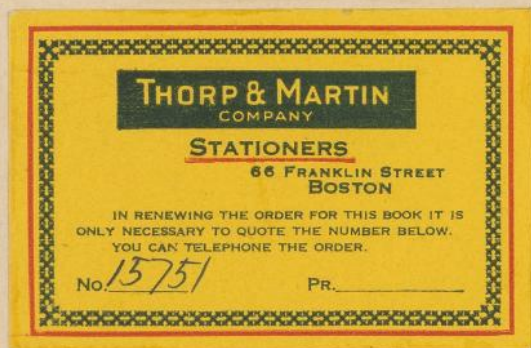


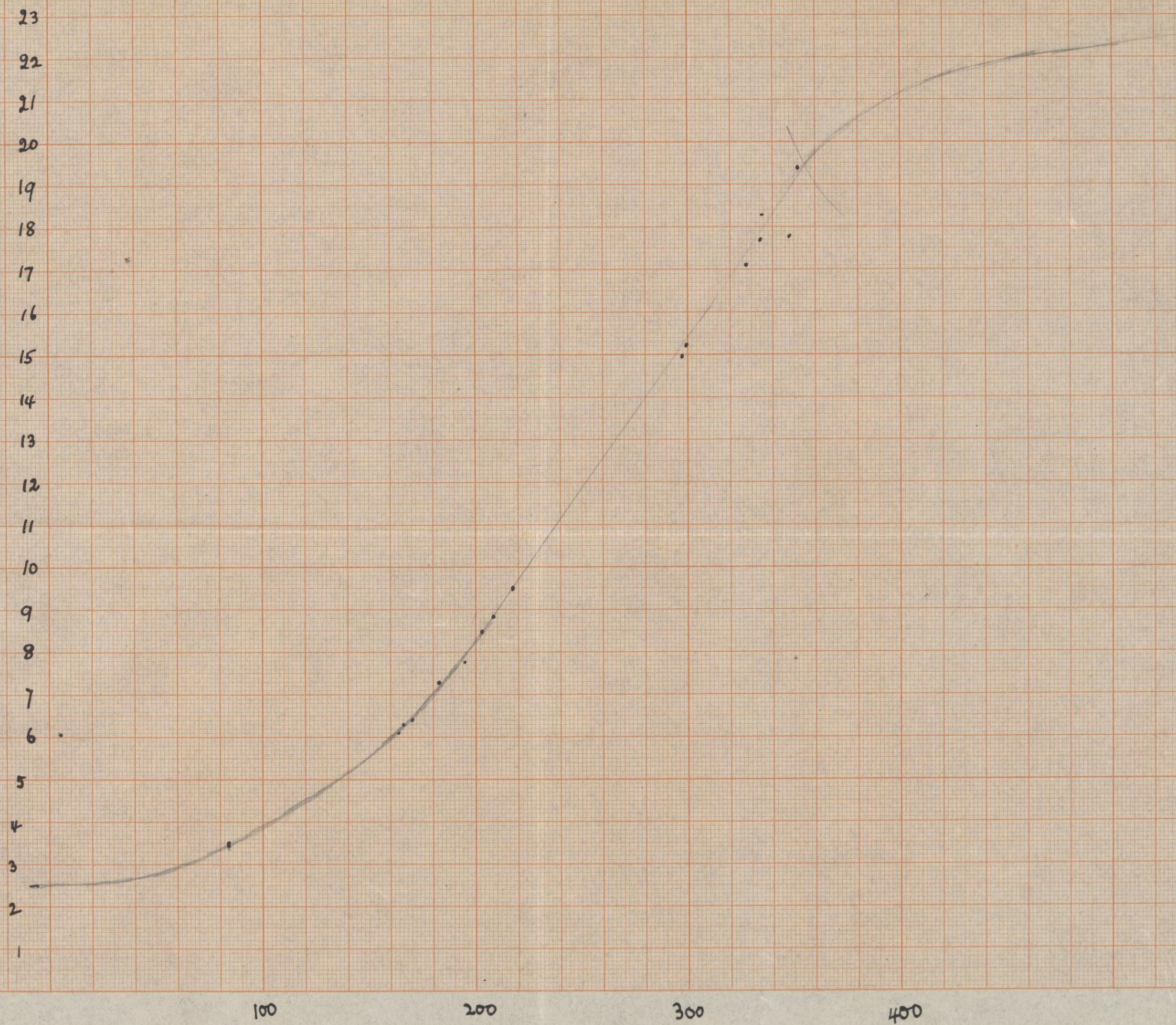
KG
11366
114

27

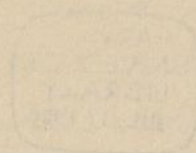
Schilt Microphotometer

KG 11366.114





100
GN 4



This is a facsimile and absolutely accurate
method of setting for a first trial.

The spectra are identified from the measured
and y coordinates by laying the plate on a
surface (usually on one of the ends of which is
and is also measured), adjusting so that the
marked spectrum No. 1 is at the right
position, and reading, finding the other
spectra from the measured coordinates
simultaneously the corresponding stars are
located from a similar plate, with
chart.

KG 11366.114



Hyades

I 38303 Preliminary measures with microphotometer

x and y are reckoned film up. x is R.A.

Setting for position made by centering the red spot on $H\gamma$

Settings on spectra made with the spot tangent to and to the violet of the hydrogen lines*

Spectrum 1 is ringed with red on the plate, which is placed in the machine N down

*This is a provisional and admittedly inaccurate method of setting for a first trial

The spectra are identified from the measured x and y coordinates by laying the plate on a réseau squared in cm (the unit in which x and y are measured), adjusting so that the marked spectrum No. 1 is at the right position, and reading finding the other spectra from the measured coordinates. Simultaneously the corresponding stars are located from a similar plate, with a chart.

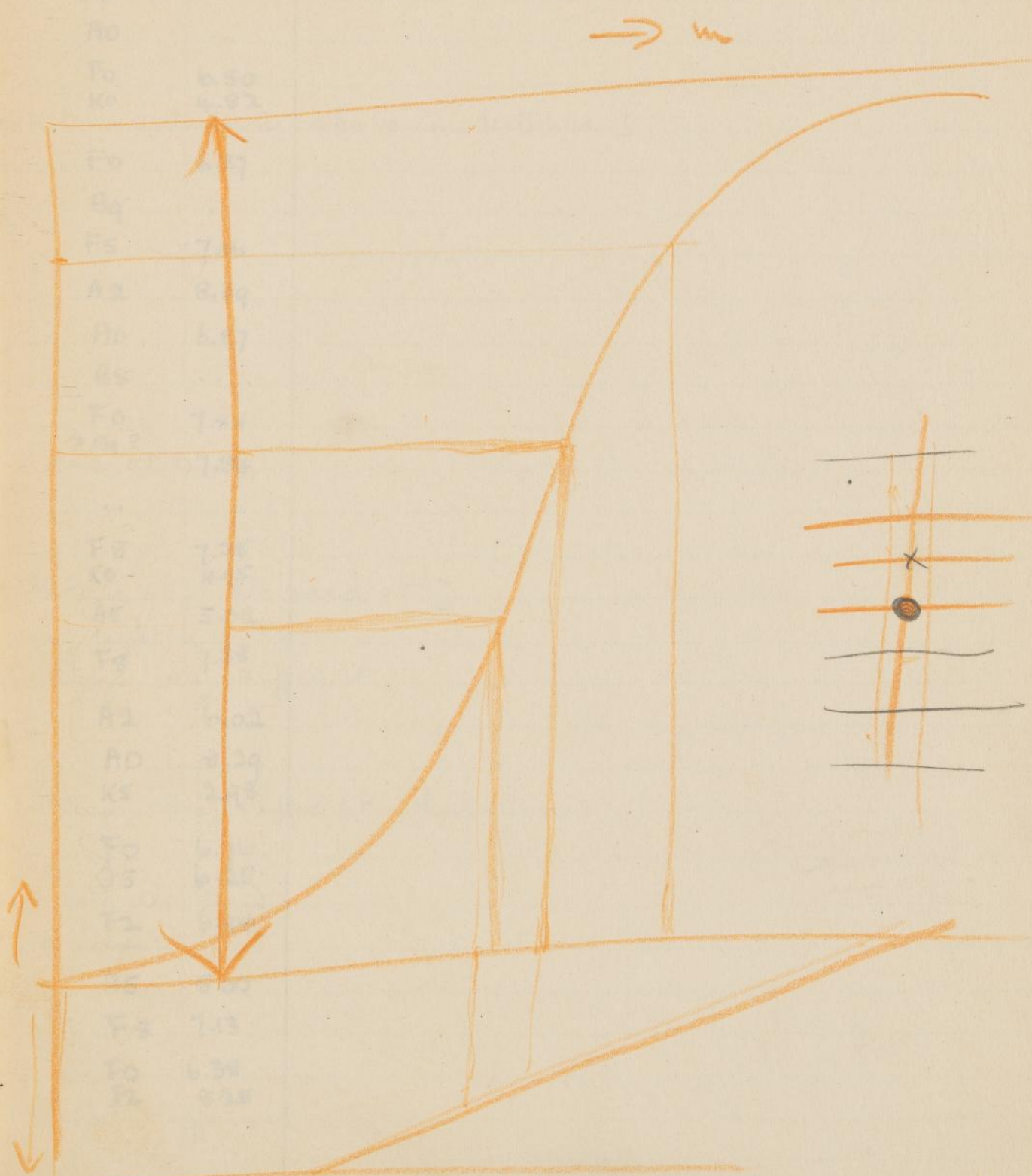
2

No plate : 16.49 Dark 3.77

I38303 Circular diaphragm 2 1

No.	α	γ	β	δ	ϵ	ζ	Clear		
✓ 1	9.6	9.0	6.89	* 6.50	6.73	8.43	8.52	11.79	
✓ 2	11.3	9.0	7.86	6.75	7.10	7.82	8.88	11.86	
✓ 3	14.8	11.5	5.39	4.98	5.36	6.92	7.20	12.71	
✓ 4	10.5	10.5	3.90	3.90	* 3.96?	5.04	6.30	12.51	
✓ 5	12.4	10.87	5.11	4.67	5.13	6.48	7.27	12.95	
✓ 6	12.5	11.1	8.20	7.48	7.95	8.90	10.13	12.95	
✓ 7	14.2	12.2	6.71	6.61	7.09	9.20	9.75	12.93	
✓ 8	14.3	12.5	9.64	9.33	9.82	11.00	11.75	13.10	
✓ 9	11.4	12.7	6.49	5.36	6.00	6.74	8.37	10.10	12.51
✓ 10	8.0	13.1	4.85	4.46	4.61	5.10	6.26	7.82	12.25
✓ 11	12.3	13.3	3.90	3.90	3.89	3.94	4.19	4.73	12.30
✓ 12	10.2	13.5	6.43	5.85	6.61	8.33	9.07	10.20	12.20
✓ 13	10.0	13.9	8.17	7.28	7.72	8.64	10.03		12.17
✓ 14	10.3	14.2	6.52	6.52	7.19	9.13	9.66		12.37
✓ 15	13.6	14.2	..	3.94	4.03?	5.09	7.23?		12.31
✓ 16	13.0	14.4	4.12	3.96	4.00	4.18	4.54	5.59	11.90
✓ 17	12.9	15.2	6.19	6.73	7.29	9.23	9.60	10.69	12.16
✓ 18	13.14	15.8	4.63	4.31	4.60	5.15	6.22	7.98	11.99
✓ 19	13.4	16.2	8.91	9.52	9.14	10.00	11.01		11.99
✓ 20	6.8	16.4	3.91	3.83	..	4.03? t			11.09
✓ 21	8.0	16.8	5.21	4.78	5.15	6.20	7.26	8.80	11.16
✓ 22	10.8	16.8	4.18	4.31	5.02	8.02	9.52		11.22
✓ 23	9.5	17.2	5.40	5.13	5.66	7.22	7.79	9.02	11.03
✓ 24	9.7	17.1	4.00	3.90	3.93	4.10	4.34	5.36	11.20
✓ 25	10.5	17.2	5.67	6.52	6.09	7.84	8.49	9.57	10.90
✓ 26	9.0	17.9	4.62	4.46	4.71	5.71	6.67	8.39	11.00
✓ 27	9.2	18.0	..	7.66	8.03	9.20	9.94		11.10

? indicates setting uncertain



1924phae.proj.11159

Sp. Class	m *
F5	..
A0	..
F0	6.50
K0	4.82
F0	6.37
B9	..
F5	7.16
A2	8.39
A0	6.87
B8	..
F0	7.84
..	..
F8	7.28
K0	4.95
A5	5.02
F8	7.38
A2	6.02
A0	8.29
K5	2.98
F0	6.76
G5	6.25
F2	6.94
A5	5.00
F8	7.13
F0	6.38
F2	8.25

K line disturbs 2 abs band disturbs 3

K line at 2 7.84

K line at 2 abs band at 3

very light K
settings very difficult

settings very difficult, halation

K and abs band

K line at 2

settings difficult

* Hertzsprung quoted by Kohlschütter AN 5055

No.	α	δ	β	γ	δ	ϵ	ζ	η	Clear
✓ 28	9.6	18.2	4.18	4.10	4.22	4.63	5.50	6.84	10.90
✓ 29	9.9	18.4	4.37	4.15	4.28	5.00	5.66	6.92	10.76
✓ 30	10.6	17.9	3.88	3.86	3.86	3.87	3.93	4.11	10.65
✓ 31	10.7	17.7	3.92	3.92?	4.01	4.87	6.48		10.77
✓ 32	11.9	18.4	3.99	3.90	3.90	4.08	4.31	4.96	10.94
✓ 33	12.0	18.6	7.32	7.11	7.78	9.28	9.49		10.85
✓ 34	15.0	19.6	4.29	4.11	4.19	4.84	5.56	6.84	11.95
✓ 35	7.9	20.1	3.98	3.90	3.92	4.09	4.36	5.00	10.40
✓ 36	10.6	20.2	8.09	7.34	7.68	8.48	9.36	10.04	10.66
✓ 37	10.8	20.3	4.57	4.37	4.58	5.50	6.29	7.50	10.67
✓ 38	11.8	20.4	4.17	4.20	-	6.48	8.39		10.92
✓ 39	14.5	21.1	6.48	5.89	6.52	8.29	8.72	9.94	12.07
✓ 40	14.2	21.8	5.39	4.58	4.89	5.71	7.01	8.87	12.32
✓ 41	9.6	22.5	4.19	4.03	4.14	4.71	5.40	6.72	10.92
✓ 42	14.4	22.8	7.87	7.54	7.76	9.00	10.19	11.39	12.69
✓ 43	8.0	23.6	5.54	5.50	6.02	7.48	8.10		11.41
✓ 44	10.6	24.1	4.21	4.61	4.09	4.41	5.08	6.24	11.10

No plate 16.98
Dark 3.80

192alpha.proj.11159

A5 5.80

F0 5.91

F0 3.74

K0 4.99

K and abs. band

A5 4.89

G0 8.07

F0 5.54

A5 4.89

A0 8.20

F0 6.25

K0 5.88

K line

F0 7.03

A3 6.10

F0 5.75

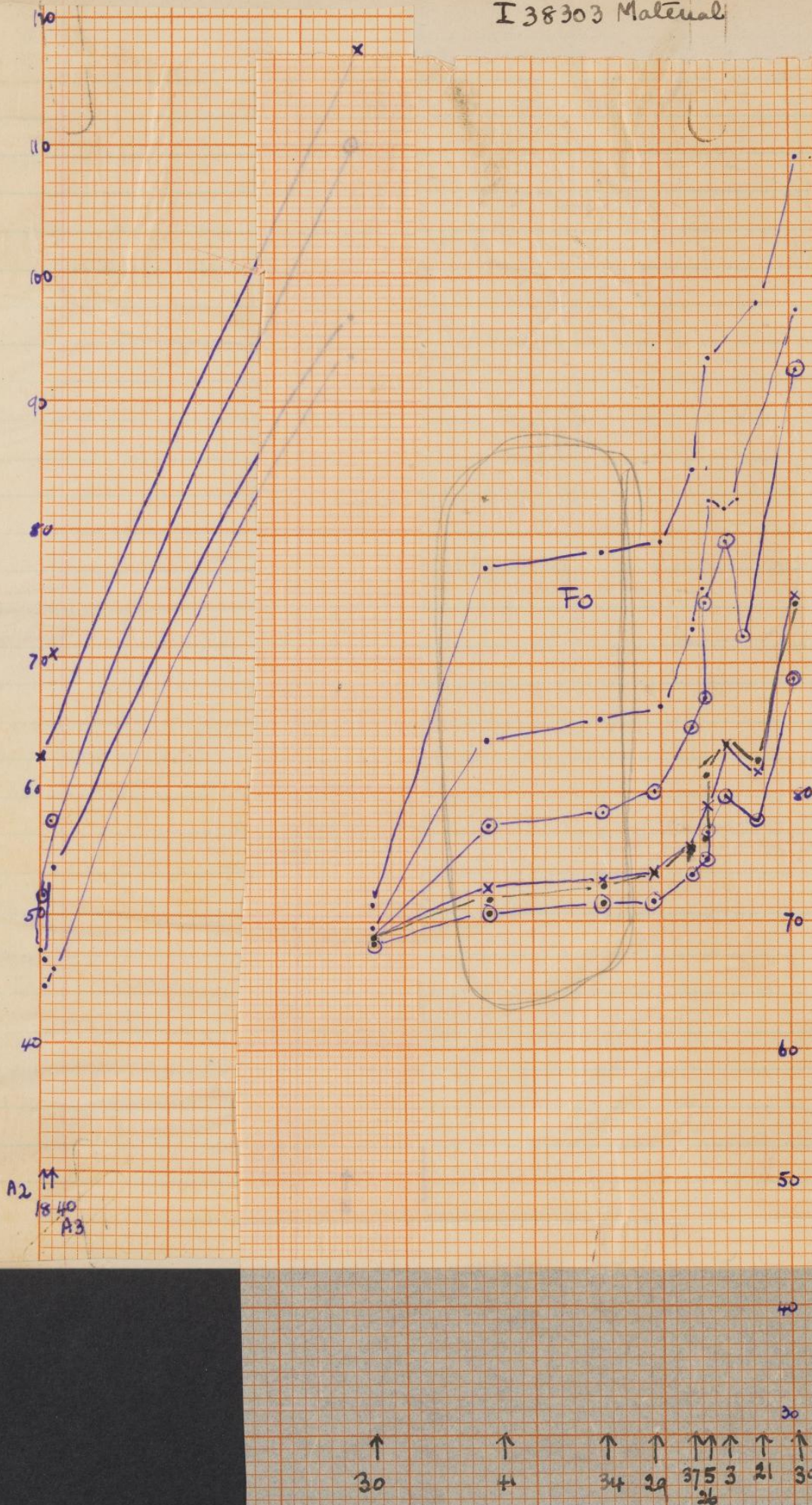
A5 7.51

F2 7.07

A5 5.30

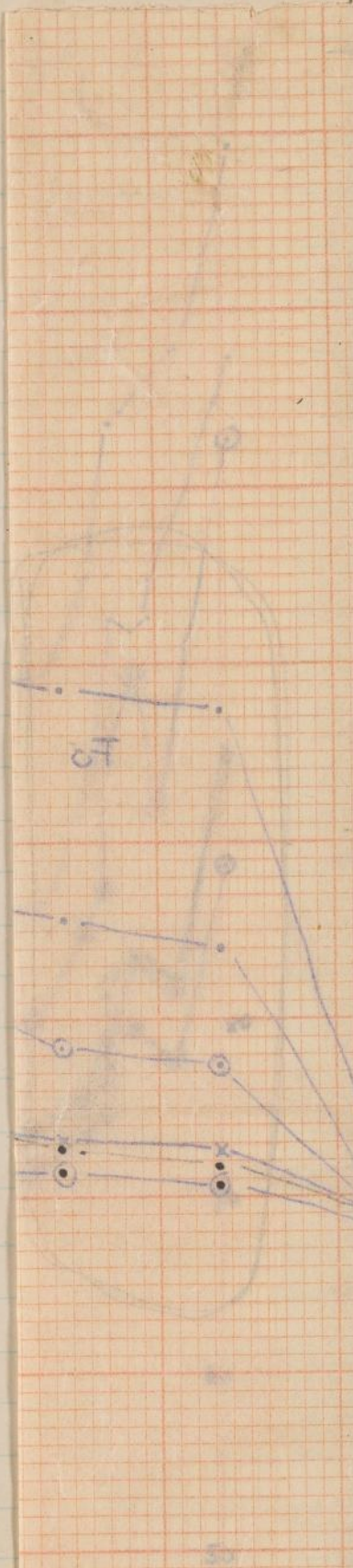
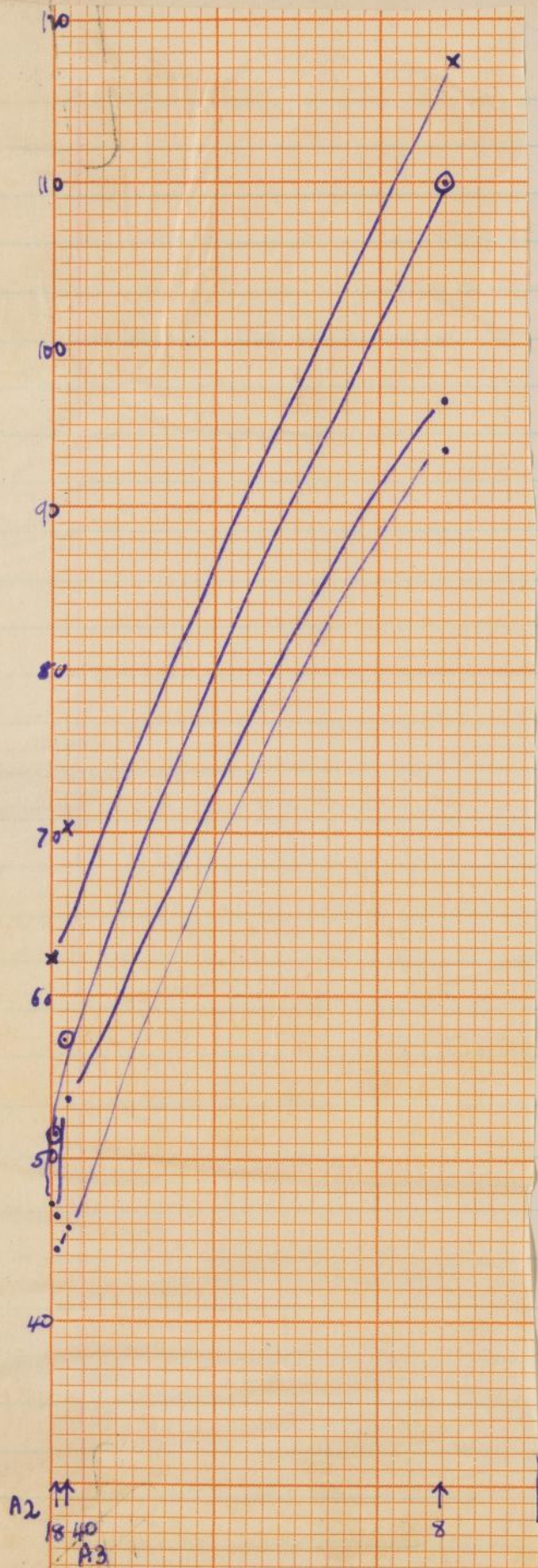
T 38303 identification				Position 1900		H.D.	ptg.	sp.	m Koh	
1	4	21.5	+19.5	+19° 731	4 24.4	+19 37	28483	7.57	F5 ✓	..
2	4	18.5	+19.5	+19° 721	4 21.2	+19 37	28138	7.70	A0 ✓	..
3	4	12.0	+18.4	+18° 625	14.6	+18 29	27429	6.24	F0 ✓	6.50
4	4	20.0	+18.8	+18° 640	22.8	+18 58	28305	4.63	K0 ✓	4.82
5	4	16.5	+18.7	+18° 633	19.1	+18 49	27901	6.24	F0 ✓	6.37
6	4	16.2	+18.6	+18° 632	18.9	+18 40	27877	7.39	B9 ✓	..
7	4	13.0	+18.1	+18° 629	15.7	+18 11	27534	7.16	F5 ✓	7.16
8	4	13.0	+17.9	+17° 709	15.6	+18 2	27525	7.9	A2 ✓	8.39
9	4	19.0	+17.9	+17° 724	22.8	+17 58	28150	6.74	A0 ✓	6.87
10	4	25.0	+17.7	+17° 750	27.8	+17 48	28867	6.19	B8 ✓	..
11	4	17.6	+17.0	+17° 722	20.2	+17 13	28007	8.1	F0 ✓	7.84
12	4	21.5	+17.6	+17° 735	24.0	+17 28	28436	8.4	B9 ✓	7.84
13	4	21.5	+17.4	+17° 738	..					
14	4	21.0	+17.3	+17° 732	23.7	+17 39	28406	7.56	F8 ✓	7.28
15	4	14.5	+17.2	+17° 712	17.2	+17 18	27697	4.93	K0 ✓	4.95
16	4	15.7	+17.1	+17° 714	18.4	+17 13	27819	4.98	A5 ✓	5.02
17	4	16.0	+16.7	+16° 591	18.6	+16 51	27848	8.3	F8 ✓	7.38
18	4	15.0	+16.4	+16° 586	17.7	+16 32	27749	5.74	A2 ✓	6.02
19	4	15.0	+16.3	+16° 587	17.8	+16 23	27761	7.8	A0 ✓	8.29
20	4	27.5	+16.3	+16° 629	30.2	+16 19	29139	2.24	K5 ✓	2.98
21	4	25.5	+16.0	+16° 621	27.9	+16 7	28879	6.79	F0 ✓	6.76
22	4	20.0	+16.0	+16° 605	22.7	+16 8	28292	6.07	G5 ✓	6.25
23	4	22.5	+15.8	+15° 637	25.1	+15 55	28568	7.00	F2 ✓	6.94
24	4	22.0	+15.9	+15° 636	24.8	+15 59	28527	4.98	A5 ✓	5.00
25	4	20.7	+15.8	+15° 633	23.3	+15 57	28363	7.08	F8 ✓	7.13
26	4	23.5	+15.6	+15° 645	26.2	+15 38	28677	6.32	F0 ✓	6.38
27	4	23.0	+15.5	+15° 643	25.6	+15 35	28622	8.01	F2 ✓	8.25
28	4	22.2	+15.4	+15° 649	24.9	+15 29	28546	5.63	A5 ✓	5.80
29	4	21.8	+15.3	+15° 646	24.4	+15 25	28485	5.98	F0 ✓	5.91
30	4	20.5	+15.6	+15° 632	22.9	+15 39	28319	3.90	F0 ✓	3.74
31	4	20.4	+15.7	+15° 631	22.8	+15 44	28307	5.04	K0 ✓	4.99
32	4	18.0	+15.3	+15° 625	20.6	+15 23	28052	4.74	A5 ✓	4.89
33	4	17.8	+15.2	+15° 624	20.4	+15 17	28034	7.99	G0 ✓	8.07
34	4	12.5	+14.8	+14° 682	14.9	+14 52	27459	5.55	F0 ✓	5.54
35	4	25.5	+14.6	+14° 720	28.2	+14 38	28910	4.89	A5 ✓	4.99
36	4	20.5	+14.5	+14° 704	23.1	+14 38	28345	8.4	A0 ✓	8.20
37	4	20.0	+14.4	+14° 702	22.7	+14 30	28294	6.25	F0 ✓	6.25

