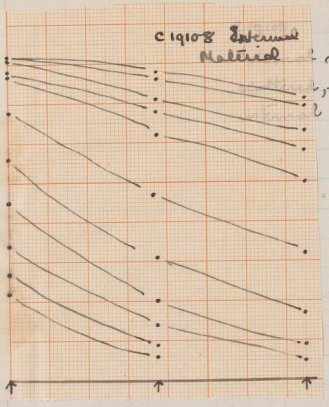


n̄	m+n	[n]	[m+n]	dm	dl	[m+n]$_1$	[m+n]$_2$	[m+n]$_3$	Σ	Means
63	78 ✓	491	584	93	58	584	583	616	783	594
61	82 ✓	481	652?	171	79	652?	669	685	1354	677 / 431
66	82 ✓	506	652?	146	74	652?	621	674	1295	648 / 431
55	81 ✓	453	626	173	80	626	610	641	1877	626
76	80 ✓	566	608	42	32	608	593	621	1822	607
44	77 ✓	414	575	161	77	575	561	585	1721	574
27	68 ✓	347	518	171	79	518	499	518	1535	512
19	56 ✓	306	457	151	75	457	439	446	1342	447
16	45 ✓	289	418	129	70	418	385	388	803	402
14	34 ✓	274	375	101	64	375	349	33÷	724	362
12	27 ✓	260	347	87	55	347	313			347
12	22 ✓	260	320	60	42	320	274			320
11	18	252	301	49	36	301	..			301

Vega No. 3



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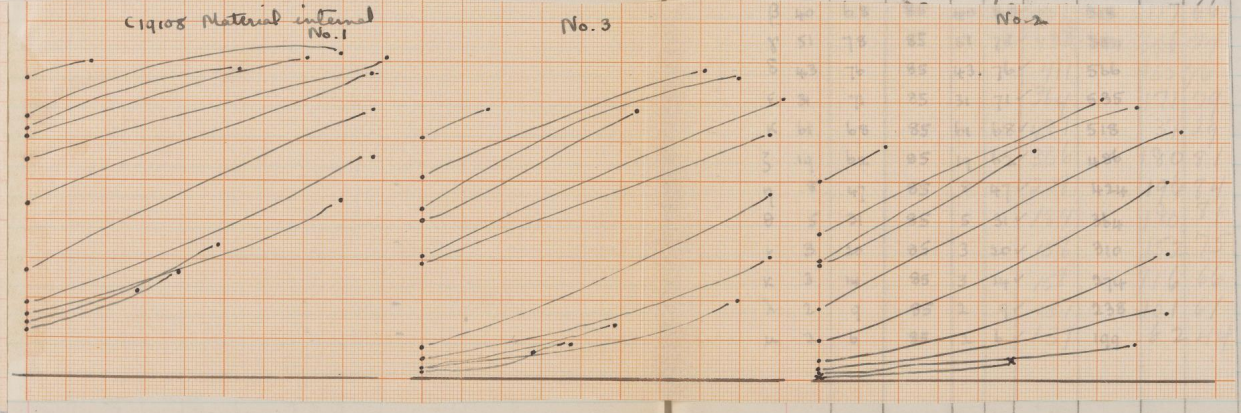
reduction curve has points rather
, but is checked by the
curve which is satisfactory

C 19108
α Lyr 1726
Vega No 3

Reduced to 85 ✓

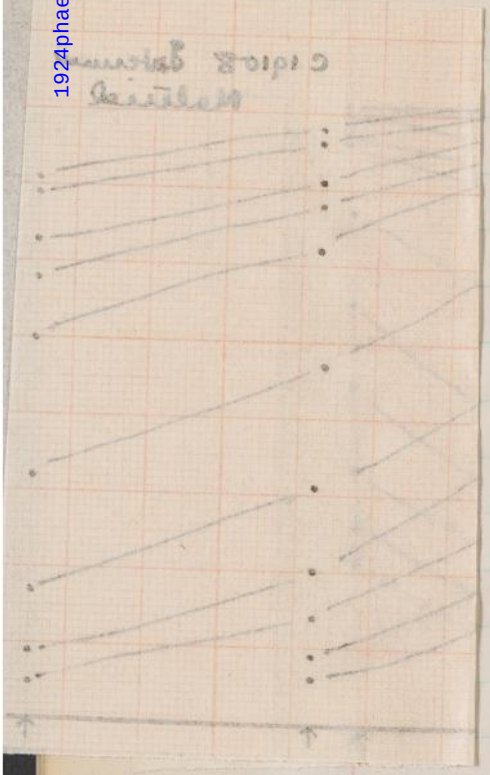
Lines	n	m+m	f+m+n	n̄	m+n	[n]	[n+n']	du	dl	[m+m]$_1$	[m+m]$_2$	[m+m]$_3$	Σ	Means
β	63	78	85	63	78	491	584	93	58	584	583	616	1783	594
γ	61	82	85	61	82	481	652?	171	79	652?	669	685	1354	677 / 451
δ	66	82	85	66	82	566	652?	146	74	652?	621	674	1295	648 / 431
ε	55	81	85	55	81	453	626	173	80	626	610	641	1877	626
κ	76	80	85	76	80	566	608	42	32	608	593	621	1822	607
ζ	44	77	85	44	77	414	575	161	77	575	561	585	1721	574
η	27	68	85	27	68	347	518	171	79	518	499	518	1535	512
θ	19	56	85	19	56	306	457	151	75	457	439	446	1342	447
ι	16	45	85	16	45	289	418	129	70	418	385	388	803	402
ι	14	34	85	14	34	274	375	101	64	375	349	334	724	362
λ	12	27	85	12	27	260	347	87	55	347	313			347
μ	12	22	85	12	22	260	320	60	42	320	274			320
ν	11	16	85	11	18	252	301	49	36	301	..			301

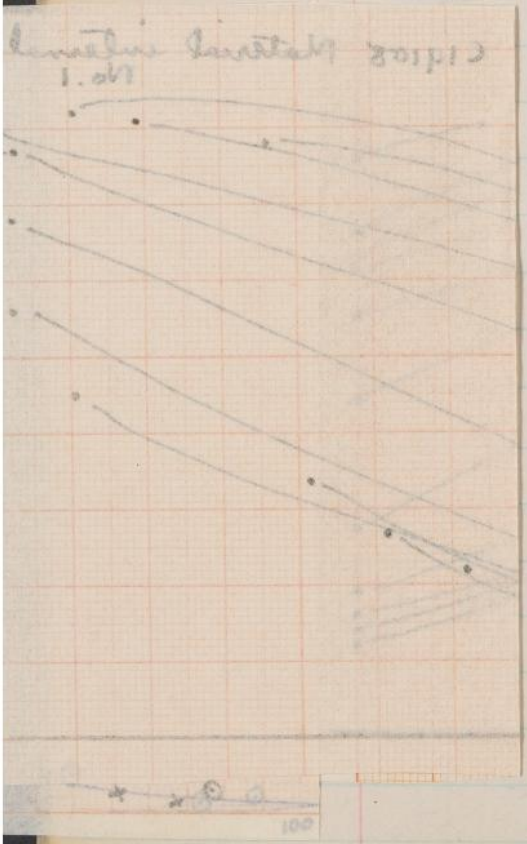
Vega No. 3



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1924phae.proj.117P





C 19108.

External reduction curve has points rather scattered, but is checked by the internal curve which is satisfactory

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1924phae.proj.11-P

C 19108
α φ 1726
Vega No 6

Reduced to 85 ✓

Lines	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	du	dl	[m+n]₁	[m+n]₂	[m+n]₃	Σ	Means
β	63	78	85	63	78 ✓	491	584	93	58	584	583	616	1783	594
γ	61	82	85	61	82 ✓	481	652?	171	79	652?	669	685	1354	677 451
δ	66	82	85	66	82 ✓	506	652?	146	74	652?	621	674	1295	648 432
ε	55	81	85	55	81 ✓	453	626	173	80	626	610	641	1877	626
κ	76	80	85	76	80 ✓	566	608	42	32	608	593	621	1822	607
ζ	44	77	85	44	77 ✓	414	575	161	77	575	561	585	1721	574
η	27	68	85	27	68 ✓	347	518	171	79	518	499	518	1535	512
θ	19	56	85	19	56 ✓	306	457	151	75	457	439	446	1342	447
ι	16	45	85	16	45 ✓	289	418	129	70	418	385	388	803	402
κ	14	34	85	14	34 ✓	274	375	101	64	375	349	334	724	362
λ	12	27	85	12	27 ✓	260	347	87	53	347	313			347
μ	12	22	85	12	22 ✓	260	320	60	42	320	274			320
ν	11	18	85	11	18	252	301	49	36	301	..			301

Vega. No. 3

β	40	68	85	40	68 ✓	401	518	117	66					
γ	51	78	85	51	78 ✓	438	584	146	74					
δ	43	76	85	43	76 ✓	411	566	155	76					
ε	31	71	85	31	71 ✓	364	535	171	79					
κ	61	68	85	61	68 ✓	481	518	37	29					
ζ	19	62	85	19	62 ✓	306	486	180	81					
η	8	47	85	8	47 ✓	228	424	196	84					
θ	5	31	85	5	31 ✓	184	364	180	81					
ι	3	20	85	3	20 ✓	158	310	152	75					
κ	3	14	85	3	14 ✓	158	274	116	66					
λ	2	9	85	2	9 ✓	137	238	101	61					
μ	2	6	85	2	6 ✓	137	199	62	44					

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Vega. No. 2
C 19108
m 1726

Line	n	m+n	l+m+n	$\bar{n}$	m+n	$[n]$	$[m+n]$	due	dl
B	28	56	83	29	58	✓356	466	110	64
8	37	70	84	37	71	✓389	535	146	74
8	30	68	84	30	69	✓360	524	164	78
E	18	62	84	18	63	✓301	491	190	83
K	49	08	84	50	59	✓435	471	36	28
3	10	49	84	10	50	✓246	435	189	82
N	5	32	85	5	32	✓184	368	184	82
O	3	17	84	3	17	✓158	296	138	72
6	2	9	84	2	9	✓137	238	101	61
K	1	5	84	1	5	104	184	80	52

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1924phae.proj.11:TP

C 19108
δ Cephei
α 1728

Line	h	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dm	dl	Mean Vega	Diff.
1	49	51	84	50	52	435	441	106	62		
2	50	55	84	51	56	438	457	19	16		
3	55	57	84	56	58	457	466	09	08		
4	58	59	84	59	60	471	470	09	08		
5	58	60	84	59	61	471	481	10	09		
6	60	63	84	61	64	481	496	15	13		
7	55	65	84	56	66	457	506	51	37	594	88
8	66	67	84	67	68	512	518	06	05		
9	68	69	84	69	70	524	529	05	04		
10	68	70	84	69	71	524	535	11	10		
11	67	70	84	68	71	518	535	17	14		
12	70	71	84	71	72	535	541	06	05		
13	70	72	84	71	73	535	547	12	10		
14	72	74	84	73	75	547	560	13	11		
15	73	74	84	74	75	554	560	06	05		
16	—	—	—								
17	—	—	—								
18	—	—	—								
19	—	—	—								
20	73	76	84	74	77	554	575	21	18		
21	76	—	—								
22	—	—	—								
23	—	—	—								
24	—	—	—								
25	74	76	84	75	77	560	575	15	13		
26	73	75	84	74	76	554	566	12	10		
27	75	76	84	76	77	566	575	09	08		
28	74	76	84	75	77	560	575	15	13		
29	74	76	84	75	77	560	575	15	13		
30	74	76	84	75	77	560	575	15	13		

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C 19108

	Line	n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	$[n]$	$[\overline{m+n}]$	dm	dl		
	31	73	76	84	74	77	554	575	21	18		
	32	75	76	84	76	77	566	575	09	08		
	33	73	75	84	74	76	554	566	12	10		
	34	73	75	84	74	76	554	566	12	10		
	35	73	75	84	74	76	554	566	12	10		
	36	71	75	84	72	76	541	566	25	21		
	37	—	—	—								
	38	—	—	—								
	39	72	75	84	73	76	547	566	19	16		
	40	72	74	84	73	75	547	560	13	11		
	41	72	74	84	73	75	547	560	13	11		
	42	71	74	84	72	75	541	560	19	16		
	43	71	73	84	72	74	541	554	13	11		
	44	70	73	84	71	74	535	554	19	16		
	45	70	73	84	71	74	535	554	19	16		
	46	71	73	84	72	74	541	554	13	11		
	47	72	72	84	73	73	547	547	00	00		
	48	70	72	84	71	73	535	547	12	10		
?	✓49	65	72	84	66	73	506	547	41	31	677	130
	50	69	71	84	70	72	529	541	12	10		
	51	68	71	84	69	72	524	541	17	14		
	52	65	71	84	66	72	506	541	35	28		
	53	63	71	84	64	72	496	541	45	34		
	54	59	71	84	60	72	476	541	65	45		
	55	66	70	84	67	71	512	535	23	19		
	56	68	70	84	68	71	518	535	17	14		
	57	68	70	84	69	71	524	535	11	10		
	58	68	70	84	69	71	524	535	11	10		
	59	67	69	84	68	70	518	529	11	10		
	60	66	69	84	67	70	512	529	17	14		

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C 1910 8

Line	n	m+n	l+m+n	$\bar{n}$	$\bar{n}$+m+n	[n]	[m+n]	dm	dl
61	66	69	84	67	70	512	539	17	14
62	64	69	84	65	70	501	539	28	23
63	66	68	84	67	69	512	524	12	10
64	64	68	84	65	69	501	524	23	19
65	62	68	84	63	69	491	524	23	19
66	65	68	84	66	69	506	524	18	15
67	65	68	84	66	69	506	524	18	15
68	62	68	84	63	69	491	524	23	19
69	60	68	84	61	64	481	524	43	33
70	67	67	84	68	68	518	518	00	00
71	65	67	84	66	68	506	518	12	10
72	64	67	84	65	68	501	518	17	14
73	65	67	84	66	68	506	518	12	10
74	63	67	84	64	68	496	518	22	18
75	62	66	84	63	67	491	512	21	18
76	61	66	84	62	67	486	512	26	21
77	62	66	84	63	67	491	512	21	18
78	62	66	84	63	67	491	512	21	18
79	62	65	84	63	66	491	506	15	13
80	54	65	84	53	66	453	506	53	39
81	64	65	84	65	66	501	506	05	04
82	60	64	84	61	65	481	501	20	17
83	57	64	84	52	65	441	501	60	42
84	56	64	84	57	65	461	501	40	31
85	57	64	84	58	65	466	501	35	28
86	56	64	84	57	65	461	501	40	31
87	58	63	84	59	64	471	496	25	21
88	58	63	84	59	64	471	496	25	21
89	61	63	84	62	64	486	496	10	09
90	55	62	84	56	63	457	491	34	27

648 148

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Line	n	m+n	l+m+n	$\bar{n}$	$\bar{m}+\bar{n}$	$[n']$	$[m'+n']$	dm	dl		
91	58	62	84	59	63	471	491	20	17		
92	58	62	84	59	63	471	491	20	17		
93	59	61	84	60	62	476	486	10	09		
94	58	61	84	59	62	471	486	15	13		
95	53	59	84	54	60	449	476	27	22		
96	50	58	84	51	59	438	471	33	26		
97	52	56	84	53	57	445	461	16	14		
98	46	56	84	47	57	424	461	37	29		
99	16	54	84	16	55	289	453	164	~~44~~ 18	626'	173
100	37	51	84	37	52	389	441	52	38		
101	36	50	84	36	51	384	438	54	39		
102	31	49	84	31	50	364	435	71	48		
103	10	45	84	10	46	246	421	175	~~50~~ 80	607	186
104	37	42	83	39	42	397	408	11	10		
105	38	41	83	30	41	360	404	44	33		
106	33	40	83	33	40	371	401	30	24		
107	30	38	83	30	38	360	393	33	26		
108	31	35	83	31	35	364	380	16	14		
109	30	34	83	30	34	360	375	15	13		
110	22	31	83	22	31	320	364	44	33	574	210

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1924phae.proj.1417P

η Aquilae
C 19108
uq 1727

Line	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dm	dl	
1	54	56	83	55	57	453	461	08	07	Please check line numbers.
2	52	59	83	55	61	453	481	28	23	
3	57	60	83	59	62	471	486	15	13	
4	60	62	83	62	64	486	496	10	09	✓
5	60	64	83	62	66	486	506	20	17	
6	60	64	83	62	66	486	506	20	17	✓
7	61	66	83	63	68	491	518	27	22	
8	52	67	83	53	69	445	524	79	53	
9	67	68	83	69	70	534	529	05	04	
10	67	69	83	69	71	534	535	11	10	
11	70	71	83	72	73	541	547	06	05	
12	70	71	83	72	73	541	547	06	05	
13	70	72	83	72	74	541	554	13	11	
14	72	73	83	74	75	554	560	06	05	
15	73	74	83	75	76	560	566	06	05	
16	73	74	83	75	76	560	566	06	05	
17	73	74	83	75	76	560	566	06	05	
18	73	74	83	75	76	560	566	06	05	
19	72	74	83	74	76	554	566	12	10	
20	74	74	83	76	76	566	566	00	00	
21	73	74	83	75	76	560	566	06	05	
22	–	–	–	–	–					
23	–	–	–	–	–					
24	–	–	–	–	–					
25	72	74	83	74	76	554	566	12	10	
26	–	–	–							
27	–	–	–							
28	–	–	–							
29	–	–	–							
30	72	74	83	74	76	554	566	12	10	

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Line	n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	$[n]$	$[m+n]$	dec	dl
31	72	74	83	74	76	554	566	12	10
32	74	74	83	76	76	566	566	00	00
33	72	74	83	74	76	554	566	12	10
34	72	74	83	74	76	554	566	12	10
35	70	73	83	72	75	541	560	19	16
36	71	74	83	73	76	547	566	19	16
37	70	73	83	72	75	541	560	19	16
38	70	73	83	72	75	541	560	19	16
39	70	73	83	72	75	541	560	19	16
40	70	73	83	72	75	541	560	19	16
41	70	73	83	72	75	541	560	19	16
42	69	73	83	71	75	535	560	25	21
43	70	73	83	72	75	541	560	19	16
44	68	73	83	70	75	529	560	31	25
45	69	72	83	71	74	535	554	19	16
46	70	72	83	72	74	541	554	13	11
47	70	72	83	72	74	541	554	13	11
48	68	72	83	70	74	529	554	25	21
49	58	72	83	60	74	476	554	78	57
50	68	72	83	70	74	529	554	25	21
51	69	71	83	71	73	535	547	12	10
52	67	71	83	69	73	524	547	23	19
53	67	71	83	69	73	524	547	23	19
54	61	70	82	64	73	496	547	51	37
55	65	70	82	68	73	518	547	29	23
56	66	70	82	69	73	524	547	23	19
57	66	70	82	69	73	524	547	23	19
58	67	69	82	70	72	529	541	12	10
59	64	69	82	67	72	512	541	29	23
60	64	69	82	67	72	512	541	29	23

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C 19108

	n	m+n	l+m+n	n̄	m+n	[n]	[n+m]	dec	dl
61	64	69	82	67	72	512	541	29	23
62	62	69	82	65	72	501	541	40	31
63	65	69	82	68	72	518	541	23	19
64	60	68	82	62	71	486	535	49	36
65	61	68	82	64	71	496	535	39	30
66	63	68	82	66	71	506	535	29	23
67	62	67	82	65	70	501	529	28	23
68	60	67	82	62	70	486	529	43	32
69	57	67	82	59	70	471	529	58	41
70	65	67	82	68	70	518	529	11	10
71	64	66	82	67	69	512	524	12	11
72	61	66	82	64	69	496	524	28	23
73	62	66	82	65	69	501	524	23	19
74	61	66	82	64	69	496	524	28	23
75	60	66	82	62	69	486	524	38	30
76	57	65	82	59	68	471	518	47	35
77	60	65	82	62	68	486	518	32	26
78	60	64	82	62	67	486	512	26	21
79	59	64	82	61	67	481	512	31	25
80	45	63	82	47	66	424	506	82	53
81	60	63	82	62	66	486	506	20	17
82	58	63	82	60	66	476	506	30	24
83	51	62	82	53	65	445	501	56	40
84	52	62	82	54	65	449	501	52	38
85	60	62	82	62	65	486	501	15	13
86	57	62	82	59	65	471	501	30	24
87	55	62	82	57	65	461	501	40	31
88	56	61	82	58	64	466	496	30	24
89	59	61	82	61	64	481	496	15	13
90	51	60	81	54	63	449	491	42	32

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1924phae.proj.117P

c 19108

Line	n	m+n	l+m+n	$\bar{n}$	m+n	$\overline{n^2}$	$\overline{m+n^2}$	dec	dl
91	55	60	81	58	63	466	491	25	21
92	57	59	81	60	62	476	486	10	09
93	57	59	81	60	62	476	486	10	09
94	56	57	81	59	60	471	476	05	04
95	49	57	81	52	60	441	476	35	28
96	47	55	81	49	58	431	466	35	28
97	49	54	81	52	57	441	461	20	17
98	43	52	81	45	55	418	453	35	28
99	3	49	81	03	52	158	441	283	92
100	35	46	81	37	48	389	428	39	30
101	35	45	81	37	47	389	424	35	28
102	34	44	81	36	46	384	421	37	29
103	1	42	81	01	42	104	408	304	94
104	30	38	81	31	40	364	401	37	29
105	28	38	81	29	40	356	401	45	34
106	31	36	81	32	38	368	393	25	21
107	26	34	81	27	36	347	384	37	29
108	25	33	81	26	35	341	380	39	30
109	24	32	81	25	34	336	375	39	30
110	11	31	81	11	32	252	368	116	~~66~~
111	—	—	—	—	—	—	—	—	
112	—	—	—	—	—	—	—	—	
113	—	—	—		—	—	—	—	
114	—	—	—	—	—	—	—	—	
115	4	17	81	4	18	174	301	127	~~69~~
116	—	—	—						
117	—	—	—						
118	—	—	—						
119	—	—	—						
120	2	9	81	2	09	137	238	101	61

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1924phae.proj.117P

e 1910 8

0	60	21	315	41	404	61	481
1	104	22	320	42	408	62	486
2	137	23	326	43	411	63	491
3	158	24	331	44	414	64	496
4	184	25	336	45	418	65	501
5	184	26	341	46	421	66	506
6	199	27	347	47	424	67	512
7	211	28	352	48	428	68	518
8	228	29	356	49	431	69	524
9	238	30	360	50	435	70	529
10	246	31	364	51	438	71	535
11	252	32	368	52	441	72	541
12	260	33	371	53	445	73	547
13	267	34	375	54	449	74	554
14	274	35	380	55	453	75	560
15	281	36	384	56	457	76	566
16	289	37	389	57	461	77	575
17	296	38	393	58	466	78	584
18	301	39	397	59	471	79	596
19	306	40	401	60	476	80	608
20	310					81	626
						82	652?

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$$\int_{\bar{u}} u^{\bar{m}+n} (l+m+n)^{\bar{n}} [m+n]^{[\bar{u}]} [m+\bar{u}] \, du \, dl$$

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1924phae.proj.117P

λ 4733 continued from p. 25

The magnitude scale is inaccurately known and the scale is arbitrarily fixed by means of H.D. 15377, B3, 5.9, and H.D. 15318, B8, 7.3.

High point fixed by χ Carinae, 4.02, assumed F8, at 4340

A0c

H.D. 15377, B3, 5.9 Reduced to 101 5.84

	n	mm	h	m	n	mm	[n]	[mm]	dn	dl
β	16	26	96		16	27	390	328	62	44
4471	53	61	97		55	63	233	207	26	21
4387	53	61	97		55	63	233	207	26	21
γ	44	60	97		45	62	262	211	51	37
4144	50	57	97		52	59	241	222	19	16
δ	35	55	97		36	57	293	228	65	45
4026	40	52	97		41	54	274	236	38	30
4009	42	50	97		43	52	268	241	27	22
ε	22	43	97		22	44	355	265	90	56
κ	28	36	97		29	37	320	289	31	25
ζ	11	22	97		11	22	427	355	72	48
η	10	13	97		10	13	434	413	21	18

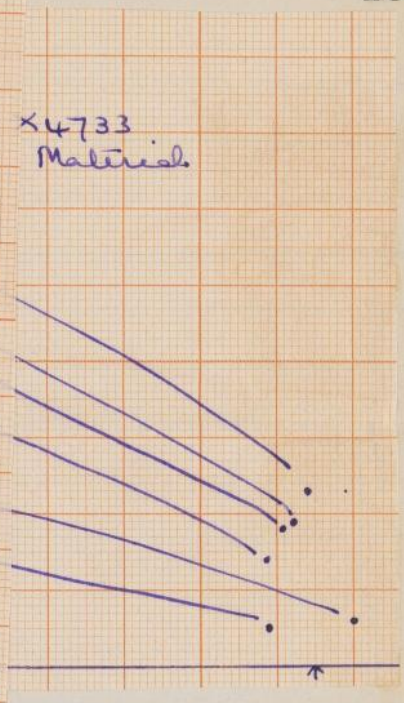
A0c.

H.D. 15318, B8, 7.3 7.24

β	0	6	97	0	6	..	..
γ	4	23	97	4	23	..	..
δ	3	19	97	3	19	..	..
ε	0	14	98	0	14	..	..
4026	0	18	97	0	18	..	..
κ	4	10	98	4	10	..	..
ζ	0	5	98	0	5	..	..

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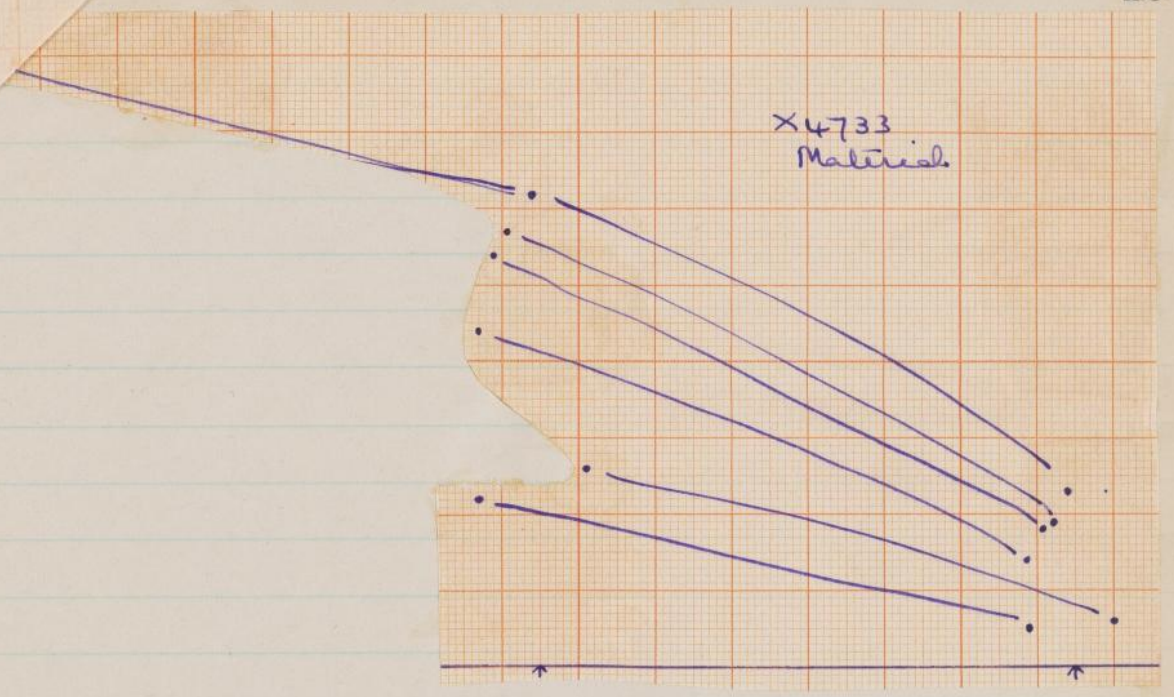


λ4733 Reduction.

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* this plate is of higher weight than X4733

X4064 x Carinae and field. Scale as X4733, see p. 48.