No.	Position from chart			B.D.	Position 1900	H.D.	ptg.	Sp.	
38	4	18.5	+14.4	+14° 697	4 20.9 +14 29	28100	<u>5.24</u>	K0 ✓	5.88
39	4	13.5	+14.1	+14° 687	4 15.9 +14 11	27561	<u>6.99</u>	F0 ✓	7.03
40	4	17.0	+13.7	+13° 668	4 16.4 +13 50	27628	<u>5.84</u>	A3 ✓	6.10
41	4	22.5	+13.4	+13° 690	4 25.0 +13 31	28556	<u>5.77</u>	F0 ✓	5.75
42	4	13.5	+13.3	+13° ⁶⁶⁸⁷ 658	4 16.4 +13 21	27579	<u>7.48</u>	A5 ✓	7.51
43	4	25.5	+12.9	+12° 608	4 28.2 +13 2	28911	<u>1.00</u>	F2 ✓	7.07
44	4	20.8	+12.7	+12° 598	4 23.2 +12 49	28355	<u>5.26</u>	A5 ✓	5.30



8

I 38303 Material



I 38303
Material

32 35
↑ 16 44 28
↑ 42
KS

A5

10

x

x x

9

A0

8

7

6

5

4

3

2

↑ 1 ↑ ↑
F2 23 43
340 60 30

↑ 27

0.0

A0

↑ 9

↑ ↑

36 19

I 38303
Material

A5

32 35
↑
16 24
44

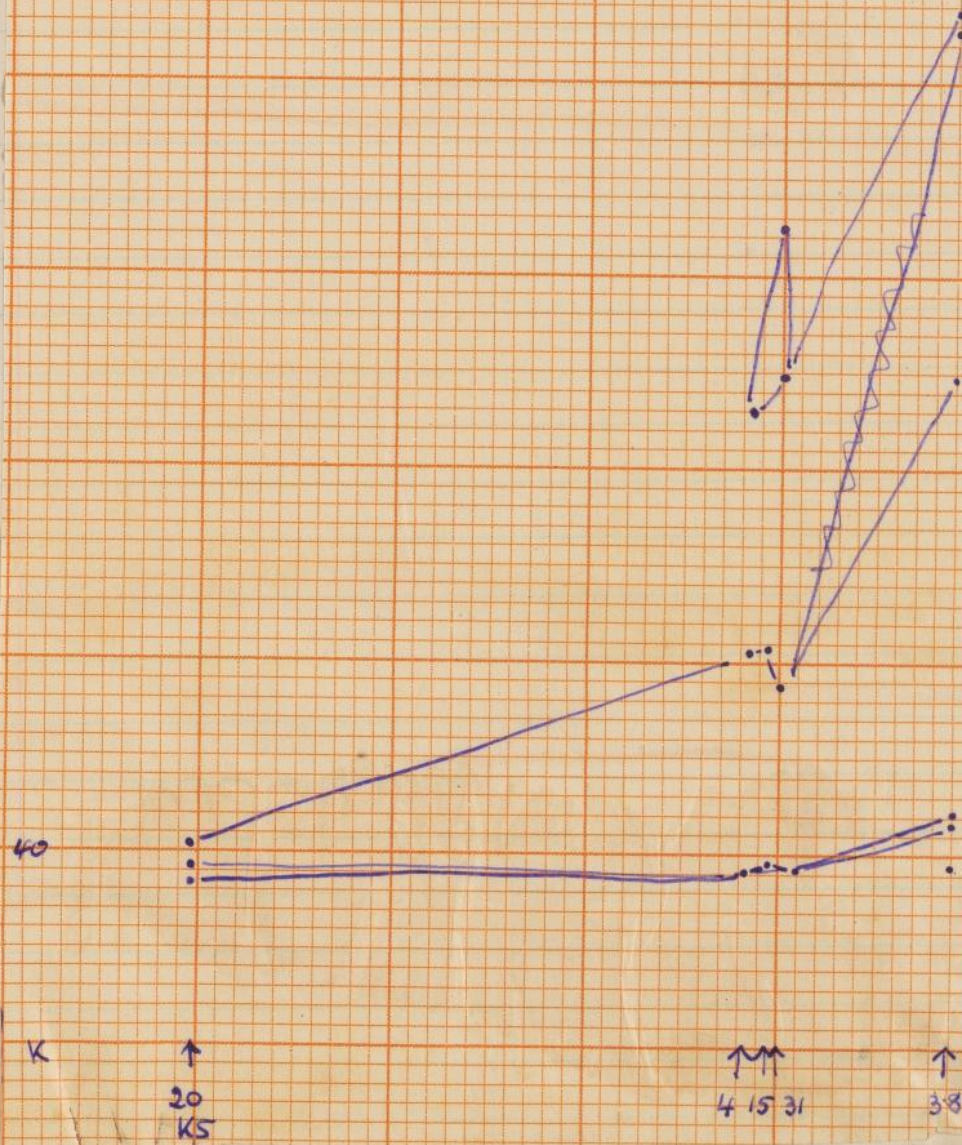
↑
28

↑
42

KS

↑
4 15 31

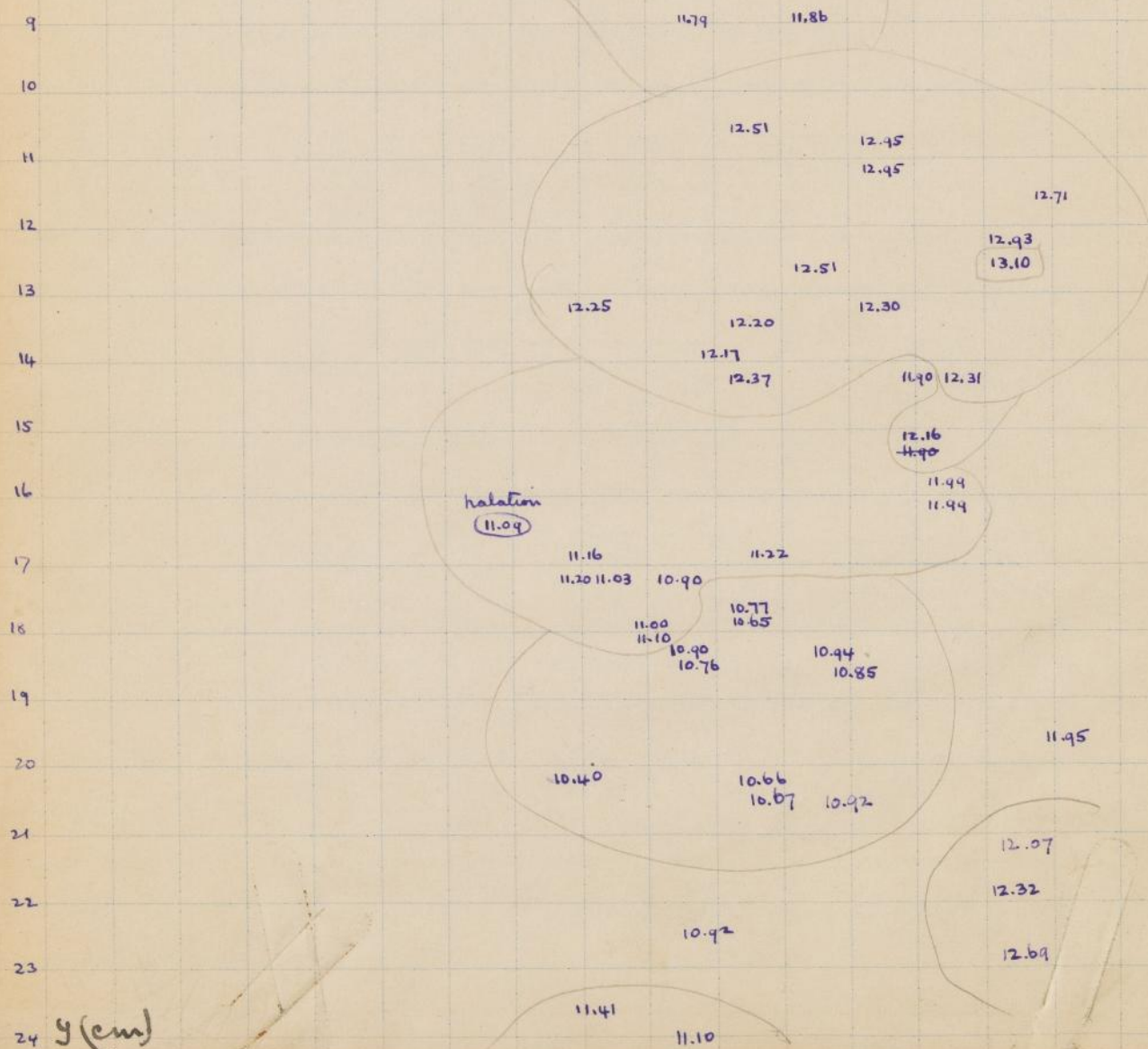
↑
38



0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 x (cm)

I 38303

Values of galvanometer deflection through clear film at different (approx) positions on the plate. B.D. +19° 73' is zero

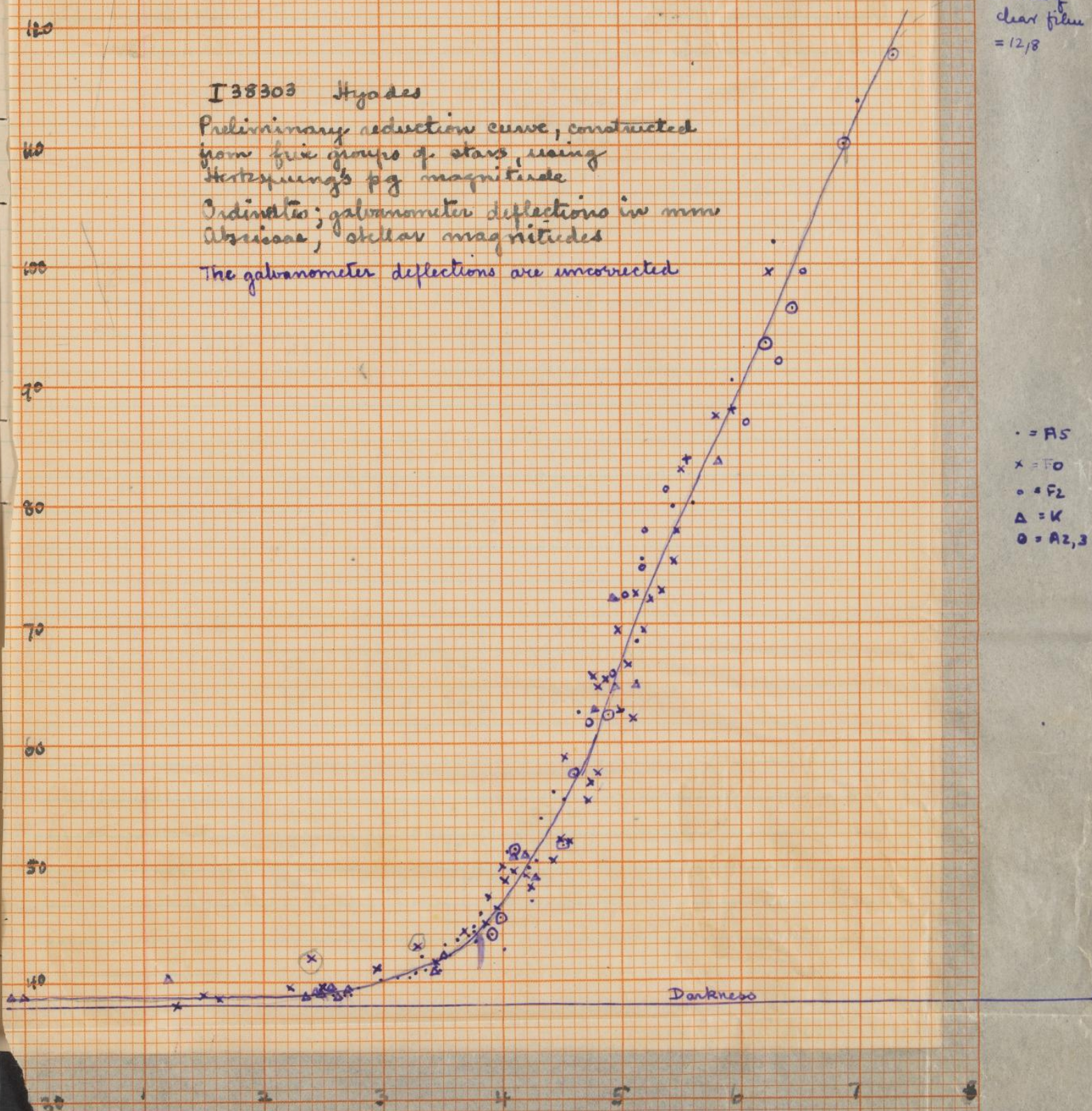


I 38303 Hyades

Preliminary reduction curve, constructed
from five groups of stars, using
Hertzsprung's pg magnitude

Ordinates; galvanometer deflections in mm
Abcissae; stellar magnitudes

The galvanometer deflections are uncorrected



ch

C18716
Reduction

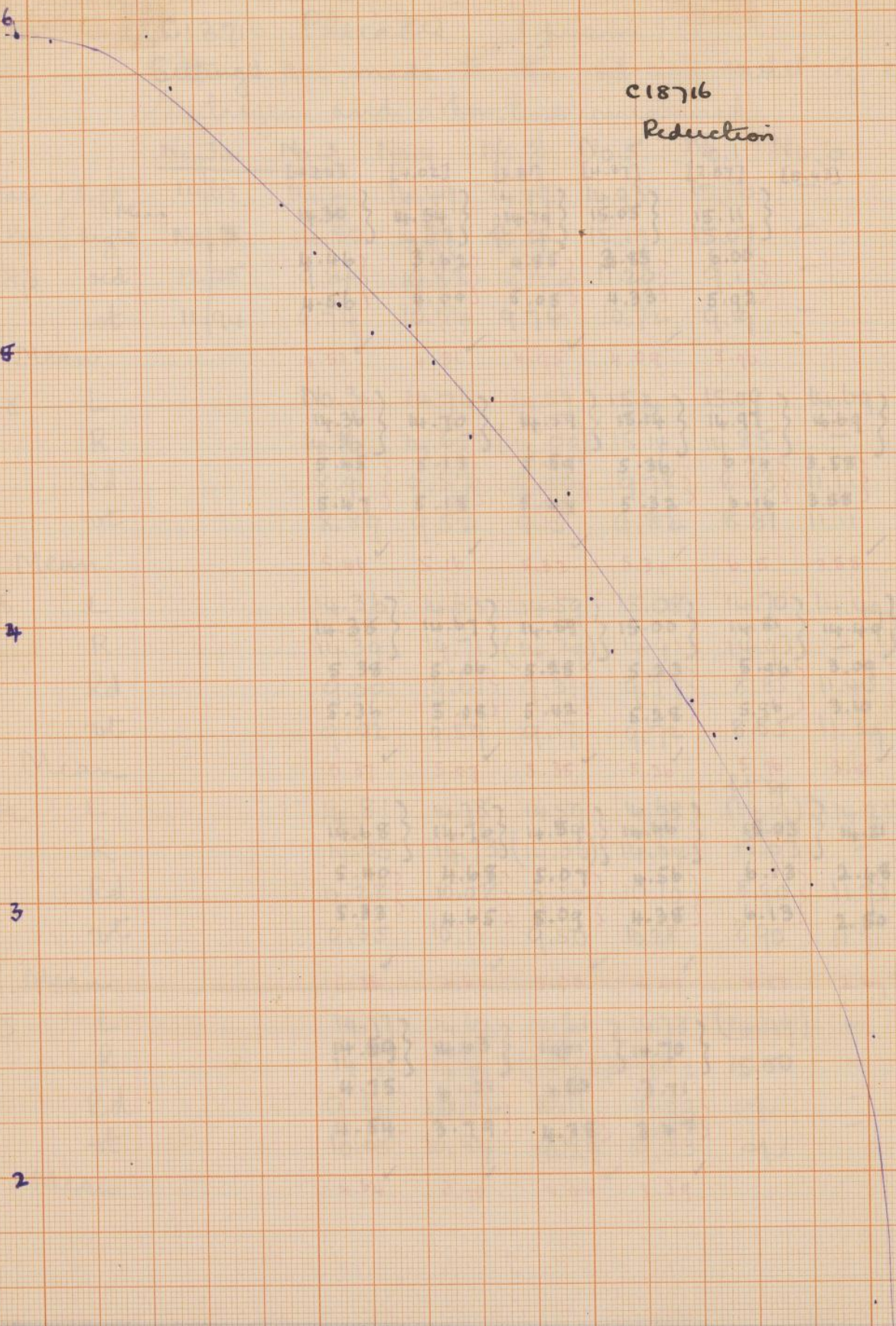
6

5

4

3

2



Settings are made to the red and violet of each hydrogen and other line measured

		No. 3a	No. 3 [4.25]	No. 4 [4.02]	No. 2 [3.81]	No. 5 [4.87]	No. 1 [2.87]	No. 6 [5.43]
Clear at H β	Left	14.63	No. 3a 14.30	14.49	14.79	14.93	15.16	
	Mean		14.30	4.54	14.79	15.05	15.11	
	Right	No. 3	14.30	14.59	ft. sp.	15.17	15.07	-
	H β	red	12.25	4.46	3.62	4.85	3.85	6.00
	vt	11.94	9.84	10.82	9.94	11.20	9.11	-
			4.56	4.00	5.05	4.33	5.92	-
			9.74	10.54	9.74	10.72	9.19	-
	Mean		4.51	4.81	4.95	4.09	5.96	
H γ	L		No. 3a	14.76	14.59	15.14	15.09	14.69
	R		14.36	14.70	14.59	15.14	14.97	14.69
	Rd		14.36	14.65	(14.00)	15.14	14.85	-
	vt		5.45	5.13	5.59	5.36	6.14	3.58
			8.91	9.57	9.00	9.78	8.83	11.11
			5.47	5.18	5.44	5.32	6.16	3.58
			8.89	9.52	9.15	9.82	8.81	11.11
	Mean		5.46	5.16	5.52	5.34	6.15	3.58
H δ	L		14.36	14.63	14.59	15.08	14.70	14.49
	R		14.38	14.67	14.59	15.00	14.81	14.49
	Rd		14.39	14.71	(14.29)	14.91	14.93	-
	vt		5.38	5.06	5.28	5.23	5.96	3.09
			9.00	9.61	9.31	9.77	8.85	11.40
			5.36	5.08	5.42	5.28	5.96	3.10
			9.02	9.59	9.17	9.72	8.85	11.39
	Mean		5.37	5.07	5.35	5.26	5.96	3.10
H ϵ	L		14.81	14.78	14.59	14.68	ft. sp.	14.21
	R		14.68	14.76	14.59	14.66	(14.19)	14.21
	Rd		14.55	14.73	(14.36)	14.64	15.03	-
	vt		5.40	4.68	5.07	4.56	6.13	2.48
			9.28	10.08	9.52	10.10	8.90	11.73
			5.33	4.65	5.09	4.38	6.13	2.50
			9.35	10.11	9.50	10.28	8.90	11.71
	Mean		5.36	4.66	5.08	4.47	6.13	2.49
H ζ	L		14.77	14.62	14.61	14.78	(14.49)	-
	R		14.59	14.63	14.61	14.70	15.00	-
	Rd		14.47	14.64	(14.42)	14.62	15.00	-
	vt		4.75	4.01	4.50	3.71	4.7	-
			9.84	10.62	10.11	10.99	11.23	-
			4.54	3.79	4.38	3.47	4.7	-
			10.05	10.84	10.23	11.23	11.23	-
	Mean		4.64	3.90	4.44	3.59		

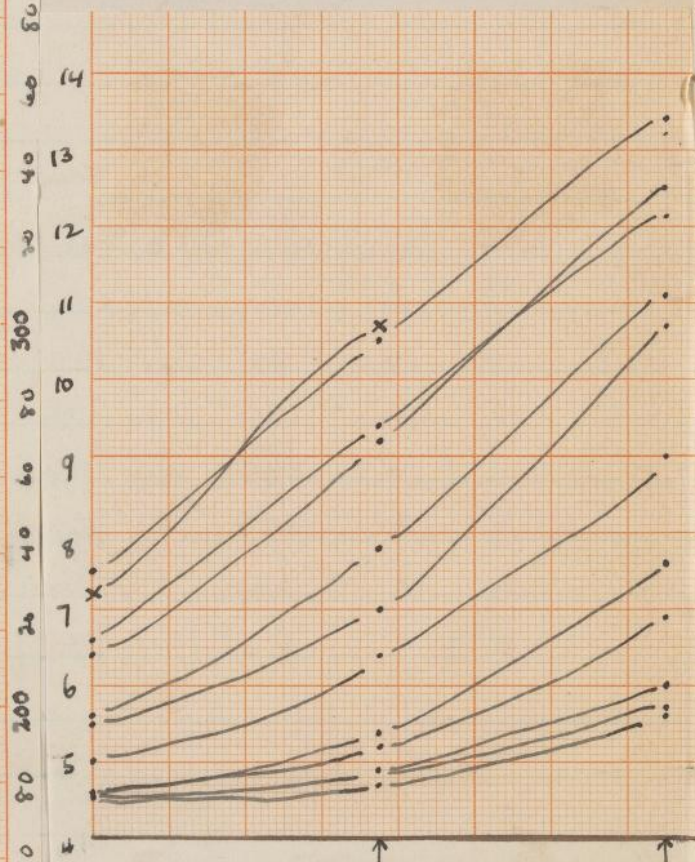
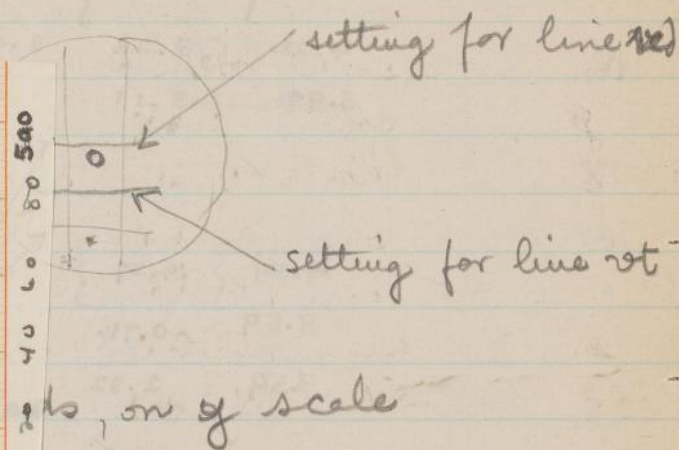
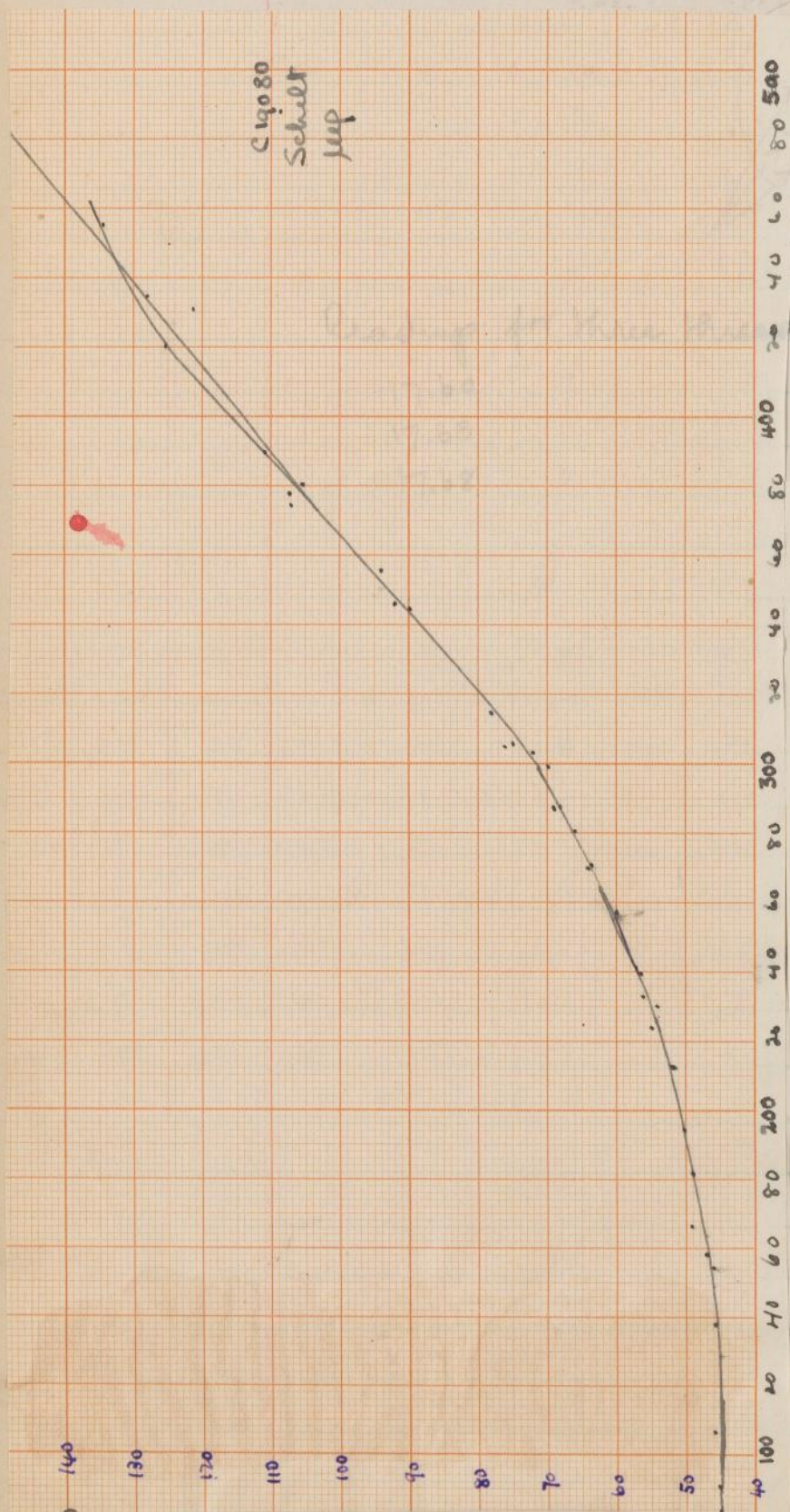
	No.3	No.4	No.2	No.5	No.1	No.6
H _γ L	14.82	14.69	14.67	14.96		
R	14.62	14.62	14.58	14.79		
Rd	14.42	14.54	14.50	14.57		
vt	4.22	3.26	3.93	3.36		
	10.40	11.36	10.65	11.40		
	3.99	3.11	3.49	2.72		
	10.63	11.51	11.09	12.04		
Mean	4.12 ✓	3.18 ✓	3.71 ✓	3.04 ✓		