5.84

No. 2 HD 15377, B3, 5.9. Red end cut off. Reduced to 107

	n	mon	lmon	n̄	m̄n	[n]	[mon]	dm	dl	X4733	Σ	Mean
δ	79	92	111	76	88	✓260	209	61	✓43	45	88	44
4026	83	90	110	81	88	✓243	209	34	✓27	30	57	28
ε	64	85	109	63	84	✓301	231	70	48	56	104	52
κ	71	77	109	69	75	✓282	264	18	15	25	40	20
ζ	41	64	109	41	63	✓358	301	57	41	48	89	44
η	20	39	107	20	39	✓419	362	57	41			
θ	13	24	107	13	24	456	403	53	39			
ι	7	17	107	7	17	496	432	64	44			
κ	6	11	106	6	11	503	468	35	28			

No. 4 HD 15318, B8, 7.3 7.24

β	5	20	103	5	21	✓316	414	102	61
γ	43	50	103	45	52	348	332	16	14
	17	50	103	17	52	✓432	332	100	60
δ	15	46	103	15	48	✓443	341	102	61
4026	35	41	103	36	43	✓369	353	16	14
ε	7	34	103	7	35	✓496	372	124	68
κ	21	23	103	22	24	✓410	403	07	06
ζ	4	15	103	4	15	✓536	443	93	53
η	0	6	103	0	6	✓	503		

No. 5 HD 15152 B3, 6.8

β	26	45	107	28	45	✓397	348	49	36	Relative to 2 and 4,
4471	70	78	107	70	78	580	553	27	22	assumed correct,
γ	58	79	107	58	79	✓316	550	66	46	5 is $0^m.36$ too bright.
δ	52	77	107	52	77	✓332	556	76	50	36
4026	59	73	107	59	73	✓313	570	43	33	37
ε	37	67	107	37	67	✓369	289	78	51	33
κ	44	56	107	44	56	✓350	321	29	23	30
ζ	20	44	107	20	44	✓419	358	69	47	40
η	8	22	107	8	22	✓489	410	79	52	38
										6)214 36

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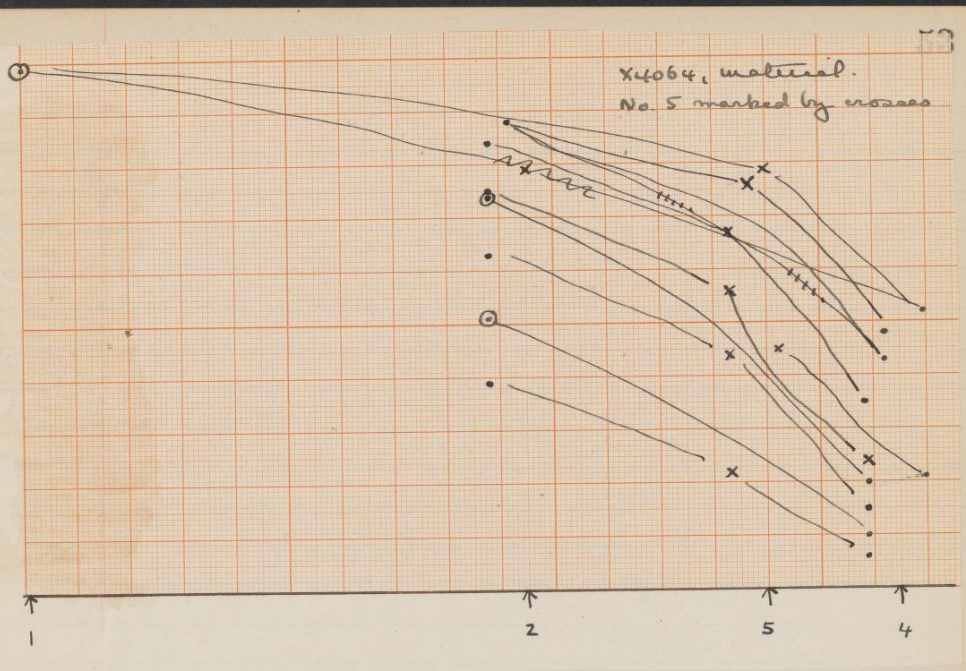
1924phae.proj.117P

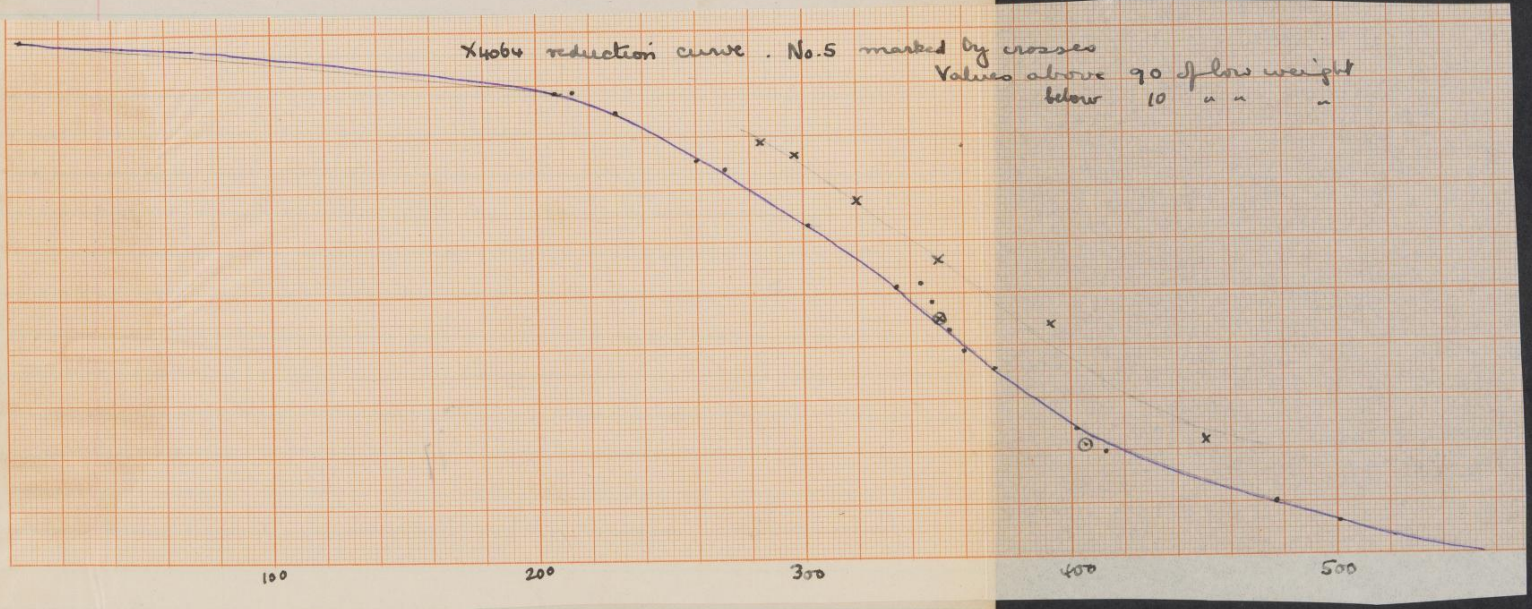
x4064 arbitrary (provisional) scale

1	546	24	403	47	344	70	280	93	142
2	534	25	400	48	341	71	276	94	124
3	526	26	397	49	338	72	273	95	110
4	516 low wt.	27	394	50	336	73	270	96	90
5	509	28	392	51	334	74	267	97	72
6	503	29	389	52	332	75	264	98	40
7	496	30	386	53	330	76	260	99	05
8	489	31	383	54	327	77	256		
9	482	32	380	55	324	78	253		
10	475	33	378	56	321	79	250		
11	468	34	375	57	318	80	247		
12	462	35	372	58	316	81	243		
13	456	36	369	59	313	82	239		
14	448	37	367	60	310	83	235		
15	443	38	365	61	308	84	231		
16	437	39	362	62	304	85	227		
17	432	40	360	63	301	86	222		
18	427	41	358	64	298	87	216		
19	423	42	355	65	295	88	209		
20	419	43	353	66	292	89	202		
21	414	44	350	67	289	90	192		
22	410	45	348	68	286	91	180		
23	406	46	346	69	282	92	164		

Superseded

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1924phae.proj.155P

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C-19104
Vega No1
α 1730

✓ Internal and external reductions do not check. The internal curve is used to examine the external material (visible outgoings)

Line	n	m+n	l+m+n	n	m+n	[n]	[m+n]	dm	dl
β	63	76	81	64	77	173	61		
γ	64	79	81	65	80	167	8		
δ	64	78	81	65	79	167	30		
ε	55	77	81	56	78	210	48		
κ	74	76	81	75	77	84	61		
ζ	45	74	81	46	75	256	85		
η	32	65	81	32	66	321	161		
θ	24	54	81	24	55	362	215		
ι	23	45	81	23	46	366	256		
κ	18	37	81	18	37	396	297		
λ	18	36	81	18	36	396	301		
μ	16	26	81	16	26	408	349		
ν	15	21	81	15	21	415	379		
ξ	14	19	81	14	19	423	390		

Reduced to 82

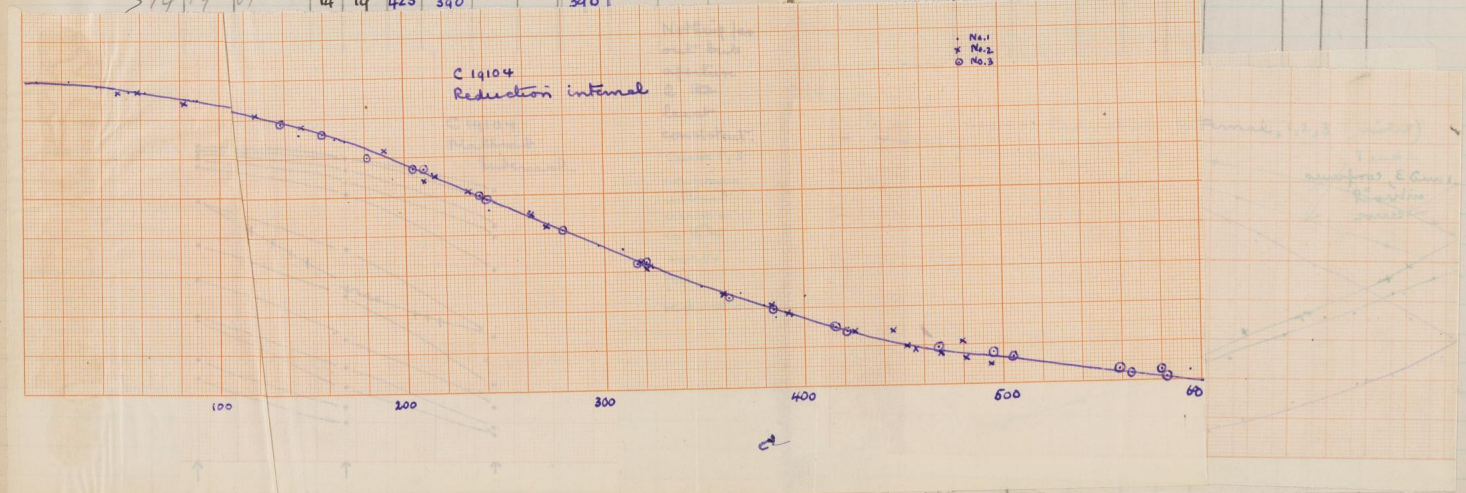
[m+n]	[mm]₁	[mm]₂	[mm]₃	Mu
	61	51	57	56
	8	−14	−10	−5
	30	−14	10	9
	48	21	42	37
	61	35	56	
	85	73 (+19)	92	
	161 (−17)	144 (+27)	171	
	215 (−16)	199 (+35)	234	
	256 (−05)	251 (+21)	272	
	297 (−10)	287	312	
	301 (+14)	315	342	
	349 (−6)	348		
	379 (−5)	378		
	390			

C-19104
Vega-Fz
α 1729

do not reduce

Line	n	m+n	l+m+n	n	m+n	[n]	[m+n]	dm	dl
β	49	69	80	51	71	233	126		
γ	60	75	80	62	77	183	61		
δ	53	74	79	55	77	215	61		
ε	48	71	79	45	74	260	96		
κ	65	70	79	68	73	148	110		
ζ	30	65	79	31	68	326	148		
η	20	42	79	21	44 (54)	379	365 (219)		
θ	14	40	79	14	42	423	274		
ι	11	30	79	11	31	444	326		
κ	9	23	78	9	24	462	362		
λ	8	18	78	8	19	472	390		
μ	7	14	78	7	14	492	423		
ν	5	10	78	5	10	520	453		

Please check



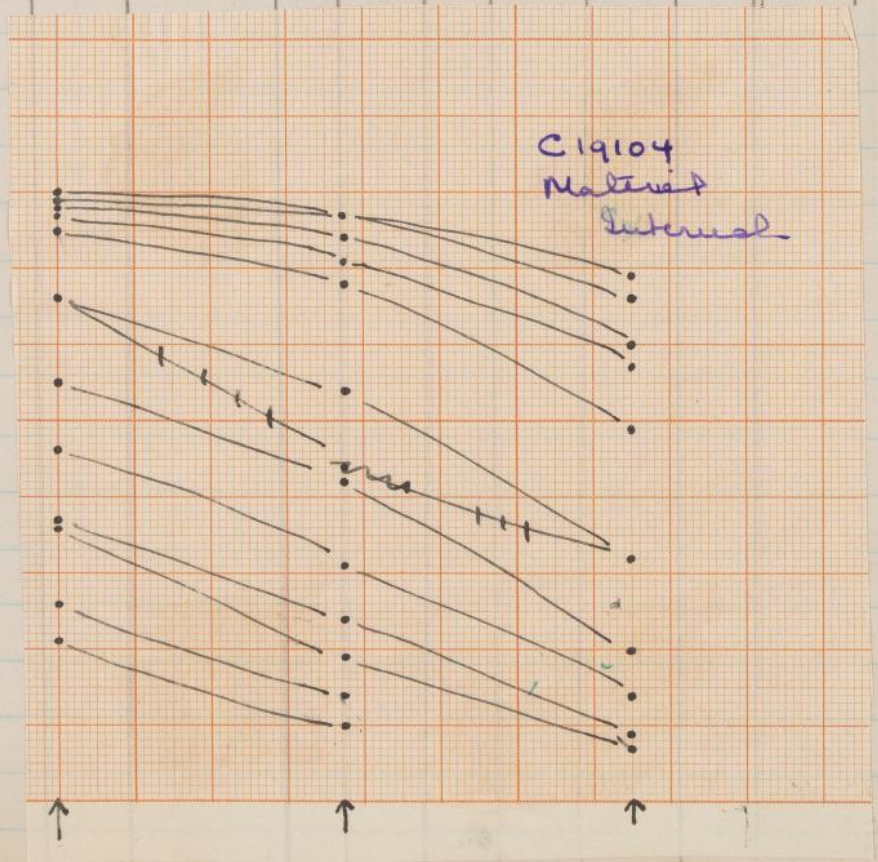
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1924phae.proj.117P

C-19104
Vega No 1
4 @ 1730

Internal and external reductions do not check.
The internal curve is used to examine the external material (violet cut-offs)

Line	n	m+n	4m+n	n̄	m+n	[n̄]	[m+n̄]	dm	dl	Reduced to 82 [m+n]₁	[m+n]₂	[m+n]₃	Mn
β	63	76	81	64	77	173	61			61	51	57	56
γ	64	79	81	65	80	167	8			8	-14	-10	-5
δ	64	78	81	65	79	167	30			30	-14	10	9
ε	55	77	81	56	78	210	48			48	21	42	37
κ	74	76	81	75	77	84	61			61	35	56	
ζ	45	74	81	46	75	256	85			85	73 (+19)	92	
η	32	65	81	32	66	321	161			161 (-17)	144 (+27)	171	
θ	24	54	81	24	55	362	215			215 (-16)	199 (+35)	234	
c	23	45	81	23	46	366	256			256 (-05)	251 (+21)	272	
κ	18	37	81	18	37	396	297			297 (-10)	287	312	
λ	18	36	81	18	36	396	301			301 (+14)	315	342	
μ	16	26	81	16	26	408	349			349 (-6)	348		
ν	15	21	81	15	21	415	379			379 (-5)	378		
ξ	14	19	81	14	19	423	390			390			



Nothing far out but aperture 2 the least consistent. Curve 1, 3 confirms internal curve & is the one used for reduction

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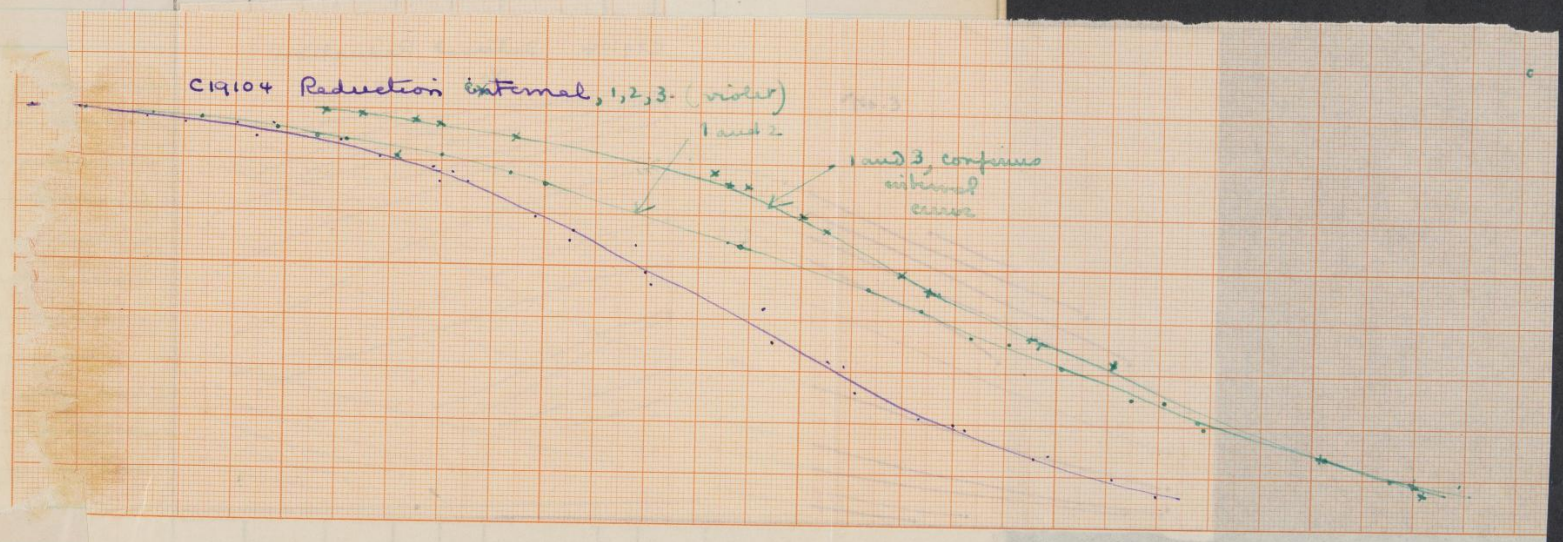
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C19104
Vega - #2
u Φ 1729

do not reduce

Line	n	m+n	l+m+n	ñ	m+n	[n]	[m+n]	dm	dl
β	49	69	80	51	71	233	126		
8	60	75	80	62	77	183	61		
δ	53	74	79	55	77	215	61		
ε	43	71	79	45	74	260	96		
K	65	70	79	68	73	148	110		
3	30	65	79	31	68	326	148		
η	20	42	79	21	54 44	379	219 ~~265~~		
Q	14	40	79	14	42	423	274		
c	11	30	79	11	31	444	326		
K	9	23	78	9	24	462	362		
λ	8	18	78	8	19	472	390		
μ	7	14	78	7	14	492	423		
ν	5	10	78	5	10	520	453		

Please check



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C-19104
Vega No1
u & 1730

✓ Internal and external reductions do not check.
The internal curve is used to examine the external material (weight entries)

line	n	m+n	l+m+n	n	m+n	[n]	[m+n]	dmm	dll	Reduced to 82 [m-n]	[mm]	[mm]	Mn
β	63	76	81	64	77	173	61			61	51	57	56
b	64	79	81	65	80	167	8			8	-14	-10	-5
δ	64	78	81	65	79	167	30			30	-14	10	9
ε	55	77	81	56	78	210	48			48	21	42	37
K	74	76	81	75	77	84	61			61	35	56	
3	45	74	81	46	75	256	85			85	73 (+19)	92	
η	32	65	81	32	66	321	161			161 (+1)	144 (+27)	171	
θ	24	54	81	24	55	362	215			215 (−16)	199 (+35)	234	
c	23	45	81	23	46	366	256			256 (−05)	251 (+21)	272	
K	18	37	81	18	37	396	297			297 (−10)	287	312	
λ	18	36	81	18	36	396	301			301 (+1)	315	322	
μ	16	26	81	16	26	408	349			349 (−1)	348		
ν	15	21	81	15	21	415	379			379 (−1)	378		
3	14	19	81	14	19	423	390			390			

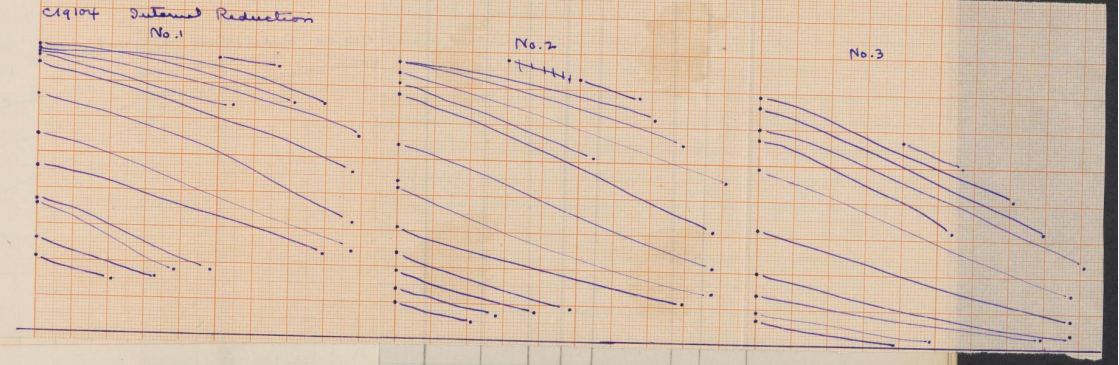
Ring for 5 bursts

C19104
Vega - #2
u & 1729

do not reduce

line	n	m+n	l+m+n	n	m+n	[n]	[m+n]	dmm	dll
β	49	69	80	51	71	233	126		
b	60	75	80	62	77	183	61		
δ	53	74	79	55	77	215	61		
ε	48	71	79	45	74	260	96		
K	65	70	79	68	73	148	110		
3	30	65	79	31	68	326	148		
η	20	42	78	21	44 (54)	379	219 ~~365~~		
θ	14	40	79	14	42	423	274		
c	11	30	79	11	31	444	326		
K	9	23	78	9	24	462	362		
λ	8	18	78	8	19	472	390		
μ	7	14	78	7	14	492	423		
ν	5	10	78	5	10	520	453		

Please check



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1924phae.proj.117P

C 19104
Vega no 3
11h 17.2m

do not reduce

Line	n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	[n]	[m+n]	dec	dl
β	32	58	82	32	57		207		
γ	42	70	82	41	69		140		
δ	32	66	81	32	66		160		
ε	23	60	81	23	60		192		
K	58	57	81	50	57		206		
3	15	49	81	15	49		242		
η	8	32	81	8	32		321		
α	4	20	81	4	20		384		
c	3	14	80	3	14		422		
κ	2	9	80	2	9		462		
x	1	7	80	1	7		492		

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1924phae.proj.111P

C 19104
N Aquilae Reduce to 82
2d 1730

Pair	n	m+n	l+m+n	n̄	m+n	[n-7]/[m+n]		dm	dl
1	37	42	82	37	42	298	274	24	20
2	39	45	82	39	45	288	260	28	23
3	42	47	82	42	47	274	251	23	19
4	46	48	82	46	48	256	246	10	09
5	46	50	82	46	50	256	237	19	16
6	46	54	82	46	54	256	219	37	29
7	39	54	82	39	54	288	219	69	52
8	53	56	82	53	56	224	210	14	12
9	55	58	82	55	58	215	202	13	11
10	56	59	82	56	59	210	196	14	12
11	57	60	82	57	60	206	192	04	04
12	60	62	82	60	62	192	184	08	07
13	58	63	82	58	63	202	178	24	20
14	62	65	82	62	65	184	167	17	14
15	62	65	82	62	65	184	167	17	14
16	65	65	82	65	65	167	167	10	09
17	65	66	82	65	66	167	161	06	05
18	64	66	82	64	66	173	161	12	10
19	62	66	82	62	66	184	161	23	19
20	64	66	82	64	66	173	161	12	10
21	64	66	82	64	66	173	161	12	10
22	64	66	82	64	66	173	161	12	10
23	65	66	82	65	66	167	161	06	05
24	64	66	82	64	66	173	161	12	10
25	65	66	82	65	66	167	161	06	05
26	64	66	82	64	66	173	161	12	10
27	63	66	82	63	66	178	161	17	14
28	64	66	82	64	66	173	161	12	10
29	61	65	82	61	65	188	167	21	18
30	61	65	82	61	65	188	167	21	18

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1924phae.proj.111P

c 19104

Line	n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	$\overline{ln}$	$\overline{m+n}$	dee	dll
31	61	65	82	61	65	188	167	21	18
32	65	65	82	65	65	167	167	00	00
33	61	65	82	61	65	188	167	21	18
34	61	65	82	61	65	188	167	21	18
35	59	65	82	59	65	196	167	29	23
36	59	64	82	59	64	196	173	23	19
37	61	64	82	61	64	188	173	15	13
38	59	64	82	59	64	196	173	23	19
39	60	64	82	60	64	192	173	19	16
40	57	63	82	57	63	206	178	28	23
41	59	63	82	59	63	196	178	18	15
42	56	63	82	56	63	210	178	32	26
43	56	62	82	56	62	210	184	26	21
44	55	62	82	55	62	215	184	31	25
45	57	61	82	57	61	206	188	18	15
46	59	61	82	59	61	196	188	08	07
47	59	61	82	59	61	196	188	08	07
48	55	61	82	55	61	215	188	27	22
49	42	60	82	42	60	274	192	82	53
50	55	60	82	55	60	215	192	23	19
51	53	60	82	53	60	224	192	32	26
52	52	60	82	52	60	228	192	36	28
53	50	59	82	50	59	237	196	41	31
54	48	59	82	48	59	245	196	49	36
55	50	59	82	50	59	237	196	41	31
56	55	59	82	55	59	215	196	19	16
57	52	58	82	52	58	228	202	26	21
58	54	58	82	54	58	219	202	17	14
59	50	57	82	50	57	237	206	31	25
60	51	57	82	51	57	233	206	27	22

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C 1910 4

line	n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	$\overline{l+m}$	$\overline{m+n}$	dm	dl
61	50	57	82	50	57	237	206	31	25
62	45	56	82	45	56	260	210	50	37
63	50	56	82	50	56	237	210	27	22
64	47	55	82	47	55	251	215	36	28
65	47	55	82	47	55	251	215	36	28
66	49	55	82	49	55	242	215	27	22
67	48	55	82	48	55	245	215	30	24
68	45	54	82	45	54	260	219	41	31
69	43	54	82	43	54	269	219	50	37
70	52	54	82	52	54	228	219	09	08
71	50	54	82	50	54	237	219	18	15
72	48	54	82	48	54	245	219	26	21
73	50	54	82	50	54	237	219	18	15
74	47	53	82	47	53	251	224	27	22
75	43	53	82	43	53	269	224	45	34
76	41	53	82	41	53	284	224	40	31
77	46	53	82	46	53	256	224	32	26
78	48	52	82	48	52	245	228	17	14
79	44	52	82	44	52	264	228	36	28
80	30	52	82	30	52	329	228	101	61
81	48	50	82	48	50	245	237	08	07
82	44	50	82	44	50	264	237	27	22
83	37	50	82	37	50	298	237	61	43
84	45	50	82	45	50	260	237	23	19
85	44	50	82	44	50	264	237	27	22
86	42	49	82	42	49	274	242	32	26
87	41	48	82	41	48	279	245	34	27
88	41	48	82	41	47	279	251	28	23
89	45	48	83	44	47	264	251	13	11
90	38	47	83	38	46	298	256	37	29