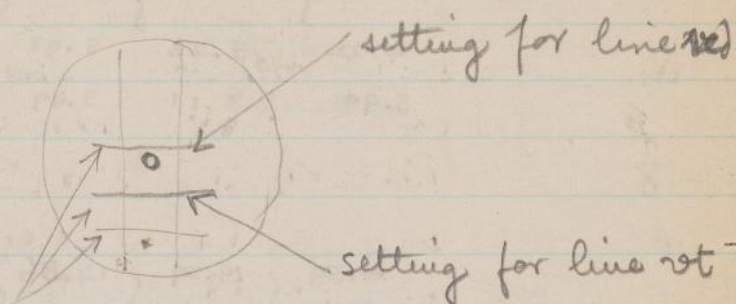
H _β L	14.65	14.49	14.90		
R	14.59	14.59	14.56		
Rd	14.53	14.69	14.23		
vt	3.59	0.74	3.15		
	11.00	13.85	11.41		
	3.59	2.32	2.95		
	11.00	12.27	11.61		
	3.59 ✓	1.53 ✓	3.05 ✓		

No plate
above
below

20.03	20.06	20.04	20.00	19.90	20.06
20.07	20.09	20.06	20.02	20.02	20.09
20.05	20.08	20.05	20.01	19.96	20.08

	Straight:					Reduced:					Σ Mean	Red.	Str.
	No.1	No.2	No.6	No.4	No.5	No.1	No.2	No.6	No.4	No.5		No.3	No.3
β	46	149	-	159	212	46	55	-	44	62	207	52 +8	44 182
γ	0	82	244	128	111	0	-8	-12	13	-39	46	-11 +28	-39 99
δ	46	100	271	136	118	46	6	15	21	-32	10	2 +32	-30 108
ε	-	135	294	171	185	-	41	38	56	35	170	42 +73	-29 109
ζ	-	188	-	224	243	-	94	-	109	93	96	99 +65	34 172
η	-	235	-	265	271	-	141	-	150	121	142	137 +65	72 210
θ	-	271	-	[307]	-	-	177	-	192	369	184	184 +78	106 244



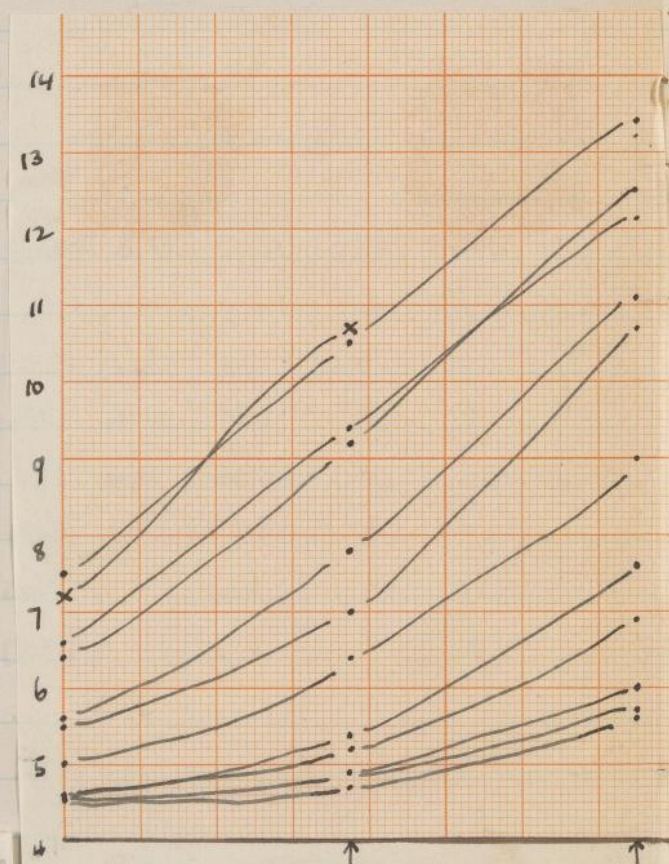


Reading for three threads, on of scale

17.60

17.63

17.68



Reduction - C 19080

15

45-128	69-291	93-358	117-408	aphrodisiac
46-151	70-294	94-352	118-410	
47-162	71-298	95-354	119-412	3.19
48-172	72-301	96-356	120-415	3.04
49-183	73-304	97-359	121-417	3.97
50-192	74-307	98-361	122-420	.34
51-201	75-310	99-364	123-422	8.88
52-211	76-312	100-366	124-424	5.09
53-219	77-314	101-368	125-426	.88
54-225	78-317	102-370	126-429	.76
55-230	79-319	103-372	127-432	.75
56-236	80-321	104-375	128-434	.08
57-240	81-324	105-377	129-436	.57
58-245	82-326	106-380	130-439	6.47
59-250	83-328	107-382	131-442	7.36
60-255	84-330	108-385	132-444	.73
61-260	85-332	109-387	133-447	6.92
62-264	86-335	110-390	134-449	5.16
63-268	87-337	111-392	135-451	7.54
64-272	88-339	112-395	136-454	3.03
65-276	89-341	113-397	137-456	1.28
66-280	90-344	114-400	138-458	0.22
67-284	91-346	115-402	139-460	mult
68-287	92-348	116-405	140-462	

c 19080 Vega and α Cygni, Largest diaphragm
(circular)
No film 21.36

No. 1	Film L	Film R	Line Vt	Line Red	Mean film		
B	14.00	13.65	4.55	4.62 [✓]	13.81	9.26	9.19
8	13.60	13.60	4.50 [✓]	4.56	13.60	9.10	9.04
5	13.62	13.60	4.64	4.64	13.61	8.97	8.97
E	13.63	13.16	4.60 [✓]	5.05	13.39	8.79	8.34
k	13.60	13.36	4.60 [✓]	4.60	13.48	8.88	8.88
3	13.69	13.48	5.00 [✓]	5.49 [✓]	13.58	8.58	8.09
n	13.50	13.10	5.63 [✓]	6.42 [✓]	13.30	7.67	6.88
Q	13.30	13.21	6.59 [✓]	7.50 [✓]	13.26	6.67	6.76
C	13.50	13.07	7.19 [✓]	8.53	13.28	6.89	4.75
K	13.40	13.13	8.70	9.18	13.26	4.56	3.08
A	13.40	13.50	9.47 15.67	9.88 16.88	13.45	3.78	3.57
					Σ 118.02		
					Mean 13.45		

No. 2

B	14.02	14.18	6.00 [✓]	7.63 [✓]	14.10	8.10	6.47
8	14.00	14.07	5.63 [✓]	6.68	14.04	8.41	7.36
5	13.90	14.03	5.73 [✓]	7.04	13.96	8.23	6.92
E	13.84	13.87	6.88 [✓]	8.70	13.86	6.98	5.16
k	13.82	13.70	6.27 [✓]	6.22	13.76	6.49	7.54
3	13.60	13.82	9.03 [✓]	10.68 [✓]	13.71	4.68	3.03
n	13.70	13.82	11.09 [✓]	12.48 [✓]	13.76	1.67	1.28
Q	13.63	13.66	12.12 [✓]	13.42 [✓]	13.64	1.52	0.22
					very difficult		
					110.83		
					13.85		

16

C-19080 Vega and α Cygni

No 3	Film L	Film R	Line Mt	Line Rd	Mean Film
β	14.38	14.41	4.94	5.37	14.40 9.46 9.03
γ	14.50	14.37	4.71	4.99	14.44 9.63 9.45
δ	14.38	14.34	4.90	5.35	14.36 9.46 9.01
ϵ	14.20	14.13	5.18	6.12	14.16 8.98 8.04
κ	14.19	14.00	5.20	5.63	14.09 8.89 9.06
λ	13.85	14.00	6.44	7.02	13.92 7.48 6.90
η	13.70	14.00	7.81	9.19	13.85 6.04 4.66
θ	13.75	13.77	9.40	10.50	13.76 4.36 3.26
ι	13.68	13.78	10.75	—	13.73 2.98 —
					126.71
					14.08 Mean
No 4					
5015	14.52	14.50	5.76	6.54	14.51 240 276
4922	14.30	14.82	4.93	5.18	14.56 247 209
β	14.26	14.65	4.85	4.90	14.46 243 201
γ	14.33	14.50	4.77	4.73	14.46 251 263
δ	14.60	14.62	4.70	4.77	14.61 172 193
ϵ	14.30	14.80	4.90	4.90	14.55 245 249
κ	14.52	14.48	4.95	4.92	14.50 182 162
λ	14.24	14.63	5.27	5.22	14.44 244 240
η	14.14	14.35	6.20	5.99	14.24 162 172
θ	14.33	14.19	6.85	6.79	14.26 244 240
ι	13.98	14.47	8.11	7.50	14.22 251 250
κ	13.82	14.31	8.31	8.18	14.06 283 183
λ	14.14	14.13	8.36	8.06	14.14 183 183
μ	14.00	13.97	9.88	8.64	13.98 253 250
					200.94
					14.28 Mean

c 19080 Vega and α Cygni

No 5	Film L	Film R	Line Ut.	Line Rd	Mean Film		
5015	14.32	14.22	6.03	6.89	14.28	250	294
4922	14.70	14.02	5.09	5.10	14.34	20	20
B	15.09	14.37	4.78	4.82	14.37?	2	2
8	14.68	14.07	4.58	4.58	14.37	15	15
8	15.10	14.42	4.59	4.61	14.76	15	15
E	15.04	14.38	4.83	4.88	14.61	172	18
R	14.89	14.30	4.90	4.88	14.60	3	15
3	14.80	14.52	5.18	5.13	14.66	210	20
7	15.17	14.39	6.15	5.90	14.78	260	250
Q	14.43	14.02	6.77	6.68	14.22	287	28
C	14.67	14.30	8.12	7.61	14.48	4	312
K	14.50	14.07	8.33	8.37	14.25	328	320
A	14.30	14.25	8.62	8.40	14.26	335	330
U	14.38	14.17	9.97	—	14.26	366	—
					202.24		
					14.44		

C19080 Vega and α Cygni.

No	Film L	Film R	Line Vt	Line Red			
5015	14.28	14.78	6.20	7.47	14.53	264	340
4922	14.58	14.80	5.11	5.38	14.69	201	226
B	14.74	14.47	4.83	4.95	14.60	172	192
8i	14.70	14.48	4.72	4.70	14.59	162	162
8	14.63	14.58	4.60	4.58	14.60	151	151
ε	14.80	14.72	4.84	4.96	14.76	172	192
R	15.00	14.60	4.94	5.00	14.80	183	192
3	14.75	14.92	5.31	5.32	14.81	219	219
η	14.80	14.42	6.47	6.35	14.61	274	272
Q	14.78	14.50	7.32	7.30	14.64	304	304
c	14.49	14.38	8.52	8.66	14.42	332	337
K	14.43	14.30	8.68	8.88	14.38	337	341
λ	14.51	14.48	9.10	9.00	14.50	346	348
u	14.34	14.50	10.30	—	14.42	372	—

204.35
14.69

C19080 Vega and α Cygni

No. 7	Film L.	Film R.	Line Vt	Line Rd			
5015	14.90	14.90	5.99	6.92	14.90	255	291
4922	15.03	14.85	4.92	5.10	14.94	183	201
P	15.08	14.82	4.65	4.80	14.95	167	172
S	14.59	14.90	4.63	4.62	14.74	151	151
S	14.80	14.80	4.68	4.70	14.80	162	162
E	14.67	14.70	4.81	4.89	14.68	172	183
R	14.70	14.80	4.95	4.90	14.75	182	183
3	15.00	14.74	5.20	5.18	14.89	211	201
n	15.02	14.73	6.27	6.03	14.88	268 ?	255
o	14.72	14.76	6.34	6.14	14.74	268	260
c	14.77	14.68	7.10	6.98	14.72	294	291
K	14.80	14.56	8.24	7.50	14.68	326	310
A	14.50	14.68	8.35	8.30	14.59	328	328
u	14.57	14.43	8.80	—	14.50	339	—
					206.04		
					14.72		

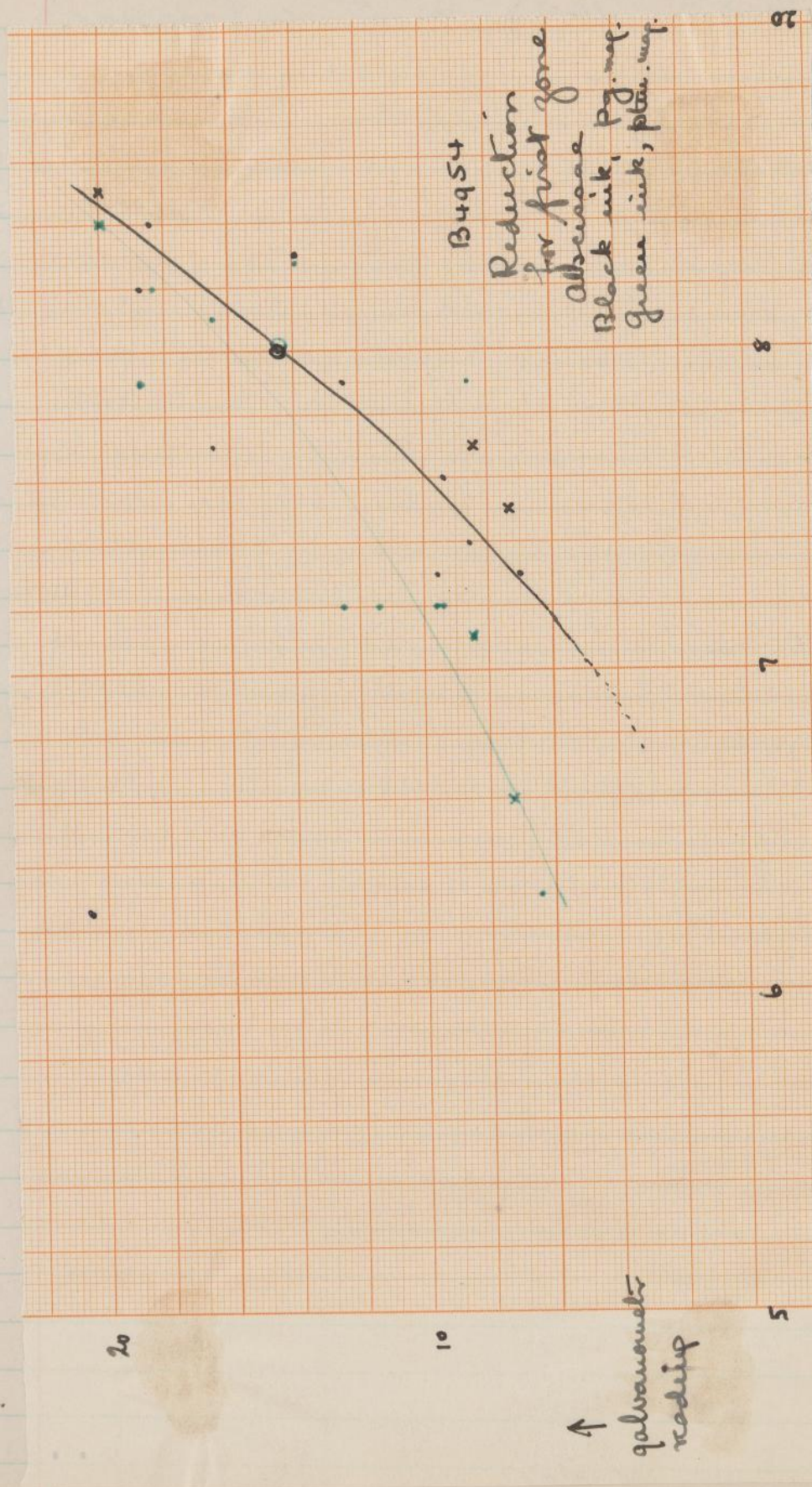
C 19080 Vega and α Cygni

No. 8	Film L	Film	R Line	Vt Line	Rel.			
5015	15.28	14.82	6.80	7.93	15.05	287	319	
4922	15.09	14.94	5.22	5.49	15.02	211	230	
β	15.36	15.10	4.96	5.00	15.23	192	192	
γ	15.38	15.06	4.63	4.63	15.22	151	151	
δ	15.40	15.07	4.68	4.68	15.24	162	162	
ϵ	15.35	15.20	4.93	5.00	15.28	183	192	
R	15.40	15.09	5.17	5.13	15.24	211	201	
3	15.21	15.05	7.00	6.68	15.13	294	291	
η	15.10	14.82	7.75	7.65	14.96	312	314	
θ	15.12	15.03	9.03	8.30	15.08	344	328	
ι	14.98	14.92	9.08	8.83	14.95	346	328	
K	15.18	14.85	9.63	9.48	15.02	356	354	
α	14.87	14.92	9.60	9.00	14.90	356	344	
μ	14.89	15.00	10.81	—	14.94	385	—	
					211.36			
					15.09			

C19080 Vega and α Cygni

Mo 9	Film L.	Film R.	Film VT.	Film Rd.			
5015	15.07	15.13	6.50	7.42	15.10	276	7
4922	15.06	14.80	5.10	5.47	14.93	204	304
B	15.43	14.98	4.87	4.98	15.20	187	230
S	15.20	14.90	4.60	4.59	15.05	159	2
S	15.08	14.90	4.78	4.73	14.99	172	191
E	14.83	14.53	4.92	5.07	14.68	187	154
R	14.92	14.53	5.09	5.10	14.72	204	162
Z	14.71	14.42	5.41	5.41	14.66	224	202
n	14.60	14.48	6.65	6.35	14.59	284	202
o	14.56	14.43	7.43	7.20	14.50	307	224
c	14.50	14.38	8.73	8.01	14.44	337	270
K	14.51	14.45	9.14	9.06	14.48	346	301
A	14.38	14.38	10.14	9.27	14.38	366	327
m	14.42	14.24	11.16	—	14.33	395	346
					206.05		250
					14.72		—

no Plate 21.86
no light 4.60

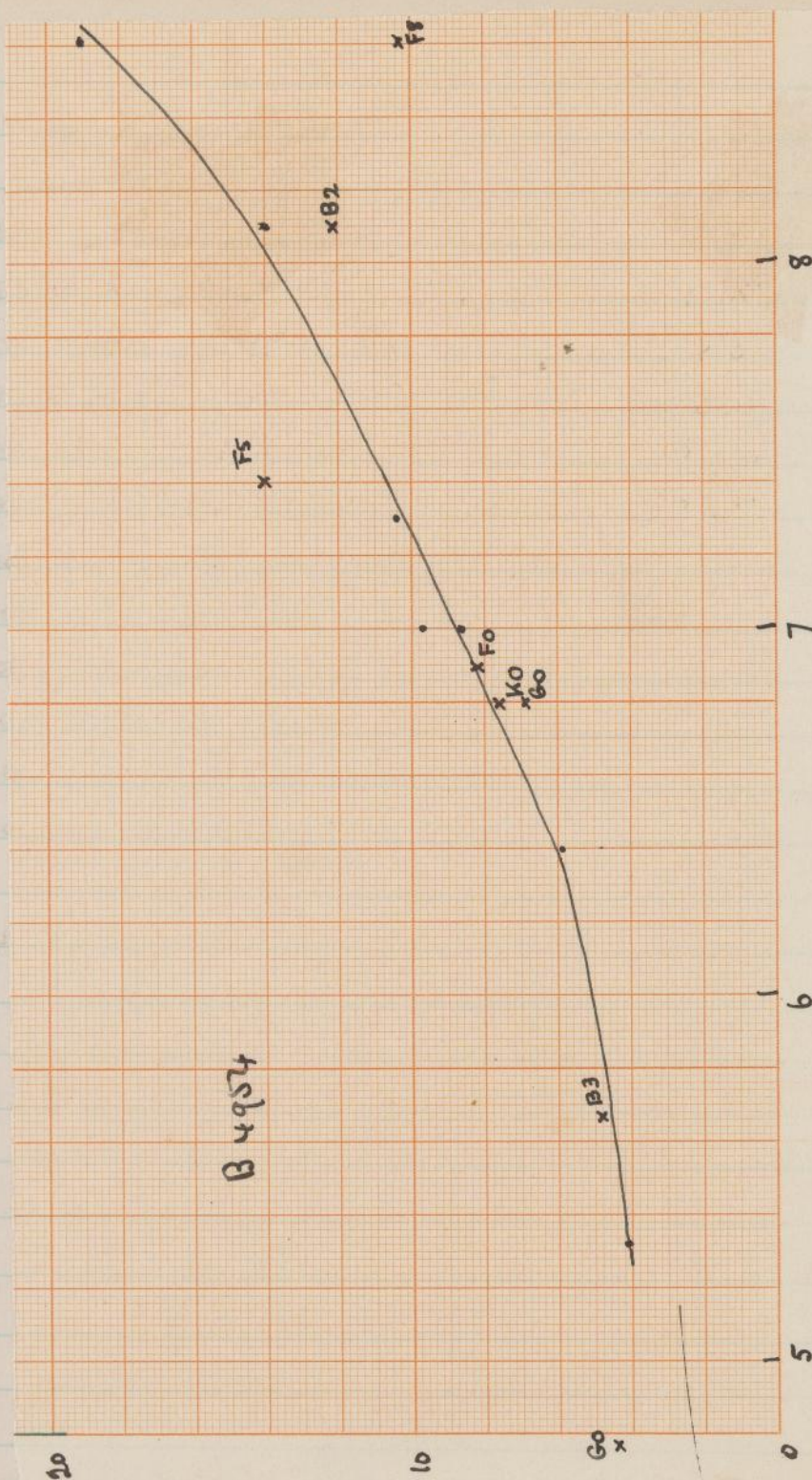


Bq454 Reading for midway S and E
First zone No diaphragm

Derived Magnitude at 4200	x	y	Reading	No.	Miss C. Pl. 66	Plate	HD	Sip	Mag
7.31	5.7	25.9	7.32	14	-56°4352	43030	q8025	A2	660 7.5
7.97	5.4	26.4	13.9	56	-56°4317	43030	q7654	A0	8.3 8.3
8.38	4.8	26.6	18.82	55	-56°4304	43030	q7556	A0	7.9 8.2
8.02	7.6	25.5	14.5	26	-56°4444	43030	q8982	Bq	8.0 8.0
7.85	8.1	24.4	12.5	28	-57°4667	43030	q9219	A0	7.2 7.9
8.47	8.6	25.0	20.02	70	-57°4698	21695	q9499	A3	8.4 8.5
8.55	9.2	24.6	9.45	32	-57°4730	43030	q9823	A0	7.2 7.6
8.19	10.6	25.6	16.52	5	-56°4596	38957	100528	A0	8.1 7.7
7.46	12.0	25.4	8.65	22	-57°4894	38957	101312	A0	7.9 7.4
7.57	12.9	25.7	9.6	29	-56°4706	38957	101763	A0	7.26 7.9
7.44	14.8	25.5	8.4	46	-56°4799	38957	102693	Bq	7.10 7.7
8.34	15.1	25.2	18.4	50	-57°5042	38957	102921	A0	8.2 8.4
7.04	15.6	26.8	5.1	-				B0	
7.22	16.1	26.0	6.5	55	-56°4861	38957	103400	A0	6.26 7.3

Central region

Nebula	11.7	17.7							
6.97	10.4	21.5	8.64	35	-59°3573	43030	100380	A2	7.0 7.0
8.04	10.8	21.5	14.0	36	-58°3717	43030	100613	F5	7.9 7.4
8.47	9.9	20.8	17.3	-					
7.20	10.0	20.3	9.7	37	-59°3545	43030	100135	Bq	7.0 7.0
7.34	11.6	20.2	10.4	301	-59°3649	38957	101103	B8	7.30 7.3
7.61	10.3	19.5	11.7					to	F0
6.88	11.1	19.1	8.2	42	-60°3075	43030	100773	F0	6.66 6.9
5.80	11.4	18.8	4.7	44	-60°3140	43030	100929	B3	5.84 5.67
6.37	11.2	18.3	5.9	43	-60°3090	43030	100826	A0p	6.26 4
6.58	11.5	18.4	7.6	45	-60°3182	43030	101021	K0	5.10 6.8
7.32	12.3	18.6	10.3	306	-60°3222	38957	101377	F8	8.4 8.6