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Line	n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	$[n]$	$[n+m]$	dec	dl	
91	40	46	83	40	45	284	260	24	20	
92	43	45	83	42	44	274	264	10	09	
93	44	45	83	43	44	269	264	05	04	
94	40	44	83	40	43	284	269	15	13	
95	35	44	83	35	43	306	269	37	29	
96	33	43	83	33	42	316	274	42	32	
97	34	42	83	34	42	311	274	37	29	
98	30	40	83	30	40	329	284	45	34	
99	05	40	83	05	40	054	284	237	~~29~~ 37	89
100	25	36	83	25	36	356	301	55	40	
101	25	36	83	25	36	356	301	55	40	
102	22	34	83	22	34	373	311	62	44	
103	02	32	83	02	32	562	320	242	~~32~~ 33	89
104										
105										
106										
107										
108										
109										
110	9	21	83	09	21	463	379	84	57	
111										
112										
113										
114										
115	3	11	82	03	11	551	444	107	63	

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C 1910 ~~1911~~ ~~1912~~ ~~1913~~ ~~1914~~ ~~1915~~ ~~1916~~ ~~1917~~ ~~1918~~

S Caphei ✓ 4 @ 1731

Reduce to 82 from 88 → 1 − 39 − 46

Line	n	m+n	l+m+n	n̄	m+n	n̄	m+n	due	dl		
1	67	69	87	63	65	178	167	11	10		
2	66	71	87	62	67	184	155	31	25		
3	70	73	87	64	69	173	140	33	26		
4	72	74	87	68	70	148	132	16	14		
5	73	76	88	68	71	148	126	22	18		
6	75	77	88	70	71	132	126	06	05		
7	70	79	88	65	73	167	108	59	42	57	51
8	77	79	88	71	73	126	108	18	15		
9	78	79	88	72	73	118	108	10	09		
10	79	80	88	73	74	108	96	12	10		
11	80	81	88	74	75	96	84	12	10		
12	80	82	88	74	76	96	70	26	21		
13	80	82	88	74	76	96	70	26	21		
14	82	83	88	76	77	70	57	13	11		
15	82	83	88	76	77	70	57	13	11		
16	82	83	88	76	77	70	57	13	11		
17	82	83	88	76	77	70	57	13	11		
18	82	83	88	76	77	70	57	13	11		
19	82	83	88	76	77	70	57	13	11		
20	82	83	87	77	78	57	48	09	08		
21	82	83	87	77	78	57	48	09	08		
22	—	—	—								
23	—	—	—								
24	—	—	—								
25	—	—	—								
26	—	—	—								
27	—	—	—								
28	—	—	—								
29	—	—	—								
30	—	—	—								

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Cig104 δ Cep ✓

Line	n	m+n	l+m+n	$\bar{n}$	m+n	[n]	[m+n]	dm	dl		
31	—	—	—								
32	—	—	—								
33	—	—	—								
34	—	—	—								
35	81	83	87	76	78	70	48	22	18		
36	81	83	87	76	78	70	48	22	18		
37	81	83	87	76	78	70	48	22	18		
38	81	83	87	76	78	70	48	22	18		
39	80	83	87	75	78	84	48	36	28		
40	81	83	87	76	78	70	48	22	18		
41	81	82	87	76	77	70	57	13	11		
42	80	82	87	75	77	84	57	27	22		
43	80	82	87	75	77	84	57	27	22		
44	79	82	87	74	77	96	57	39	30		
45	80	82	87	75	77	84	57	27	22		
46	80	82	87	75	77	84	57	27	22		
47	81	82	87	76	77	70	57	13	11		
48	80	82	87	75	77	84	57	27	22		
49	74	81	87	69	75	140	~~84~~ 70	~~56~~ 70	~~40~~ 48	-10	86
50	80	81	87	75	76	84	70	14	12		
51	80	81	87	75	76	84	70	14	12		
52	79	81	87	74	76	96	70	26	21		
53	79	81	87	74	76	96	70	26	21		
54	76	81	87	71	76	126	70	56	40		
55	78	81	87	73	76	108	70	38	30		
56	80	81	87	75	76	84	70	14	12		
57	79	80	87	74	75	96	84	12	10		
58	79	80	87	74	75	96	84	12	10		
59	79	80	87	74	75	96	84	12	10		
60	78	80	87	73	75	108	84	24	20		

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Line	n	m+n	l+m+n	n	m+n	[n]	[m+n]	diff	dl		
61	78	80	87	73	75	108	84	24	20		
62	76	80	87	71	75	126	84	42	32		
63	78	80	87	73	75	108	84	24	20		
64	77	80	87	72	75	118	84	34	27		
65	77	80	87	72	75	118	84	34	27		
66	78	80	87	73	75	108	84	24	20		
67	78	80	87	73	75	108	84	24	20		
68	76	79	87	71	74	126	96	30	24		
69	75	79	87	70	74	132	96	36	27		
70	78	79	87	73	74	108	96	12	10		
71	78	79	87	73	74	108	96	12	10		
72	76	79	86	72	75	118	84	34	27		
73	77	79	86	73	75	108	84	24	20		
74	76	79	86	72	75	118	84	34	27		
75	74	79	86	73	75	108	84	24	20		
76	73	79	86	69	75	140	84	56	40		
77	75	78	86	71	74	126	96	30	24		
28	75	78	86	71	74	126	96	30	24		
79	76	78	86	72	74	118	96	22	18		
80	66	78	86	63	74	178	96	82	53	10	86
81	77	78	86	73	74	108	96	12	10		
82	75	77	86	71	73	126	108	18	15		
83	70	77	86	66	73	161	108	53	39		
84	75	77	86	71	73	126	108	18	15		
85	75	77	86	71	73	126	108	18	15		
86	74	77	86	70	73	132	108	24	27		
87	72	76	86	69	72	140	118	22	18		
88	74	76	86	70	72	132	118	14	12		
89	75	76	86	71	72	126	118	08	07		
90	71	76	86	67	72	155	118	37	29		

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1924phae.proj.117P

Line	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dn	dl		
91	73	76	86	69	72	140	118	22	18		
92	74	75	86	70	71	132	126	06	05		
93	73	75	86	69	71	140	126	14	12		
94	74	75	86	70	71	132	126	06	05		
95	69	74	86	65	70	167	132	35	28		
96	65	72	86	62	68	184	148	32	26		
97	69	71	86	65	67	167	155	12	10		
98	65	70	86	62	66	184	161	23	19		
99	~~65~~	67	86	~~33~~ 24	63	~~316~~ 361	178	~~128~~ 183	80 69	42	136
100	60	66	86	57	63	206	178	28	23		
101	60	65	86	57	62	206	184	22	18		
102	57	64	86	54	61	219	188	31	25		
103	18	60	86	17	57	402	206	196	84	56	150
104	51	59	86	48	56	245	210	35	28		
105	50	58	86	47	55	251	215	36	28		
106	50	57	86	47	54	251	219	32	26		
107	49	56	86	46	53	256	224	32	26		
108	00	54	86	47	51	251	233	18	15		
109	49	54	86	46	51	256	233	23	19		
110	36	52	86	34	49	311	242	69	47	92	150
115	18	35	86	17	33	402	316	86	55	171	145
116	—	—	—	—	—	—	—	—	—		
117	—	—	—	—	—	—	—	—	—		
118	—	—	—	—	—	—	—	—	—		
119	—	—	—	—	—	—	—	—	—		
120	14	29	86	13	27	429	345	84	54	234 ↓	111

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1924phae.proj.117P

C 19104

Internal checked reduction

0	(593)						
1	582	25	356	49	242	73	108
2	562	26	350	50	237	74	96
3	551	27	345	51	233	75	84
4	538	28	340	52	228	76	70
5	521	29	335	53	224	77	57
6	509	30	329	54	219	78	48
7	497	31	325	55	215	79	30
8	478	32	320	56	210	80	0
9	463	33	316	57	206		
10	453	34	311	58	202		
11	444	35	306	59	196		
12	436	36	301	60	192		
13	429	37	298	61	188		
14	423	38	293	62	184		
15	415	39	288	63	178		
16	408	40	284	64	173		
17	402	41	279	65	167		
18	396	42	274	66	161		
19	390	43	269	67	155		
20	384	44	264	68	148		
21	379	45	260	69	140		
22	373	46	256	70	132		
23	367	47	251	71	126		
24	361	48	246	72	118		

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1924phae.proj.11.2P

C 1962 Transferred to Book 28 with rest of spectrum 67

Vega
α 1708

line	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dm	dl
β	37	61	63						
4	59	61	62						
δ	57	62	62						
ε	53	61	62						
K	61	61	62						
3	46	60	62						
η	35	58	62						
θ	25	52	62						
L	22	45	63						
ι	20	38	63						
λ	19	32	63						
μ	16	21	63						
ν	16	20	63						
	14	17	63						

Reductions: C 19104

from 88

1 - 8	-0
9 - 22	-1
22 - 34	-2
35 - 48	-3
49 - 62	-4
63 - 76	-5
77 - 88	-6

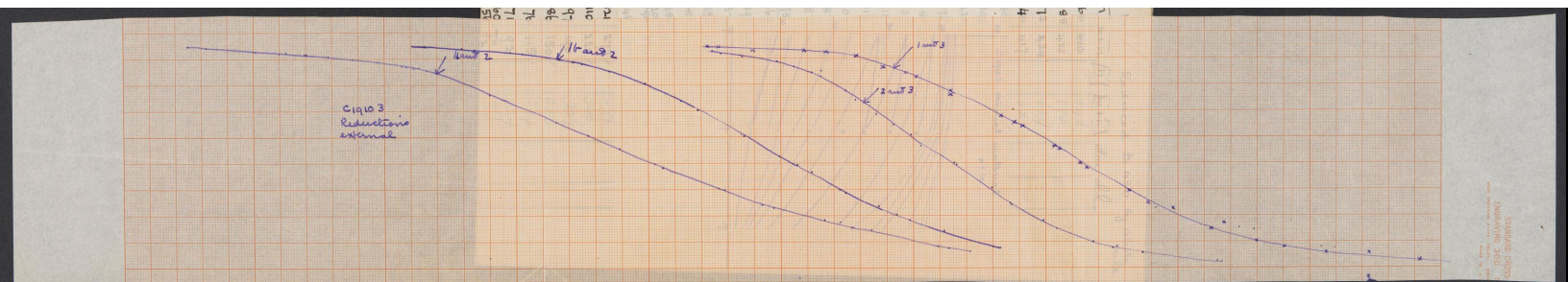
from 87

1 to 7	0
8 to 23	-1
24 to 39	-2
40 to 55	-3
56 to 71	-4
72 to 87	-5

from 86

1 to 9	0
10 to 28	-1
29 to 47	-2
48 to 66	-3
67 - 86	-4

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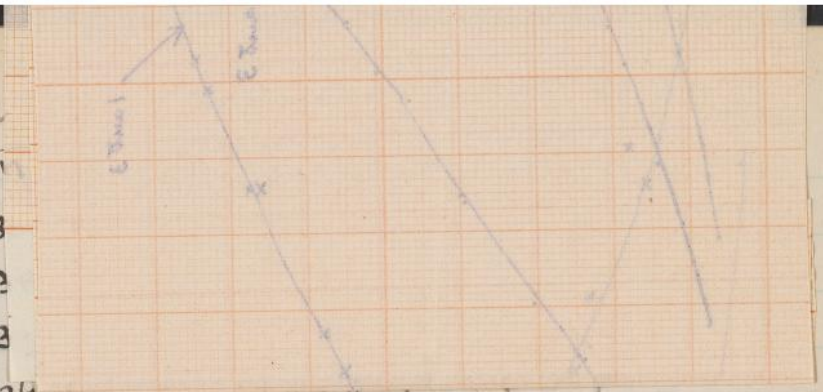
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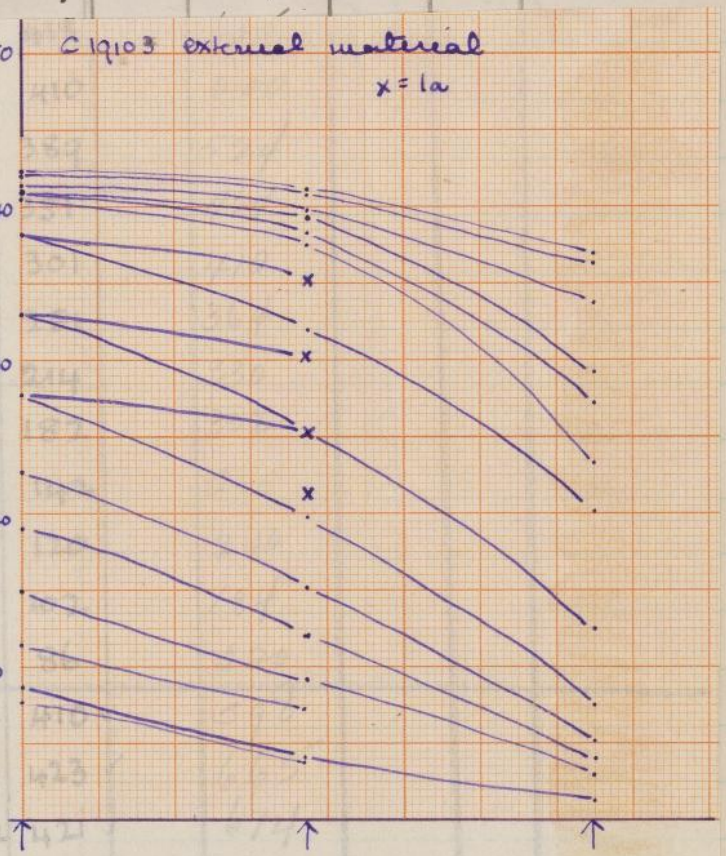
1924phae.proj.11.TP

C 19103 Vega

Line	n'	m+n	l+m+n	
		421	441	
β	376	~~419~~	~~439~~	3
γ	396	429	438	3
δ	381	428	435	3
ε	350	422	432	34
K	410	419		
ι	300	411		
θ	221	388		
η	169	349		
ζ	140	300		
κ	133	250		
λ	110	212		
μ	111	180		
ν	101	141		
ξ	86	119		
ο	86	101		
π	74	85		

Note. Sp. 1a was exposed in error. 1b, 2, 3 are 7, 6, 5 of Aug 1744-1743 and were consecutive exposures. 1a is nearest the meridian. 1b, 2, 3 used for reduction.





Vega 1b	β	376	419				
	γ	397	427				
	δ	374	424				
	ε	338	414				
	K	400	410				
	ι	285	404				
	η	200	375				
	θ	147	329				
	ζ	120	275	426	121	277 ✓	288
	κ	109	225	426	110	227 ✓	343
	λ	96	188	426	97	190 ✓	309
	μ	85	149	426	86	150 ✓	272
	ν	75	114	425	76	115 ✓	244
	ξ	70	91	426	71	92	224
	ο	58	74	425	60	76	211
	π				56	72	205

1 and 2 give an excellent fit down to 150.
The intensity curve is adopted and the values <150 given low wt.

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1924phae.proj.11.TP

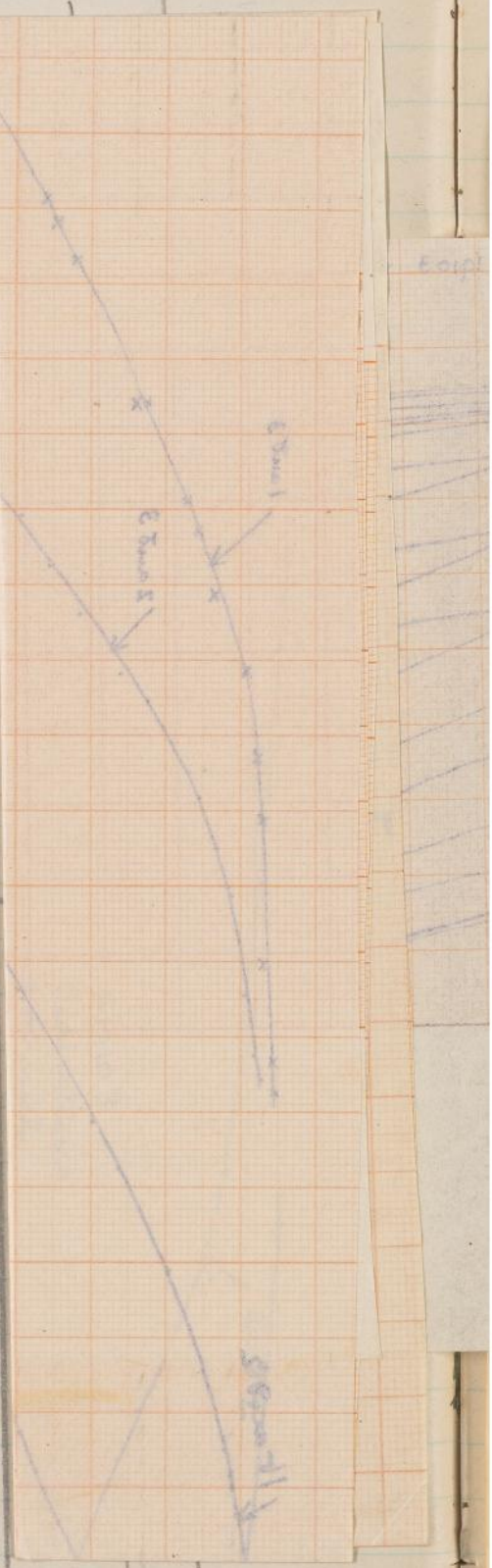
C19103 Vega 1a ✓ Reduced to 430 by slide rule

Line	n	m+n	l+m+n	$\overline{n}$	m+n	[n]	[m+n]	dm	dl
β	376	421	441	366	410		598		
γ	396	429	438	388	421		674		
δ	381	428	435	372	424		684		
ε	350	422	432	346	417		624		
K	410	419	431	409	418		626		
ι	300	411	431	299	410		600		
η	221	388	429	222	389		554		
θ	169	349	428	170	351		464		
ι	140	300	428	140	301		410		
κ	133	250	428	133	251		364		
λ	110	212	427	111	214		330		
μ	111	180	427	112	182		302		
ν	101	141	426	102	142		265		
ξ	86	119	426	87	120		240		
ο	86	101	426	87	102		184		
π	74	85	426	75	86		120		

Note. Sp. 1a was exposed in error. 1b, 2, 3 are 7, 6, 5 of Sup 1744-1743 and were consecutive exposures. 1a is nearest the meridian. 1b, 2, 3 used for reduction

Vega 1b	β	376	419	439	368	410	✓	598	
	γ	397	427	434	393	423	✓	665	
	δ	374	424	433	372	421	✓	674	
	ε	338	414	430	338	414	✓	619	
	K	400	410	429	401	411	✓	599	
	ι	285	404	429	286	405	✓	576	
	η	200	375	429	~~199~~ 201	376	✓	496	
	θ	147	329	428	148	330	✓	439	
	ι	120	275	426	121	277	✓	288	
	κ	109	225	426	110	227	✓	343	
	λ	96	188	426	97	190	✓	309	
	μ	85	149	426	86	150	✓	272	
	ν	75	114	425	76	115	✓	244	
	ξ	70	91	426	71	92		224	
	ο	58	74	425	60	76		211	
	π				56	72		205	

1 and 2 give an excellent fit down to 150.
The sixth curve is adopted and the values <150 given low wt.



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1924phae.proj.11.rp

Vega 2

Line n m+n l+m+n n̄ m+

B 300 378 444 311 30

C1q103

5	-	105	236	205	322	305	414	405	576
10	-	110	240	210	327	310	419	410	598
15	67	115	244	215	331	315	424	415	614
20	94	120	248	220	336	320	429	420	634
25	126	125	252	225	340	325	434	425	670
30	145	130	256	230	345	330	439	430	700
35	160	135	260	235	349	335	444		
40	164	140	264	240	354	340	450		
45	176	145	268	245	358	345	456		
50	182	150	272	250	362	350	462		
55	187	155	276	255	367	355	468		
60	193	160	281	260	372	360	474		
65	199	165	285	265	377	365	480		
70	203	170	290	270	381	370	487		
75	208	175	295	275	386	375	496		
80	213	180	300	280	390	380	502		
85	218 218	185	304	285	395	385	514		
90	223	190	309	290	400	390	526		
95	228	195	313	295	404	395	540		
100	232	200	318	300	408	400	556		

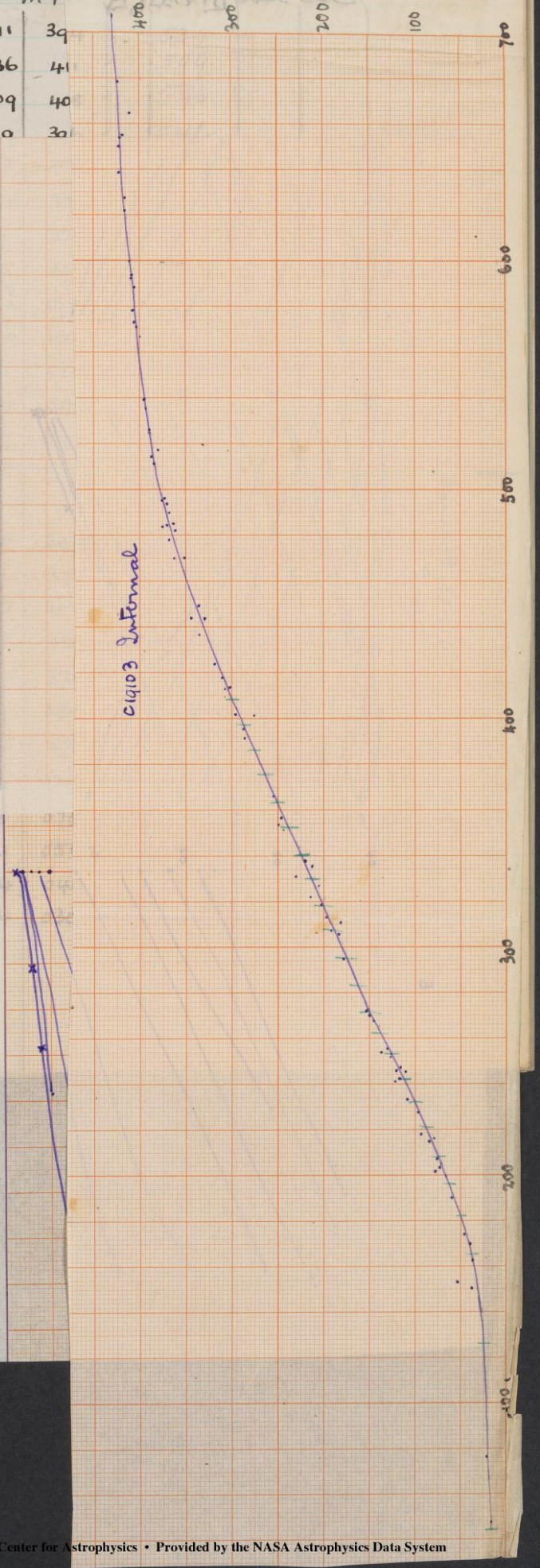
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1924phae.proj.1117P

Vega 2

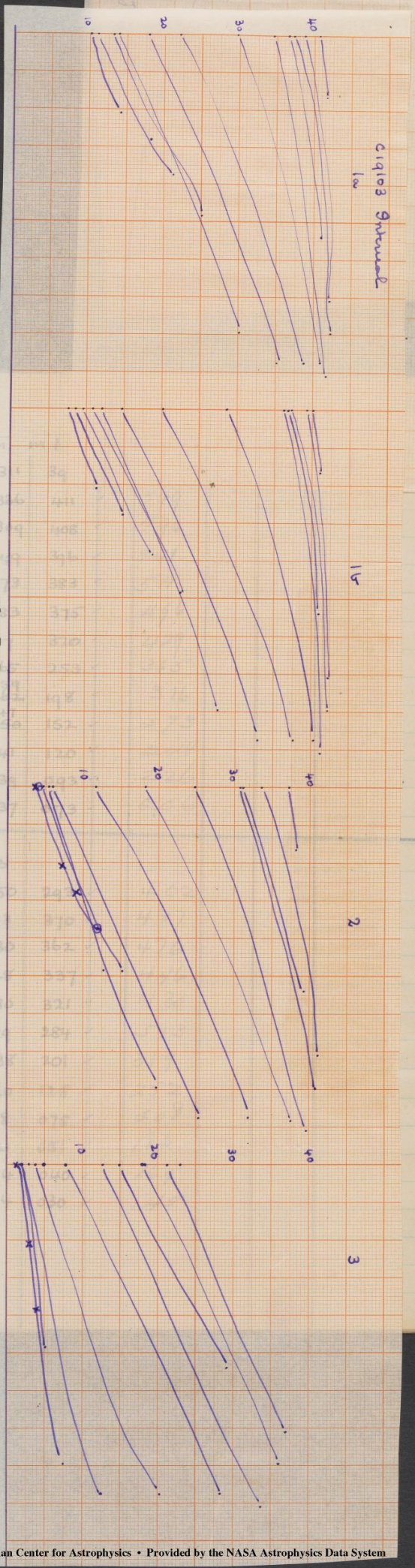
Line	n	m+n	l+m+n	n̄	m+
β	300	378	414	311	39
γ	324	396	414	336	41
δ	298	394	415	309	40
ε	240	382	414	249	39
K	360	379	414	3	
ζ	177	362	415	1	
η	113	310	416	1	
θ	063	245	416	c	
ι	057	191	415	c	
κ	045	147	415	c	
λ	040	116	416	0	
μ	038	090	417	0	
ν	036	071	417	0	

Vega 3				
	040 ?	286	419	e
β	207	361	419	0
γ	176	353	420	2
δ	125	330	421	1
ε				1
K	274	314	421	2
ζ	175 ?	278	421	1
η	037	197	422	0
θ	020	123	423	0
ι	018	074	423	0
K	021	050	422	0
λ	014	039	422	0
μ	014	029	422	0



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Vega 2

Line	n	m+n	l+m+n	
β	300	378	414	
γ	324	396	414	
δ	298	394	415	
ε	240	382	414	2
K	360	379	414	3
ζ	177	362	415	1
η	113	310	416	1
θ	063	245	416	0
ι	057	191	415	0
κ	045	147	415	0
λ	040	116	416	0
μ	038	090	417	0
ν	036	071	417	0

Vega 3				
	049 ?	286	419	0
β	207	361	419	0
γ	176	353	420	2
δ	125	330	421	1
ε				1
K	274	314	421	2
ζ	175 ?	278	421	1
η	037	197	422	0
θ	020	123	423	0
ι	018	074	423	0
K	021	050	422	0
λ	014	039	422	0
μ	014	029	422	0

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Vega 2

Line	n	m+n	l+m+n	$\bar{n}$	m+		
β	300	378	414	311	394	✓	539
γ	324	396	414	336	411	✓	599
δ	298	394	415	309	408	✓	596
ε	240	382	414	249	396	✓	541
K	360	379	414	373	383	✓	511
ζ	177	362	415	183	375	✓	496
η	113	310	416	117	320	✓	429
ϑ	063	245	416	065	253	✓	365
ι	057	191	415	059 ~~062~~	198	✓	316
κ	045	147	415	047 ~~050~~	152	✓	273
λ	040	116	416	041	120	✓	248
μ	038	090	417	039	093	✓	226
ν	036	071	417	037	073	✓	206

Vega 3

	049?	286	419	~~05~~			
β	207	361	419	050?	293	✓	402
γ	176	353	420	213	370	✓	487
δ	125	330	421	180	362	✓	476
ε				128	337	✓	446
K	274	314	421	280	321	✓	430
ζ	175?	278	421	179	284	✓	513
η	037	197	422	038	201	✓	319
ϑ	020	123	423	020	125	✓	252
ι	018	074	423	018	075	✓	208
K	021	050	422	021	051	✓	183
λ	014	039	422	014	040	✓	169
μ	014	029	422	014	030	✓	145

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70

C 19.03 M Q 1743

π Sagittarii

Reduce to 1430

Line	#	h	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dm	dl
	1	245	260	410	260	275	209	200	09	08
	2	250	270	410	265	285	206	194	12	10
	3	245	273	410	260	290	209	191	18	15
	4	275	280	410	290	295	191	189	02	02
	5	280	300	410	295	315	189	174	15	13
	6	280	310	410	295	325	189	172	17	14
4861	7	230	315	410	240	330	354	439	85	54
	8	—	—	—						
	9	—	—	—						
	10	—	—	—						
	11	—	—	—						
	12	—	—	—						
	13	—	—	—						
	14	—	—	—						
	15	—	—	—						
	16	—	—	—						
	17	—	—	—						
	18	—	—	—						
	19	—	—	—						
	20	—	—	—						
	21	—	—	—						
	22	—	—	—						
	23	—	—	—						
	24	—	—	—						
	25	—	—	—						
	26	—	—	—						
	27	—	—	—						
	28	—	—	—						
	29	—	—	—						
	30	—	—	—						

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C 19103

	Line n	m+n	b+m+n	n̄	m+n̄	b+m+n̄	n̄+m+n	dn	dl
	31	—	—	—	—	—	—		
	32	—	—	—	—	—	—		
	33	—	—	—	—	—	—		
	34	—	—	—	—	—	—		
	35	350	360	405	370	380	487	502	15 18
	36	350	360	405	370	380	487	502	15 13
	37	350	360	405	370	380	487	502	15 13
	38	350	360	405	370	380	487	502	15 13
	39	350	360	405	370	380	487	502	15 13
	40	340	355	405	360	375	474	496	22 18
	41	350	355	405	370	375	487	496	09 08
	42	345	355	405	365	375	480	496	16 14
	43	340	350	400	365	380	480	502	22 18
	44	340	350	400	365	380	480	502	22 18
	45	340	350	400	365	380	480	502	22 18
	46	340	350	400	365	380	480	502	22 18
	47	340	350	400	365	380	480	502	22 18
	48	320	350	400	345	380	456	502	46 34
4340	49	270	350	400	290	380	4001	502 480	902 61
	50	330	350	400	355	380	468	502	34 27
	51	340	350	400	365	380	480	502	22 18
	52	330	350	400	355	380	468	502	34 27
	53	320	340	400	345	365	456	480	24 20
	54	320	340	400	345	365	456	480	24 20
	55	320	340	400	345	365	456	480	24 20
	56	330	340	400	355	365	456	480	24 20
	57	330	340	400	355	365	456	480	24 20
4460	58	330	340	400	355	365	456	480	24 20
	59	320	335	400	345	360	456	474	18 15
	60	320	335	400	345	360	456	474	18 15

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C 19103

	Line	n	m+n	l+m+n	$\bar{n}$	m+n	$\hat{n}^2$	m+n	Small	
	61	320	335	400	345	360	456	474	18	15
	62	310	330	400	335	355	434	468	34	27
	63	320	330	400	345	355	456	468	12	10
	64	310	330	400	335	355	444	468	24	20
4402	65	310	330	400	335	355	444	468	24	20
4498	66	310	330	400	335	355	444	468	24	20
	67	300	325	400	325	350	434	462	28	23
	68	300	325	400	325	350	434	462	28	23
	69	300	325	400	325	350	434	462	28	23
	70	310	325	400	335	350	444	462	18	15
	71	310	320	400	335	345	444	456	12	10
	72	300	320	400	326	345	434	456	22	18
	73	310	320	400	335	345	444	456	12	10
	74	305	320	400	330	345	430	456	26	21
4132	75	290	315	400	315	340	424	450	26	21
	76	300	315	400	325	340	434	450	16	14
	77	300	315	400	325	340	434	450	16	14
	78	300	315	400	325	340	434	450	16	14
	79	280	310	400	300	335	408	444	36	28
4101	80	200	310	400	215	335	331	444	113	65
	81	290	310	400	315	335	424	444	20	17
	82	280	310	400	300	335	408	444	36	28
4077	83	270	305	400	290	330	401	439	39	30
4072	84	290	305	400	315	330	424	439	15	13
	85	285	300	400	305	325	414	434	20	17
4064	86	280	300	400	300	325	408	434	26	21
	87	280	300	400	300	325	408	434	26	21
4046	88	275	300	400	295	325	404	434	30	24
	89	290	295	400	315	320	424	429	05	04
4005	90	260	290	400	280	315	390	424	34	27
	91	270	280	400	290	300	400	408	08	07

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C 19103
π Sagittarii

Line	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dm	dl
	92	280	280	400	300	300	408	408	00	
	93	270	275	400	290	295	400	404	04	04
	94	270	275	400	290	295	400	404	04	04
4005	95	250	270	400	270	290	381	400	19	16
	96	250	260	400	270	280	381	395	14	12
	97	240	253	400	260	275	372	386	14	12
	98	230	250	400	250	270	362	381	19	16
3970	99	35	240	400	40	260	169	372	213	86
	100	200	230	400	215	250	331	362	31	25
	101	200	220	400	215	240	331	354	23	19
	102	200	220	400	215	240	331	354	23	19
3933	103	15	210	400	15	225	67	340	273	92
	104	180	200	400	195	215	313	331	18	15
	105	180	190	400	195	205	313	322	09	08
	106	—	—	—						
	107	—	—	—						
	108	—	—	—						
	109	—	—	—						
	110	65	160	400	70	170	203	290	87	55
	111	—	—	—						
	112	—	—	—						
	113	—	—	—						
	114	—	—	—						
	115	25	90	400	25	95	126	228	102	61
	116	—	—	—						
	117	—	—	—						
	118	—	—	—						
	119	—	—	—						
	120	10	50	395	10	60	—	193	—	
	121	—	—	—						

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C 19103
π Sagittarii

Line	n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	$[\bar{n}][\overline{m+n}]$	$d\omega\, dl$
122	—	—	—				
123	—	—	—				
124	—	—	—				
125	10	40	390	10	40	—	169

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c 19103
ν Sagittarii

Line	n	m+n	l+m+n	n̄	m+n̄	l+m+n̄	dev dl
β	150	190	430	150	190		
4471	220	230	430	220	230		
δ	190	235	430	190	235		
4144	160	195	420	165	200		
δ	140	190	420	145	195		
4026	135	165	420	140	170		
ε	70	140	420	70	145		
κ	70	110	420	70	105		
ζ	50	80	420	50	80		

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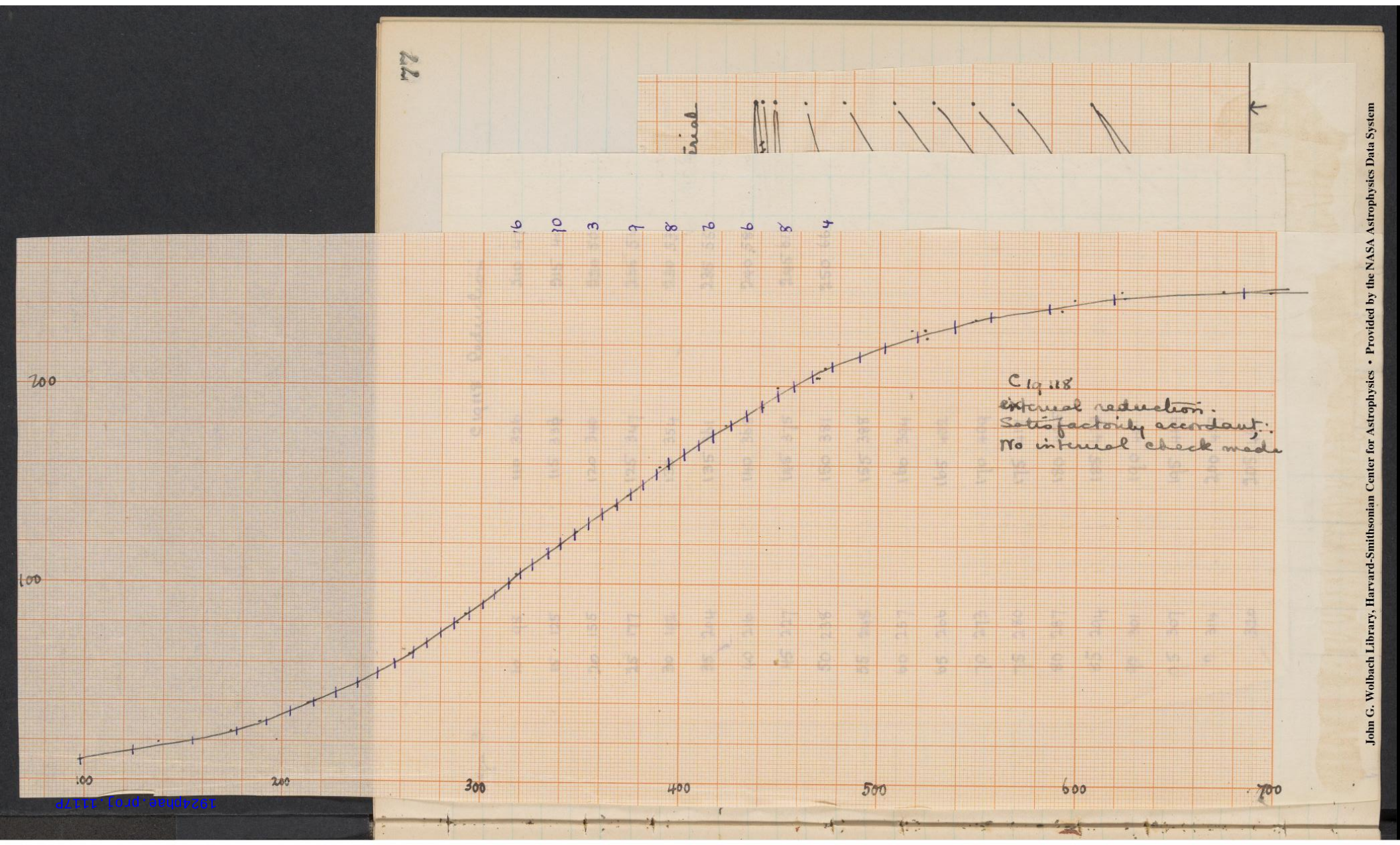
✓

C 19118 δ Cephei, η Aquilae . Reduced to 250

	Line	n	mm	lmm	n̄	m̄m	[η]	[mtm]	dm	dl
Vega 1	β	115	200	240	120	210	340	476	136	71
	γ	155	230	245	160	235	394	556	162	77
	δ	130	230	250	130	230	354	538	184	82
	ε	100	220	250	100	220	314	503	189	82
	κ	190	210	250	190	210	441	476	35	28
	ζ	60	190	250	60	190	257	441	184	82
	η	30	~~145~~ 145	250	30	145	192	375	183	81
	θ	20	105	250	20	105	155	320	165	78
	ι	15	70	250	15	70	125	266	141	73
	κ	15	50	250	15	50	125	238	113	65
	λ	20	40	250	20	40	155	216	61	43
	μ	10	30	250	10	30	98	192	94	58
	ν									
Vega 2	β	230	245	255	215	240	490	586	96	59
	γ	240	255	255	235	250	556	664	108	63
	δ	230	250	255	225	245	519	618	99	60
	ε	210	250	255	205	245	466	618	152	75
	κ	245	250	255	240	245	586	618	32	26
	ζ	175	245	255	170	240	409	586	177	80
	η	140	230	255	135	225	361	519	158	77
	θ	110	210	255	110	205	326	466	140	72
	ι	95	185	255	95	~~250~~ 180	307	425	118	66
	κ	85	160	255	85	160	294	394	100	60
	λ	80	140	255	80	140	287	368	81	53
	μ	80	120	255	80	120	287	340	53	39
	ν	75	100	255	75	100	280	314	34	27

Mean Vega				
476	586	235	1297	432
556	664	250	1470	490
538	618	245	1401	467
503	618	245	1366	455

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1924phae.proj.11??p

Vega 3

C 1918 Reduction

β	10	98	110	326	210	476
γ	15	125	115	338	215	490
δ	20	155	120	340	220	503
ε	25	177	125	347	225	519
κ	30	192	130	354	230	538
ζ	35	204	135	361	235	556
η	40	216	140	368	240	586
θ	45	227	145	375	245	618
ι	50	238	150	381	250	664
κ	55	248	155	388		
λ	60	257	160	394		
μ	65	266	165	402		
ν	70	273	170	409		
	75	280	175	417		
	80	287	180	425		
	85	294	185	433		
	90	301	190	441		
	95	307	195	449		
	100	314	200	457		
	105	320	205	466		

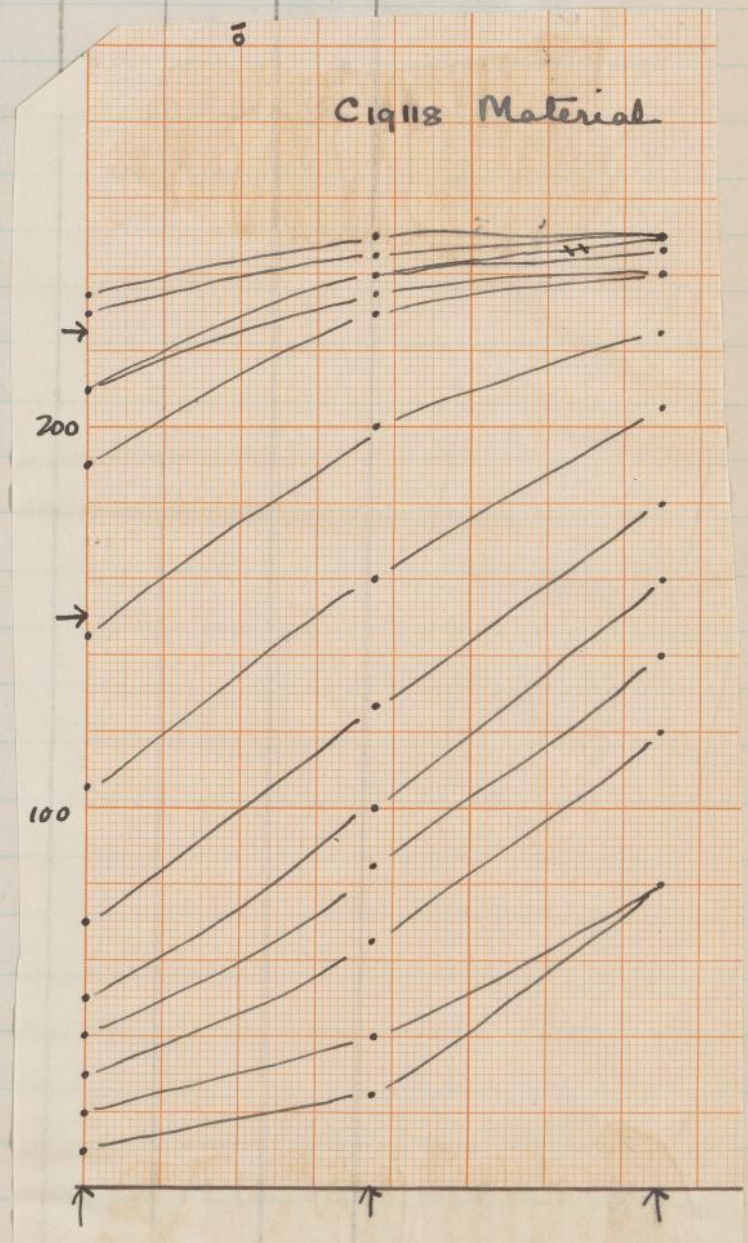
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C1918

Vega 3

	n	mm	[illegible]	$\bar{n}$	$\bar{mm}$	[n]	[mm]	dm	dl
β	195	255	270	180	235				
γ	225	270	270	210	250				
δ	205	265	275	190	245				
ε	170	265	275	155	245				
κ	250	260	275	230	240				
ζ	125	250	275	115	230				
η	90	215	275	85	200				
θ	60	170	275	55	160				
ι	45	135	275	40	125				
κ	35	110	275	30	100				
λ	35	90	275	30	85				
μ	25	70	275	25	65				
ν	30	55	275	30	50				



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1924phae.proj.11.17P

C1911.8 δ Cephei

Line	n	mtn	ltmtn	$\bar{n}$	$\overline{mtn}$	[n]	[mtn]	dm	dl
1	130	150	260	120	145	347	375	28	23
2	140	160	260	140	155	368	388	20	17
3	150	160	260	145	155	325	388	13	11
4	155	160	260	150	155	381	388	07	06
5	160	175	260	155	170	388	409	21	18
6	170	185	260	165	180	402	425	23	19
	160	190	260	160	185	394	433	39	30
7	~~165~~	~~200~~	~~275~~	~~150~~	~~180~~	~~381~~	~~425~~	~~44~~	~~33~~
8	185	195	260	180	190	425	441	16	14
9	190	200	260	185	190	433	441	08	07
10	190	200	260	180	190	425	441	16	14
11	195	200	260	190	195	441	449	08	07
12	210	220	260	205	215	466	490	24	20
13	210	220	260	205	215	466	490	24	20
14	210	230	260	205	220	466	503	37	29
15	215	230	260	210	220	476	503	27	22
16	215	230	260	210	220	476	503	27	22
17	220	230	260	215	220	490	503	13	11
18	220	230	260	215	220	490	503	13	11
19	210	230	260	205	220	466	503	37	29
20	220	230	260	205	220	466	503	37	29
21	220	230	260	205	220	466	503	37	29
22	—	—	—						
23	—	—	—						
24	~~220~~	~~230~~	~~255~~						
25	220	230	255	215	225	490	519	29	23
26	220	230	255	215	225	490	519	29	23
27	220	230	255	215	225	490	519	29	23
28	220	230	255	215	225	490	519	29	23
29	220	230	255	215	225	490	519	29	23
30	215	230	255	210	225	476	519	29	23

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1924phae.proj.114P

C 19118

Line	n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	[n]	[m+n]	dm	dl
31	215	230	255	210	225	476	519	43	33
32	230	230	255	225	225	519	519	00	00
33	215	230	255	210	225	476	519	43	33
34	215	230	255	210	225	476	519	43	33
35	210	230	255	205	225	466	519	53	39
36	210	220	255	205	215	466	490	24	20
37	210	220	255	205	215	466	490	24	20
38	210	220	255	205	215	466	490	24	20
39	210	220	255	205	215	466	490	24	20
40	210	220	255	205	215	466	490	24	20
41	200	215	250	200	215	457	490	33	26
42	205	210	250	205	210	466	476	10	09
43	200	210	250	200	210	457	476	19	16
44	—	—	—		—				
45	200	210	250	200	210	457	476	19	16
46	210	210	250	210	210	476	476	00	00
47	210	210	250	210	210	476	476	00	00
48	200	210	250	200	210	476	476	00	00
49	~~190~~ 200	~~210~~ 225	~~250~~ 270	~~180~~ 180	210	~~425~~ ~~433~~	476	~~39~~ ~~43~~ 51	37 ~~33~~
50	200	205	250	200	205	457	466	09	08
51	190	205	250	190	205	441	466	25	21
52	175	205	250	175	205	417	466	49	36
53	160	205	250	160	205	394	466	72	48
54	155	200	250	155	200	388	457	69	47
55	180	200	250	180	200	425	457	32	26
56	190	200	250	190	200	441	457	16	14
57	190	200	250	190	200	441	457	16	14
58	190	200	250	190	200	441	457	16	14
59	185	195	250	185	195	433	449	16	14
60	180	195	250	180	195	425	449	24	20
61	180	195	250	180	195	425	449	24	20

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1924phae.proj.111P

c 1918

Line	n	mm	l mm	ñ	mm	[n]	[mm]	dm	dl
62	175	190	250	175	190	417	441	24	20
63	180	190	250	180	190	425	441	16	14
64	170	190	250	170	190	409	441	32	26
65	170	190	250	170	190	409	441	32	26
66	170	190	250	170	190	409	441	32	26
67	165	190	250	165	190	402	441	39	30
68	165	190	250	165	190	402	441	39	30
69	160	190	250	160	190	394	441	47	35
70	180	190	250	180	190	425	441	16	14
71	175	185	250	175	185	417	433	16	14
72	175	185	250	175	185	417	433	16	14
73	180	185	250	180	185	425	433	08	07
74	170	185	250	170	185	409	433	24	20
75	165	185	250	165	185	402	433	31	25
76	170	185	250	170	185	409	433	24	20
77	170	185	250	170	185	409	433	24	20
78	170	185	250	170	185	409	433	24	20
79	170	185	250	170	185	409	433	24	20
80	150	185	250	150	185	381	433	~~48~~ 57	~~36~~ 38
81	175	180	250	175	180	417	425	08	07
82	160	180	250	160	180	~~394~~ 417	425	21	18
83	130	180	250	130	180	354	425	71	48
84	145	175	250	145	175	375	417	42	32
85	150	175	250	150	175	381	417	36	28
86	150	175	250	150	175	381	417	36	28
87	160	175	250	160	175	394	417	23	~~18~~ 19
88	160	170	250	160	170	394	409	15	13
89	160	170	250	160	170	394	409	15	13
90	155	170	250	155	170	388	409	21	18
91	150	160	250	150	160	381	394	13	11

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S Caphri

C 19 118

Line	n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	[n]	[m+n]	dm	dl
92	160	170	250	160	170	394	409	15	13
93	~~165~~	~~165~~	250	165	165	402	402	00	00
94	160	160	250	160	160	394	394	00	00
95	140	160	250	140	160	368	394	26	21
96	130	150	250	130	150	354	381	27	21
97	140	150	250	140	150	368	381	13	11
98	130	150	250	130	150	354	381	27	18
99	65	135	250	65	135	265	360	~~105~~ 95	~~62~~ 58
100	90	130	250	90	130	301	354	53	39
101	110	130	250	110	130	326	354	28	23
102	90	130	250	90	130	301	354	~~43~~ 96	33 ~~59~~
103	50	115	245	50	115	238	334	~~104~~	~~62~~

For η Aquilae
see p. 116

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82

x4064 x Carinae

Reduce to 107

m = 5.9z

line	n	mtn	l.mtn	$\bar{n}$	mtn	[n]	[mtn]	dm	dl
1	75	80	105	77	82	104	86	18	15
2	70	83	105	71	95	122	30	92	57
3	80	84	105	82	96	86	22	64	44
4	82	85	105	84	87	79	66	13	11
5	80	87	105	82	89	86	57	29	23
6	83	88	105	85	90	75	53	22	18
7	76	89	105	78	91	100	48	52	38
8	87	90	105	89	92	57	44	23	19
9	90	92	105	92	94	44	34	10	09
10	89	93	105	91	95	48	30	18	15
11	91	94	105	93	96	39	22	17	14
12	93	95	105	95	97	30	17	23	19
13	91	96	105	93	98	39	10	29	23
14	95	97	105	97	99	17	04	13	11
15	95	98	105	97	100	17	−3	20	17
16	—	—	—						
17									
18	—	—	—						
19	93	98	105	95	100	30	−3	33	26
20	95	98	105	95	100	30	−3	33	26
21	96	98	105	98	100	10	−3	13	11
22	96	98	105	98	100	10	−3	18	11
23	96	98	105	98	100	10	−3	13	11
24	96	99	105	98	101	10	−16	26	21
25	96	99	106	97	100	17	−3	20	17
26	95	99	106	96	100	22	−3	25	28
27	93	99	106	94	100	34	−3	37	29
28	94	99	106	95	100	30	−3	33	26
29	92	99	106	93	100	39	−3	42	32
30	93	99	106	94	100	34	−3	37	29

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K 4064

Linie	n	n+m+n	h+m+n	$\bar{n}$	$\bar{n}+m+\bar{n}$	[n]	[n+m+n]	dm	dl
31	93	99	106	94	100	34	-3	37	29
32	97	99	106	98	100	10	-3	13	11
33	92	100	106	93	101	39	-16	55	40
34	94	100	106	95	101	30	-16	46	34
35	91	100	106	92	101	44	-16	60	42
36	92	100	106	93	101	39	-16	55	40
37	91	100	106	92	101	44	-16	60	42
38	87	100	106	88	101	61	-16	77	51
39	93	100	106	94	101	34	-16	50	37
40	95	100	106	96	101	22	-16	38	30
41	91	100	106	92	101	44	-16	60	42
42	89	99	106	90	100	53	-3	56	40
43	89	99	106	90	100	53	-3	56	40
44	84	99	106	85	100	75	-3	78	51
45	91	99	106	92	100	44	-3	47	35
46	92	99	106	93	100	39	-3	42	32
47	94	99	106	95	100	30	-3	33	26
48	90	98	106	91	99	48	04	44	33
49	79	98	106	80	99	94	04	90	56
50	93	98	106	94	99	34	04	30	24
51	83	98	106	84	99	79	04	35	28
52	82	97	106	83	98	82	10	72	48
53	86	97	106	87	98	66	10	56	40
54	79	97	106	80	98	94	10	84	54
55	84	97	106	85	98	75	10	65	45
56	91	96	106	92	97	44	17	27	22
57	83	96	106	84	97	79	17	62	44
58	91	96	106	92	97	44	17	27	22
59	87	95	106	88	96	61	22	39	30
60	83	95	106	84	96	79	22	57	41

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* 4064 * Carinae

Linie	n	mon	l mon	ñ	mon	[n]	[mon]	dm	dl
61	82	95	106	83	96	82	22	60	42
62	81	95	106	82	96	86	22	64	44
63	85	95	106	86	96	70	22	58	41
64	84	95	106	85	96	75	22	53	39
65	80	95	106	81	96	90	22	68	46
66	84	94	107	84	94	79	34	45	34
67	84	94	107	84	94	79	34	45	34
68	75	94	107	75	94	110	34	76	50
69	70	94	107	70	94	125	34	91	57
70	87	94	107	87	94	66	34	32	26
71	85	94	107	85	94	75	34	41	31
72	83	94	107	83	94	82	34	48	36
73	83	93	107	83	93	82	39	43	33
74	77	93	107	77	93	104	39	65	45
75	76	93	107	76	93	107	39	68	46
4132 76	70	93	107	70	93	125	39	86	55
77	76	93	107	76	93	107	39	68	46
78	72	92	107	72	92	119	44	75	50
79	78	92	107	78	92	100	44	56	40
80	74	92	107	74	92	113	44	69	47
81	81	91	107	81	91	90	48	42	32
82	76	91	107	76	91	107	48	59	42
83	60	91	107	60	91	156	48	108	63
84	73	91	107	73	91	116	48	68	46
85	70	90	107	70	90	125	53	72	48
86	73	89	107	73	89	116	57	59	42
87	73	88	107	73	88	116	61	55	40
88	70	87	107	70	87	125	66	59	42
89	75	87	107	75	87	110	66	44	33
4006 90	58	85	107	58	85	162	75	87	55

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κ 4064 κ Carinae

	Line	n	m+n	l+m+n	$\bar{n}$	m+n	[n]	[m+n]	dm	dl
	91	70	82	107	70	82	125	86	39	30
	92	67	82	107	67	82	133	86	47	35
	93	77	81	107	77	81	104	90	14	12
4005	94	69	79	107	69	79	127	97	30	24
	95	58	76	107	58	76	162	107	55	40
	96	53	74	107	53	74	178	113	65	45
	97	51	70	107	51	70	184	125	59	42
	98	46	67	107	46	67	200	133	67	46
	99	0	60	107	0	60	?450	156	?300	?94
	100	32	58	107	32	58	238	162	76	50
	101	23	53	107	23	53	264	178	86	53
	102	20	50	107	20	50	273	188	85	54
	103	0	44	107	0	44	?450	205	?>250	>90
	104	15	40	107	15	40	299	216	83	53
	105	19	40	107	19	40	277	216	61	43
	106	19	37	107	19	37	277	225	52	38