B 49574

	x	y	Reading										
7.04	11.2	18.0	9.0										
7.57	13.6	18.0	11.5										
8.56	13.6	18.5	19.1	325	-60° 33' 12"	38957	102236	A0	8.4	8.6			
5.58	13.8	18.6	4.4	326	-60° 33' 25"	38957	102360	G0	4.22	4.78			
8.04	13.9	18.8	14.0	327	-60° 33' 30"	38957	102399	B8	8.2	8.1			
7.69	13.8	16.8	12.1	233	-61 26 11	38828	102368	B2	8.3	8.1			
5.32	11.8	17.3	4.1	46	-61 24 63	43030	101189	A0	5.32	5.32			
6.60	12.5	16.7	6.9	48	-61 25 14	43030	101570	G0	4.88	6.8			
									↓	↓	↓		

Field of a and b Velorum

Spectrum plate

Chart

No.	B10699				B 8842		B 4947		B 20879		Pl
marked B20879	x	y	HS-ε	film	HS-ε	film	HS-ε	film	image film	B88	
1	13.00	17.15	5.22	21.31			7.45	17.90	6.12	49	
* 2	13.35	16.70	3.70	18.58	*		6.84	18.60	over 4.09	49	
* 3	13.48	16.97	4.61	19.16			3.68	18.51	over 3.70	49	
* 4	13.31	15.40	4.09	21.12			3.90	18.27	over 4.08	49	
5	11.85	17.86	4.07	20.48			3.85	19.05	over 3.70	49	
6	14.87	19.69	4.07	20.85			3.95	18.03	over 4.39	88	
7	14.40	19.93	7.04	21.59			10.68	18.28	9.88	88	
8	13.18	19.65	14.40	21.08			-	-	15.15	130	
9	13.11	19	-	-			-	-	18.02	130	
10	13.0	20.1	7.65	21.43			17.90	17.90	7.48	29	
11	12.35	19.79	15.72	21.33			-	-	15.39	40	
12	12.05	19.75	*12.72	21.61			-	-	11.10	40	
13	10.93	19.47	15.06	20.47			8.43	18.65	17.53	40	
14	10.55	19.70	4.48	20.50			4.64	19.45	over 4.77	40	
15	14.62	18.18	10.02	20.39			14.95	18.30	12.14	39	
16	14.42	18.61	7.72	20.80			12.35	17.70	8.78	88	
17	14.31	18.93	13.18	20.69			11.68	17.11	15.97	39	
18	14.08	19.10	7.07	19.95			11.68	17.11	15.83	39	
19	13.91	18.32	Too faint	Too faint			-	-	20.63	8	
20	12.90	18.15	*16.50	20.61			-	-	16.84	40	
21	12.90	17.75	10.73	20.12			-	-	8.18	40	
22	13.52	16.21	14.92	21.20			-	-	14.66	130	
23	14.80	15.79	4.61	20.59			-	-	17.55		
24			14.50	?			-	-	18.37		
25							4.90	18.40	over 4.39	88	
26	15.30	15.35	14.80	21.56			-	-	14.05	130	
27	15.39	15.07	11.45	21.21			-	-	10.62	130	

Relative

Magnitudes at 4200. Final standards are 2, 3, 4, 12, 20, 25

Identification

Plate No.	B.D.	RA 1900	Dec 1900	Sp.	Pg	Pm	Derived m
B8888							
4947 8888	3	{ 45 4541 8 43.1	8 43.9	-45 48	Fop	6.8 5.83	(Pg) 4200 (6.88) 6.50 6.45 6.54 Mean 6.70 6.73
4947	2	{ 45 4526 8 42.3	43.1	-45 32	B5p	5.8 5.54	(5.26) 5.90 5.82
4947	1	{ 45 4517 8 41.8	42.6	-45 40	A0	4.09 4.09	(4.09) 4.09 4.09 4.09
4947	5	{ 44 4861 8 45.5	46.4	-44 57	A2	5.08 5.02	(5.24) 5.15 4.90 5.00
4947	6	{ 46 4661 8 46.3	47.1	-46 10	B0	4.65 4.89	(4.09) 5.10 4.86 4.92 (6.10) 5.15 5.05
8888	22	{ 46 4448 8 37.1	37.9	-46 57	A3	5.2 4.85	5.15 4.86 5.08 (7.63) 5.15 5.15
8888	25	{ 47 4258 8 38.4	39.2	-47 9	A2	7.1 7.4	7.23 7.16 7.31
13038 4947	65	{ 46 4557 8 42.0	42.8	-47 1	F2	7.8 8.4	(8.20) 8.20 ..
13038 4947	67	{ 47 4337 8 42.2	43.0	-47 11	B8	7.5 7.3	7.25 7.32 7.27 7.40
40296	46	{ 47 4377 8 44.3	45.1	-47 9	F0	8.1 8.9	8.52 (8.52) 8.52 -
40296	42	{ 47 4393 8 45.3	46.1	-47 7	B3	7.8 8.6	8.04 8.04
40296	71	{ 46 4705 8 48.6	49.4	-46 58	G0	9.1 9.1	6.82 6.87 6.77
40296	67	{ 47 4480 8 49.6	50.5	-47 9	A5	5.7 5.32	5.72 5.70 5.75
39930	256	{ 46 4479 8 38.5	39.3	-46 7	K0	9.6 9.2	(7.65) 7.65
8888	26	{ 46 4483 8 38.7	39.5	-46 27	A3	7.2 7.5	7.35 7.26 7.44
39930	250	{ 46 4486 8 38.9	39.7	-46 39	B9	8.7 9.6	(8.13) 8.13
39930	257	{ 46 4505 8 39.7	40.5	-46 8	G5	9.0 9.6	7.24 7.47 7.32
?	E.f.	-	-	-	-	-	-
40296	52	{ 46 4587 8 43.3	44.1	-46 18	A0	8.7 10.2	(8.70) 8.70
40296	53	{ 45 4547 8 43.3	44.1	-46 5	B2	7.5 8.0	(7.75) 7.75
13038	60	{ 45 4380 8 36.0	36.8	-45 15	B9	8.2 8.8	(7.90) 7.90
8888	27	{ 44 4704 8 37.7	38.5	-45 3	B5	5.2 5.23	5.86 5.90 5.84
13038	61	{ 44 4579 8 36.3	37.2	-44 50	K5	7.4 5.74	(7.89) 7.89
13038	62	{ 44 4683 8 36.5	37.4	-44 42	B2	7.8 7.9	(7.87) 7.87

No. α y B10699 45-2 film B8842 45-2 film B4947 45-2 film Chart B20879 film

Comparison of 4200 magnitudes
derived from two plates

Star	^m B10699	B4947	Mean	Residuals
-45° 4541	6.45	6.54	6.50	<u>5</u> , 4
-45° 45 ¹⁷ 26	4.09	4.09	4.09	0, 0
-44° 4861	5.20	5.10	5.15	5, <u>5</u>
-46° 4661	5.15	5.05	5.10	5, <u>5</u>
-46° 4448	5.15	5.15	5.15	0, 0
-47° 4258	7.14	7.32	7.23	<u>9</u> , 9
-47° 4337	7.25	7.40	7.32	<u>9</u> , 8
-46° 4705	6.87	6.77	6.82	5, <u>5</u>
-47° 4480	5.70	5.75	5.72	<u>2</u> , 3
-46° 4483	7.26	7.44	7.35	9, 9
-46° 4505	7.14	7.33	7.23	<u>9</u> , 10
-44° 4704	5.90	5.84	5.87	3, <u>3</u>
-44° 4818	6.60	6.61	6.60	0, 1
-46° 4810	5.60	5.57	5.58	2, <u>1</u>
-45° 4694	7.45	7.50	7.48	<u>3</u> , 2
-44° 4951	6.22	6.03	6.12	10, <u>9</u>

16 74
Mean res. 4.1

44
30
14
1 = systematic difference α

28

No.	x	y	B10699		B8842		B4447		Chart	
			45-2	film	45-2	film	45-2	film	B20879	film
28	15.09	14.94	*6.19	21.13			9.44	17.06	6.68	film
29	13.12	15.00	5.53	21.70			7.77	17.75	6.57	—
30	10.18	18.55	11.50	21.00			5.54	17.01	10.97	
31	10.02	18.50	12.75	21.08			—	—	11.93	
32	8.97	19.22	4.41	21.38			4.38	18.53	6.12	—
33	10.25	17.50	8.82	21.40			12.40	17.47	10.81	—
34	16.00	17.48	13.97	21.03			—	—	12.39	
35	9.85	17.41	14.93	21.15			—	—	14.87	
36	10.20	14.89	4.95	21.47			5.54	17.21	4.64	
37	11.32	17.38	9.85	21.22			—	—	10.11	—
38			too faint				—	—	17.90	
39			too faint				—	—	17.41	
40			too faint				—	—	22.06	

Plate No.

RA

Dec

ptg ptu

Derived

Mean

8888 28

38.2

44 38

139

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7.3

(7.0)

(7.0)

7.00

4947 43

40.7

44 42

65

7.8

6

6.60

6.61

6.60

8888 333

40.7

44 42

65

7.8

6

6.60

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40246 94

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139

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7.3

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49

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139

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galvano

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7.3

(7.0)

(7.0)

7.00

0

38.2

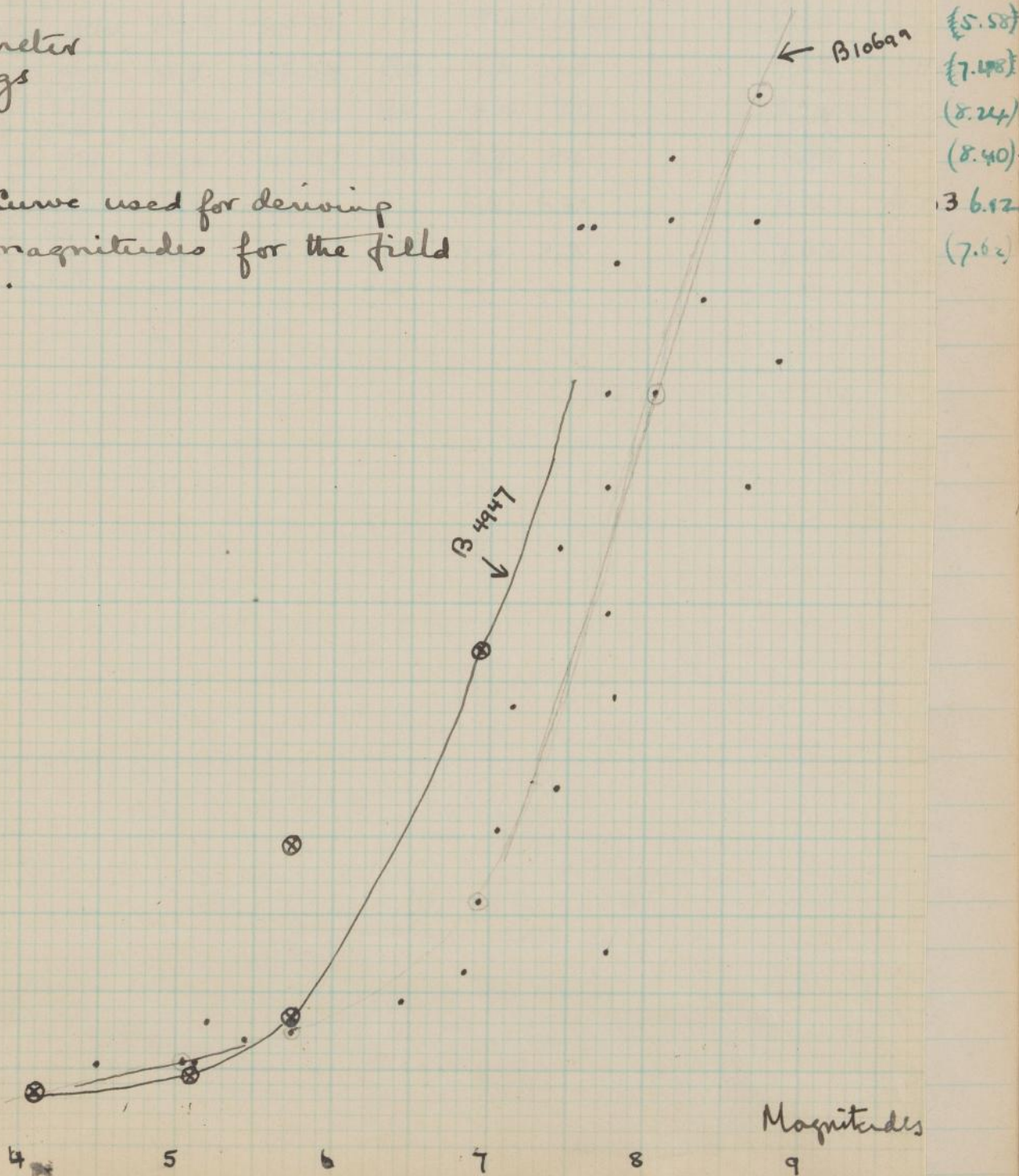
44 38

1924pha

Plate	No.	RA	Dec	ptg	plu	Derived	Mean			
8888	28	-44 46.98	38.2	-44 38	B9	7.0	7.3	Pg ⁴²⁰⁰ (7.0)	(7.0)	7.00
4947	43	-44 48.18	43.7	-44 42	B5	7.8	7.0	6.60	6.6	6.60
8888	333	✓								
40246	94	-46 47.58	52.0	-46 31	B9	8.7	8.2	7.87	-	(7.87)

galvanometer
readings

Curve used for deriving
4200 magnitudes for the field
stars.



1924pha

Plate	No.	RA	Dec	ptg	ptu	Derived Pg ⁴²⁰⁰	Mean		
8888	28	-44 4698	38.2	-44 38	B9	7.0	7.3	7.0	7.00
4947		-44 4818							
8888	42	-44 42.8	43.7	-44 42	B5	7.8	7.0	6.60	6.66
8888	33								
40296	94	-46 4758 8 51.1	52.0	-46 31	B9	8.7	8.2	7.87	(7.87)
40296	93	-46 4766 8 51.5	52.4	-46 29	B9	8.1	8.5	8.05	(8.05)
4947									
8888	31	-46 4810 8 54.6	55.5	-46 57	F0	5.4	5.22	5.60	5.57 (5.58)
4947									
8888	34	-45 4694 8 50.9	57.8	-45 59	A0	7.8	7.8	7.45	7.50 (7.48)
40296	96	-45 4707 8 51.5	59.4	-45 58	B8	8.4	8.0	8.24	(8.24)
40296	95	-45 4710 8 52.0	52.9	-45 57	A0	8.7	8.5	8.40	(8.40)
↑	↑	-44 4951 8 50.9	57.8	-44 40	B3	6.5	6.32	6.22	6.03 6.12
4947									
8888	7	-45 4653	48.7	-45 55	B8	7.8	8.2	7.62	(7.62)
40296	79	-45 47.8							
40296	4								
40296	4								

32

Field of x and y Carinae
No diaphragm

B9454

Star	x	y	H δ - ϵ	file
1	4.00	23.89	13.81	
2	4.91	23.46	15.06	20.02
3	5.11	23.59	5.78	
4	6.09	22.89	13.74	

Abandoned; microphotometer
adjusted

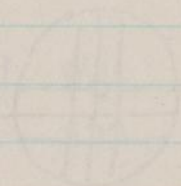
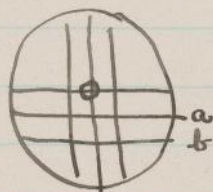


Table for the measurement of the distance of the stars

Star	Distance (in light years)	Parallax (in seconds of arc)
1	18.73	0.053
2	18.78	0.054
3	18.84	0.055
4	18.94	0.056
5	19.00	0.057
6	19.06	0.058
7	19.21	0.059
8	19.51	0.060
9	19.73	0.061
10	19.80	0.062
11	19.81	0.063

Settings



For each H line

① a on line

② b on line

The spot of light set central
on the spectrum.

No diaphragm used

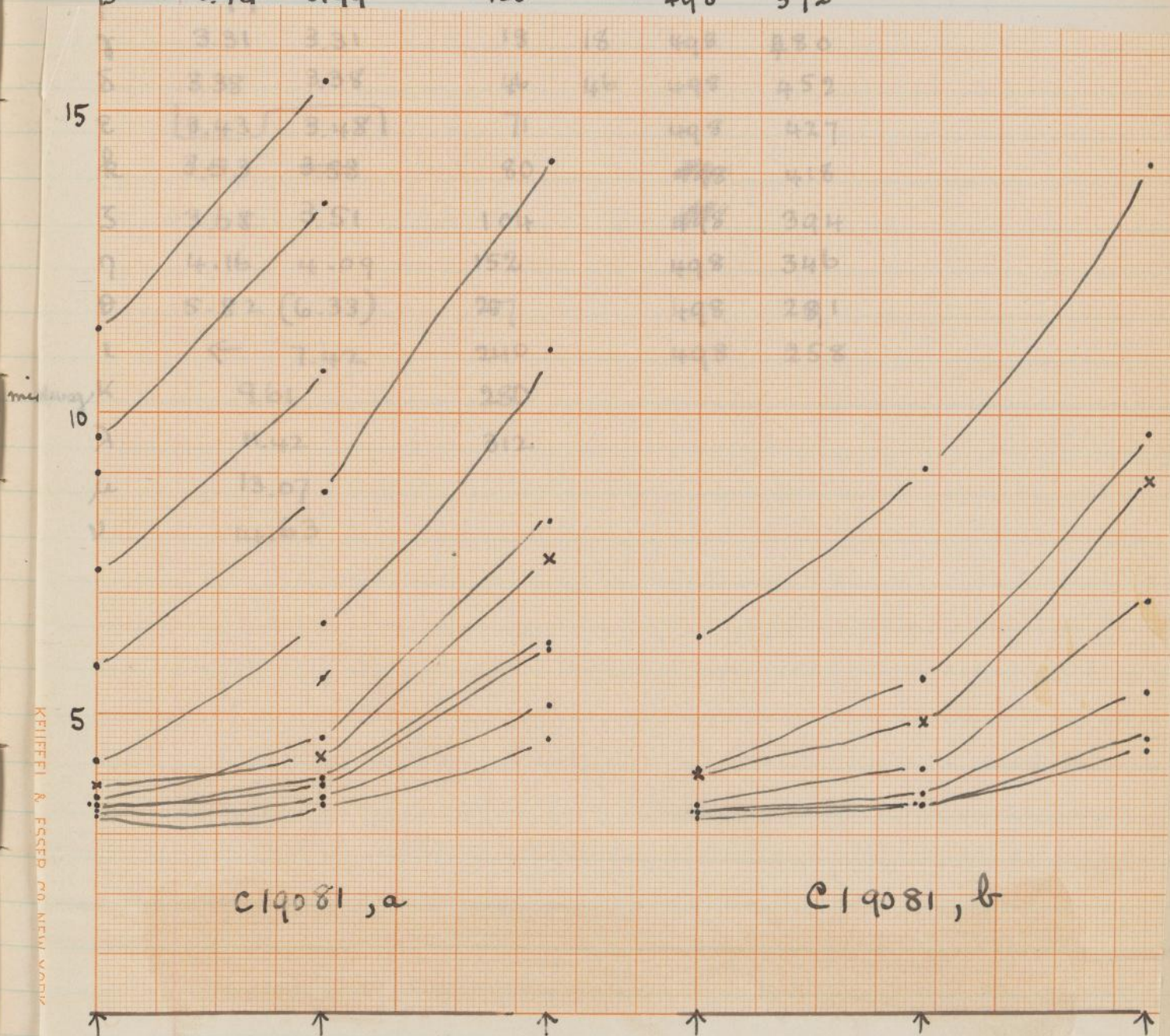
Files for the nine spectra

Spectrum	File	Deviation from mean	
1	18.73	+0.32	$\Sigma \text{ first 3} = 56.60$
2	18.98	+0.57	Mean = 18.87
3	18.89	+0.48	
4	18.84	+0.43	
5	18.60	+0.19	
6	19.46	+1.05	
7	18.21	-0.20	
8	17.17	-1.24	
9	<u>16.78</u>	-1.63	
Sum	165.66		
Mean	18.41		

C19081, Vega at various altitudes.

Spectrum 1. Film, r of $H\gamma$, = 18.73. Dark = 3.15

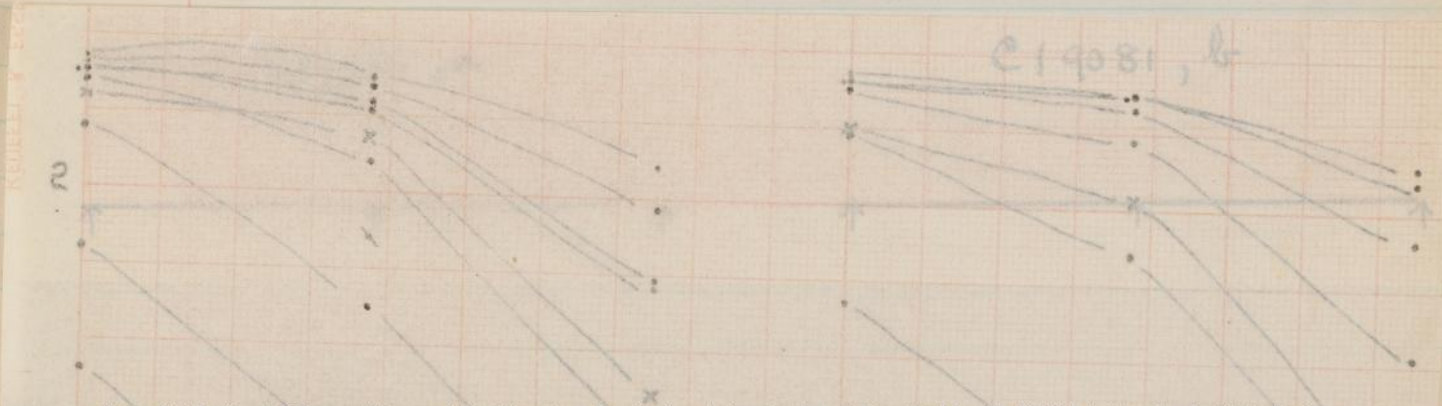
Line	a	b	[a]	[b]	[Film]	Diff
B	3.79	3.99	126		498	372



C19081, Vega at various altitudes.

Spectrum 1. Film, r of $H\gamma$, = 18.73. Dark = 3.15

Line	a	b	[a]	[b]	[Film]	Diff
β	3.79	3.99	126		498	372
γ	3.31	3.31	18	18	498	480
δ	3.38	3.38	46	46	498	452
ϵ	3.43	3.48	71		498	427
ζ	3.53	3.53	80		498	416
η	3.68	3.51	104		498	394
θ	4.16	4.09	152		498	346
ϕ	5.82	(6.33)	207		498	281
ι	\leftarrow	7.42	240		498	258
midway K	9.61		280			
λ	11.42		312			
μ	13.07					
ν	14.63					



C19081

Spectrum 2, $F_{line} = 18.98$

d_{line}	a	b	[a]	[b]	$[a] \frac{150}{100}$
β	7.66	8.90	244		
γ	4.61	4.89	171		96
δ	5.15	4.61	187		112
ϵ	6.09	5.37	213		138
κ	6.41	-	221		146
ζ	8.44	6.92	258		183
η	11.04	9.70	305		230
θ	14.42	14.39	366		291

C19081

Spectrum 3, Film = 18.89

Line	a	b	[a]	[b]	[Film]
β	4.39	4.89	162	560	398
γ	3.52	3.50	77	560	483
δ	3.60	3.54	92	560	468
ϵ	3.86	3.68	130	560	430
ζ	3.95	-	138	560	422
η	4.62	4.13	171	560	389
θ	6.52	5.63	223	560	327
\varnothing	8.74	(9.10)	263	560	297
ι	10.73	-	299	560	261
κ	13.50		350		
λ	15.49		385		

C 19081

Lerie	Spectrum 4.			Film = 18.84	
	a	b	[a]	[b]	[Film]
β	5.27	5.80	193	528	335
γ	3.73	3.70	116	528	412
δ	3.96	3.82	138	528	390
ϵ	4.50	4.17	166	528	362
ζ	4.69	-	172	528	356
η	5.50	4.81	191	528	337
θ	7.62	6.30	243	528	285
ϕ	9.56	(10.09)	279	528	249
χ	11.70	-	317	528	211
ψ		13.70	353		
λ		14.76	373		

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C 19081

Spectrum 5. Film = 18.60

Line	a	b	[a]	[b]	[Film]
β	4.43	4.76	162		480 318
γ	3.50	3.49	72		480 408
δ	3.63	3.59	101		480 379
ϵ	3.85	3.74	130		480 350
κ	4.04	-	144		480 336
ζ	4.72	4.14	174		480 306
η	6.37	5.51	220		480 260
θ	8.50	(9.4)	260		480 220
ι	10.94	-	302		480 178
ν	13.50		350		
λ	15.20		380		

C 19081

Spectrum b

Film = 19.46 (left of spectrum)

	a	b	[a]
β	5.20	5.89	190
γ	3.84	3.74	129
δ	4.02	3.90	144
ϵ	4.66	4.19	171
k	4.70	-	173
j	5.86	4.99	211
η	7.70	6.79	245
θ	10.09	(10.90)	288
i	11.95	-	322
κ	13.90		358
λ	14.80		375

C19081

Spectrum 7 . Film = 18.21

Line	a	b	[a]	[b]	[film]	Diff
β	5.00	5.78	183		454	271
γ	3.60	3.62	92		454	362
δ	3.74	3.65	116		454	338
ϵ	4.09	3.85	146		454	308
ζ	4.22	—	144 154		454	300
η	5.17	4.50	189		454	265
θ	7.40	5.18	240		454	214
ϕ	9.41	(10.26)	276		454	178
χ	11.90	—	321		454	133
ψ		14.60	360			
λ		15.40	384			