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μφ

1525

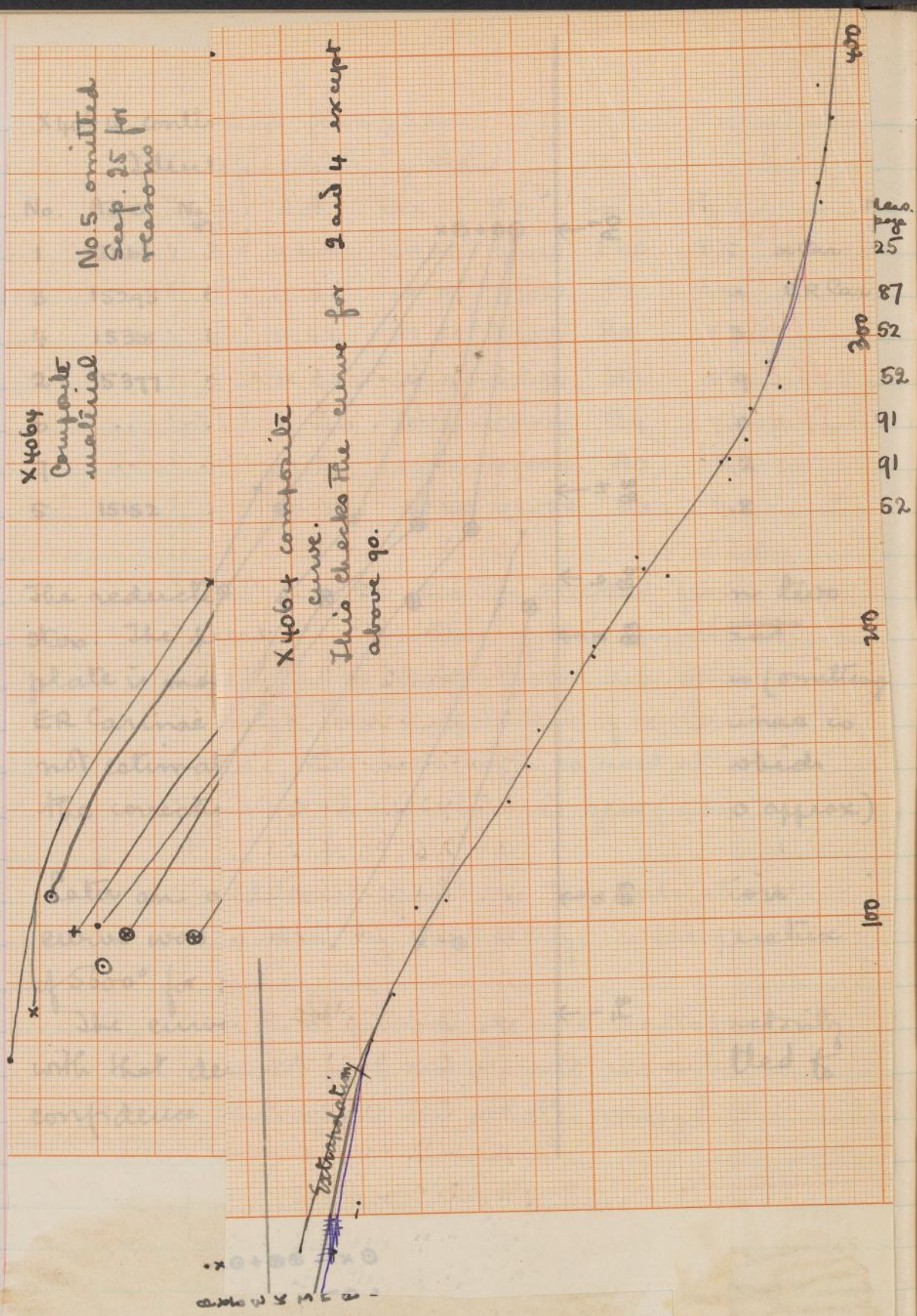
1526

1528

No.5 omitted Sept. 25 for reasons

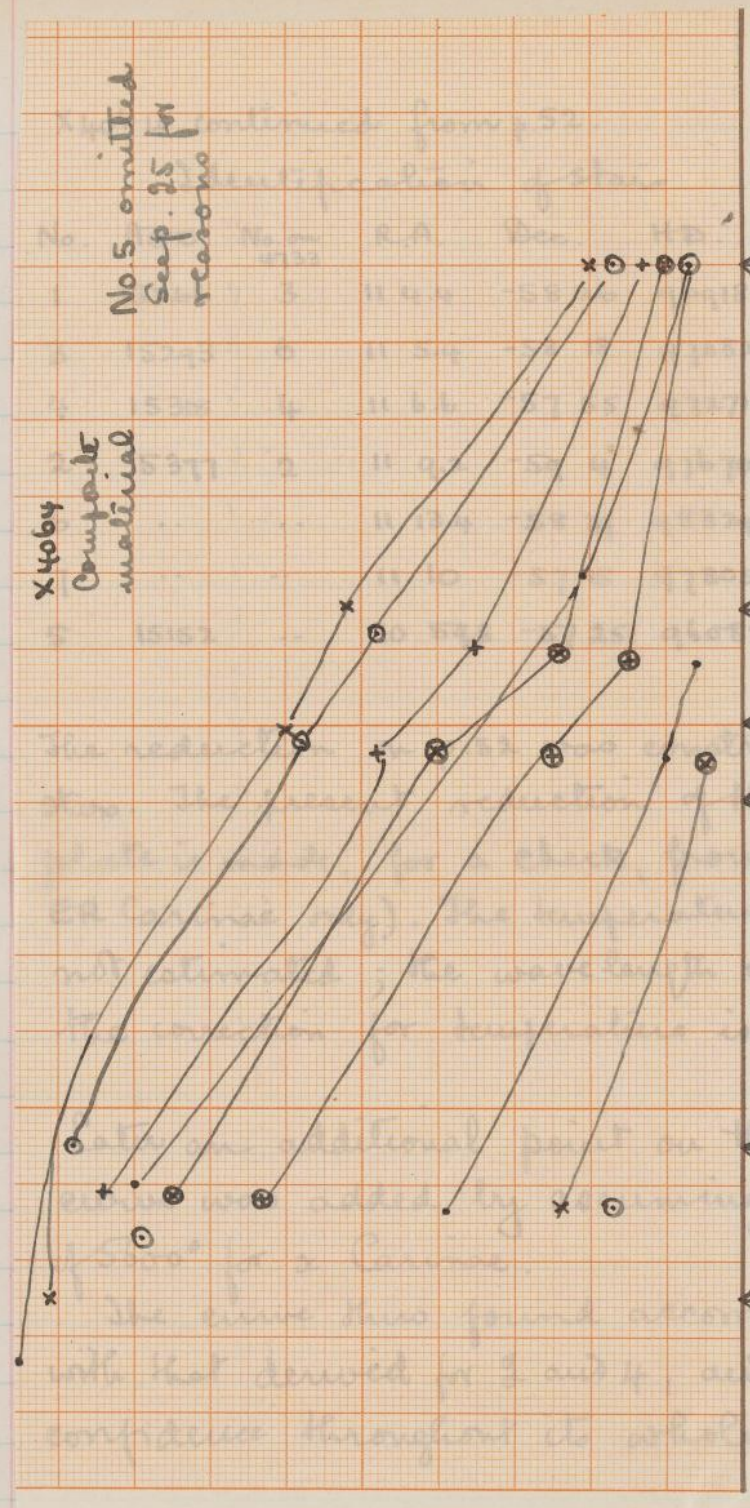
X406y Computed unutilized

X406y + composite curve. This checks The curve for 2 and 4 except above 90.



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1924phae.proj.117P



μ Cep

1525

1526

1528

Meas. pairs

5.92 x Car 25

now ER Car 87

3 7.24 52

9 5.84 52

0 6.97 91

2 91

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1924phae.proj.11.1P

X4064 continued from p.52.

Identification of stars

μ cep	No.	AGC	No. on 4733	R.A.	Dec.	HD.	Sp.	Pg		Mens. page
	1	15266	3	11 4.4	-58 26	96918	F8p	5.5	5.92 x Car	25
1525	3	15293	6	11 5.4	-58 18	97082	F8	var	var ER Car	87
	4	15318	4	11 6.6	-57 55	97271	B8	7.3	7.24	52
	2	15377	2	11 9.2	-59 4	97670	B3	5.9	5.84	52
1526	6	..	..	11 13.4	-58 29	98329	B9	7.0	6.97	91
1528	7	..	..	11 10	-57 15	97805	A0	8.2		91
	5	15152	..	10 59.8	-57 25	96088	B3	6.8		52

The reduction on p.52 was constructed from two stars. The present reduction of this ~~important~~ plate is made, for a check, from six stars (omitting ER Carinae only). The temperature of x Carinae is not estimated; the wavelength is used at which the correction for temperature is zero (4340 approx.)

Later an additional point on the reduction curve was added by assuming a temperature of 5600° for x Carinae.

The curve thus found accords satisfactorily with that derived for 2 and 4, and is entitled to confidence throughout its whole range.



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1924phae.proj.117P

x4064

Composite Reduction

Reduced to 107

3	410	27	252	51	184	75	110
4	398	28	249	52	181	76	107
5	382	29	246	53	178	77	104
6	365	30	244	54	174	78	100
7	355	31	241	55	172	79	97
8	344	32	238	56	168	80	a..
9	336	33	236				
10	330	34	233				
11	322	35	230				
12	316	36	228				
13	310	37	225				
14	304	38	222				
15	299	39	219				
16	292	40	216				
17	286	41	214				
18	281	42	211				
19	277	43	208				
20	273	44	205				
21	270	45	202				
22	267	46	200				
23	264	47	197				
24	260	48	193				
25	258	49	190				
26	255	50	188				

x-4064 From composite reduction Bk 29 p 86

0 94
20 = 92.5
40 = 91
60 = 88
80 = 84
100 = 78
120 = 72
140 = 65
160 = 59
180 = 52
200 = 46
220 = 39
240 = 31
260 = 24
280 = 18
300 = 14

320 = 11
340 = 8
360 = 6
380 = 5
400 = 4
420 = 3
440 =
460 =
480 =
500 =
520 =
540 =

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1924phae.proj.117P

x4064

Composite Reduction

Reduced to 107

3	410	27	252	51	184	75	110				
4	398	28	249	52	181	76	107				
5	382	29	246	53	178	77	104				
6	365	30	244	54	174	78	100				
7	355	31	241	55	172	79	97				
8	344	32	238	56	168	80	94				
9	336	33	236	57	165	81	90				
10	330	34	233	58	162	82	86				
11	322	35	230	59	159	83	82				
12	316	36	228	60	156	84	79			99	04
13	310	37	225	61	153	85	75			100	-3
14	304	38	222	62	149	86	70			101	-16
15	299	39	219	63	146	87	66				
16	292	40	216	64	142	88	60	61			
17	286	41	214	65	139	89	54	57			
18	281	42	211	66	136	90	48	53			
19	277	43	208	67	133	91	36	48			
20	273	44	205	68	130	92	24	44			
21	270	45	202	69	127	93	16	39			
22	267	46	200	70	125	94	6	34			
23	264	47	197	71	122	95	-6	30			
24	260	48	193	72	119	96	-18	22			
25	258	49	190								
26	255	50	188								

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there are other unmeasured lines in this spectrum

x4064 No. 3. ER Carinae

Linie	n	mm	tmm	n̄	m̄m	[n]	[mm]	dm	db
1	—	—	—	—					
2	—	—	—	—					
3	—	—	—	—	—				
4	—	—	—	—	—				
5	17	24	105	17	24	286	260	26	21
6	19	26	105	19	26	277	255	22	18
7	10	27	105	10	27	~~330~~ ~~381~~	252	~~129~~ 78	51
8	25	29	105	25	29	258	246	12	10
9	25	31	105	25	31	258	241	17	14
10	27	32	105	27	32	252	238	14	12
11	30	35	105	30	35	244	230	14	12
12	30	36	105	30	37	244	225	18	15
13	31	39	105	31	40	241	216	25	21
14	37	43	105	38	44	222	205	17	14
15	37	44	105	38	45	222	202	20	17
16	39	45	105	40	46	216	200	16	14
17	39	45	105	40	46	216	200	16	14
18	41	46	105	42	47	211	197	14	12
19	38	47	105	39	48	219	193	26	21
20	40	47	105	41	48	214	193	21	18
21	42	47	105	43	48	208	193	05	4
22	41	47	105	42	48	211	193	18	15
23	44	47	105	45	48	202	193	09	8
24	42	48	105	43	49	208	190	18	15
25	40	48	105	41	49	214	190	24	19
26	41	48	105	42	49	211	190	21	18
27	37	48	105	38	49	222	190	32	26
28	41	48	105	42	49	211	190	21	18
29	40	49	105	41	50	214	188	26	21

F8 B9
β 82
γ 91
δ 79 ~~84~~ 91 96
ε ~~48~~ 48 58
ζ 25 ~~152~~ 97
η 255 ~~258~~ 162
θ 104
ι + 3 + 65 + 42 + 4
κ 258
λ 23
μ 61

Cruby 69

1924phae.proj.117P

χ4064 ER Carinae

Line	n	mm	lmm	ñ	m̄m	[n]	[mm]	dm	dl
30	36	48	105	37	49	225	190	35	280
31	37	48	105	38	49	222	190	32	26
32	45	48	105	46	49	200	190	10	09
33	38	47	105	38	48	222	193	29	23
34	37	47	105	38	48	222	193	29	23
35	35	47	105	36	48	228	193	35	28
36	31	46	105	36	47	228	197	31	25
37	33	45	105	34	46	233	200	33	26
38	31	45	105	32	46	238	200	38	30
39	35	45	105	36	46	228	200	28	23
40	30	45	105	30	46	244	200	44	33
41	36	45	105	37	46	225	200	25	21
42	32	44	105	32	45	238	202	36	28
43	32	44	105	32	45	238	202	36	28
44	26	44	105	26	45	255	202	53	39
45	31	44	105	31	45	241	202	39	30
46	34	43	105	34	44	233	205	28	23
47	37	43	105	38	44	222	205	17	14
48	31	43	105	31	44	241	205	36	28
49	16	42	105	16	43	~~206~~ 297	208	84	54
50	30	42	105	30	43	244	208	36	28
51	28	41	105	28	42	249	211	38	30
52	29	41	105	29	42	246	211	35	28
53	22	40	105	22	41	260	214	46	36
54	20	40	105	20	41	273	214	59	42
55	24	40	105	24	41	260	214	46	34
56	32	40	105	32	41	238	214	24	20
57	39	40	105	40	41	216	214	02	02
58	30	39	105	30	40	244	216	20	17
59	30	39	105	30	40	244	216	20	17
60	27	39	105	27	40	252	216	36	28

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K 4064

Line	n	mtn	ltmtn	ñ	mtñ	[n]	[mtn]	dm	dl
61	25	39	105	25	40	258	216	42	32
62	20	38	105	20	39	273	219	54	39
63	26	38	105	26	39	255	219	36	28
64	23	37	105	23	38	264	222	42	32
65	23	37	105	23	38	264	222	42	32
66	24	36	105	24	37	260	225	35	28
67	25	36	105	25	37	258	225	33	26
68	20	36	105	20	37	273	225	49	36
69	17	36	105	17	37	286	225	61	43
70	30	36	105	30	37	244	225	19	16
71	27	35	105	27	35	252	230	22	18
72	25	35	105	25	35	258	230	28	23
73	25	35	105	25	35	258	230	28	23
74	20	34	105	20	34	273	233	40	31
75	20	34	105	20	34	273	233	40	31
76	20	34	105	20	34	273	233	40	31
77	22	33	105	22	33	267	236	31	25
78	22	33	105	22	33	267	236	31	25
79	20	32	105	20	32	273	238	35	28
80	10	32	105	10	~~33~~ 32	~~382~~ 330	~~236~~ 238	~~146~~ 92	~~58~~ 57
81	25	32	105	25	32	258	238	20	17
82	20	31	105	20	31	273	241	32	26
83	13	30	105	13	30	310	244	66	46
84	20	30	105	20	30	273	244	29	23
85	17	29	105	17	29	286	246	40	31
86	17	29	105	17	29	286	246	40	31
87	19	29	105	19	29	277	246	31	25
88	16	28	105	16	28	292	249	43	33
89	22	27	105	22	27	267	252	15	18
90	12	26	105	12	26	316	255	61	43

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X4064

Line	n	mon	dmon	$\bar{n}$	$\overline{mon}$	[n]	[mon]	dm	dl
91	20	26	105	20	26	273	255	18	15
92	18	26	105	18	26	281	255	26	21
93	20	25	105	20	25	273	258	15	13
94	18	24	105	18	24	281	260	21	18
95	12	22	105	12	22	316	267	49	36
96	12	21	105	12	21	316	270	46	34
97	12	10	105	12	10	316	330	26	21
98	9	19	105	9	19	336	277	59	42
99	3	16	105	3	16	410	292	128	69
100	—	—	—	—					
101	—	—	—						
102	—	—	—	—					
103	1	11	105	1	11	—	322	—	—

C1

C-

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X4064. No. 6. β Cut off. Reduced to 107

Line	n	mtn	[mtn]	dn	dl
γ	23	60	107	264	156	108	
δ	24	58	107	260	162	98	
ε	13	48	107	310	193	117	
κ	32	40	107	238	216	22	
ζ	4	25	107	398	258	140	
η	2	11	107	..	330	..	
θ	0	5	107	..	382	..	

No. 7

β	1	7	103	1	7	..	355	..	
γ	4	20	103	4	20	398	273	125	
δ	2	17	103	2	17	..	286	..	
ε	1	13	103	1	13	..	310	..	
κ	4	10	103	4	10	398	330	68	
ζ	0	7	103	0	7	..	355		

Mean [mtn]		Sum	
355 (116)	239	594	297
273 117	156	429	214
286 124	162	448	224
310 107	193	503	252
348 116			

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1924phae.proj.117P

μ Φ 1755
X - 14968
ζ₁ Scorpii 3

Line	n	m+n	l+m+n	n̄	m+n	l̄+n̄	l̄+m+n̄	dvv	dl
1	165	195	480	165	195	140	122	18	15
2	190	210	480	190	210	125	114	11	10
3	200	220	480	200	220	119	109	10	09
4	205	230	480	205	230	117	104	13	11
5	210	230	480	210	230	114	104	10	09
6	210	250	480	210	250	114	94	20	17
7	140	260	480	140	260	155	88	67	46
8	250	280	475	255	285	91	76	15	13
9	275	295	475	280	300	79	69	10	09
10	280	310	475	285	315	76	62	14	12
11	300	315	475	305	320	66	59	07	06
12	295	325	480	295	325	74	57	17	14
13	310	325	480	310	325	64	57	07	06
14	325	330	480	325	330	57	55	02	02
15	325	335	480	325	335	57	52	02	02
16	336	340	480	330	340	55	49	06	05
17	335	345	480	335	345	52	47	05	04
18	320	350	480	320	350	59	45	14	12
19	350	355	480	350	353	45	42	03	03
20	360	360	480	360	360	39	39	00	00
21	355	370	480	355	370	42	35	07	06
22	350	370	480	350	370	45	35	10	09
23	370	375	480	370	375	35	33	02	02
24	370	380	480	370	380	35	30	05	04
25	370	380	480	370	380	35	30	05	04
26	370	385	480	370	380	35	30	05	04
27	380	385	480	380	385	30	28	02	02
28	380	385	480	380	385	30	28	02	02
29	365	390	480	365	390	37	26	11	10
30	370	390	480	370	390	35	26	09	08

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λ 14968

Line	n	m+n	l+m+n	n̄	m+n	[n̄]	[m+n]	dev	dd
31	385	395	480	385	395	28	—	—	—
32	370	400	480	370	400	35	—	—	—
33	380	400	480	380	400	30	—	—	—
34	370	400	480	370	400	35	—	—	—
35	370	400	480	370	400	35	—	—	—
36	350	400	480	350	400	45	—	—	—
37	385	400	480	385	400	28	—	—	—
38	380	405	480	380	405	30	—	—	—
39	370	405	480	370	405	35	—	—	—
40	350	400	480	350	400	45	—	—	—
41	390	400	480	390	400	26	—	—	—
42	380	400	480	380	400	30	—	—	—
43	380	400	480	380	400	30	—	—	—
44	375	400	480	375	400	33	—	—	—
45	360	400	480	360	400	39	—	—	—
46	380	400	480	380	400	30	—	—	—
47	380	400	480	380	400	30	—	—	—
48	370	400	480	370	400	35	—	—	—
49	370	400	480	370	400	35	—	—	—
50	370	400	480	370	400	35	—	—	—
51	350	395	480	350	395	45	—	—	—
52	380	395	480	380	395	30	—	—	—
53	380	395	480	380	395	30	—	—	—
54	370	395	480	370	395	35	—	—	—
55	340	395	480	340	395	49	—	—	—
56	380	395	480	380	395	30	—	—	—
57	370	395	480	370	395	35	—	—	—
58	305	395	480	305	395	66	—	—	—
59	365	395	480	365	395	37	—	—	—
60	340	395	480	340	395	49	—	—	—

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1924phae.proj.11.tif

x 14968

Line	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dm	dl
61	330	395	480	330	395	55	—		
62	320	390	480	320	390	59	26	33	26
63	350	390	480	350	390	45	26	19	16
64	370	390	480	370	390	35	26	09	08
65	380	390	480	380	390	30	26	04	04
66	340	390	480	340	390	49	26	23	19
67	220	390	480	220	390	109	26	83	53
68	360	390	480	360	390	39	26	13	11
69	350	390	480	350	390	45	26	19	16
70	360	390	480	360	390	39	26	13	11
71	300	390	480	300	390	69	26	43	33
72	345	390	480	345	390	47	26	21	18
73	300	390	480	300	390	69	26	43	33
74	340	390	480	340	390	49	26	23	19
75	330	390	480	330	390	55	26	29	23
76	360	390	480	360	390	39	26	13	11
77	360	390	480	360	390	39	26	13	11
78	340	390	480	340	390	49	26	23	19
79	370	390	480	370	390	35	26	09	08
80	350	390	480	350	390	45	26	19	16
81	350	390	480	350	390	45	26	19	16
82	330	385	480	330	385	55	28	27	22
83	360	380	480	360	380	39	30	09	08
84	355	380	480	355	380	42	30	12	10
85	330	380	480	330	380	55	30	25	21
86	320	380	480	320	380	59	30	29	23
87	330	380	480	330	380	55	30	25	21
88	350	380	480	350	380	45	30	15	13
89	330	370	480	330	370	55	35	20	17
90	340	370	480	340	370	49	35	14	12

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X 14968

Line	n	m+n	l+m+n	n	m+n	[n]	[m+n]	dm	dl
91	340	370	480	340	370	49	35	14	12
92	350	370	480	350	370	45	35	10	10
93	330	370	480	330	370	55	35	20	17
94	325	370	480	325	370	57	35	22	18
95	270	370	480	270	370	84	35	49	36
96	370	370	480	370	370	84	35	49	36
	330	370	480	270	370	84	35	49	36
97	330	370	480	330	370	55	35	20	17
98	340	370	480	340	370	49	35	14	12
99	340	370	480	340	370	49	35	14	12
100	330	365	480	330	365	55	37	18	15
101	350	365	480	350	365	45	37	08	07
102	310	360	480	310	360	64	39	25	21
103	340	360	480	340	360	49	39	10	10
104	320	360	480	320	360	59	39	20	17
105	340	360	480	340	360	49	39	10	10
106	320	360	480	320	360	59	39	20	17
							39	86	
107	190	360	480	190	360	125	19	106	62
108	340	350	480	340	350	49	45	04	04
109	320	350	480	320	350	59	45	14	12
110	280	345	480	280	345	79	47	32	26
111	300	340	480	300	340	69	49	20	17
112	300	340	480	300	340	69	49	20	17
113	300	340	480	300	340	69	49	20	17
114	290	340	480	290	340	74	49	25	21
115	315	340	480	315	340	62	49	13	11
116	310	340	480	310	340	64	49	15	13
117	330	340	480	330	340	55	49	06	05
118	300	335	480	300	335	69	52	17	14
119	310	335	480	310	335	64	52	12	10
120	290	330	480	290	330	74	55	19	16

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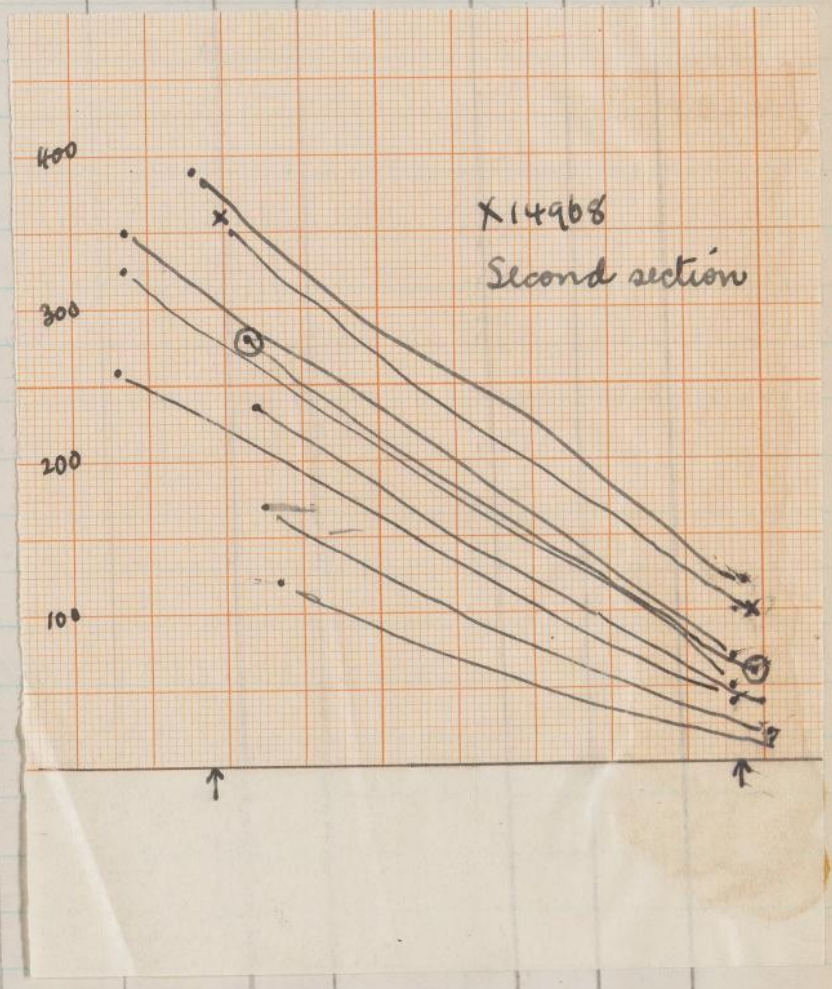
X 14968

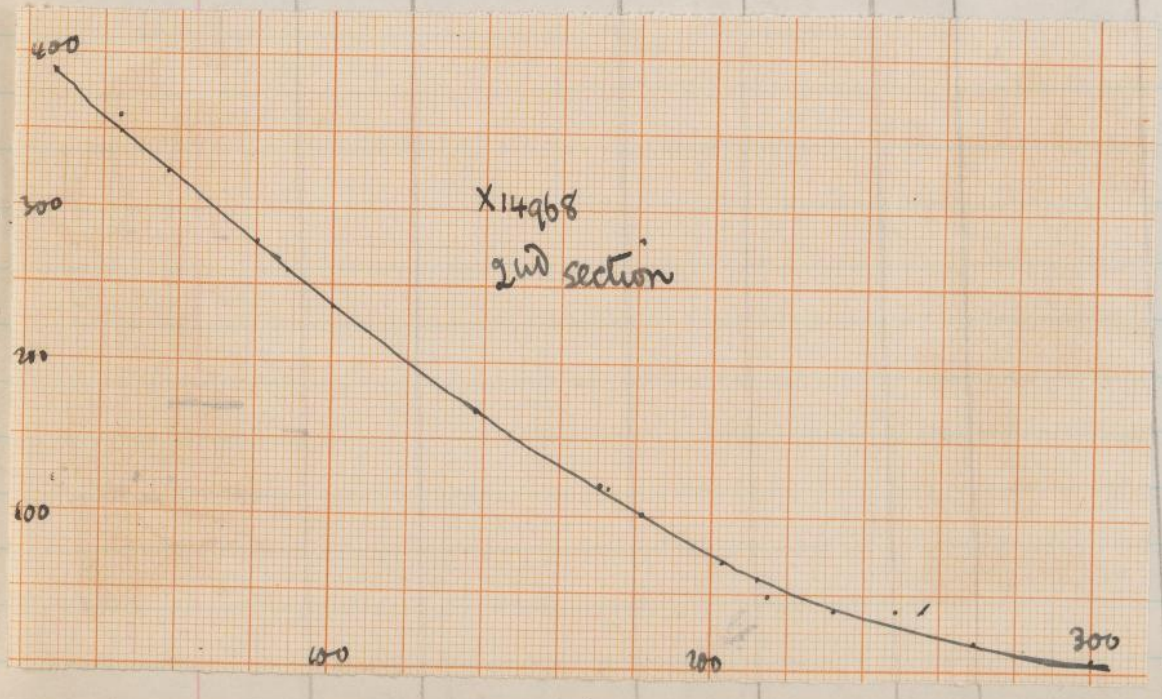
Line	n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	$[n]$	$[m+n]$	dev	dl
121	270	330	480	270	330	84	55	29	28
122	320	330	480	320	330	59	55	04	04
123	310	330	480	310	330	64	55	09	08
124	290	330	480	290	330	74	55	19	16
125	280	325	480	280	325	79	57	22	18
126	300	320	480	300	320	69	59	10	09
127	260	320	480	260	320	88	59	29	23
128	280	320	480	280	320	79	59	20	17
129	280	310	480	280	310	79	64	15	13
130	280	310	480	280	310	79	64	15	13
131	270	300	480	270	300	84	69	15	13
132	240	300	480	240	300	98	69	29	23
133	040	280	480	40	280	234	79	155	76
134	230	270	480	230	270	104	84	20	17
135	220	260	480	220	260	109	88	21	18
136	190	250	480	110	250	125	94	31	25
137	030	240	480	30	240	249	199	150	75
138	190	235	480	190	235	125	101	24	20
139	180	220	480	180	220	131	109	22	18
140	160	210	480	160	210	143	114	29	30
141	160	210	480	160	210	143	114	29	30
142	150	200	480	150	200	149	119	30	24
143	120	190	480	120	190	169	125	44	33
144	110	185	480	110	185	176	128	48	36
145	070	170	480	70	170	204	138	66	46
146	140	160	480	140	160	155	143	12	10
147	130	155	480	130	155	163	146	17	14
148	125	145	480	125	145	166	152	14	12
149	110	135	480	110	135	176	159	17	14
150	090	120	480	90	120	189	169	20	17
151	010	080	480	10	80	283	197	86	55

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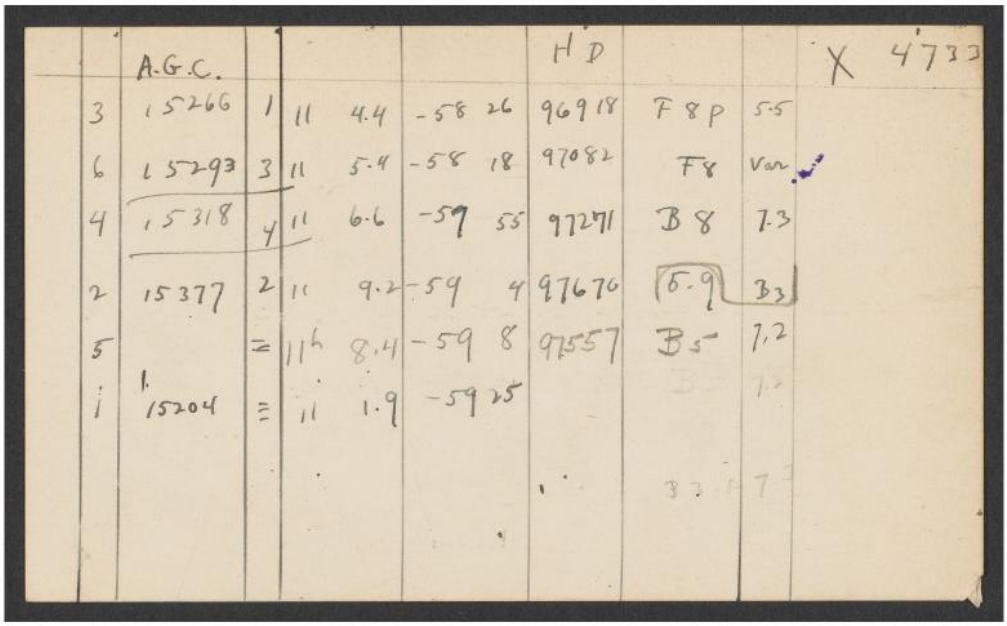
Line n m+n l+m+n n m+n [n][m+n] dundl





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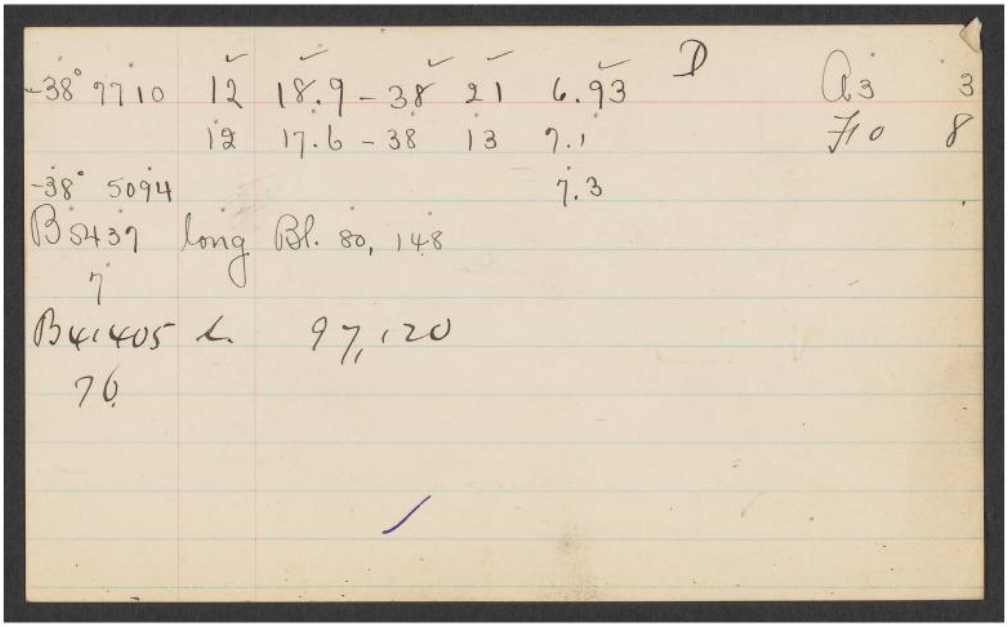
1924phae.proj.1117P



		A.G.C.						HD			X 4732
	3	15266	1	11	4.4	-58	26	96918	F8p	5.5	
	6	15293	3	11	5.4	-58	18	97082	F8	Var	
	4	15318	4	11	6.6	-59	55	97271	B8	7.3	
	2	15377	2	11	9.2	-59	4	97676	[5.9]	B3	
	5		=	11h	8.4	-59	8	97557	B5	7.2	
	1	15204	=	11	1.9	-59	25				

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1924phae.proj.11:TP

α Ø 1755
χ 14968
↳ 2 Scorpii 4

Entered

Line	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dm	dl
1	—	—	—						
2	—	—	—						
3	—	—	—						
4	—	—	—						
5	—	—	—						
6	—	—	—						
H β 7	005	040	480	5	40	300	234	66	46
8	—	—	—						
9	—	—	—						
10	—	—	—						
11	—	—	—						
12	—	—	—						
4824 13	040	050	480	40	50	234	221	13	11
14	—	—	—						
15	—	—	—						
16	—	—	—						
17	—	—	—						
4313 18	060	070	480	60	70	213	204	09	08
19	—	—	—						
20	—	—	—						
21	—	—	—						
22	—	—	—						
23	—	—	—						
24	—	—	—						
25	—	—	—						
26	—	—	—						
27	—	—	—						
28	—	—	—						
29	—	—	—						
30	—	—	—						

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1924phae.proj.11:P

K 14968

	Runs	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dm	dll
	31	—	—	—						
	32	—	—	—						
	33	—	—	—						
	34	100	115	480	100	115	183	172	11	10
4634	35	110	120	480	110	120	176	169	07	06
4629	36	100	120	480	100	120	183	169	17	12
	37	—	—	—						
	38	—	—	—						
	39	—	—	—						
	40	—	—	—						
	41	—	—	—						
	42	—	—	—						
	43	—	—	—						
	44	—	—	—						
	45	—	—	—						
	46	—	—	—						
	47	—	—	—						
	48	—	—	—						
	49	—	—	—						
	50	—	—	—						
4481	51	100	125	480	100	125	183	166	17	14
	52	—	—	—						
	53	—	—	—						
	54	—	—	—						
	55	—	—	—						
	56	—	—	—						
	57	—	—	—						
	58	—	—	—						
4416	59	095	120	480	95	120	186	169	17	14
	60	—	—	—						

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1924phae.proj.117P

α 14968

Line	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dcc	dl
61	—	—	—						
4381 62	090	120	480	90	120	189	169	20	17
63	—	—	—						
64	—	—	—						
4357? 65	110	120	480	110	120	176	169	07	06
4352 66	095	120	480	95	120	186	169	17	14
4340 67	030	120	480	30	120	348	169	79	52
68	100	120	480	100	120	183	169	14	12
69	110	120	480	110	120	176	169	07	06
70	~~090~~	~~120~~	~~480~~						
4325 71	090	120	480	90	120	189	169	20	17
72	—	—	—						
4314 73	090	120	480	90	120	189	169	20	17
74	—	—	—						
75	—	—	—						
76	—	—	—						
77	—	—	—						
4300 G band? 78	100	115	480	100	115	183	172	11	10
79	100	115	480	100	115	183	172	11	10
80	—	—	—						
81	—	—	—						
82	—	—	—						
83	—	—	—						
84	—	—	—						
85	—	—	—						
86	—	—	—						
87	—	—	—						
88	—	—	—						
89	—	—	—						
90	—	—	—						

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λ14968

	Line	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dw	dl
	91	—	—	—						
	92	—	—	—						
	93	—	—	—						
	94	—	—	—						
4177	95	080	110	480	80	110	197	176	21	18
4172	96	080	105	480	80	105	197	179	18	15
	97	—	—	—						
	98	—	—	—						
	99	—	—	—						
	100	—	—	—						
	101	—	—	—						
	102	—	—	—						
4131	103	090	110	480	90	100	189	183	06	05
4128	104	090	100	480	90	100	189	183	06	05
	105	—	—	—						
	106	—	—	—						
4101 δ	107	070	100	480	70	100	263	183	80	52
	108	—	—	—						
	109	—	—	—						
4077	110	070	100	480	70	100	204	183	21	18
3970	ε	00	60	480	0	60	00	212	—	—
3933	K	010	40	480	10	40	283	234	49	36
3889	3	−1	20	480	−10	20	283	263	20	17
3835	7	0	15	480	0	15	00	274	—	

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α 1817
λ 44 21
C_2 Scorpii

N.B. similarity to C_1 Scorpii

Line	# h	m+n	l+m+n	n̄	m̄+n	[m]	[m+n]	dm	dl
1	345	380	510	345	380	163	129	24	20
2	380	390	510	380	390	129	121	08	07
3	390	400	510	390	400	121	113	08	07
4	390	400	510	390	400	121	113	08	07
5	390	405	510	390	405	121	109	02	02
6	400	410	510	400	410	113	106	05	04
✓ 7	330	420	510	330	420	165	98	67	46
8	415	430	510	415	430	102	90	12	10
9	410	430	510	410	430	106	90	16	14
✓ 10	430	440	510	430	440	90	83	07	06
11	440	445	510	440	445	83	79	04	04
12	440	450	510	440	450	83	75	08	07
13	445	450	510	445	450	79	75	04	04
14	450	450	510	450	450	75	75	—	—
15	450	450	510	450	450	75	75	—	—
16	450	455	510	450	455	75	72	03	03
17	450	455	510	450	455	75	72	03	03
18	450	460	510	450	460	75	67	08	07
19	460	460	510	460	460	67	67	—	—
20	460	460	510	460	460	67	67	—	—
21	460	460	510	460	460	67	67	—	—
22	460	460	510	460	460	67	67	—	—
23	—	—	—						
24	—	—	—						
25	—	—	—						
26	—	—	—						
27	—	—	—						
28	—	—	—						
29	—	—	—						
30									

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X4421
α Φ 1817

Line	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dur dl	
31	—	—	—						
32	—	—	—						
33	—	—	—						
34	—	—	—						
35	—	—	—						
36	470	480	510	470	480	56	40	16	14
37	460	480	510	460	480	67	40	27	22
38	475	480	510	475	480	48	40	08	07
39	470	480	510	470	480	56	40	16	14
40	470	480	510	470	480	56	40	16	14
41	470	480	510	470	480	56	40	16	14
42	460	480	510	460	480	67	40	27	22
43	470	480	510	470	480	56	40	16	14
44	470	480	510	470	480	56	40	16	14
45	470	480	510	470	480	56	40	16	14
46	470	480	510	470	480	56	40	16	14
47	470	480	510	470	480	56	40	16	14
48	470	480	510	470	480	56	40	16	14
49	470	480	510	470	480	56	40	16	14
50	460	475	510	460	475	67	48	19	16
51	460	475	510	460	475	67	48	19	16
52	470	475	510	470	475	56	48	08	07
53	470	475	510	470	475	56	48	08	07
54	470	475	510	470	475	56	48	08	07
55	465	475	510	465	475	62	48	14	12
56	450	475	510	450	475	75	48	27	22
57	470	475	510	470	475	56	48	08	07
58	465	475	510	465	475	62	48	14	12
59	440	475	510	440	475	83	48	35	28
60	465	475	510	465	475	62	48	12	10

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λ 4421

Line	n	m+n	l+m+n	n	m+n	[n]	[m+n]	diff	dl
61	445	470	510	445	470	79	56	23	19
62	450	470	510	450	470	75	56	19	16
63	440	470	510	440	470	83	56	27	22
64	460	470	510	460	470	67	56	11	10
65	460	470	510	460	470	67	56	11	10
66	450	470	510	450	470	75	56	19	16
67	440	470	510	440	470	83	56	27	22
68	460	470	510	460	470	67	56	11	10
69	450	470	510	450	470	75	56	19	16
70	460	470	510	460	470	67	56	11	10
71	440	470	510	440	470	83	56	27	22
72	460	470	510	460	470	67	56	11	10
73	440	470	510	440	470	83	56	27	22
74	450	470	510	450	470	75	56	19	16
75	450	470	510	450	470	75	56	19	16
76	460	470	510	460	470	67	56	11	10
77	460	470	510	460	470	67	56	11	10
78	450	470	510	450	470	75	56	19	16
79	470	470	510	470	470	56	56	—	
80	450	470	510	450	470	75	56	19	16
81	455	465	510	455	465	72	62	10	09
82	450	465	510	450	465	75	62	13	11
83	460	465	510	460	465	67	62	05	04
84	460	465	510	460	465	67	62	05	04
85	450	465	510	450	465	75	62	13	11
86	440	465	510	440	465	83	62	21	18
87	450	465	510	450	465	75	62	13	11
88	450	465	510	450	465	75	62	13	11
89	450	465	510	450	465	75	62	13	11
90	450	465	510	450	465	75	62	13	11
91	450	465	510	450	465	75	62	13	11

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1924phae.proj.11.TP

γ4421

Line	n	m+n	l+m+n	n̄	m̄+n	E_J	E_m̄+n_J	dev	dall
92	455	465	510	455	465	72	62	10	09
93	450	460	510	450	460	75	67	08	07
94	445	460	510	445	460	79	67	12	10
95	420	460	510	420	460	98	67	31	25
a	420	460	510	420	460	98	67	31	25
96	440	460	510	440	460	83	67	16	14
97	440	460	510	440	460	83	67	16	14
98	450	460	510	450	460	75	67	08	07
99	450	460	510	450	460	75	67	08	07
100	450	460	510	450	460	75	67	08	07
101	450	460	510	450	460	75	67	08	07
102	440	460	510	440	460	83	67	16	14
103	430	460	510	430	460	90	67	23	19
104	440	460	510	440	460	83	67	16	14
105	450	460	510	450	460	75	67	08	07
106	440	460	510	440	460	83	67	16	14
107	340	460	510	340	460	157	67	90	56
108	455	460	510	455	460	72	67	05	04
109	450	460	510	450	460	75	67	08	07
110	410	460	510	410	460	106	67	39	30
111	430	460	510	430	460	90	67	23	19
112	440	455	510	440	455	83	72	11	10
113	430	455	510	430	455	90	72	18	15
114	430	450	510	430	450	90	75	15	13
115	440	450	510	440	450	83	75	08	07
116	420	450	510	420	450	98	75	23	19
117	445	450	510	445	450	79	75	04	04
118	430	445	510	430	445	90	79	11	10
119	420	445	510	420	445	98	79	19	16
120	410	445	510	410	445	106	79	27	22
121	430	445	510	430	445	90	79	11	10

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1924phae.proj.1117P

X4421

Line	n	m+n	l+m+n	n̄	m+n	[illegible]	[illegible]+n̄	[illegible]	[illegible]
122	425	440	510	430	440	90	83	07	06
123	420	440	510	420	440	98	83	07	06
124	430	440	510	430	440	90	83	07	06
125	430	440	510	430	440	90	83	07	06
126	420	440	510	420	440	98	83	15	13
127	430	440	510	430	440	98	83	07	06
128	410	440	510	410	440	106	83	23	19
129	410	435	510	410	435	106	86	20	17
130	410	430	510	410	430	106	90	16	14
131	420	430	510	420	430	98	90	08	07
132	410	425	510	410	425	106	94	12	10
133	385	420	510	385	420	125	98	27	22
134	100	400	510	100	400	284	114	170	79
135	370	400	510	370	400	136	114	22	18
136	355	390	510	355	390	147	121	26	21
137	340	380	510	340	380	157	129	28	23
138	60	370	510	60	370	316	137	179	81
139	340	360	510	340	360	157	143	14	12
140	320	355	510	320	355	172	147	25	21
141	370	350	510	370	350	172	150	22	18
142	290	340	510	290	340	191	157	34	27
143	250	320	510	250	320	214	172	42	32
144	—	—	—						
145	150	310	510	150	310	268	178	90	56
146	260	290	510	260	290	209	191	18	15
147	260	280	510	260	280	209	197	12	10
148	230	260	510	230	260	226	209	17	14
149	190	240	510	190	240	247	220	27	22
150	65	190	510	65	190	312	247	65	45
151	to	—	—						

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4421

Line	n	m+n	l+m+n	$\bar{n}$	m+n	$[n]$	$[n+m]$	dn	dl
152									
153									
154									
155									
156									
157									
158									
159									
160	60	120	5 10	60	120	316	28 3	33	26

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k4421 #2
u φ 1817
c 2 Scorpii

Lines	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dm	dl
4924 1	180	120	510	100	120	295	283	12	10
2	170	120	510	110	120	290	283	07	16
3	120	130	510	130	130	283	279	04	04
4	130	140	510	130	140	279	274	05	04
5	135	140	510	135	140	276	274	02	02
6	140	150	510	140	150	274	268	06	05
B 7	90	175	510	90	175	300	254	46	34
8	175	200	510	175	200	254	242	12	10
9	190	210	510	190	210	247	237	10	09
10	190	210	510	190	210	247	237	10	09
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

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Line	n	m+n	l+m+n	n̄	m+n	[n]	]m+n[	dn	dl
	31	—	—	—					
	32	—	—	—					
	33	—	—	—					
	34	—	—	—					
4634	35	290	310	510	290	310	191	178	13 11
4629	36	270	310	510	270	310	203	178	25 21
4621	37	290	305	510	290	305	191	182	09 08
	38	290	305	510	290	305	191	182	09 08
4588	39	290	305	510	290	305	191	182	09 08
4583	40	280	305	510	280	305	197	182	15 13
?	41	280	305	510	280	305	197	182	15 13
	42	290	300	510	290	300	191	186	05 04
4538	43	290	300	510	290	300	191	186	05 04
4535	44	290	300	510	290	300	191	186	05 04
4532	45	275	300	510	275	300	200	186	14 12
4529	46	285	300	510	285	300	194	186	08 07
	47	285	295	510	285	295	194	189	05 05
	48	290	295	510	290	295	191	189	02 02
	49	280	295	510	280	295	197	189	08 07
4490	50	280	295	510	280	295	197	189	08 07
4481	51	280	295	510	280	295	197	189	08 07
	52	290	295	510	290	295	191	189	02 02
	53	290	295	510	290	295	191	189	02 02
	54	280	295	510	280	295	197	189	08 07
~~4431~~	55	280	295	510	280	295	197	189	08 07
	56	280	295	510	280	295	197	189	08 07
	57	290	295	510	290	295	191	189	02 02
4414	58	260	295	510	260	295	209	189	20 17
	59	280	290	510	280	290	197	191	6 05
4433	60	270	290	510	270	290	203	191	12 10

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X442

Line	n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	$\overline{l+m+n}$	dm	dl
4431 ~~4387~~	61	265	290	510	265	290	206	191	15	13
4416 ~~4381~~	62	260	290	510	260	290	209	191	18	15
4387	63	270	290	510	270	290	203	191	12	10
4381	64	280	290	510	280	290	197	191	06	05
	65	280	290	510	280	290	197	191	06	05
4352	66	260	290	510	260	290	209	191	18	15
8	67	130	290	510	130	290	279	191	88	56
1	68	260	290	510	260	290	209	191	18	15
	69	270	290	510	270	290	203	191	12	10
	70	250	280	510	250	280	214	197	17	14
4326	71	270	280	510	270	280	203	197	06	05
	72	250	280	510	250	280	214	197	17	14
4314	73	260	280	510	260	280	209	197	12	10
	74	—	—	—						
4308	75	255	280	510	255	280	211	197	14	12
	76	270	280	510	270	280	203	197	06	05
4300 G	77	260	280	510	260	280	209	197	12	10
	78	250	280	510	260	280	209	197	12	10
	79	270	280	510	270	280	203	197	06	05
	80	260	280	510	260	280	209	197	12	10
	81	260	280	510	260	280	209	197	12	10
	82	250	270	510	250	270	214	203	11	10
	83	260	270	510	260	270	209	203	06	05
4233	84	250	270	510	250	270	214	203	11	10
4223	85	230	270	510	230	270	226	203	23	19
4215	86	260	270	510	260	270	209	203	06	05
	87	250	270	510	250	270	214	203	11	10
	88	250	270	510	250	270	214	203	11	10
	89	240	270	510	240	270	220	203	17	14
	90	230	270	510	230	270	226	203	23	19

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	Line	n	m+n	l+m+n	n̄	m̄+n̄	l̄+m̄+n̄	dec	dll
	91	250	270	510	250	270	214	203	11	10
	92	250	270	510	250	270	214	203	11	10
	93	250	265	510	250	265	214	206	08	07
	94	—								
4177	95	220	265	510	220	265	231	206	25	21
4172	a	220	265	510	220	265	231	206	25	21
	96	245	265	510	245	265	217	206	11	10
	97	250	260	510	250	260	214	209	05	04
	98	250	260	510	250	260	214	209	05	04
	99	250	260	510	250	260	214	209	05	04
	100	240	260	510	240	260	220	209	11	10
	101	255	260	510	255	260	211	209	02	02
4131	102	230	260	510	230	260	226	209	17	14
4128	103	220	260	510	220	260	231	209	22	18
	104	240	255	510	240	255	220	211	09	08
	105	250	255	510	250	255	214	211	03	03
	106	230	250	510	230	250	226	214	12	10
H	107	75	250	510	75	257	306	214	88	~~07~~ 58
	108	230	245	510	230	245	226	217	09	08
	109	235	245	510	235	245	223	217	06	05
4077	100	215	240	510	215	240	234	220	14	12
4072	111	235	240	510	235	240	223	220	03	03
4067	112	230	240	510	230	240	226	220	06	05
4064	113	220	235	510	220	235	231	228	08	07
4046	114	220	230	510	220	230	231	226	05	04
	115	220	230	510	220	230	231	226	05	04
	116	220	230	510	220	230	231	226	05	04
	117	220	225	510	220	225	231	229	02	02
	118	210	220	510	211	220	237	231	05	04
	119	180	210	510	180	210	252	237	25	21
	120	200	210	510	200	210	242	237	05	04

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X4421

	Line	n	m+n	l+m+n	$\overline{n}$	$\overline{m+n}$	$[n]$	$[m+n]$	dm	dl
	121	—	—	—						
	122	200	210	510	200	210	242	237	05	04
	123	—	—	—	—	—				
	124	—	—	—	—	—				
	125	—	—	—	—	—				
	126	—	—	—	—	—				
	127	—	—	—	—	—				
	128	185	200	510	185	200	250	242	07	06
	129	180	200	510	180	200	252	242	07	06
	130	180	195	510	180	195	252	245	07	06
	131	185	190	510	180	190	252	247	05	04
	132	180	190	510	180	190	252	247	05	04
	133	150	180	510	150	180	268	252	16	14
E	134	30	170	510	30	170	333	257	76	50
	135	140	160	510	140	160	274	262	12	10
	136	170	150	510	170	150	283	268	15	13
	137	170	140	510	170	140	283	274	09	08
K	138	70	135	510	70	135	309	276	33	26
	139	100	130	510	100	130	295	279	16	14
	140	100	120	510	100	170	295	283	12	10
	141	90	115	510	90	115	300	286	14	12
	142	90	100	510	90	100	300	295	05	04
	143	80	100	510	80	100	304	295	09	08
	144	~~30~~	~~80~~	~~510~~	—	—				
3	145	30	80	510	30	80	323	304	29	23

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X4421

X4421

25 - 337	125 281	225 229	325 168	425 94
30 - 333	130 279	230 226	330 165	430 90
35 330	135 276	235 223	335 161	435 86
40 328	140 274	240 220	340 157	440 83
45 324	145 271	245 217	345 153	445 79
50 321	150 268	250 214	350 150	450 75
55 319	155 265	255 211	355 147	455 72
60 316	160 262	260 209	360 143	460 67
65 312	165 259	265 206	365 140	465 62
70 309	170 257	270 203	370 136	470 56
75 306	175 254	275 200	375 132	475 48
80 304	180 252	280 197	380 129	480 40
85 302	185 250	285 194	385 125	485 23
90 300	190 247	290 191	390 121	
95 297	195 245	295 189	395 117	
100 295	200 242	300 186	400 113	
105 292	205 239	305 182	405 109	
110 290	210 237	310 178	410 106	
115 286	215 234	315 174	415 102	
120 283	220 231	320 172	420 98	

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9823
9494
0529 10: 11.3

Hauck for η aql as 96:85 to δ Cep

∴ surface gravity = 96:85 = 1.13 max.
64:50 1.28 min.
1.20 mean

9073
1139
0212
0927

For two of the same size, ratio in g would be $\frac{13}{10.5} = 1.24$ .808

η aql more massive ∴ g larger ∴ blackness smaller
This must be compensated by size
∴ Ratio in brightness should be

2553
3802
1.8751
1.7502
0927
1.8429

Ratio in central intensity $\frac{\delta \text{ Cep}}{\eta \text{ aql}}$ should be

$$1.24 \times \left(\frac{18}{24}\right)^2 = 0.70 \text{ ?} \quad = \frac{1}{1.42} \text{ at}$$

same M

The value 1.28 is obtained with δ Cep $0^m.4$ fainter and ∴ smaller with g higher.

At homologous point where ratio is $\frac{68}{86}$ we have

8325
9345
8980
0.79 ?