C19081

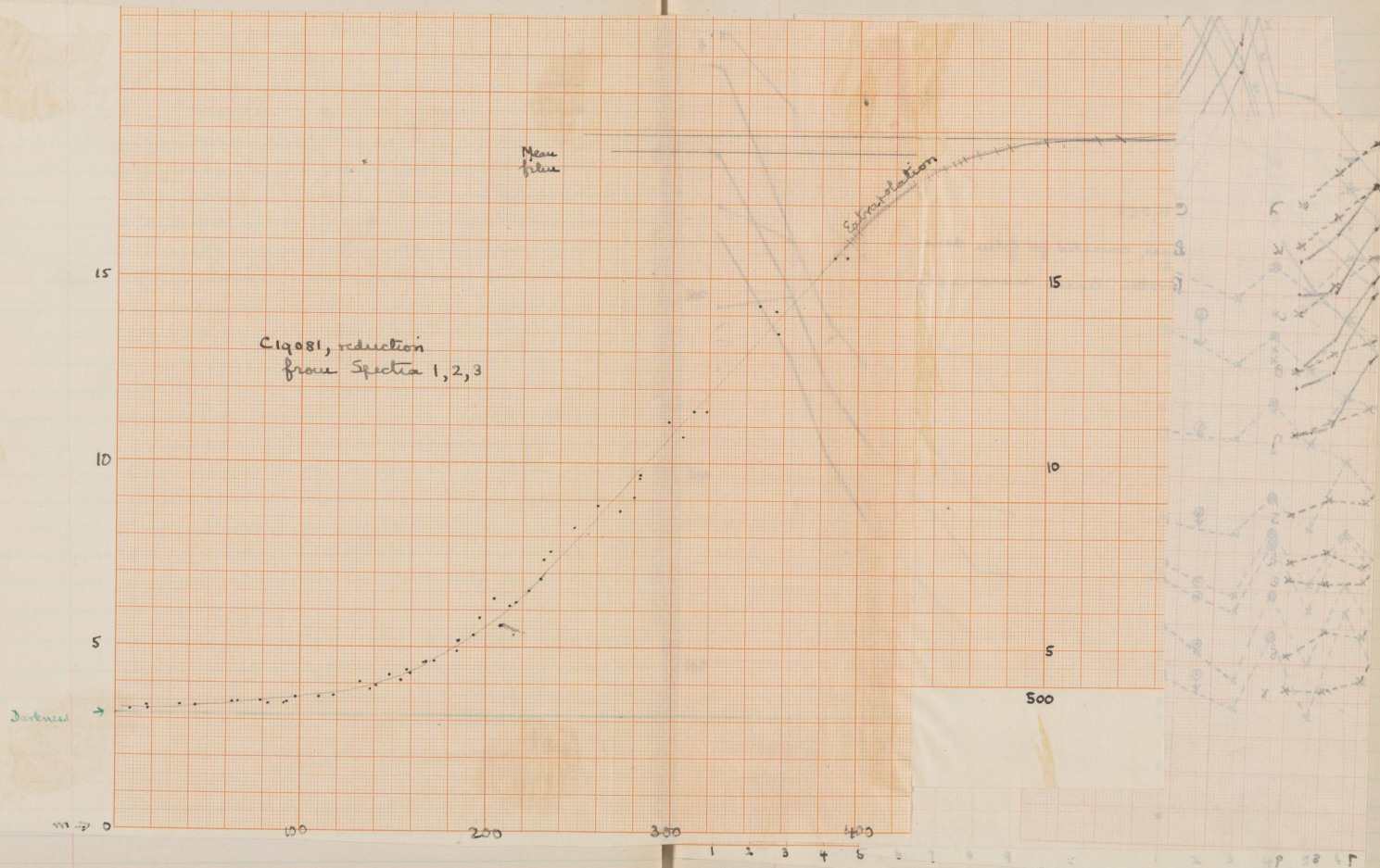
Vega Spectrum 8, film = 17.17

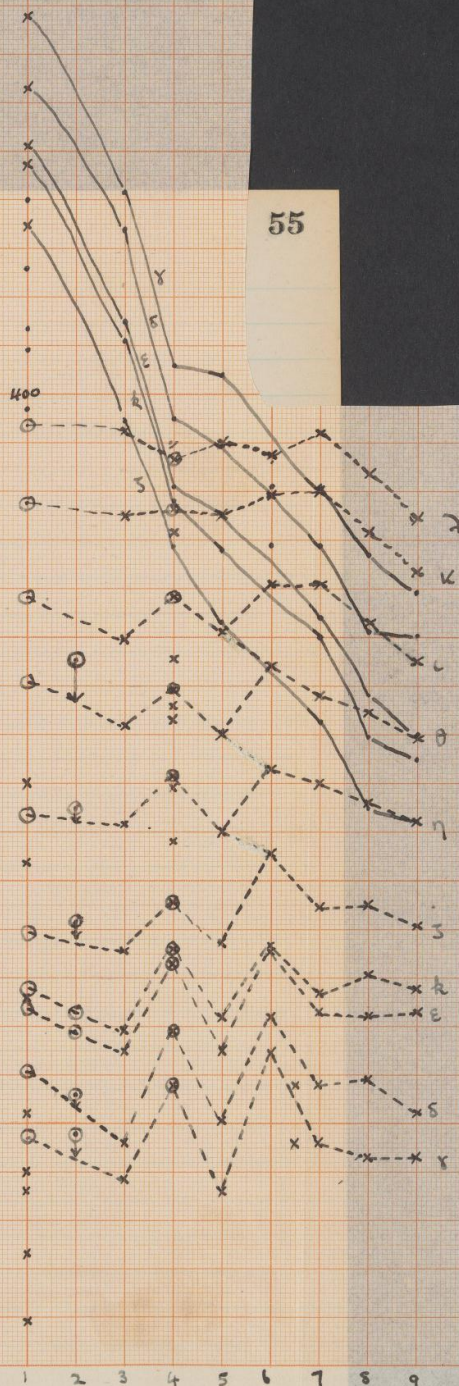
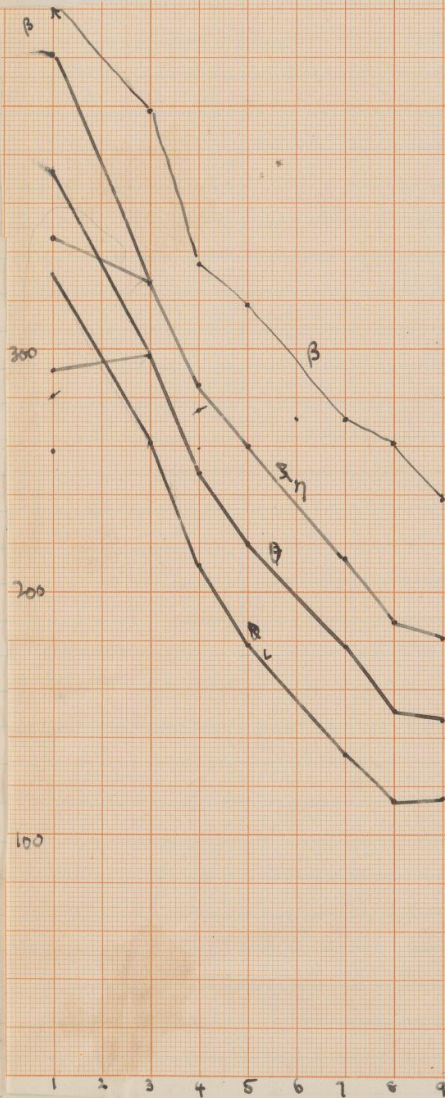
Line	a	b	[a]	[b]	[film]	diff
β	4.30	4.84	159		420	261
γ	3.58	3.53	86		420	334
δ	3.76	3.67	118		420	302
ϵ	4.04	3.85	144		420	276
ζ	4.36	-	161		420	259
η	5.20	4.51	190		420	230
θ	6.97	6.01	232		420	188
ϕ	8.97	(9.95)	269		420	151
χ	11.08	-	306		420	114
κ	13.10		343			
λ	14.49		367			

C 19081

Spectrum q. Film = 16.78

Line	a	b	[a]	[b]	[Film]	Diff
β	4.53	5.16	167		405	238
γ	3.64 ⁵	3.60 ^{3.42}	86		405	319
δ	3.68	3.60	104		405	301
ϵ	4.07	3.88	145		405	260
κ	4.23	-	155		405	250
ζ	4.91	4.39	181		405	224
η	6.59	6.07	224		405	181
θ	8.44	(8.99)	258		405	147
ι	10.23	-	290		405	115
κ		12.27	327			
λ		13.49	350			



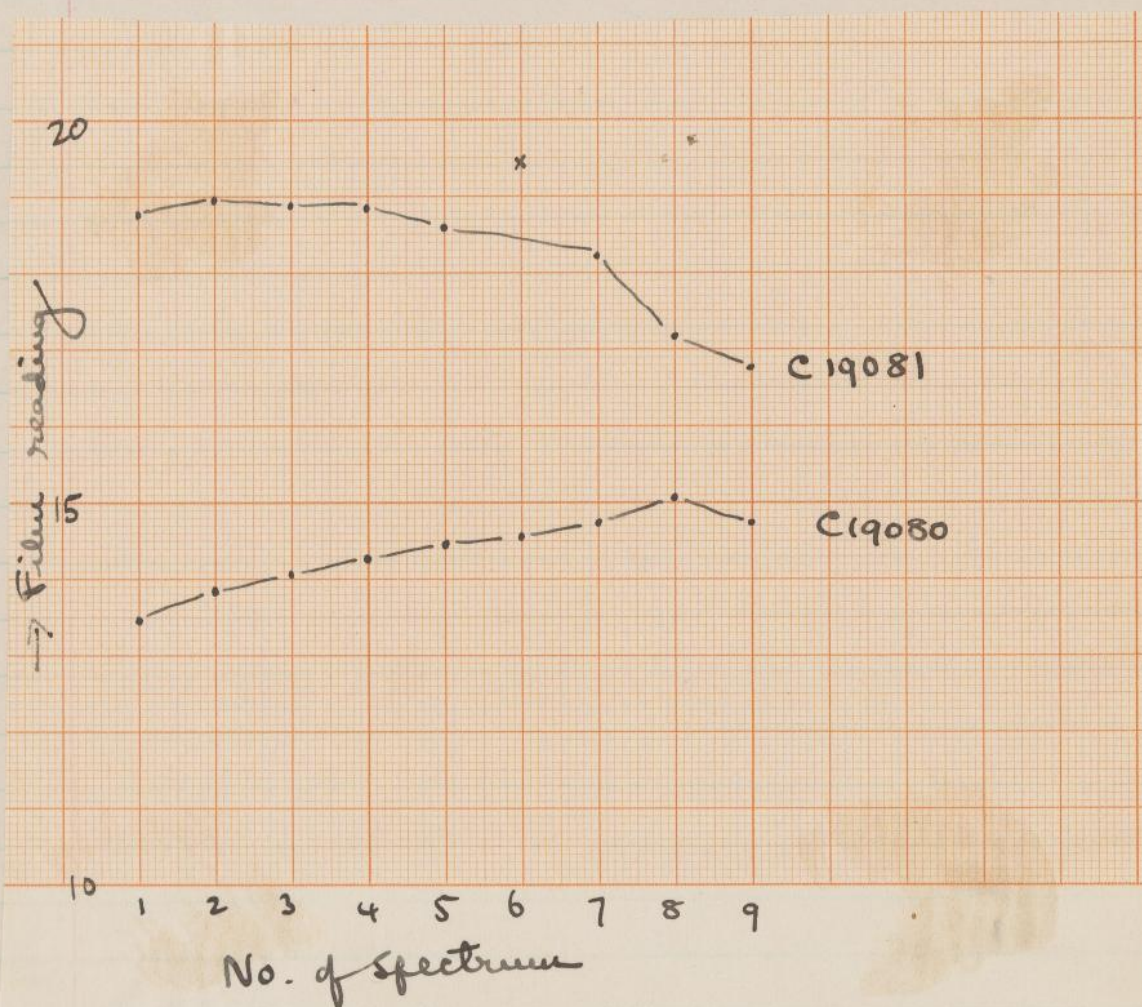


55

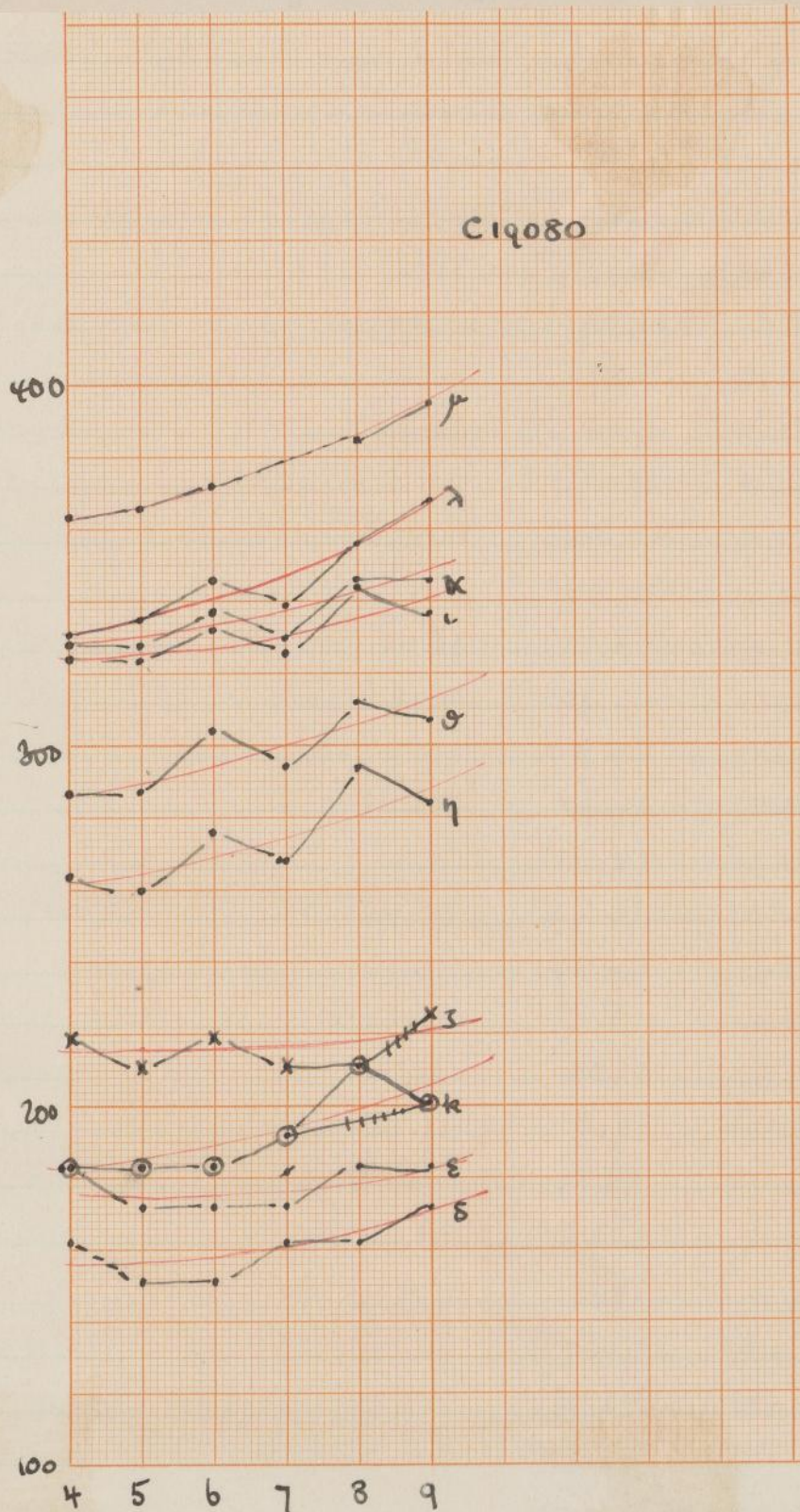
C19081

Lines, corrected for film density
Broken lines, uncorrected.

SS SECTION
MILLIMETER
WAVELENGTH
OF THERMAL RADIATION



STANDARD CRO
ENGRAVING 300.
WHEN ORDERING STATE COLOR, &
MADE IN



58

4000 magnitudes

Field of α and γ Carinae
Plate No.

No.	α	γ	B9098	B9454	Plate	No.
1	15.86	24.91	7.31	5.85		
2	15.50	23.90	6.88 Plate dirty	4.50	43030	2
3	17.83	22.88	7.05	5.52		
4	12.79	22.02	19.59	13.00	43030	40
5	11.26	21.98	5.37	4.21	43030	39
6	14.79	20.60	6.13	5.04	43030	6
7	14.61	20.61	9.06	7.18	43030	7
8	16.48	20.09	12.92	8.02?	40090	98
9	14.77	19.95	14.89	-	40090	95
10	13.70	19.44	20.32	11.51	43030	20
11	14.67	19.22	7.90	4.71	43030	9
12	14.85	19.37	20.37	10.71	43030	8
13	13.07	18.27	19.40	10.00	43030	22
14	13.52	18.37	18.41	8.33	43030	19
15	13.63	18.37	13.95	7.46	43030	18
16	13.81	18.14	14.54	7.00	43030	17
17	16.00	18.10	8.85	4.69		
18	15.91	17.60	21.33	14.05		
19	ER Cen at G band		19.8	11.30		
20	10.75	17.40	23.32	12.60 14.05	43030	34
21	11.07	17.19	21.18	11.94	43030	33
22	11.25	16.11	18.80	8.91	43030	32
23	12.00	16.23	21.57	11.06	43030	28
24	12.41	16.52	22.75	13.80	43030	25
25	13.17	16.24	20.41	11.08	43030	16
26	14.44	16.54	23.05 dirty	12.37	43030	13
27	15.52	17.11	17.16	7.55	43030	10
28	Dark, 3.43			Dark, 3.50		
29	B9098 is broken					

faint star on top

setting hard

} just
separated

x Carinae

192 Alpha

B.D.	R.A.	R.A.	Dec.	H.D.	Plu.	Ptg.	Sp.	m 1048	m 1454	Mean m	
-61° 20 75	11	3.4	11 4.4	-61 74	96919	5.42	5.3	AOp *	(5.71) (5.51) (5.72)	6.43 5.56 6.28	6.43 5.56 6.28
-60° 28 35	11	14.9	11 16.0	-60 33	98669	8.1	8.1	Fo *	7.69	7.55	7.62
-60 29 41	11	21.0	11 22.1	-60 34	99556	5.54	5.42	B5 *	5.34	5.40	5.37
-59 31 65	11	6.3	11 7.4	-59 46	97398	7.0	7.0	B9	5.52	6.00	5.76
-59 31 90	11	7.2	11 8.3	-59 46	97534	4.73	5.15	F5p	6.07 6.47	7.00	* ?
-57 42 79	11	1.4	11 2.5	-58 3	96584	10.0 8.9	10.0	K2	6.73	7.23	6.98
-58 31 31	11	1.5	11 2.6	-58 10	96609	8.5	8.5	B9	7.07		7.07
-59 33 01	11	11.8	11 12.9	-59 13	98240	7.5	7.6	H3 *	7.80	7.84	7.82
-58 33 15	11	8.1	11 9.2	-59 4	97670	5.98	5.9	B3	6.88	5.80	5.84
-59 31 93	11	7.3	11 8.4	-59 8	97557	7.2	7.4	B5	7.79	7.74	7.76
-58 34 75	11	14.4	11 15.5	-58 38	98596	7.3	7.7	A0 *	7.66	7.63	7.64
-58 34 33	11	12.4	11 13.5	-58 41	98340	7.2	7.3	A0 *	7.51	7.30	7.40
-58 34 31	11	12.3	11 13.4	-58 39	98329	7.0	7.0	B9 *	6.90	7.08	6.97
-58 34 24	11	12.0	11 13.1	-58 33	98278	6.9	7.0	A0 *	7.00	6.94	6.97
					96918				6.04	5.80	5.92
					97082				7.94	8.21	8.08
-58 36 61	11	23.3	11 24.4	-58 14	99893	7.4	7.4	A0	7.72	7.82	7.77
-57 47 16	11	22.1	11 23.2	-58 8	99734	7.3	7.6	B9	6.22	7.98	8.10
-57 47 30	11	22.8	11 23.9	-57 35	99823	7.2	7.6	A0	7.43	7.90	7.92
-57 46 67	11	18.8	11 19.9	-57 38	99219 7.2	7.2	7.4	A0 *	7.57	7.40	7.49
-57 46 40	11	17.2	11 18.3	-57 46	98983	7.34	8.2	A2 *	7.94	7.80	7.90
-57 45 83	11	14.3	11 15.4	-57 36	98584	8.1	7.9	B8 *	8.17	8.19	8.18
-57 44 86	11	9.6	11 10.7	-57 43	97927	7.3	7.6	A0	7.60	7.40	7.60
-57 43 87	11	5.5	11 6.6	-57 55	97271	6.34	7.3	B8	(8.20)	7.43	7.43
									7.37	7.10	7.24

* Is. y Carinae
variable?

60

25

10

105

00

3

4

5

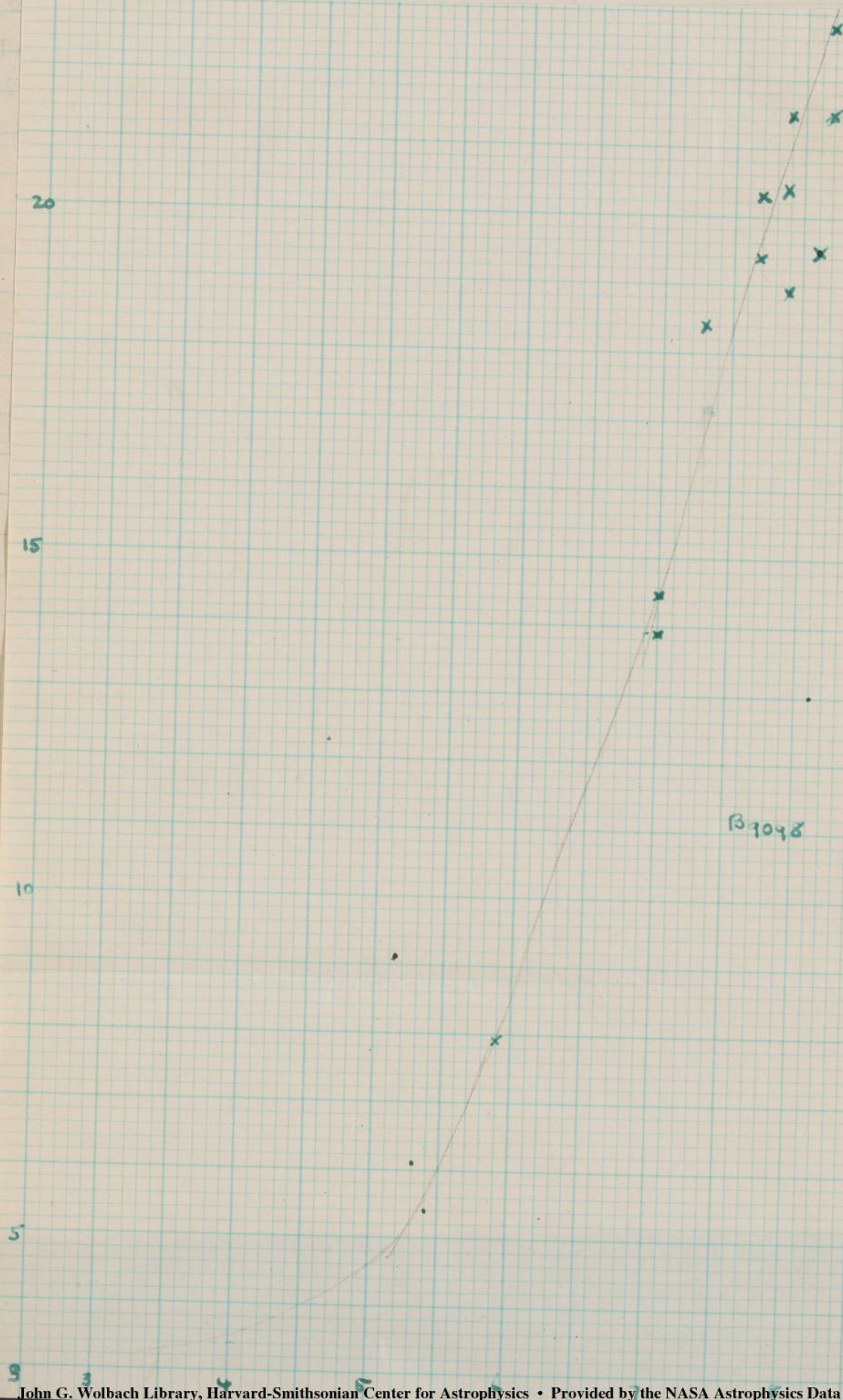
6

7

8

9

B9454



62

	Magnitudes						
	β	γ	δ	ϵ	ζ	η	θ
A				458	466	469	475
P				553	553	600	606
Diff				95	87	131	131

A	460	472
P	374	386
Diff	86	86

P	(740)	642	697
A	650	570	594
Diff	90	72	103

580

Pleiades, horizontal

C 284 1886	β	γ	δ	ϵ	ζ	η	θ					
	(r) 12 (v)	1 2	1 2	1 2	1 2	1 2	12					
Pleione	-	-	11.58	11.12	11.00	10.79	10.13	10.13	11.55	11.72	-	-
Atlas	9.78	8.63	7.40	7.38	7.38	7.38	7.42	7.53	7.62	7.88	7.80	8.30 ^(9.08)
HD 23753	-	-	12.34	12.32	11.68	11.62	11.87	12.22	12.56	13.40		
Alcyone	13.11	12.42	7.64	7.54	7.34	7.34	7.34	7.34	7.34	7.34	7.36	7.48 ^{7.47}

vertical

C 16350 Feb 1906 Atlas	-	-	9.90	10.12									
HD 23753	8.98	8.06	8.30	8.45	8.90	10.52	10.58						
Alcyone	19.97	11.32	11.35	11.56	-	-							
	8.96	7.70	7.78	7.90	8.28	8.62	9.60						

C 9674

Nov 14, 1896
Atlas

8.98	8.38	8.76	9.97			
12.00	11.54	11.54	11.54	12.80		

} not
comp.
(too streaked)

C 2140

Atlas

Alcyone

Maia

12.04	9.35	10.02				
9.46	8.39	8.64	9.30	10.15	11.22	
8.75	8.30	8.00	8.24	8.60	9.40	
9.38	9.30	9.56	10.30	11.48	12.68	

C 9805

Dec 26, '96

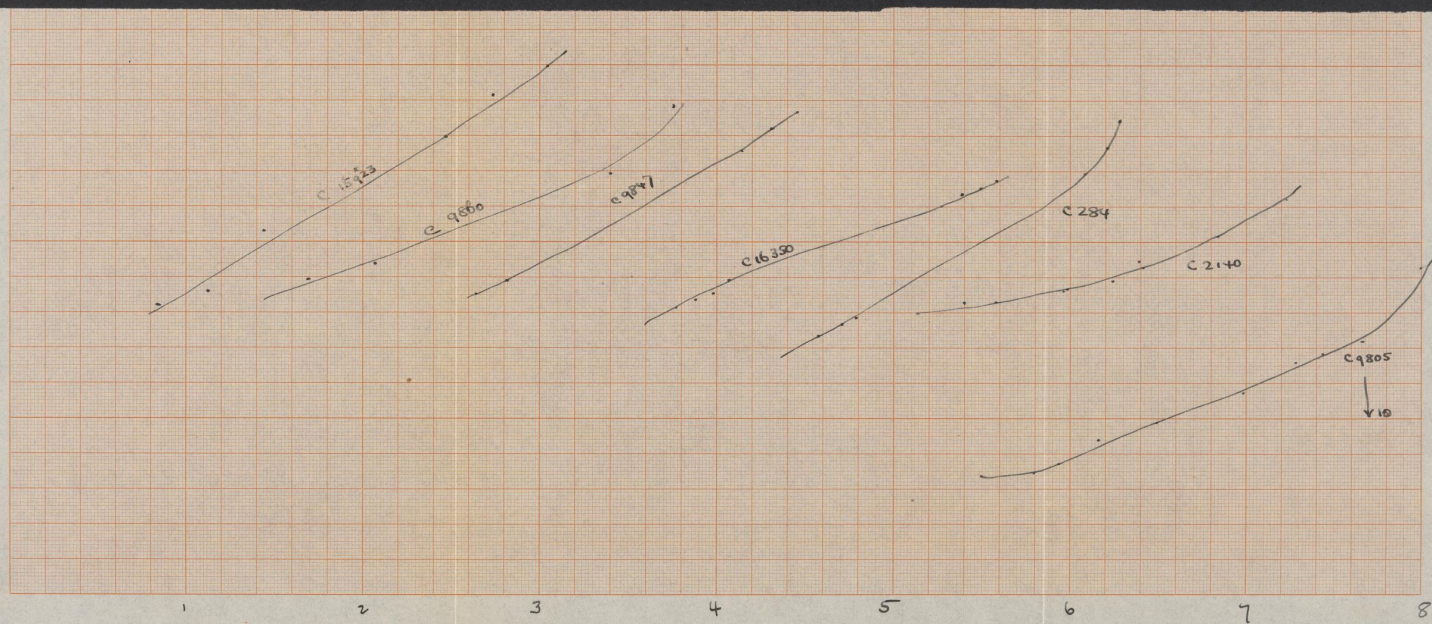
Atlas

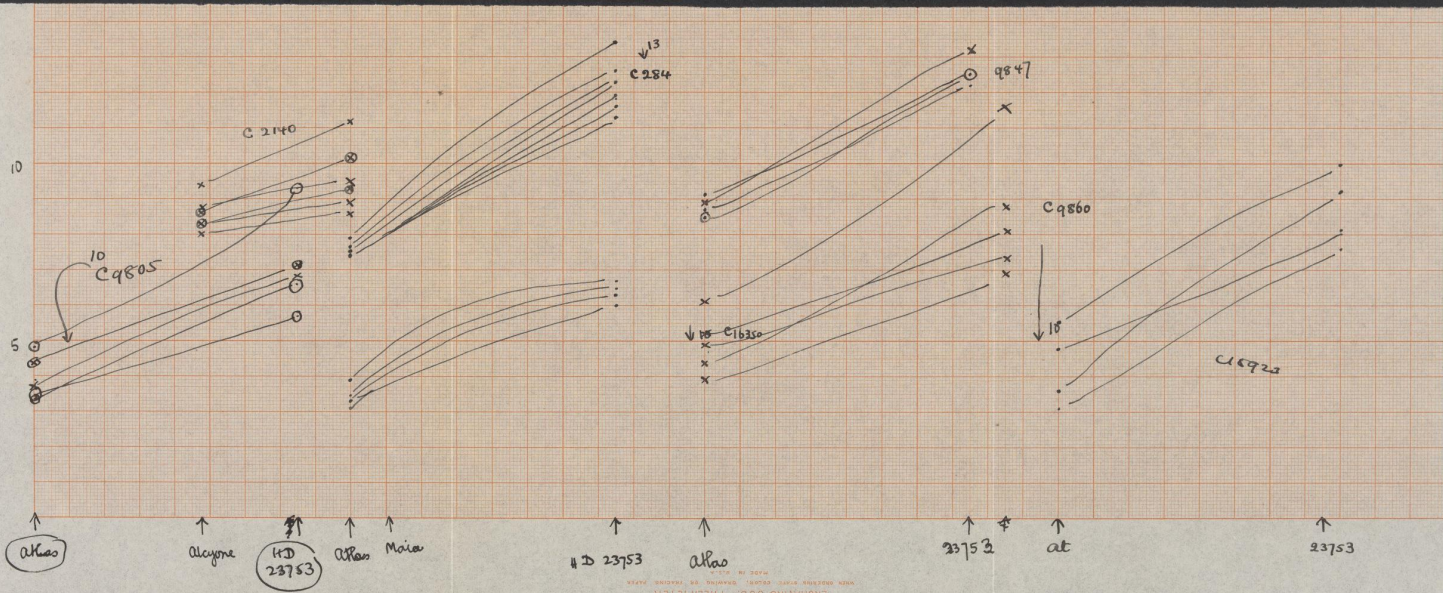
23753

Alcyone

good, vertical

8.48	8.03	8.31	8.95	9.94	11.10	
9.46	8.50	8.42	8.61	9.03	9.80	
12.13	10.72	11.68	11.86	12.34	14.32	
9.45	8.62	8.90	9.95	8.82		





	β	γ	δ	ϵ	ζ	η
P	407	374	361	381	391	431
A	286	268	264	282	289	352
Diff	121	106	97	99	102	79

327	193	214	250	302	350	
201	170	231	245	240	291	useless
126	23	88			59	

	238	199	199	192	246	289
	102	97	107	140	164	212
Diff	136	102	92	52	82	77

C9847	β	γ	δ	ϵ	ζ	η	θ
P	12.75	11.26	11.44	11.79	12.00	13.24	
Atlas	9.04	8.67	8.54	8.94	9.08	10.82	
23753	12.53	12.29	12.59	13.23	—	—	
Alcyone	9.25	8.82	8.68	9.39	9.74	10.34	

C9860	good, irregular fog.						
	10.02	9.32	8.10	8.54	9.20	10.95	
Atlas	8.03	7.40	7.38	7.56	7.63	8.06	9.25
	9.48	8.52	8.47	9.16	10.77	13.62	
Alcyone		7.32	7.34	7.42	7.78	8.30	

Pleione	11.87	9.32	9.62	10.32	11.31	12.58	
Atlas	9.40	8.96	9.95	10.22	10.16	11.09	
	13.08	11.96	12.32	13.13	14.29	16.26	
Alcyone	9.90	8.95	9.76	9.72	9.38	9.67	

C15923	12.73	11.52	11.49	11.30	12.96	14.4	
Atlas	8.68	8.14	8.68	9.79	10.52	11.92	
	14.22	12.60	12.40	13.1	15.0		
Alcyone	9.8	9.8	9.3	9.1	9.7	10.4	

μ Cen

X4112B

 μ
 \checkmark β
12.05
+11
13.27 γ
8.82
+10
9.78 δ
8.95
+6
9.60 ϵ
9.29
+16
9.88 ζ
10.38
+5
10.92 η

X13225

 μ
 \checkmark 8.0
8.0
87.7
7.77.7
7.77.8
7.88.3
8.49.2
9.2

X13450

 μ
 \checkmark 9.9
9.9¹8.6
8.5⁻¹9.0
8.7⁻³9.8
9.5⁻³12.2
12.0⁻²16.6
14.8⁻¹⁸

X7596

 μ
 \checkmark 11.2
11.1⁻¹9.5
9.6⁺¹10.4
9.9⁻⁵

9.3

Plates of μ and ν Centauri. Remeasured

X7596	β	γ	δ	ϵ	κ	ζ	η	θ
μ	10.85	8.91	9.59	10.10	1-	13.45	settings very hard	
ν	10.45 ⁺⁴	9.81 ⁺⁹	10.09 ⁺⁵	11.09 ⁺¹⁰		13.23 ⁺²		
μ at edge of plate setting on dark edge strip								
μ	10.80	8.80	9.15	(9.95) ^{+12.45}		12.45		
ν	10.15 ⁺⁴	9.00 ⁺²	9.40 ⁺²	10.22 ⁺¹²		15.22 ⁺²⁸		
	Mean 0	+5	+4	+11		+15		
4026								

4026

X13450 μ	10.11	8.32	8.44	8.52	8.80	9.29		
ν	9.95 ⁻¹	8.26 ⁰	8.26 ⁰	8.32 ⁺¹	8.45 ⁰	9.27 ⁰	11.40	
		8.32	8.46	8.65	8.80 ⁺¹⁰			

X13225

μ	8.1	7.5	7.5	7.5	7.7	8.2		
ν	8.3 ⁺²	7.5 ⁰	7.5 ⁰	7.6 ⁺¹	7.8 ⁺¹	8.3 ⁺¹		

X5619

μ	7.3 ⁰	7.1 ⁰	7.1 ⁰	7.3 ⁰	7.4 ⁰	8.0 ⁺³		
ν	7.3	7.1	7.1	7.3	7.4	8.3		

μ	7.6	7.3	7.3	7.5	7.8	8.3		
ν	7.6 ⁰	7.3 ⁰	7.3 ⁰	7.4 ⁻¹	7.8 ⁰	-	-	

X14
Saw
ref

Plates of 0 stars.

X 14942. at midway H δ - H ϵ

Star	Measure		
1	-45° 11392, Class 0. not measured.		
2	10.68	A0	7.6
3	15.10	F2	7.5
4	unmeasurable		
5	-		
6	-		
7	too faint		
8	8.47	B2	7.4
9	too faint		
10	-		
11	too faint		
12	too faint		
13	too faint		
14	too faint		

X 14890
Same
region

2	12.95	A0	7.6
3	16.76	F2	7.5
4	-		
5	13.87	B1	7.9
6	16.50	B5	8.2
7	too faint		
	rest too faint		

These measures were made directly upon the plates without marking or setting by the lines.

On the fainter spectra the lines are not visible. Clearly another method must be used. *

* For all subsequent plates in this series the lines were marked before measuring.

In the plots the stars of Class B8, B9, A0, and A1, used for standardizing the curves, are circled ○

Plates of O stars

Plate X 14942 Identified Bk 34 p 91

Star	Sp.	Pg.	H γ	H δ	Derived m			μ	Means
1	Oa	7.5	—	—	—	—	—	1348-50	r s
* 2	A0	7.6	9.40	9.58	7.60	7.60	7.62		7.66 7.58
3	F2	7.5	12.27	19.57	7.95	8.15	8.17		? 8.24 8.10
* 4	A0	8.5	15.49	16.42 ¹⁰	8.45	8.45	8.45		(8.45)(8.45)✓
7	B8	8.5	17.36	—	8.85	—	8.95		8.90 (9.00)
* 8	B2	7.4	—	7.70	—	7.40	7.40		— (7.40)✓
9	A2	8.5	—	19.45	—	9.55	9.55		— (9.55)
* 10	A3	8.9	—	17.61	—	8.90	8.90		— (8.90)✓
* 11	A2	9.1	18.25	18.02	9.10	9.10	9.10		9.10 9.10
* 12	B8	9.1	18.12	18.35	9.10	9.15	9.12		9.10 9.15
13	F8	8.9	17.66	18.61	8.95	9.25	9.15		(8.95)(9.25)
14	B8	9.4	18.38	18.00	9.15	9.05	9.12		9.15 9.10
X 14890							7.84	1351-53	(7.95) (7.73)
1	Oa	7.5	—	—	—	—	8.22	6	(8.30) (8.14)
* 2	A0	7.6	10.86	9.70	7.72	7.56			
3	F2	7.5	15.60	13.04	8.43	8.04			
5	B1	7.9	12.47	11.08	7.95	7.73			
6	B5	8.2	14.87	13.69	8.30	8.14			
7	B8	8.5	18.94	19.23	8.95	9.00			
* 11	A2	9.1	19.68	19.74	9.10	9.10			
* 12	B8	9.1	19.55	19.9?	9.10	9.15			
14	B8	9.4	19.93	19.95	9.15	9.15			

1924phae.proj.11139

X14942

X14890

21

20

19

18

17

16

15

14

13

12

11

10

9

8

7.0

20

19

18

17

16

15

14

13

12

11

10

9

8

7.0

8.0

9.0

$\rightarrow P_g M_g$

21

20

19

18

17

16

15

14

13

12

11

10

9

8

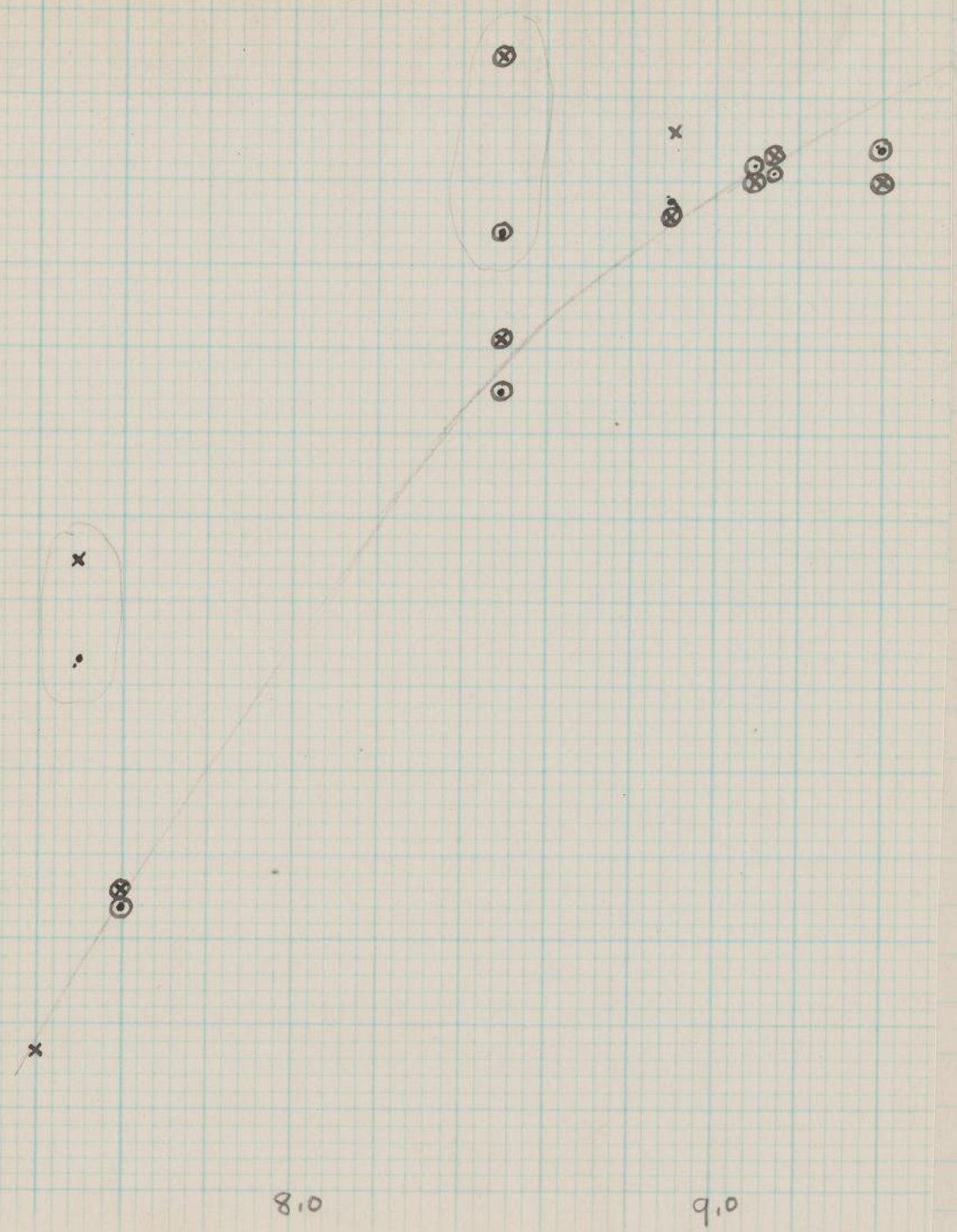
7.0

8.0

9.0

X 14942

73



74

X 14891

Star	Sp.	Pg.	H _γ	H _δ	Derived m	Ref
1	Oa	7.7				1356-57
2	B1	5.5				
3	A2p	7.3				
4	A0	8.3				
5	F2	8.5				
6	G5	8.8				
7	F5	8.8				
8	B	8.2				
9	B8	8.6				

76

X 14⁸⁸¹~~938~~

Star

Sp.

Pg.

H_γH_β

Derived m

μp

1

Od

6.7

1290

2

Fo

6.5

1293

3

A0

7.4

4

B8

8.0

5

A3

6.5

6

B2

6.5

7

A0

7.4

8

G0

8.3

9

K0

8.0

X 14⁹³⁸

1

Od

6.7

1378

2

FO

6.5

1379

3

A0

7.4

4

B8

8.0

6

B2

6.5

7

A0

7.4

8

G0

8.3

9

K0

8.0

10

B9

7.4

78

Identified Bk 34 p19

13 35.9, -66.9

Diaphragm 3

X 14935	Star	Sp.	Pg.	H _γ	H _δ	Derived	Means	μp	Mean 4200
1		Oa	9.4	-	-	-	H _γ - H _δ	1336	
2	*	Bq	9.1	6.77 6.80	7.00 7.10	9.05 9.10	9.08 9.14	1338	9.11
3		Go	7.6	5.85 5.92	6.02 5.92	7.55 7.60	7.50 7.47	1339	7.48
4		Fo	8.5	-	6.30 6.31	-	8.63 [8.46] 8.52	1340	8.49
5	*	B8	7.3	5.85 5.82	5.89 5.87	7.30 7.30	7.30 7.30		7.30
6		F8	9.4	7.02 7.41	7.32 7.57	9.45 9.44	9.50 9.54		9.52
7	*	Ao	10.0	7.90 8.09	8.18 8.21	10.00 10.00	10.00 9.98		9.99
8		Go	9.4	7.89 8.06	8.08 8.00	9.97 9.90	9.90 9.89		9.89
9		F5	9.7	8.00 8.02	8.41 8.31	10.01 10.09	9.97 9.99		9.98
10		Bq	9.4	-	-	-	-		
11		Ao	9.2	-	-	-	-		
12		Ko	8.8	-	-	-	-		
13		Ao	8.3	-	-	-	-		

X 14911

Diaphragm 2

1		Oa	9.4	-	-	-	-		
2	*	Bq	9.1	9.95 10.00	10.70 10.90	9.10 9.18		1294-98	as
3		Go	7.6	6.69 6.42	6.69 6.70	7.44 7.34			above
4		Fo	8.5	8.41 8.73	9.03 8.91	8.46 8.41			
5	*	B8	7.3	6.41 6.32	6.71 6.60	7.30 7.30			
6		F8	9.4	11.26 10.90	12.23 11.44	9.55 9.64			
7	*	Ao	10.0	12.12 12.32	12.51 12.40	10.00 9.95			
8		Go	9.4	11.73 11.93	12.29 12.30	9.84 9.87			
9		F5	9.7	11.89 12.17	12.34 12.30	9.93 9.89			
10		Bq	9.4	-	-	-	-		
11		Ao	9.2	-	-	-	-		
12		Ko	8.8	-	-	-	-		
13		Ao	8.3	-	-	-	-		
14				-	-	-	-		

Reading
↑

12

11

↑ Reading

9

8

7

6

5

4

7

8

9

10

11

→ P_g

X14935

Red entries, H γ
Black ... H δ

Reading
↑

12

11

10

9

8

7

6

7

8

9

10

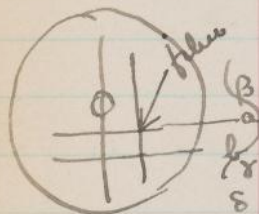
u

→ P_g

X14911
 Red entries, H_γ
 Black .. H_β

D 20218 Contact from C 19080, 19081 Largest diaphragm

from C 19080



No. 1 Vega

	b	a	file	[b]	[a]
online	25.03	25.14	7.39	.38	.28
	25.42	25.42	7.30	-.06	-.06
	25.37	25.25	7.41	.03	.18
	25.50	25.50	7.60	-.16	-.16
	25.30	25.20	7.60	.03	.18
	22.90	22.16	7.65	.80	1.16
	19.90	18.68	7.49	1.46	1.60
	-	15.80	7.59	1.91	-
	-	12.75	7.45	2.30	-
	-	10.22		2.77	-
midway	-	9.49	7.50	2.99	-
	9.00			3.13	-
	8.41			3.40	-

Mean 7.50 4.38

In this set of measures the galvanometer was read finally only to the nearest tenth of a large scale division. It is at present too sensitive to be read to hundredths; and tenths correspond to the accuracy of the plate.

No. 2 Vega

	b	a	file	[b]	[a]
β	14.0	16.1	7.5	2.12	1.88
γ	23.2	22.5	7.6	.96	1.10
δ	22.6	22.0	7.7	1.08	1.18
ϵ	20.0	18.6	7.5	1.44	1.60
ζ	17.9	14.9	7.5	1.68	2.01
η	13.2	11.1	7.5	2.23	2.57
θ	9.5	9.4	7.6	2.96	2.99
ι	-	-			
κ	-	-			
λ	-	-			
μ	-	-			
ν	-	-			
ξ	-	-			

Mean

7.56

4.38

Contact 3 from C19080

Eberhard effect can be seen on the

No. 3 Vega	a	b	file	[a]	[b]
β	22.2	23.6	7.7	1.15	.88
γ	25.1	25.0	7.5	.28	.38
δ	24.9	24.8	7.6	.44	.50
ϵ	24.6	24.0	7.5	.59	.77
ζ	23.0	20.4	7.6	1.00	1.40
η	18.7	15.6	7.5	1.59	1.93
θ	12.7	12.0	7.5	2.30	2.41
ι	-	10.5	7.6		2.70
κ	- 8.9	]	7.5	3.17	
λ	8.3		7.5	3.47	
μ	8.0		7.5	3.70	
			<u>7.55</u>		

4.38

No 4 α Cygni

	a	b	filter	(left of spectrum)	
	12.7			[a]	[b]
β	16.5	16.5	7.7	2.30	1.84
	25.5	25.6			
γ	25.1	24.8	7.6	-.16	-.24
δ			7.5	.28	.50
ϵ	24.9	25.1	7.5	.44	.28
ζ	24.5	24.3	7.5	.62	.68
η	22.5	21.8	7.6	1.10	1.22
θ	18.6	18.2	7.4	1.60	1.65
ι	-	15.9	7.5		1.90
κ	-	13.6	7.5		2.18
λ	12.8			2.29	
μ	11.7			2.46	
ξ	11.4			2.51	
\omicron	10.6			2.68	
π	10.1			2.80	
ρ	9.5			2.96	
σ	9.2			3.06	
τ	8.6		7.6	3.31	
			<u>7.54</u>	4.38	

Contact from C19080
No. 5 Lygni

	a	b	film	[a]	[b]
β	23.1	24.2	7.7	.98	.71
γ	25.0	25.1	7.7	.38	.28
δ	24.9	24.9	7.6	.44	.44
ϵ	24.9	24.6	7.8	.44	.59
ζ	23.5	22.8	7.7	.90	1.05
η	20.9	19.9	7.6	1.34	1.46
θ	17.2	16.8	7.6	1.76	1.81
ι	-	14.2			2.10
κ	-	11.7			2.46
λ	12.0			2.41	
μ	11.3			2.53	
ν	10.1			2.80	
ξ	9.7			2.90	
\omicron	9.2			3.06	
π	8.8			3.21	
ρ	8.7		7.6	3.26	
σ	-				
τ	-				

7.6
Mean 7.66 4.26

No. 6 α Cygni

	a	b	filu	[a]	[b]
β	22.1	23.6	7.7	1.16	.88
γ	24.9	24.9	7.5	.44	.44
δ	24.7	24.7	7.4	.54	.54
ϵ	24.2	24.1	7.4	.71	.74
ζ	23.0	22.0	7.5	1.00	1.18
η	19.1	18.6	7.5	1.54	1.60
θ	15.9	15.6	7.5	1.90	1.93
ι	-	13.1	7.4		2.24
κ	-	11.2			2.55
λ	11.2			2.55	
μ	10.9			2.62	
ν	10.1			2.80	
ξ	9.4			2.99	
\omicron	8.9			3.17	
π	8.7			3.26	
ρ	8.5			3.36	
σ	8.1		7.4	3.62	
ϵ	-				

Mean 7.48

106

Contact from C19080

No. 7, α Cygni

	a	b	file	[a]	[b]
β	23.0	23.9	7.4	1.00	.80
γ	24.8	24.9	7.6	.50	.44
δ	24.6	24.7	7.4	.59*	.54
ϵ	24.5	24.3	7.5	.62	.68
ζ	23.5	23.0	7.4	.90	1.00
η	20.6	19.5	7.4	1.37	1.50
θ	17.1	16.5	7.5	1.75	1.84
ι	-	14.4	7.5		2.08
κ	-	11.4	7.4		2.51
λ	11.8			2.44	
μ	11.3			2.53	
ν	10.7			2.66	
ξ	9.8			2.88	
\omicron	9.2			3.06	
π	8.9			3.17	
ρ	8.5			3.36	
σ	7.9				