X44421

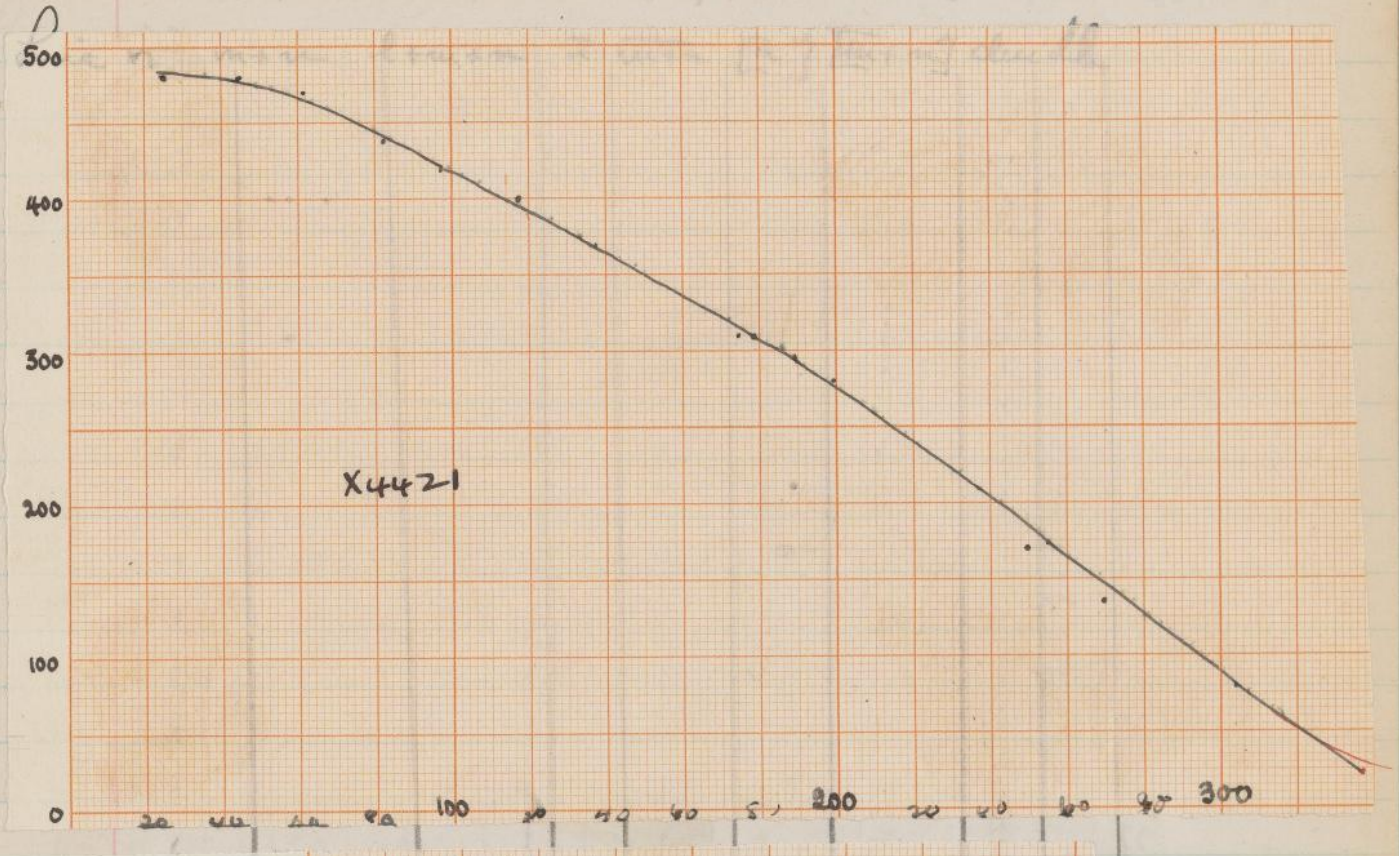
114

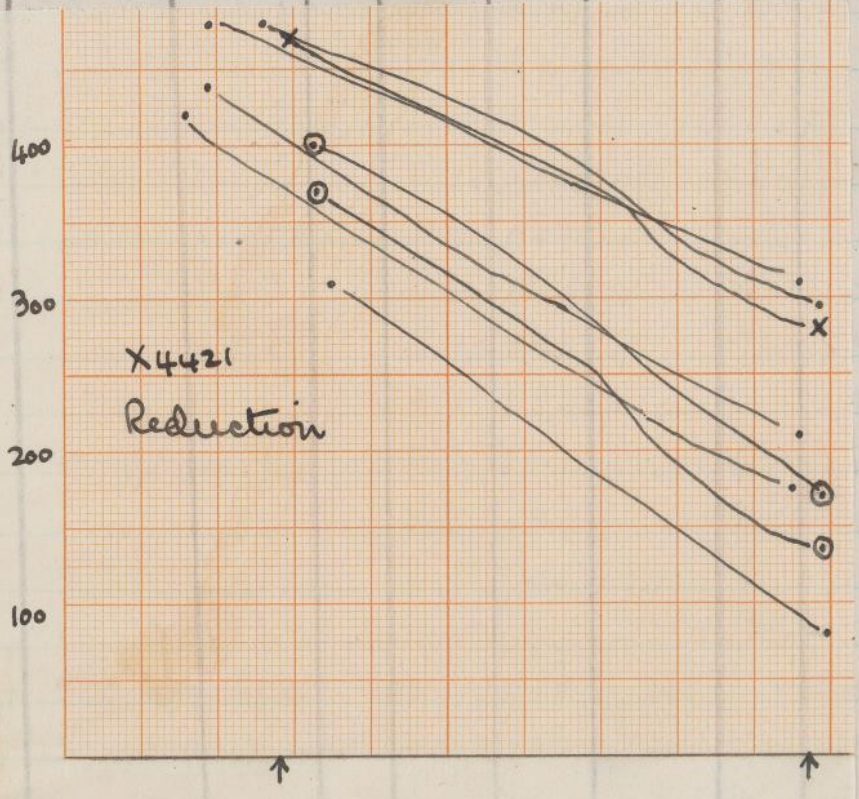
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1924phae.proj.1177P

X4421





9823

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116 μ Q 1788 η Aquilae C19118 see page 81 Red. to 250

Line	n	m+n	l+m+n	ñ	m+n	[n²]	[m+n²]	dm	dl
1	190	200	270	175	185	417	433	26	21
2	190	200	270	175	185	417	433	26	21
3	245								
4									
5									
6									
7	190	230	275	170	205	409	466	57	41
30	245	260	270	225	240	519	586	67	46
31	240	255	270	220	235	503	556	53	39
33	240	250	270	220	230	503	538	35	28
34	240	250	270	220	230	503	538	35	28
35	240	250	270	220	230	503	538	35	28
36	240	250	270	220	230	503	538	35	28
37	235	250	270	220	230	503	538	35	28
38	230	250	270	215	230	490	538	48	36
39	230	250	270	215	230	490	538	48	36
40	230	240	270	215	230	490	538	48	36
41	235	245	265	220	230	503	538	35	28
42	230	245	265	215	230	490	538	48	36
43	230	240	265	215	225	490	519	29	23
44	230	240	265	215	225	490	519	29	23
45	230	240	265	215	225	490	519	29	23
46	230	240	265	215	225	490	519	29	
47	230	240	265	215	225	490	519	29	
48	230	240	265	215	225	490	519	29	
49	200	235	265	185	220	433	503	70	48 36
50	230	235	265	215	220	490	503	07	06
51	—	—	—						
52	—	—	—						
53	—	—	—						

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1924phae.proj.117P

C 19118

Line	n	m+n	l+m+n	n̄	m+n	[n̄]	[m+n]	dm	dl
54	200	235	265	190	220	441	503	62	44
55	215	230	265	205	215	466	490	24	20
56	220	230	265	210	215	476	490	24	20
57	220	230	265	210	215	476	490	24	20
58	220	230	265	210	215	476	490	24	20
59	220	225	265	210	210	476	476	—	
60	215	225	265	205	210	466	476	10	09
61	210	220	265	200	210	457	476	19	16
62	205	220	265	195	210	449	476	27	22
63	210	220	260	200	210	457	476	19	16
64	200	220	260	190	210	441	476	35	28
65	200	220	260	190	210	441	476	35	28
66	210	220	260	200	210	457	476	19	16
67	210	220	260	200	210	457	476	19	16
68	185	215	260	180	205	425	466	41	31
69									
70	210	215	260	200	205	457	466	09	08
71	200	215	260	190	205	441	466	25	21
72	200	215	260	190	205	441	466	25	21
73	200	215	260	190	205	441	466	25	21
74									
75	190	210	260	180	200	425	457	32	26
76	190	210	260	180	200	425	457	32	26
77	190	210	260	180	200	425	457	32	26
78	190	210	260	180	200	425	457	32	26
79	160	210	260	155	200	388	457	69	47
80	165	210	260	160	200	394	457	63	52
81	200	210	260	190	200	441	457	16	14
82	190	210	260	180	200	425	457	32	26
83	160	200	260	155	190	388	441	53	39

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η Aql C 19118

Line	n	m+n	l+m+n	$\bar{n}$	m+n	[n]	[m+n]	due	dl
84	190	205	260	185	200	433	457	24	20
85	190	200	260	185	195	433	449	16	14
86	180	200	260	175	195	417	449	32	26
87	180	200	260	185	195	433	449	16	14
88	175	200	260	170	195	409	449	40	31
89	180	200	260	175	195	417	449	32	26
90	160	200	260	155	195	388	449	61	43
91	180	190	260	175	185	417	433	16	14
92	180	190	260	175	185	417	433	16	14
93	190	190	260	185	185	433	433	—	
94	180	185	260	175	180	417	425	08	07
95	160	180	260	155	175	388	417	29	23
96	150	175	260	145	170	375	409	34	33
97	135	170	260	150	165	381	402	21	18
98	140	170	260	145	165	375	402	27	22
99	10	160	260	10	155	98	388	290	93
100	110	150	260	105	145	320	375	55	40
101	100	150	260	105	145	320	375	55	40
102	105	140	260	100	135	314	361	47	35
103	5	135	255	5	135	260	361	300	94
104	—	—	—	—	—	—	—	—	
105	80	110	255	75	105	280	320	40	31
110	20	60	255	20	55	155	248	93	58
115	18	35	255	10	35	98	204	06	05

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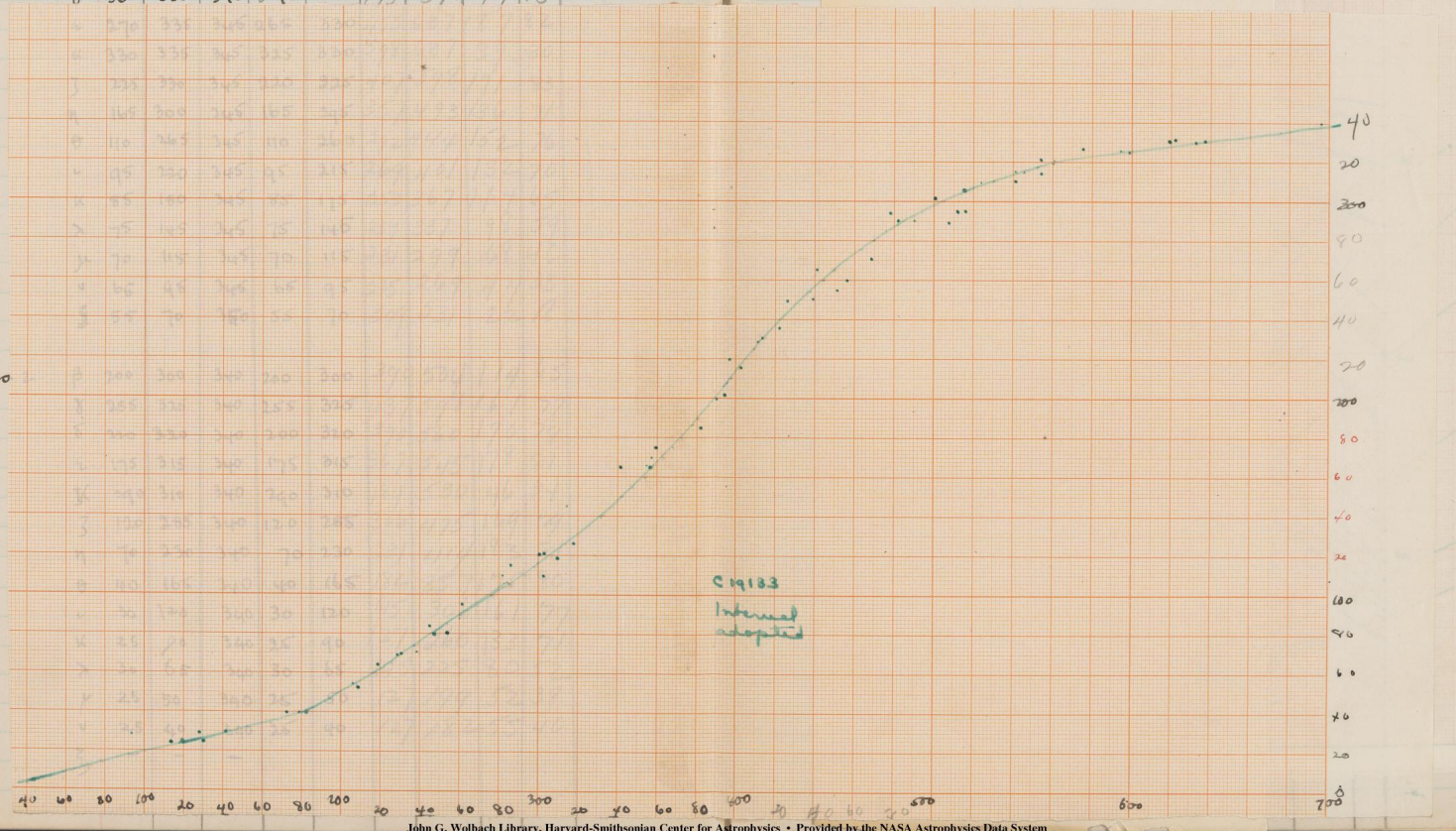
$$\int_{-\infty}^{\infty} u^n \, \frac{\Gamma(m+n)}{\Gamma(l+m+n)} \, \frac{\Gamma(n)}{\Gamma(m+n)} \, \frac{\Gamma(n)}{\Gamma(m+n)} \, du \, dl$$

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C 19133 Vega and η Aquilae Reduced to 340

Lines	n	m+n	f+m+n	ñ	m+ñ	[n]	[m+n]	dm	dl
Vega 1	β	295	330	340	295	330	493	637	144	73
	γ	320	345	345	315	340	543			
	δ	300	335	345	295	330	493	637	144	73

Lines					dm	dl
Vega 3					114	65
					153	76



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1924phae.proj.117P

C 19133 Vega and η Aquilae Reduced to 340

Line		n	m+n	l+m+n	ñ	m+ñ	[n]	[m+n]	dm	dl
Vega 1	β	295	330	340	295	330	493	637	144	73
	γ	320	345	345	315	340	543	—		
	δ	300	335	345	295	330	493	637	144	73
	ε	270	335	345	265	330	450	637	187	82
	κ	330	335	345	325	330	598	637	39	30
	ζ	225	330	345	220	325	407	598	191	83
	η	165	300	345	165	295	357	493	136	71
	θ	110	265	345	110	260	292	444	152	76
	ι	95	220	345	95	215	269	401	132	70
	κ	85	180	345	85	175	253	367	114	65
	λ	75	145	345	75	140	239	337	98	59
	μ	70	115	345	70	115	231	299	68	46
	ν	65	95	345	65	95	225	269	44	33
	ξ	55	70	350	55	70	209	231	22	18
Vega 2	β	200	300	340	200	300	390	504	114	65
	γ	255	325	340	255	325	437	598	161	77
	δ	200	320	340	200	320	390	560	170	79
	ε	175	315	340	175	315	367	545	178	81
	κ	290	310	340	290	310	484	530	46	34
	ζ	120	285	340	120	285	306	475	169	79
	η	70	230	340	70	230	231	414	183	81
	θ	40	165	340	40	165	182	357	175	80
	ι	30	120	340	30	120	145	306	161	77
	κ	25	90	340	25	90	127	260	133	71
	λ	30	65	340	30	65	145	225	80	52
	μ	25	50	340	25	50	127	199	52	38
	ν	25	40	340	25	40	127	182	55	40
	ξ	—	—	—						

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Cl 9133

Line	n	m
Vega 3	β	125
	γ	180
	δ	14
	ε	17
	ζ	2
	η	8
	θ	3
	ι	3
	κ	2
	λ	
	μ	
	ν	

Fifth	Magnitude
4	255
10	275
15	290
20	300
25	305
30	315
35	320
40	325
50	325
60	330
75	330
90	332
105	335
115	338
130	
150	
170	
190	
215	
235	

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Line

Vega 1 β

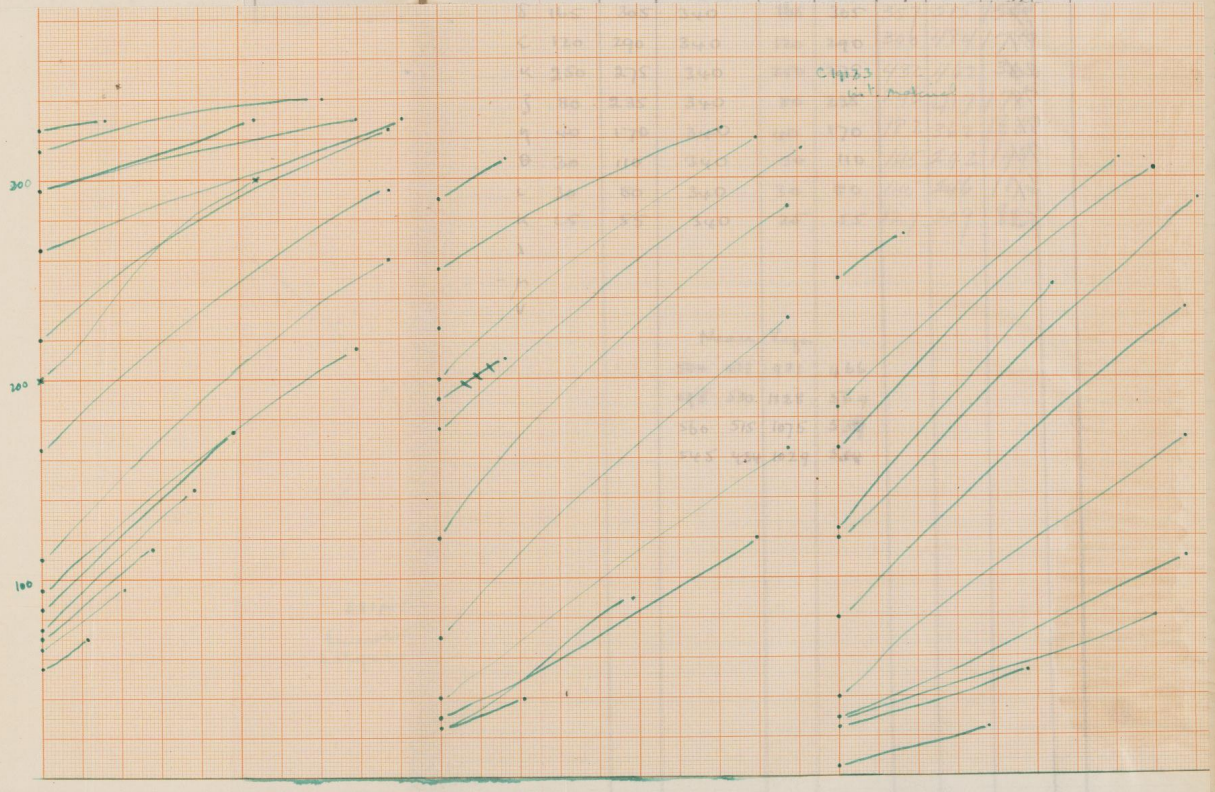
γ

δ

duced to 340

5 to 25 = 2 apertures

Line	n	m+n	l+m+n	n̄	m+n̄	[m]	[m+n]	dm	dl
Vega 3 β	125	250	345	125	245	313	427	114	65
γ	185	310	340	185	310	377	530	153	76



Veq

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5 to 25 = 2 apertures

Lyra	n	m+n	l+m+n	n̄	m+n̄	[n]	[m+n]	dem	dl
Vega 3 β	125	250	345	125	245	313	427	114	65
γ	185	310	340	185	310	377	530	153	76
δ	165	305	340	165	305	357	515	158	77
ε	120	290	340	120	290	306	484	178	81
ζ	250	275	340	250	275	432	462	30	24
η	80	235	340	80	235	246	417	171	79
θ	40	170	340	40	170	182	362	180	81
ι	30	110	340	30	110	145	292	147	74
κ	30	80	340	30	80	145	246	101	61
λ	25	55	340	25	55	127	209	82	53
μ									
ν									

Mean		Vega	
504	427	931	466
598	530	1128	564
560	515	1075	538
545	484	1029	514

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η Aquilae c-19133

Line	n.	m-tm	l-tm-tm	n̄	m-tm	[n]	[m-tm]	Δll	Δl
1	225	250	335	235	260	417	444	27	22
2	265	270	335	275	280	462	469	07	06
5	255	270	335	265	280	450	469	19	16
7	230	270	335	240	280	423	469	46	34
22	295	310	335	305	320	515	560	45	34
30	300	310	335	310	320	530	560	30	24
31	300	310	335	310	320	530	560	30	24
32	300	310	335	310	320	530	560	30	240
40	285	305	335	295	320	493	560	67	46
42	285	300	335	300	310	504	530	26	21
44	280	300	335	290	310	484	530	46	34
45	290	300	335	300	310	504	530	26	21
46	290	300	335	300	310	504	530	26	21
48	280	295	335	290	305	484	530	46	34
49	240	295	335	250	310	433	524	96	84?
50	280	290	335	290	300	484	504	20	17
51	275	290	335	290	300	484	504	20	17
54	250	290	335	260	300	444	504	60	42
55	260	290	335	270	300	456	504	48	36
57	2700	285	335	280	300	469	504	35	28
58	270	280	340	280	290	469	484	15	13
60	265	280	340	280	290	469	484	15	13
61	260	280	340	270	290	456	484	28	23
62	245	280	340	255	290	437	484	47	35
63	260	275	340	270	290	456	484	28	23
64	245	275	340	255	290	437	484	47	35
65	245	275	340	255	290	437	484	47	35
69	220	270	340	230	280	414	469	55	40
#	—	—	—						
71	250	265	340	260	270	444	456	12	10
73	255	265	340	265	275	450	462	12	10

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η Aquilae C-19133

Line	n	m+n	bar m+n	n̄	m+n	[n]	[m+n]		
24	250	265	340	260	275	444	462	18	13

Reduction 19133

5 – 41	105 – 285	205 – 395	305 – 515
10 – 64	110 – 292	210 – 398	310 – 530
15 – 81	115 – 299	215 – 401	315 – 545
20 – 104	120 – 306	220 – 407	320 – 560
25 – 127	125 – 313	225 – 410	325 – 598
30 – 145	130 – 320	230 – 414	330 – 637
35 – 165	135 – 325	235 – 417	335 – 665
40 – 182	140 – 332	240 – 423	340 –
45 – 191	145 – 337	245 – 427	
50 – 199	150 – 342	250 – 432	
55 – 209	155 – 347	255 – 437	
60 – 217	160 – 352	260 – 444	
65 – 225	165 – 357	265 – 450	
70 – 231	170 – 362	270 – 456	
75 – 239	175 – 367	275 – 462	
80 – 246	180 – 371	280 – 469	
85 – 253	185 – 377	285 – 475	
90 – 260	190 – 380	290 – 484	
95 – 269	195 – 385	295 – 493	
100 – 276	200 – 390	300 – 504	

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η Aquilae C-1913

Line	n	m+n	[n]	n	m+n	[n]	[m+n]		
74	250	265	340	260	275	444	462	18	13
75	235	260	340	245	270	427	456	29	23
76	230	260	340	240	270	423	456	33	26
78	240	260	340	250	270	432	456	24	20
79	235	260	340	245	270	427	456	29	23
80	185	255	340	195	265	380	449	69	47
82	230	250	340	240	260	423	444	21	18
83	195	250	340	205	260	395	444	49	36
84	230	245	340	240	255	423	437	14	12
85	225	245	340	235	255	417	437	20	17
86	215	245	340	225	255	410	437	27	22
87	215	240	340	225	250	410	432	22	18
88	230	240	340	240	250	423	432	9	08
90	200	240	340	210	250	398	432	34	27
91	210	235	340	220	245	407	427	20	17
93	215	230	340	225	240	410	423	13	11
94	210	225	340	220	235	407	417	10	09
95	185	220	340	195	230	385	414	29	23
96	170	215	340	180	225	371	410	39	30
97	180	205	340	190	215	380	401	21	18
98	150	200	340	160	210	352	398	46	34
99	000	190	340	000	200	30	389	349	96
100	125	180	340	125	190	325	380	55	40
101	115	175	340	125	185	313	377	64	44
102	110	170	340	120	180	306	371	65	45
103	000	160	340	000	170	(30)	362	332	95

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1924phae.proj.117P

~~X 6259~~

Fur n | m+n | l+m+n · $\overline{n}$ | $\overline{m+n}$ | $[\overline{n}]$ | $[\overline{m+n}]$ | dm dl

Ecr

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Line n | m+n | l+m+n | n̄ | m+n | n | 2m+n | dem. dl

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1924phae.proj.117P

ud 1907
XC 259
No 3

No. 1 on page 129

Line	n	m+n	l+m+n	n̄	m+n	[n̄] [n+n']	dundl
β	55	75	530				
γ	100	160	540				
δ	80	145	540				
4026	90	120	540				
ε	30	80	550				
K	40	60	550				
3	0	30	550				

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1924phae.proj.117P

μ Q 1905
χ 6259
No 4

Spectrum	n	m+n	l+m+n	$\bar{n}$	m+n	$\bar{l+m+n}$	$\overline{m+n}$	$\overline{l+m+n}$	dm	dl
β	140	330	550							
γ	830	600	550							
δ	270	480	540							
ε	180	445	540							
K	380	410	540							
3	60	230	540							
η	20	190	540							
Q	10	100	540							
ι	20	80	540							
k	10	40	540							
λ	10	20	540							
μ	5	15	540							

χ6259
μ Q 1907 and 30 on
What stars?

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1924phae.proj.117P

md 1909
X6259
No. 5

Lines	n	m+n	l+m+n	$\bar{n}$	m+n	[n]	[m+n]	dm	dl
γ	30	80	540						
δ	40	70	540						
ε	15	40	540						
ζ	0	10	540						

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1924phae.proj.117P

1908
X6259
No. 1.

Reprated on Page 131

Run	n	m+n	l+m+n	n̄	m+n	[n]	[m+n]	dm	dl
1	80	150	540						
2	00	200	540						
3	160	220	540						
4	130	235	540						
5	200	240	540						
6	180	200	540						
7	00	280	540						
8	250	290	540						
9	260	290	540						
10	250	300	540						
11	240	310	540						
12	260	320	540						
13	250	330	540						
14	270	330	540						
15	290	350	540						
16	—	—	—						
17	—	—	—						
18	—	—	—						
19	310	365	540						
20	350	380	540						
21	270	380	540						
22	340	390	540						
23	340	390	540						
24	310	390	540						
25	380	395	540						
26	360	395	540						
27	360	395	540						
28	340	400	540						
29	280	400	540						
30	280	400	540						

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1924phae.proj.117P

κ6259
No. 1.

Line	n	m+n	l+m+n	n̄	m+n	[n]	[n+n]	dec	dl
31	360	440	540						
32	380	440	540						
33	360	440	540						
34	380	440	540						
35	360	440	540						
36	360	440	540						
37	380	440	540						
38	360	440	540						
39	340	440	540						
40	360	420	540						
41	380	420	540						
42	380	420	540						
43	380	420	540						
44	360	420	540						
45	360	430	540						
46	360	430	540						
47	380	430	540						
48	380	430	540						
49	390	430	540						
50	380	430	540						
51	410	430	540						
52	380	440	540						
53	410	440	540						
54	390	440	540						
55	350	440	540						
56	350	440	540						
57	340	440	540						
58	446	445	540						
59	380	450	540						
60									

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Y6 259
no. 1.