Mean $\frac{7.5}{7.46}$

No. 8, α Cygni

	a	b	filum	[a]	[b]
β	20.4	22.6	7.1	1.40	1.08
γ	24.4	24.5	7.1	.66	.62
δ	24.5	24.2	7.3	.62	.71
ϵ	23.7	23.8	7.2	.86	.83
ζ	22.0	21.3	7.3	1.18	1.28
η	18.0	17.7	7.3	1.67	1.70
θ	14.9	14.6	7.3	2.01	2.05
ι	-	12.8	7.3		2.29
κ	-	10.9	7.3		2.62
λ	10.5			2.70	
μ	10.2			2.77	
ν	9.5			2.96	
ξ	9.0			3.13	
\omicron	8.6			3.31	
π	8.2			3.54	
ρ	8.0			3.70	
σ	7.8			4.00	

Mean 7.24

108

Contact from C19080

No. 9, α Cygni

	a	b	file	[a]	[b]
β	21.0	22.7	7.1	1.32	1.06
γ	24.2	24.2	7.2	.71	.71
δ	24.0	24.1	7.1	.77*	.74
ϵ	23.6	23.5	7.3	.88	.90
ζ	22.3	21.2	7.3	1.14	1.30
η	18.5	17.9	7.2	1.62	1.68
θ	15.2	14.5	7.3	1.98	2.06
ι	11.3	12.6 10.8	7.2		2.31
κ	-	10.8	7.2		2.64
λ	10.5				2.70
μ	10.9				2.62
ν	10.1				2.80
ξ	9.7				2.90
\omicron	9.0				3.13
π	8.4				3.40
ρ	8.6				3.31
σ	8.1				3.62

Mean 7.21

7.0 =	12.0 = 2.41	17.0 = 1.78	22.0 = 1.18
.2 =	.2 = 2.38	.2 = 1.76	.2 = 1.15
.4 =	.4 = 2.35	.4 = 1.74	.4 = 1.12
.5 = 4.38	.6 = 2.31	.6 = 1.72	.6 = 1.08
.6 = 4.26	.8 = 2.29	.8 = 1.69	.8 = 1.05
.8 = 4.06	13.0 = 2.26	18.0 = 1.67	23.0 = 1.00
8.0 = $\frac{3.70}{3.67}$	.2 = 2.23	.2 = 1.65	.2 = .96
.2 = 3.54	.4 = 2.20	.4 = 1.63	.4 = .92
.4 = 3.40	.6 = 2.18	.6 = 1.60	.6 = .88
.6 = 3.31	.8 = 2.15	.8 = 1.58	.8 = .83
.8 = 3.21	14.0 = 2.12	19.0 = 1.56	24.0 = .77
9.0 = 3.13	.2 = 2.10	.2 = 1.53	.2 = .71
.2 = 3.06	.4 = 2.08	.4 = 1.51	.4 = .66
.4 = 2.99	.6 = 2.05	.6 = 1.49	.6 = .59
.6 = 2.93	.8 = 2.02	.8 = 1.47	.8 = .50
.8 = 2.88	15.0 = 2.00	20.0 = 1.44	25.0 = .38
10.0 = 2.82	.2 = 1.98	.2 = 1.42	.2 = .18
.2 = 2.77	.4 = 1.96	.4 = 1.40	.4 = -.06
.4 = 2.73	.6 = 1.93	.6 = 1.37	.5 = -.16
.6 = 2.68	.8 = 1.91	.8 = 1.35	.6 = -.24
.8 = 2.64	16.0 = 1.89	21.0 = 1.32	.8 =
11.0 = 2.59	.2 = 1.87	.2 = 1.30	
.2 = 2.55	.4 = 1.85	.4 = 1.27	
.4 = 2.51	.6 = 1.83	.6 = 1.24	
.6 = 2.47	.8 = 1.81	.8 = 1.22	
.8 = 2.44			

25

20

15

10

5

↑
galvanometer
readings

100

200

3.00

4.00

5.00

6.00

→ Magnitudes

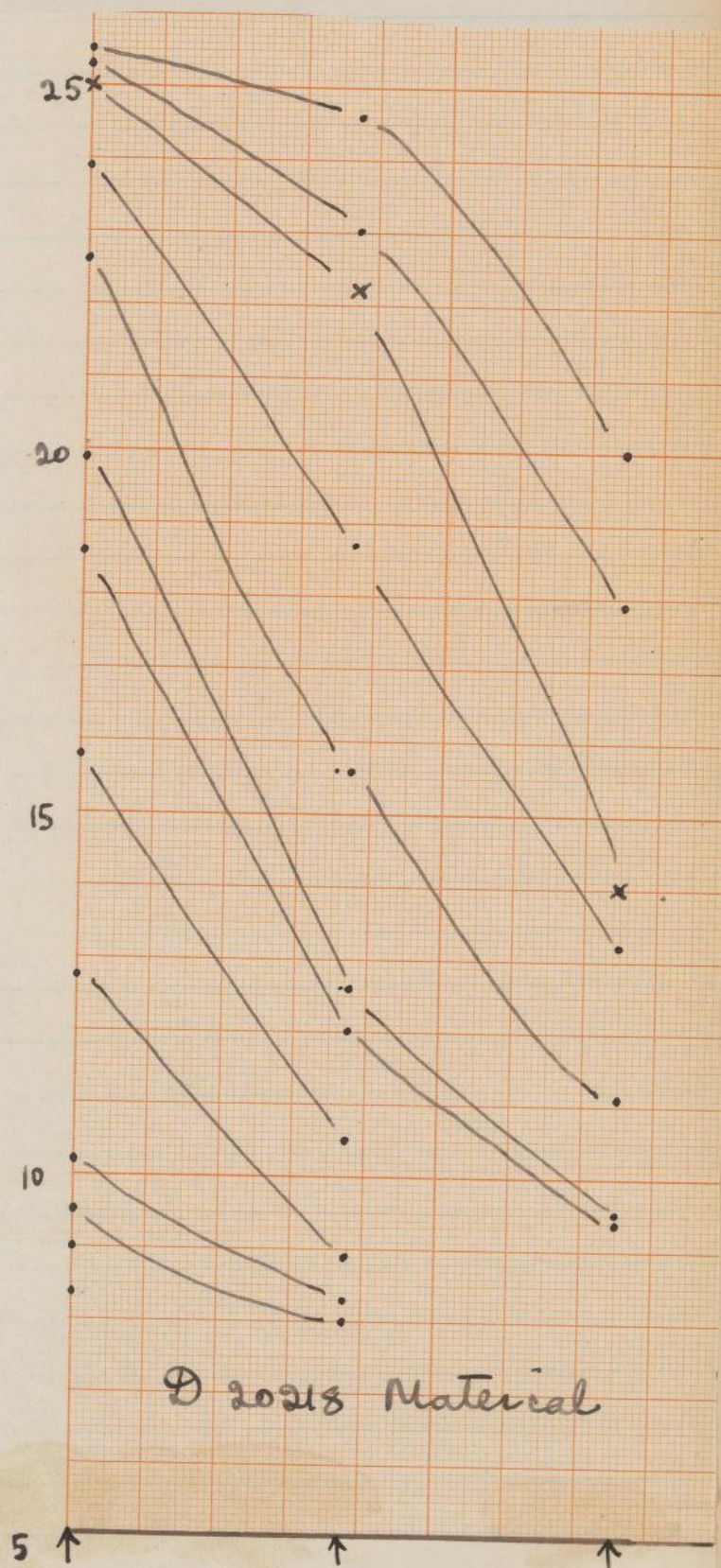
D 20213
Contact from C 19080

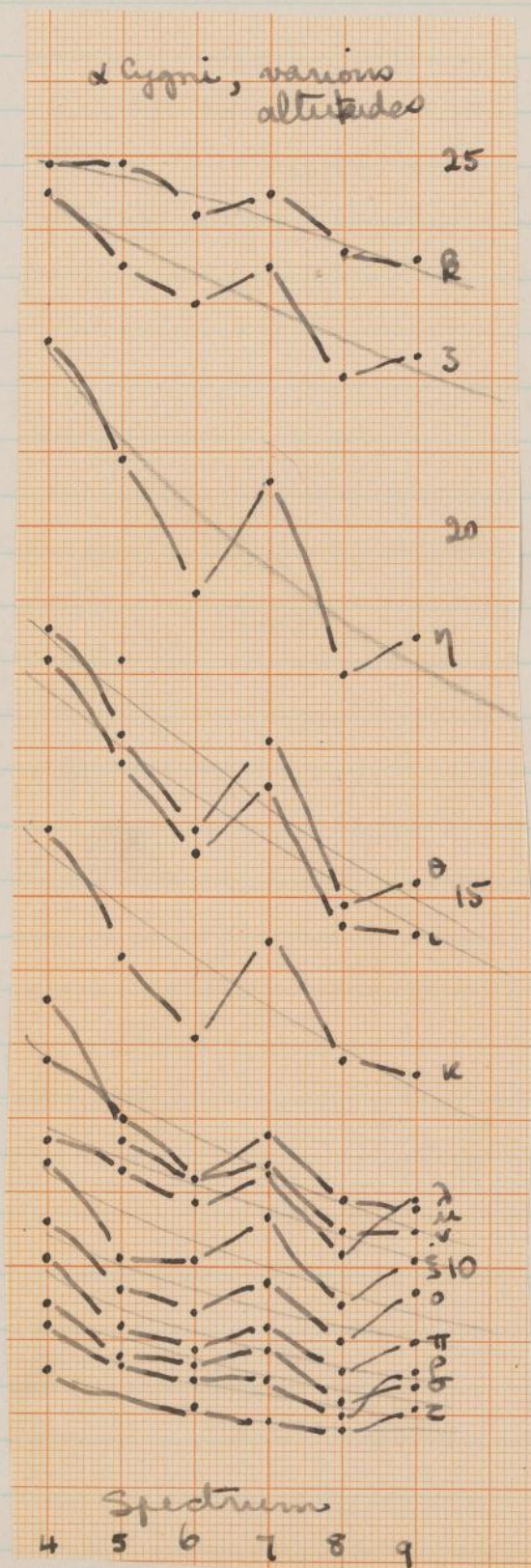
Cf the curve, made from
the corresponding negative,
on p. 14.

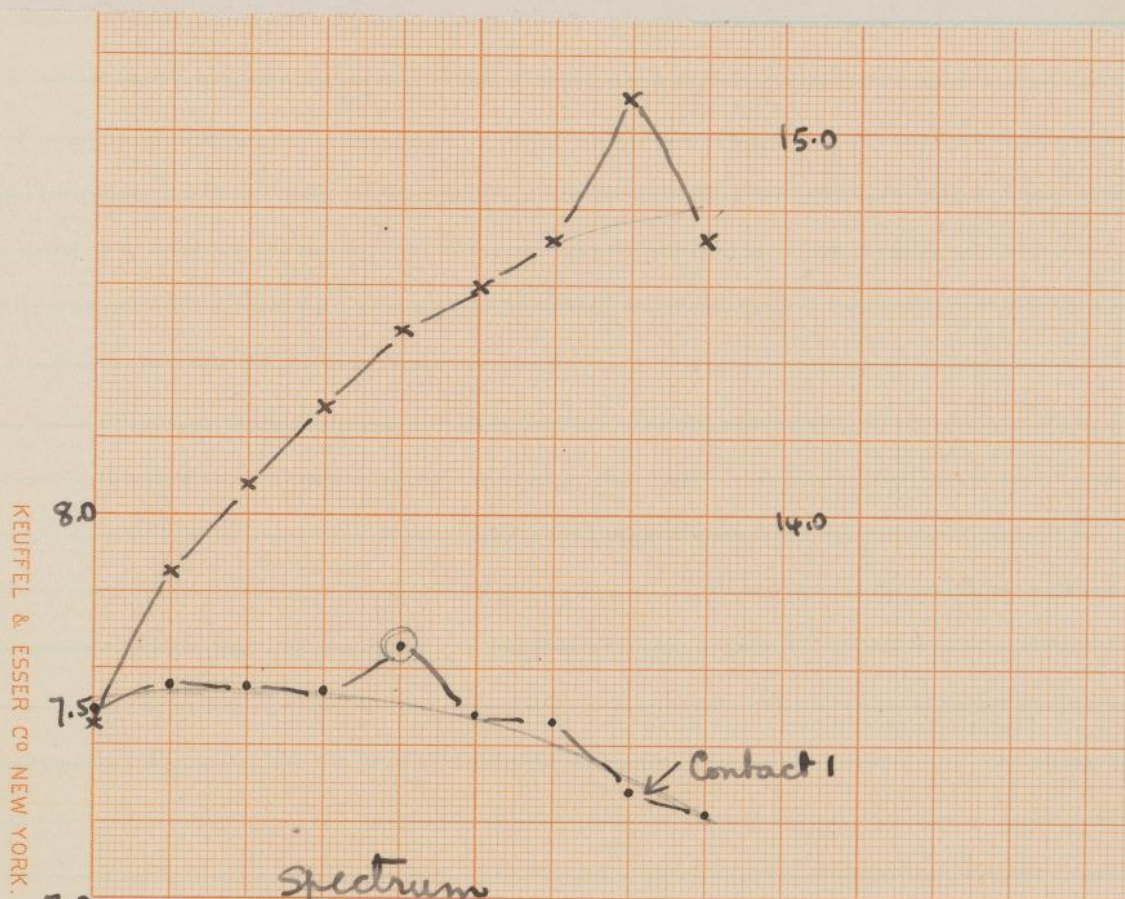
The important
region, from 25.5 to
10 on this curve,
corresponds to about
4.0 to 7.0 on that one.

Film

ENGRAVING 300 MILLIMETER
FROM DRAWING STATE COLOR DRAWING ON TRACING PAPER
MADE IN U.S.A.





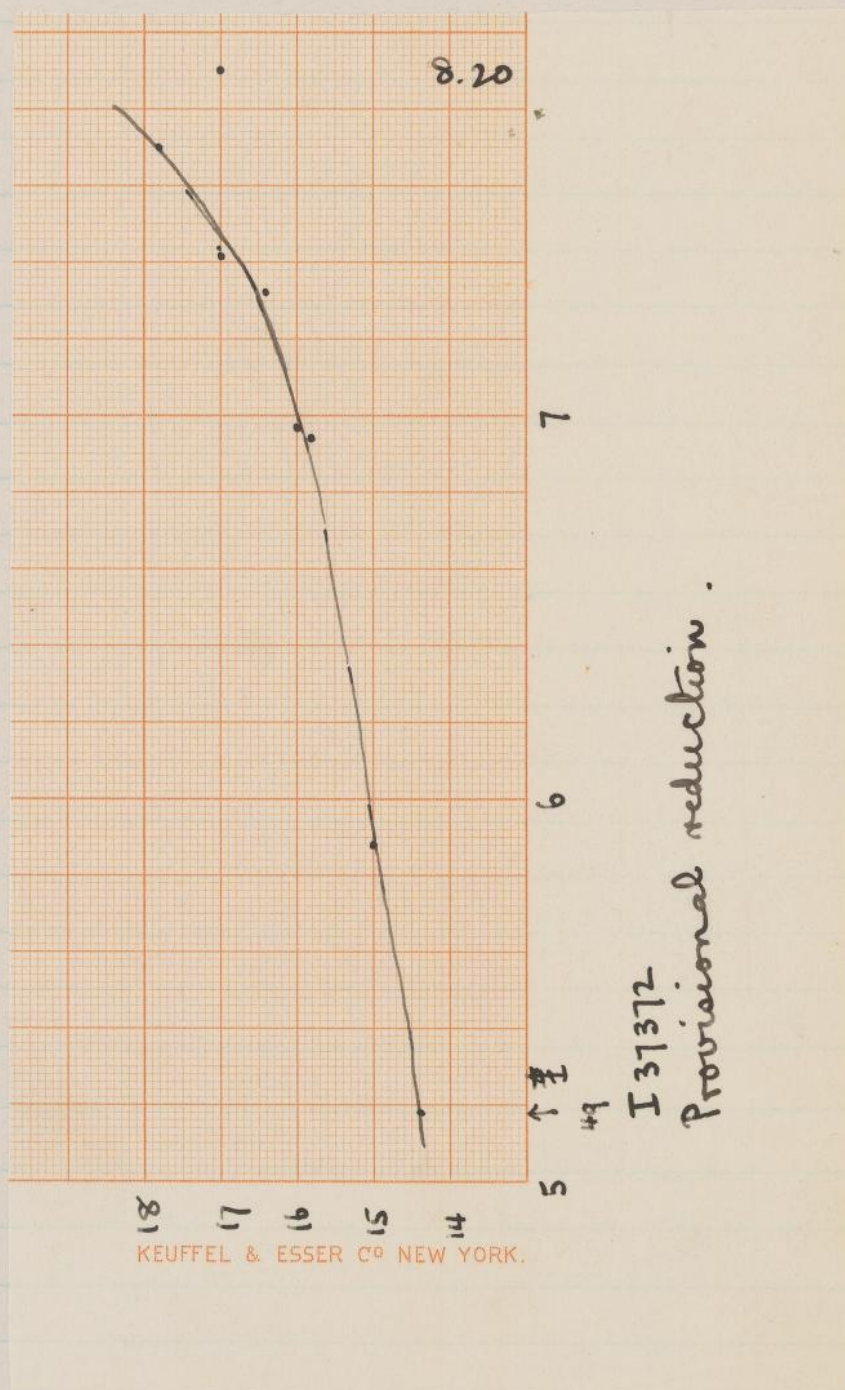


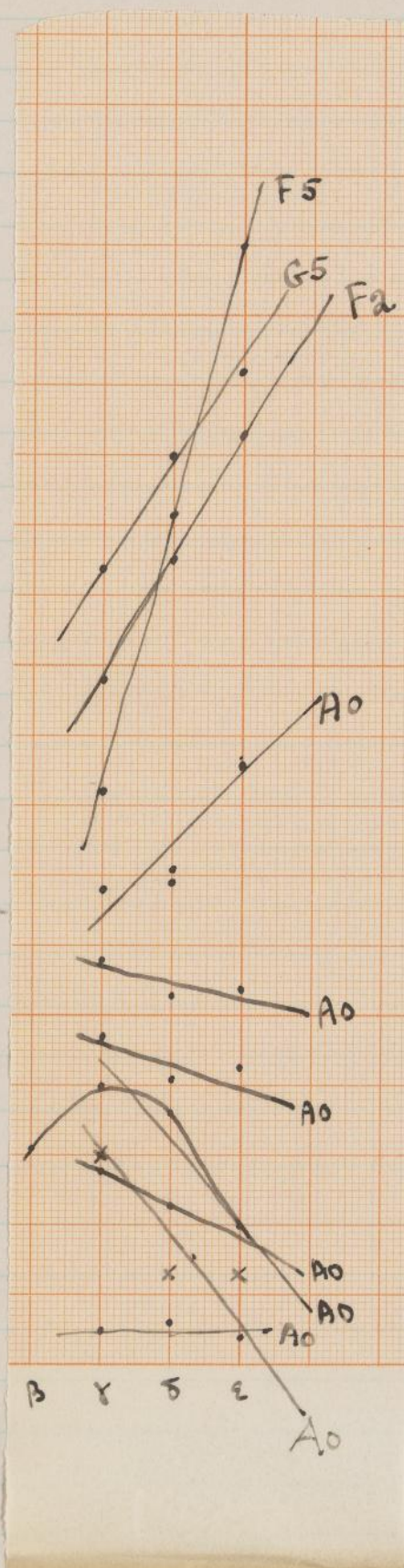
scale for contact

Comparison of "film" readings for C19080 and its contacts.

No.1	exp. 2 sec	} on Eastman Process plates
2	" 5 "	
3	" 15 "	

scale for original





150

No Diaphragm

First Clear 13.7
Final " 13.8

First Voltage 4.80

Final Voltage 4.80

Plate I 38034	Sp	H.D. Pg.	Reading	R.D.	R.A. 1855	R.A. 1900	Dec.	Pay
star No								
too fl 4	A ₀							
22			10.56 13.96	+8°291	1 46.7	1 49.1	+9 3	8.9
✓ * 30			5.73 13.5	+7°275	1 38.1	1 40.4	+8 4	6.62
33	F ₀		11.45 13.97	+8°267	1 36.3	1 38.7	+9 1	9.1
85			12.07 13.74	+10°225	1 35.1	1 37.5	+10 36	8.8
too fl 89	See also a, b, and			71				
too fl 5	K ₀ (at G band)							
8			7.72	+7°321	1 57.2	1 59.6	+7 15	7.55
too fl 14								
too fl 15								
too fl 24								
overlaps the up 25								
rather fl 50			12.84	+8°268	1 36.4	1 38.8	+8 22	9.7
53			8.07	+6°275	1 41.1	1 43.4	+7 12	8.28
rather fl 55			11.50	+7°286	1 42.3	1 44.7	+7 24	9.3
too fl 65								
too fl 70								
too fl 73								
too fl 74								
too fl 77								
78			9.15	+6°257	1 32.8	1 35.1	+36 35	9.2
84			4.75	+4°293	1 33.9	1 36.2	+4 59	5.68
2 fl 88			10.68	+5°232	1 36.1	1 38.4	+5 15	9.06
too fl 92								
93			10.99	+5°251	1 43.4	1 45.7	+5 32	9.7
too fl 2								
opsc * 31			4.73	+8°273	1 37.7	1 40.1	+8 39	5.5
32			8.46	+8°269	1 36.6	1 39.0	+8 59	8.6
dot a F ₀			5.67	+10°251	1 45.5	1 47.8	+10 33	6.22

Plate I 38034	Sp	H.D. Pg.	Readin	R.D.	R.A. 1855	R.A. 1900	Dec.	Pg	H.D.
star No									
too fl	4	A ₀							
	22		10.56	12.96	+8°291	1 46.7	1 49.1	+9 3	8.9
* 30			5.73	13.5	+7°275	1 38.1	1 40.4	+8 4	6.62
	33	T ₀	11.45	13.77	+8°267	1 36.3	1 38.7	+9 1	9.1
	85		12.07	13.74	+10°225	1 35.1	1 37.5	+10 36	8.1
too fl	89	See also at 5, and 71							
	5	K ₀ (at G band)							
	8		7.72		+7°321	1 57.2	1 59.0	+7 15	7.1
too fl	14								10
too fl	15								
too fl	24								
overexposed	25								
rather fl	50		12.84		+8°268	1 36.4	1 40		
	53		8.17		+6°275	1 41.1	1 44.1		
rather fl	55		11.50		+7°286	1 42.3	1 45.3		
too fl	65								
too fl	70								
too fl	73								
too fl	74								
too fl	77								5
	78		9.15		+6°257	1 32.8	1 35.8		
	84		4.75		+4°293	1 33.9	1 36.9		
rather fl	88		10.68		+5°232	1 36.1	1 39.1		
too fl	92								
	93		10.99		+5°251	1 43.4	1 46.4		
too fl	2								
opsc *	31		4.73		+8°273	1 37.7	1 40.7		5
	32		8.46		+8°269	1 36.6	1 39.6		6
tot	a	F ₀	5.67		+10°251	1 45.5	+10 33	6.22	11257

Relative
m from
curves

Deduced magnitude interval for
30 and 31 at (H₆ and H₇) = 6.35 - 5.35
= 1^m.00

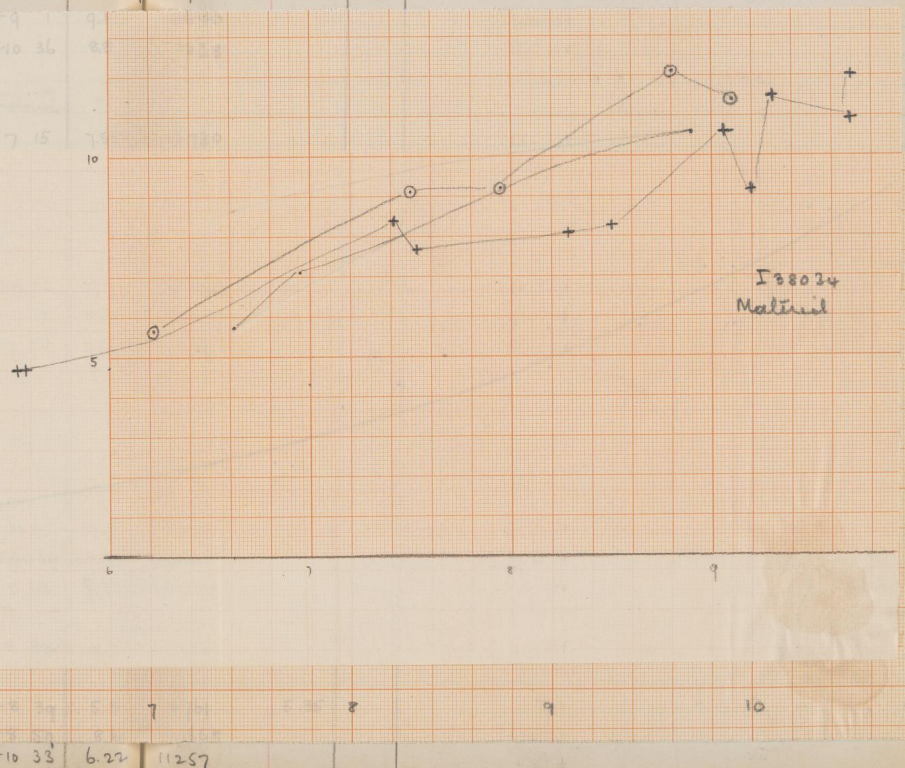


Plate I 38034	Sp	H.D. Pg.	Read	R.D.	R.A. 1855	R.A. 1900	Dec.	Par	H.D.	Relative m. from center	Deduced magnitude interval for 30 and 31 at (H ₆ and H ₇) = 6.35 - 5.35 = 1 ^m .00
Star No.											
Too fl	4	A ₀									
	22		10.56	12.96	+8°291	1 46.7	1 49.1	+9 3	8.9	11639	
	30		5.73	13.5	+7°275	1 38.1	1 40.4	+8 4	6.62	10783	6.35
	33	T ₀	11.45	12.77	+8°267	1 36.3	1 38.7	+9 1	9.1	10640	
	85		12.07	13.74	+10°225	1 35.1	1 37.5	+10 36	8.8	10528	
too fl	89	See also on K ₀ (at B band)									
	5										
	8		7.72		+7°321	1 57.2	1 59.6	+7 15	7.55	12730	
too fl	14										
too fl	15										
too fl	24										
too fl	25										
rather fl	50		12.84		+8°268	1 36.4	1 40				
	53		8.67		+6°275	1 41.1	1 44				
rather fl	55		11.50		+7°286	1 42.3	1 45				
too fl	65										
too fl	70										
too fl	73										
too fl	74										
too fl	77										
	78		9.15		+6°257	1 32.8	1 35				
	84		4.75		+4°293	1 33.9	1 36				
rather fl	88		10.68		+5°232	1 36.1	1 38.4				
too fl	92										
	93		10.99		+5°251	1 43.4	1 45				
too fl	2										
Opse *	31		4.73		+8°273	1 37.7	1 40				
	32		8.46		+8°269	1 36.6	1 39				
too	a	P ₀	5.67		+10°251	1 45.5	1 48				

Field of 0 Piscium

151

H.D.