Line n · m+n l+m+n n m+n [n] [n+n] dm dl

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1924phae.proj.117P

Line n	m+n	l+m+n	$\bar{n}$	$\overline{m+n}$	$[\bar{n}]$	$[\overline{m+n}]$ dem	dl
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
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Y6259

Line	n	m+n	l+m+n	$\bar{n}$	$\bar{m}+\bar{n}$	$\overline{l+m}$	$\overline{l+m+n}$	dens all
61								
62								
63								
64								
65								
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1924phae.proj.117P

-f 6259

Lim n $m+n$ $l+u+n$ $\bar{n}$ $\overline{m+n}$ $[\bar{n}]$ $[\overline{m+n}]$ $du\,dl$

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X6259

$\int_{-\infty}^{\infty} n \; m+n \; [m+n] \; \overline{n} \; \overline{m+n} \; [m][m+n] \; dm \; dn$

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α 1916
C 19140 ✓ Check measures
v 29a #1

Run	n	m+n	l+m+n	n̄	m+n̄	Σ	Σ+m	dec	dl
β	180	230	260	180	230	364	470	106	62
γ	210	250	260	210	250	420	–		
δ	200	250	260	200	250	396	–		
ε	170	240	260	170	240	354	–		
ζ	230	240	260	230	240	470	–		
η	130	230	260	130	230	300	470	170	79
θ	80	190	260	80	190	238	378	140	72
ι	60	150	260	60	150	204	320	116	66
κ	50	120	260	50	120	170	288	118	66
λ	50	90	260	50	90	170	256	86	55
μ	40	80	260	40	80	140	238	98	59
ν	40	60	260	40	60	140	204	64	44

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C 19140 Check measures

Vega # 2

Line	n	m+n	l+m+n	n̄	m+n	[m²]	[m+n²]	den	den
β	50	120	260	50	120	170	288	118	66
γ	80	180	260	80	180	238	364	126	69
δ	70	180	260	70	180	220	364	144	73
ε	140	160	260	40	160	140	334	194	~~83~~
k	120	120	260	120	120	288	288	60	00
3 ~~k~~	30	140	260	30	110	114	280	166	78
η	20	70	260	20	70	80	220	140	72
~~α~~	10	50	250	10	65	—	214	—	
c	10	30	250	10	35	—	128	—	—
~~k~~	10	30	260	10	30	—	—	—	—
~~14~~									
~~13~~									

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C 19141 ✓ Check measures
Vega #2

Line	n	m+n	l+m+n	n'	m+n	n	m+n	dm	dl
β	40	110	310	40	110	216	333	117	66
γ	70	180	310	70	180	284	410	126	69
δ	70	170	310	70	170	284	396	112	64
ε	30	150	310	30	150	177	372	195	83
k	110	130	310	110	130	333	352	19	16
ζ	20	100	310	20	100	150	324	174	80
η	10	60	310	10	60	—	266	—	—
α	0	40	310	0	40	—	216	—	—
c	0	30	310	0	30	—	177	—	—
κ	0	20	310	0	20	—	150	—	—
λ	0	10	310	0	10	—	—	—	—

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c 19141
Vega 4

Check measures

Line	u	m+u	l+m+u	ū	m+ū	[illegible]	[illegible]	[illegible]	[illegible]
β	200	275	320	195	285	420	–		
γ	240	310	320	230	300	470	–	–	
δ	210	300	320	205	290	440	–	–	
ε	160	290	320	155	280	378	–	–	
ζ	260	280	315	255	275	–	–	–	
η	110	260	310	110	260	333	–	–	
θ	70	200	310	70	200	284	436	152	75
ι	50	150	310	50	150	240	372	132	70
κ	40	120	310	40	120	216	342	126	69
λ	40	90	310	40	90	216	312	96	59
μ	30	70	310	30	70	177	284	107	63
ν	30	50	310	30	50	177	240	63	44

	Mean	Vega Sum	Mean
	333	285	618	309
	410	300	710	355
	396	290	686	343
	372	280	652	326

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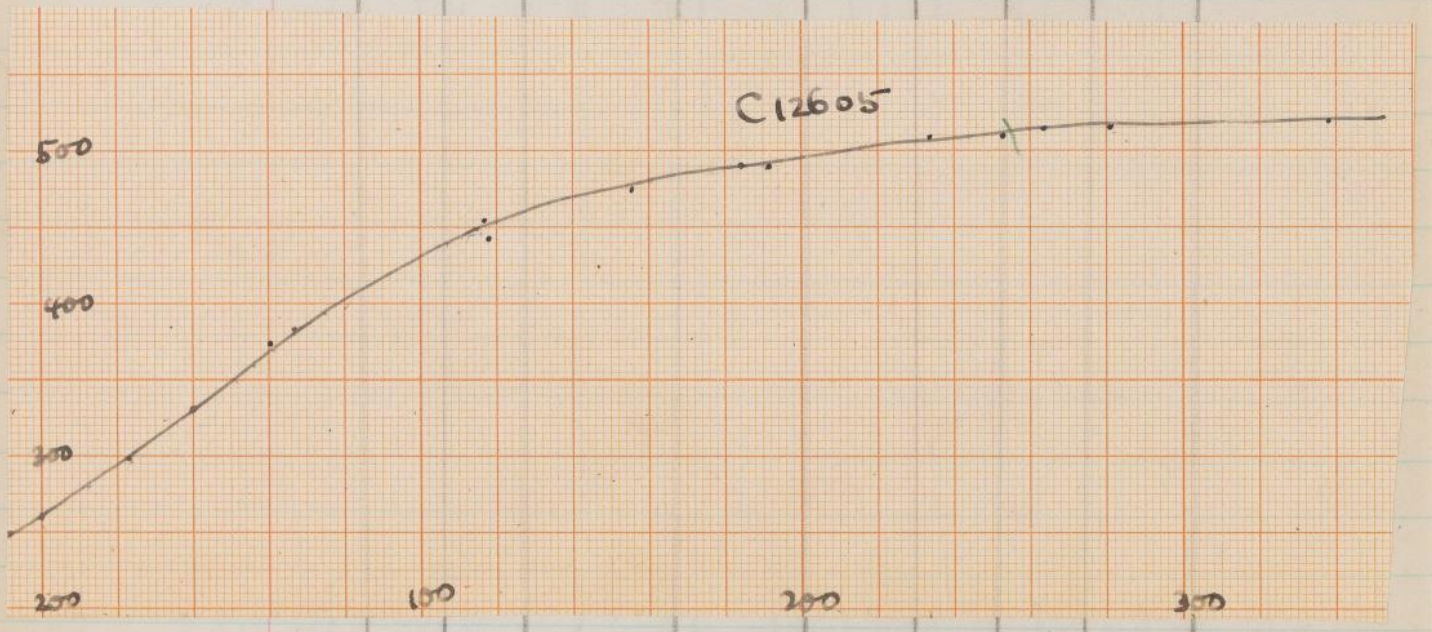
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m Q 2121
C. 12605 Nujar
So 520

Line	u	u+v	v	u+v	[u]	[u+v]	diff	dl
B	410	500	510	480	510	160	244	84	54
δ	500	610	510	510	520	244	—	—	1
δ	485	510	515	490	515	190	260	70	48
ε	410	516	515	475	515	150	260	110	64
K	490	500	510	500	510	212	244	32	26
ζ	430	500	510	440	510	109	244	135	71
η	360	480	510	370	490	61	190	129	70
Q	290	440	510	300	450	24	126	102	10
C_2	260	370	510	265	380	03	67	64	44
K	240	320	510	245	330	—	40		
λ	210	270	510	215	280	—	12		
ν	200	230	510	205	225	—	—		

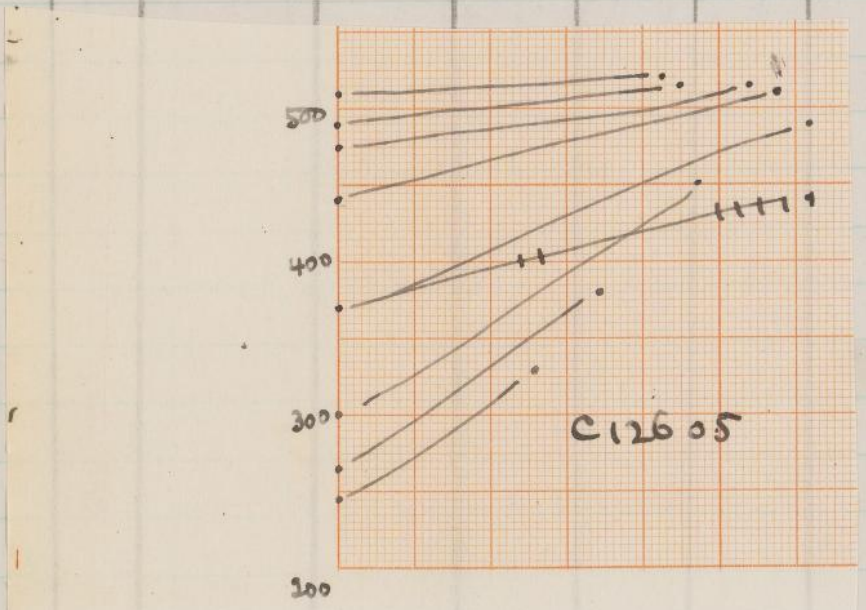


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HR 2122
C12665 Aleor

Line	in	meteor + meteor		in	meteor	[illegible]	[illegible]	clear	[illegible]		
β	190	370	510	195	380	–	66				
γ	300	455	520	300	455	23	120	97	59		
δ	260	445	520	260	445	00	111	111	64		
ε	145	395	520	145	395	–	75	–		262	187
κ	170	350	520	170	350	–	51	–			
ζ	100	280	520	100	280	–	40	–			
η	50	175	525	50	175	–	–	–			
θ	110	130	520	110	130	–	–	–			
ι	20	60	530	20	60	–	–	–			
κ	20	35	530	20	35	–	–	–			



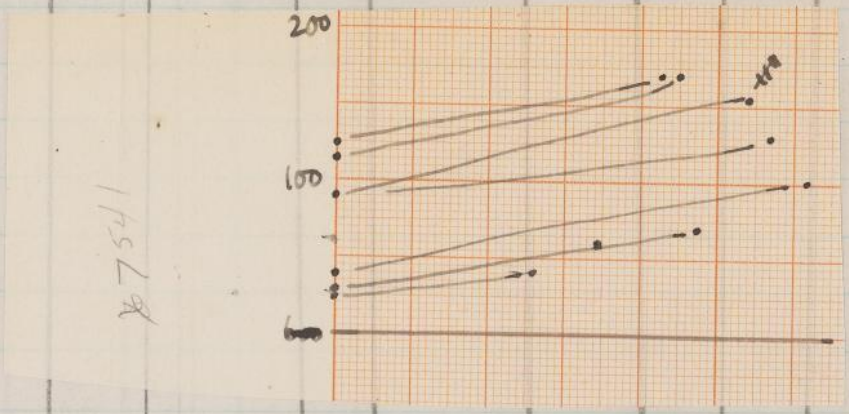
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nd 2120
C-12 612 Mizar

Io 210, unreduced

Lines	u	m+u	l+m+u	ū	m+ū	[u']	[m+u']	Am	dl
β	90	135	210			196	272		
δ	125	170	210			256	334		
δ	115	170	210			240	334		
ε	90	155	210			196	305		
η	130	150	210						
ζ	90	150	210						
η	40	100	210						
θ	20	70	210						
ι	30	60	210						
κ	25	40	210						
λ	20	35	210						
μ	15	30	210						



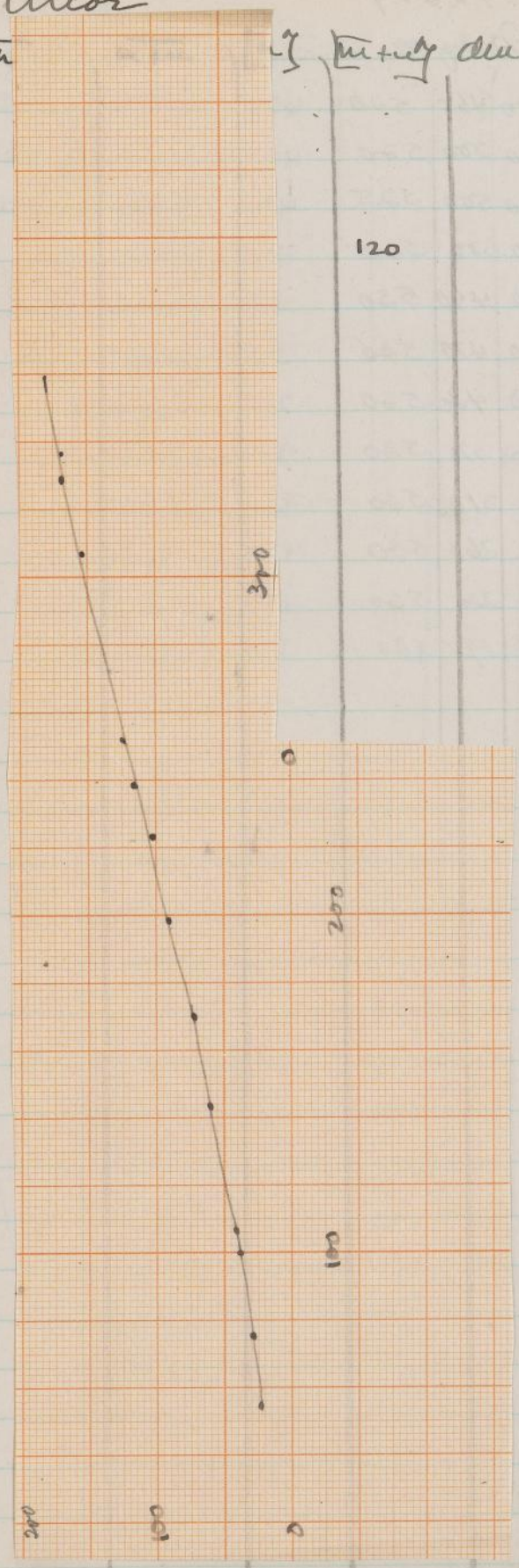
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MΦ 2120
C - 126/2

Alcor

Line	u	u+u	1+u+u	ū			
β	30	00	210				
γ	40	70	210				
δ	30	60	210				
ε	20	50	210		120	305	185
ζ	-						
η	20	40	210				
θ	10	40	210				
ι	10	30	210				
κ	00	30	210				
λ	00	20	210				



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MΦ 2120
C - 126/2 Alcor

Line	u	m+u	l+m+u	$\overline{u}$	m+u	[u]	m+u	dm	dl
β	30	00	210						
γ	40	70	210						
δ	30	60	210						
ε	20	50	210				120	305	185
*	-								
ζ	20	40	210						
η	10	40	210						
θ	10	30	210						
ι	00	30	210						
κ	00	20	210						

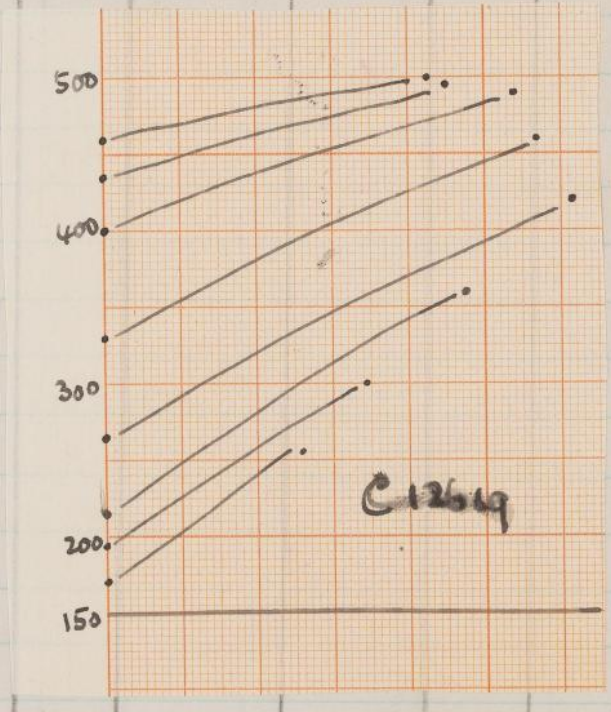
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m Q 2118
C. 12619

Jo 520

Lue	Mizar			n̄	m+n̄	[n²]	[m+n²]	dee	dl
β	400	465	520	400	465				
δ	460	500	520	460	500				
δ	440	500	525	475	495				
ε	410	500	530	400	490				
K	470	490	530	460	480				
ζ	340	470	530	330	460				
η	270	430	530	265	420				
Q	220	370	530	215	360				
ι	200	310	530	195	300				
K	175	260	530	170	255				
λ	175	220	530	170	215				
μ	170	195	530	165	190				

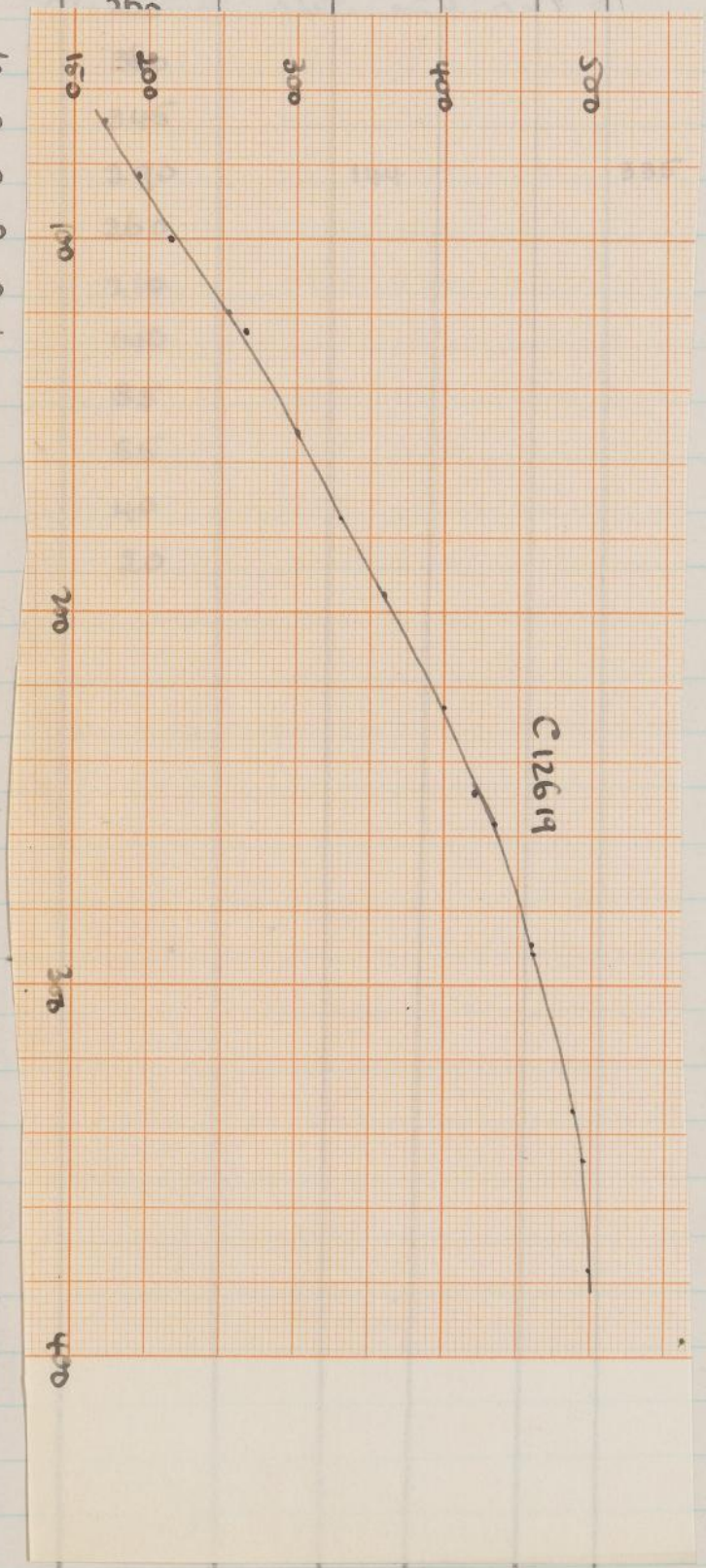


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u Φ 2119
C - 12619 Aleor

Lines	u	u+u	l+u+x	ū
β	130	260	510	130
δ	200	355	510	205
ε	160	340	510	160
ζ	100	290	520	100
ϑ	130	260	520	130
ι	70	210 140	520	70
η	35	~~210~~	520	35
ϱ	25	85	520	25
c	20	55	520	20
K	10	40	520	10
λ	10	20	520	10



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m Q 2119
C - 12619 Aleor

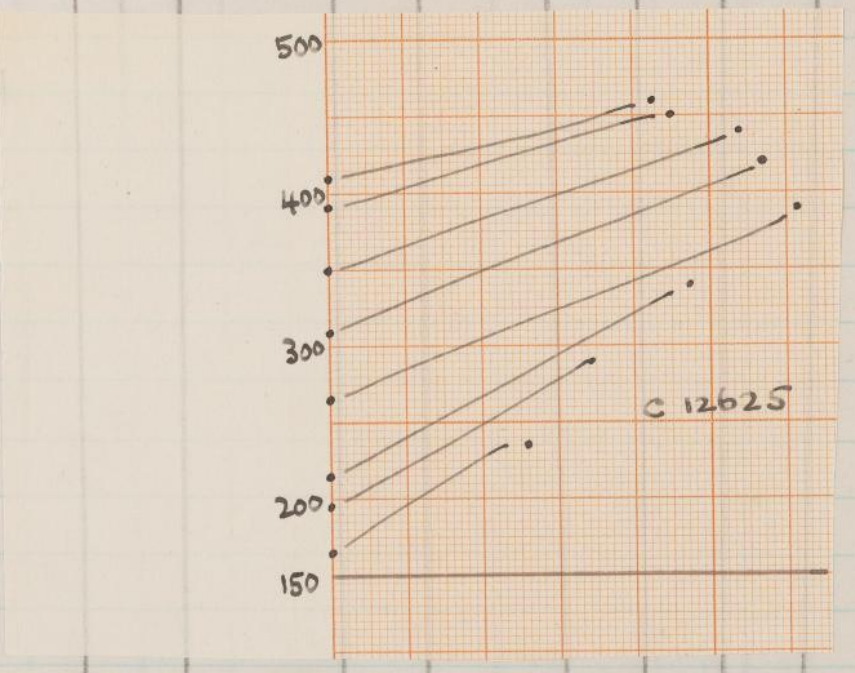
Line	n	m+n	l+m+n	n	m+n	l+m+n	n-q	m+n-q	dec	dl.
β	130	260	510	130	260					
δ	200	355	510	205	360					
ε	160	340	510	160	345					
ε	100	290	520	100	290			144		335 191
ζ	130	260	520	130	260					
ζ	70	210	520	70	210					
η	35	~~210~~ 140	520	35	140					
θ	25	85	520	25	85					
ι	20	55	520	20	55					
κ	10	40	520	10	40					
λ	10	20	520	10	20					

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mQ 2123 Mizar Jo 530
C - 12625

Line	u	m+u	l+m+u	ū	m+u	[u]	[m+u]	du	dl
β	360	420	540	350	410				
δ	410	460	530	410	460				
δ	390	450	530	390	450				
ε	350	440	530	350	440				
K	410	430	5 ~~4~~20	420	440				
ζ	300	410	520	310	420				
η	260	380	520	265	390				
Q	210	330	520	215	340				
ι	190	280	520	195	290				
K	160	230	520	165	2 35 ~~40~~				
λ	160	210	520	165	15 ~~220~~				
μ	140	180	520	140	185				
ν	130	170	520	130	176				
ξ	120	140	520	120	140				



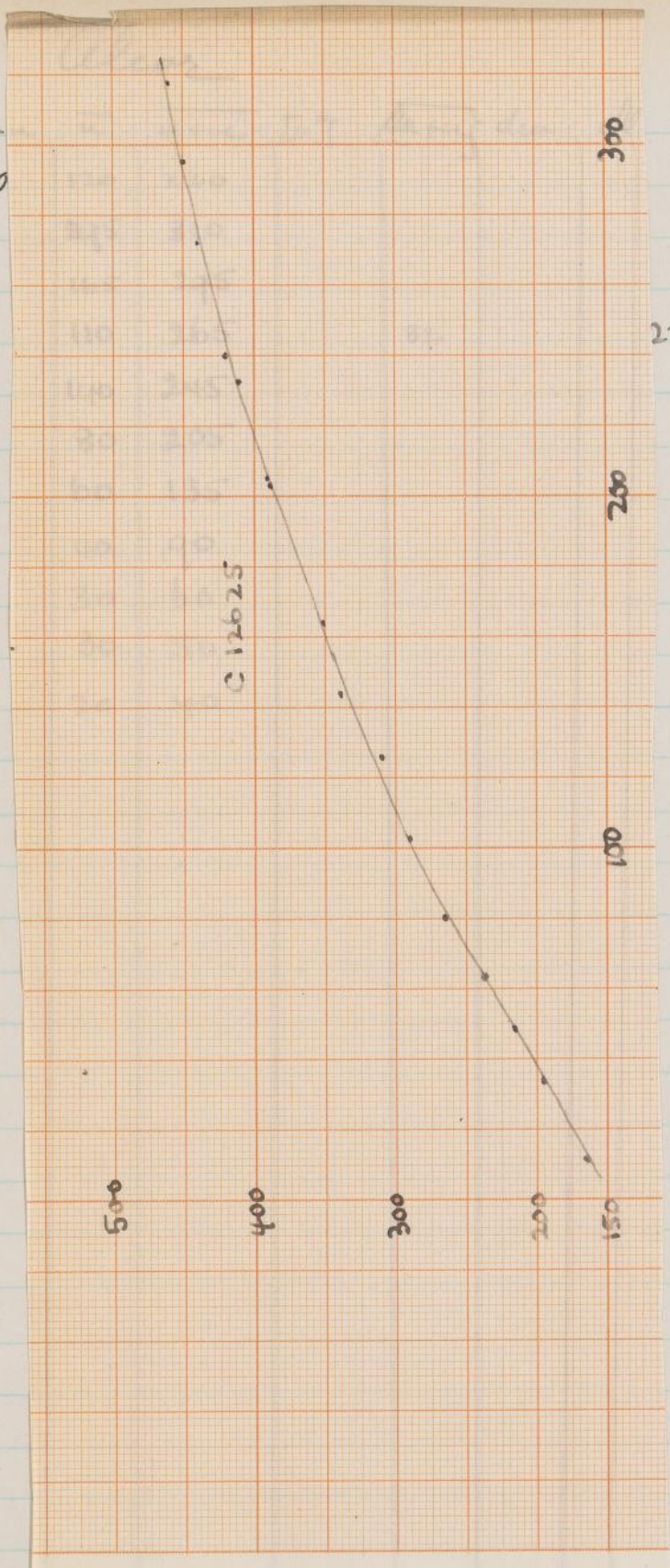
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1924phae.proj.117P

nα 2124
C -12625

Lines	u	u+u	l+u+
β	120	220	540
γ	200	315	540
δ	170	300	540
ε	110	270	540
K	140	250	540
ζ	80	210	540
η	60	135	540
θ	40	90	540
ι	30	60	540
K	26	56	540
λ	20	40	540

277 195



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1924phae.proj.11.17p

m Q 2124
C -12625

Aleor

Sum	u	u+u	l+u+u	$\bar{u}$	$\overline{u+u}$	[u+u]	[u+u]	dun	dl	
β	120	220	540	120	220					
γ	200	315	540	175	310					
δ	170	300	540	165	295					
ε	110	270	540	110	265		82		277	195
κ	140	250	540	140	245					
ζ	80	210	540	80	205					
η	60	135	540	60	135					
α	40	90	540	40	90					
ι	30	60	540	30	60					
κ	30	60	540	30	50					
λ	20	40	540	20	40					

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1924phae.proj.11TP

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1924phae.proj.1117

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