Relative
m from
curve

Deduced magnitude interval for
30 and 31 at (H β and H ϵ) = 6.35 - 5.35
= 1^m.00

11639

10783

10640

10528

12730

10650

11049

11169

10245

10380

10609

11286

10761

10868

11257

5.35

		B ₉	7.10	+10° 24'	1 41.8	1 41.8	+10 21	6.95	pg
	b	F ₀	9.20	+10° 25'	1 46.8	1 46.8	+10 19	7.95	10
mr	c	F ₅	8.41	+10° 23'	1 48.7	1 48.7	+10 8	7.42	11
	71	F ₅	9.12	+7° 31'	1 54.2	1 56.6	+7 23	7.50	1
mr	54	G ₀	8.37	+6° 27'	1 42.3	1 44.7	+6 44	8.5	1

HD

10894

11386

11592

12414

11170

Bright A star between α & β
 $+10^{\circ} 235 [137.8, (1855)] = \text{H.D. } 10723, 1^{\text{h}} 39.7, +10^{\circ} 30$
 No. 27 $= \text{H.D. } 11035, 1^{\text{h}} 43.3, +9^{\circ} 43$
 No. 26 $= \text{H.D. } 11475, 1^{\text{h}} 47.7, +9^{\circ} 56$

156

✓

I 37878 Measured for Mag. Corrections for C 17054

I 37878

	Sp	Pg	Reading	BD	HD	α	δ	4000 Red. Mag.	Corr mag.
11	K0	8.62	4.56	+44	3741	20 23 12	21 9.9	+44	45
18	K0	8.24	4.56	+45	3729	20 17 01	6.2	+45	45
57	K0	7.57	4.44	+43	3866	20 27 10	12.6	+43	49
81	K0	8.7	4.38	+44	3680	20 05 61	20 59.1	+44	14
90	K0	7.75	4.27	+43	3780	19 99 56	55.3	+43	40

Magnitude + Corrected Magnitude
Differences
for A_0

0.81

1.62

2.00

0.98

0.87

0.18

1.48

0.56

1.20

- 0.06

10 | 9.64

Average $\Delta = 0.96\%$

1998 70	54.8	+44	4		
1995 47	52.8	+43	31	8.50	9.20
1995 12	52.6	+42	23		
1990 98	49.8	+44	48		
2030 13	21 ^h	14.5	+46	26	
2019 35	7.7	+45	16	6.82	7.52

2004 78	20 ^h	58.6	+46	37	8.60	9.30
2013 20	21 ^h	3.7	+41	20	8.42	9.12
1998 90	20 ^h	54.9	+47	13	7.48	8.18
1999 86		55.5	+45	52	7.26	7.96
1993 11		51.3	+45	51	6.14	6.84

1986 39		46.6	+43	41		
2030 96	21 ^h	15.0	+40	37		

2010 91		2.4	+38	15		
1996 29		53.4	+40	47	4.72	5.42

1997 62		54.1	+39	53	7.48	8.18
2006 29		59.5	+39	51	8.50	9.20

1998 92		54.9	+41	33	5.25	5.95
---------	--	------	-----	----	------	------

#1 =	* 26	K ₅ A ₀	6.06	3.74	+47	3292	2012 51	21 ^h	3.2	+47	15	5.36	6.06
#4 =	24	K₅	7.8	4.42	+46	3191	2013 59		4.0	+46	53	7.32	8.02
#2 =	20	B ₅	6.24	4.07	+47	3322	2018 06		7.1	+47	17	6.36	7.06
#3 =	29	A ₅	6.44	4.29	+46	3109	2007 53		0.3	+46	29	6.79	7.14

Correction $+0.70$

156

✓ I 37878 Measured for Mag. Corrections for C 17054

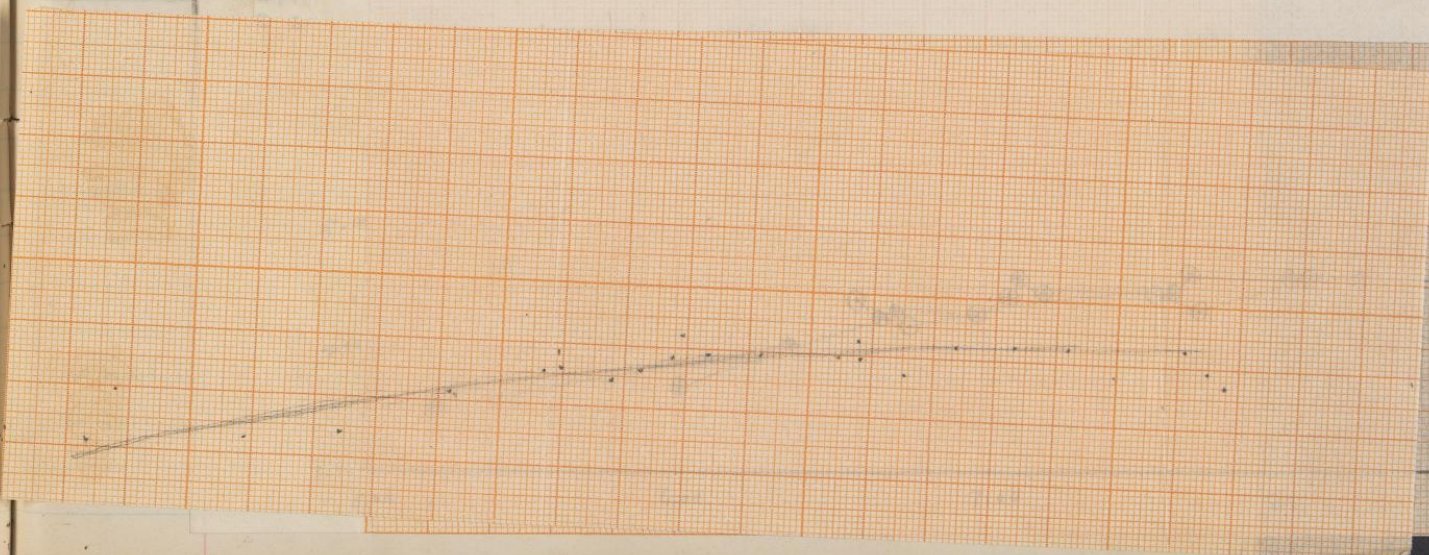
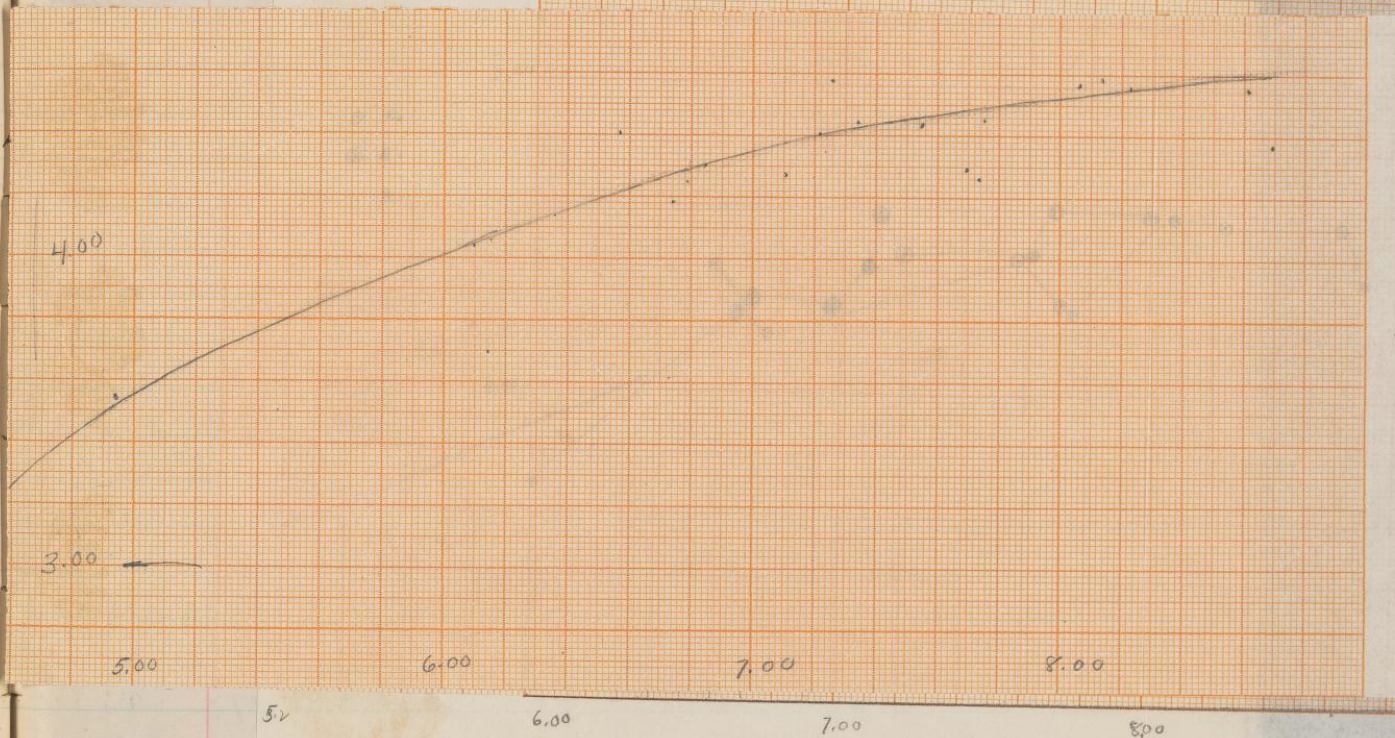
I 37878

	Sp	Pg	Reading	BD	HD	α	δ	4000	Red. Mag.	Corr mag.
11	Ko	8.62	4.56	+44	3741	20 23 12	21	9.9	+44	45
18	Ko	8.24	4.56	+45	3729	20 17 01		6.2	+45	45
57	Ko	7.57	4.44	+43	3866	20 27 10		12.6	+43	49
81	Ko	8.7	4.38	+44	3680	20 05 61	20	59.1	+44	14
90	Ko	7.75	4.27	+43	3780	19 99 56		55.3	+43	40
93	Ko	6.76	4.19	+43	3777	19 98 70		54.8	+44	4
99	Ko	8.07	4.58	+43	3767	19 95 47		52.8	+43	31
102	Ko	7.71	4.30	+44	3913	19 95 12		52.6	+42	23
112	Ko	6.59	4.41	+44	3617	19 90 98		49.8	+44	48
7	39 Ao	6.98	4.28	+46	3621	20 30 13	21 ^h	14.5	+46	26
15	Ao	6.71	4.30	+45	3438	20 19 35		7.7	+45	16
21										
37	Ao	7.68	4.60	+46	3149	20 04 78	20 ^h	58.6	+46	37
25	Ao	7.12	4.57	+47	3297	20 13 20	21 ^h	3.7	+47	20
39	Ao	7.20	4.45	+47	3240	19 98 90	20 ^h	54.9	+47	13
44	Ao	7.09	4.41	+45	3352	19 99 86		55.5	+45	52
47	Ao	6.66	4.26	+45	3326	19 93 11		51.3	+45	51
115	A5	5.21	3.53	+43	3739	19 86 39		46.6	+43	41
127	A5	6.37	4.04	+40	4485	20 30 96	21 ^h	15.0	+40	37
136	Ko	6.75	3.81	+38	4343	20 10 91		2.4	+38	15
148	Ao	4.04	3.36	+40	4364	19 96 29		53.4	+40	47
157	Ao	7.62	4.45	+39	4386	19 97 62		54.1	+39	53
1.39	Ao	8.0	4.58	+39	4421	20 06 29		59.5	+39	51
1.45	Ao	6.01	3.69	+41	3494	19 98 92		54.9	+41	33
26	K5 Ao	6.06	3.74	+47	3292	20 12 51	21 ^h	3.2	+47	15
24	35	7.8	4.42	+46	3191	20 13 59		4.0	+46	53
20	35	6.24	4.07	+47	3322	20 18 06		7.1	+47	17
29	A5	6.44	4.29	+46	3109	20 07 53		0.3	+46	29

Correction +0.70

Diaphragm #X² start Finish
 Dark 3.31 3.35
 Volts 4.75 4.73
 Clear 4.80 5.10

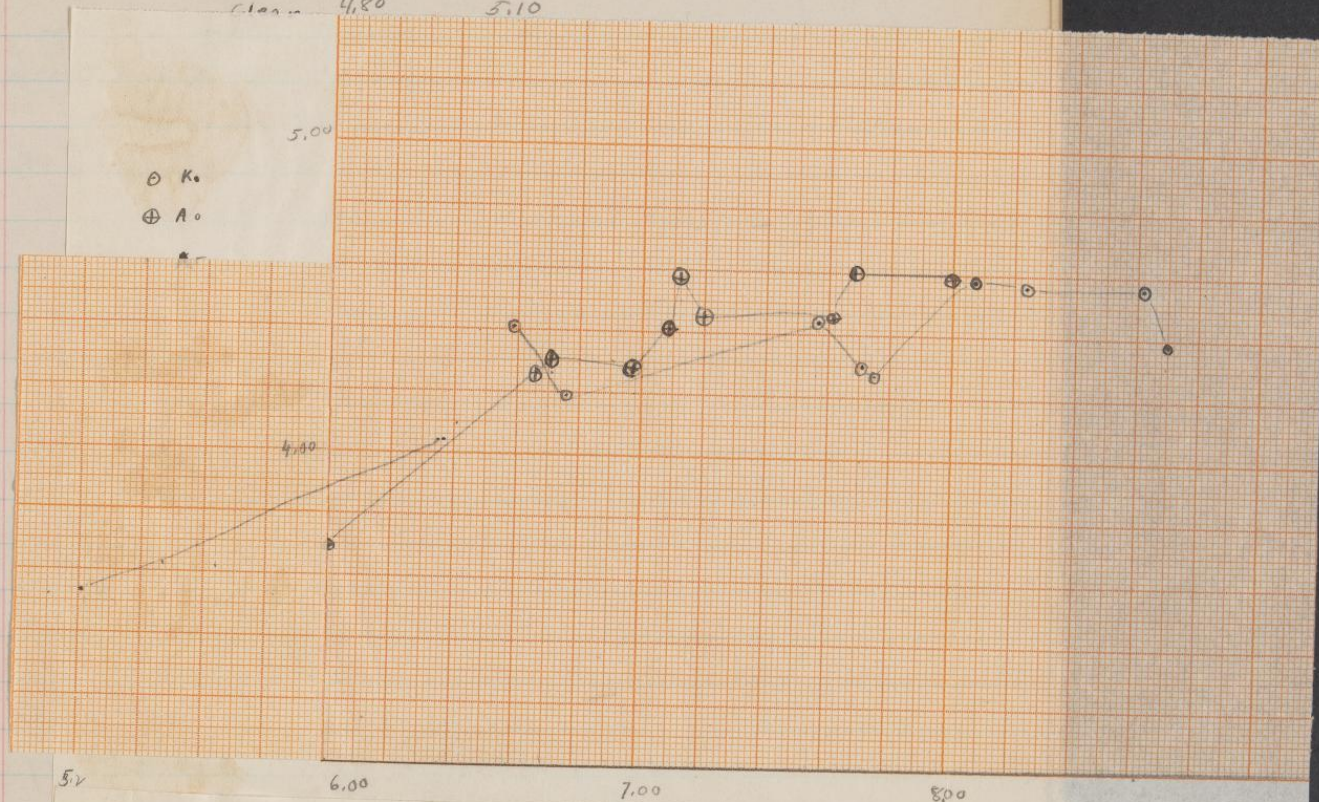
157



Diaphragm #12

	start	Finish
Dark	3.31	3.35
Volts	4.75	4.73
Clear	4.80	5.10

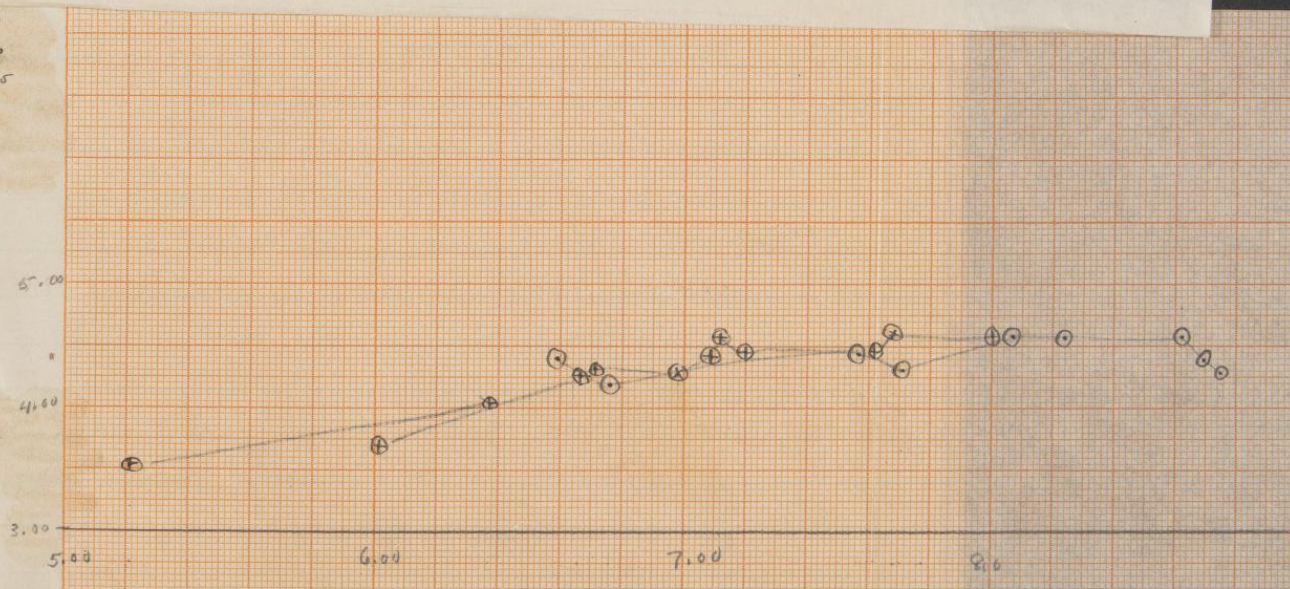
157



⊙ K_α

⊕ A_α

⊕ A_γ



158

Measured for C 15906

I 38095	Star No	Sp	Plg	Reading	BD	HD	¹⁹⁰⁰ α		δ	Corrected Mag	
	1	Ao	7.9	11.18	+68 893	153058	16	52.1	+68 5	7.94	7.58
	2	Ao	6.72	18.50	+67 977	153680		55.8	+67 38		
	39	Ao	9.0	12.86	+69 938	1612 98	17	39.7	+69 15	8.76	8.40
	59	Ao	6.72	7.31	+68 989	1690 27	18	17.6	+68 42	6.60	6.24
	65	Ao p	4.24	4.09	+71 889	170000		22.2	+71 17	4.50	4.14
	80	Ao	7.00	7.59	+70 925	157774		20.2	+70 53	6.70	6.34
~ ft	87	Ao	8.7	12.87	+73 774	159080		27.6	+73 18	8.76	8.40
	89	Ao	8.4	12.51	+71 845	159711		31.1	+71 22	8.52	8.16
	97	Ao	7.28	8.82	+72 799	161095		38.5	+72 7	7.08	6.72
	112	Ao	8.0	10.20	+73 782	161000		38.0	+73 7	7.58	7.22
	115	Ao	7.64	9.94	+73 791	162130		44.4	+73 30	7.46	7.10
	140	Ao	7.82	12.36	+75 617	156677	17	13.9	+75 13	8.46	8.10
	6	A5	7.46	11.99	+68 908	154320	16	59.7	+68 48	4.27	
	26	A5	8.1	11.70	+67 1015	158867	17	26.6	+67 51	8.14	
	131	A5	6.38	6.63	+73 751	154099	16	58.3	+73 17	6.38	
~ ft	10	F5	8.31	12.88	+69 891	155090	17	4.4	+69 55	8.76	
~ ft	11	F5	8.46	13.00	+69 908	155262		5.4	+70 25	8.80	
wrong star?	34	F5		7.7	+68 944	164446	17	56.5	+69 38		
~ ft	48	F5		11.4	+69 958					8.02	
~ ft	54	F5	7.29	12.42	+66 1077	166379	18	5.3	+66 56	8.46	
	61	F5	8.11	12.30	+69 974	164282		18.9	+69 58	8.40	
	64	F5	8.2	8.5	+71 884	169666		20.7	+71 28	6.98	
	100	F5	5.32	4.33	+72 804	162003	17	43.7	+72 12	5.64	
	128	F5	7.59	11.00	+74 695	154181	16	58.8	+74 26	7.86	
	a			4.27							
	24	Ko	6.21	7.22	+68 938	159966		32.4	+68 12	6.76	
	34	F5	5.29	4.67	+68 949	160922		37.5	+68 48	5.03	

Volts
Clear
Dark

Start
4.70
14.6 ±
3.82

Finish
4.69
14.07 (Mean of 3 settings)
3.92

No Diaphragm

159

Mag + Mag Corrected Differences for (A₀)

-0.32

-0.60

-0.48

-0.10

-0.66

-0.30

-0.24

-0.56

-0.78

-0.54

A₀ = 0
-A = 0

0.91

0.81

0.71

0.61

0.51

0.41

0.31

0.21

0.11

0.01

0.91

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0.91

0.81

0.71

0.61

0.51

0.41

0.31

0.21

0.11

0.01

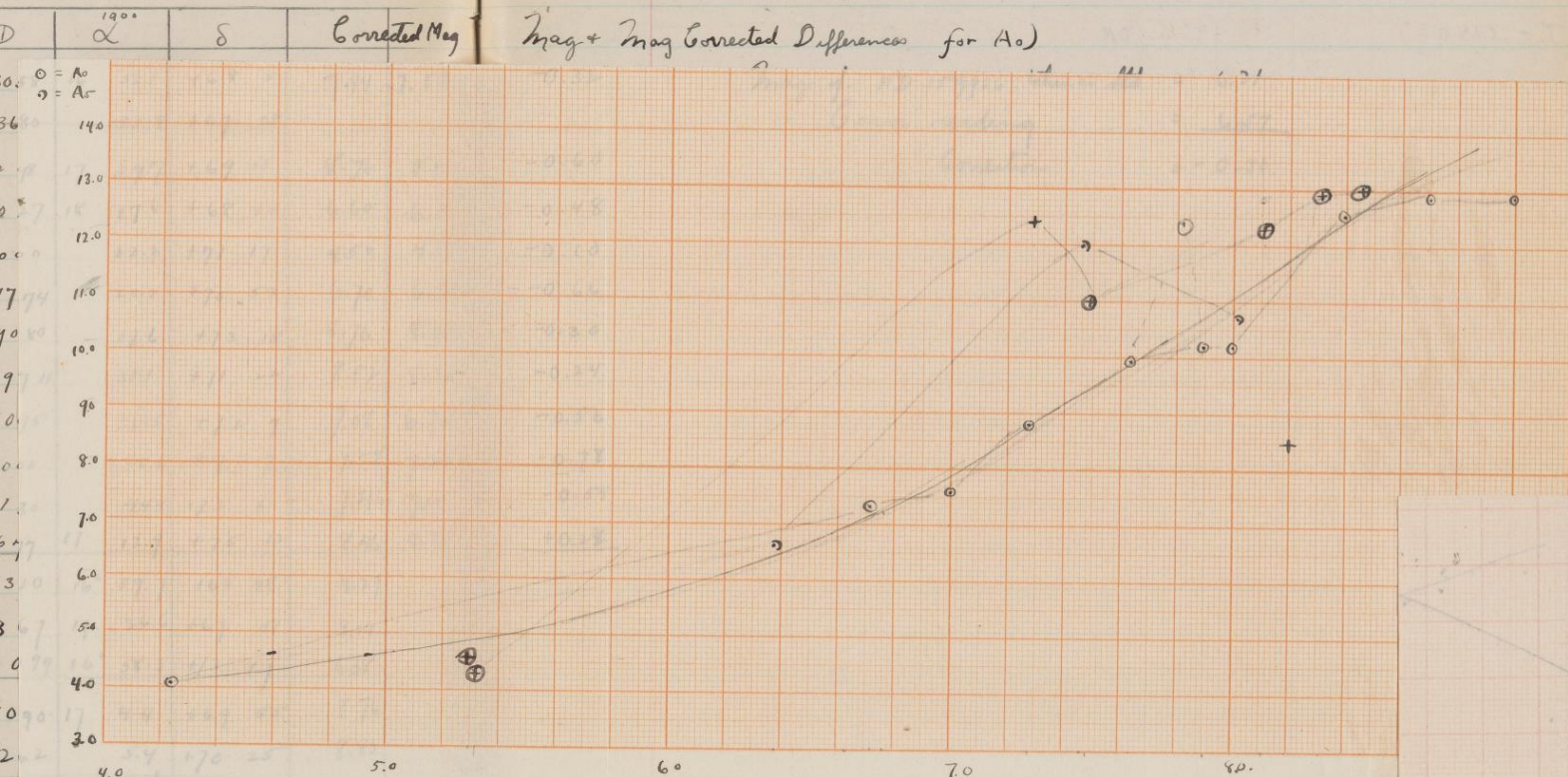
0.91

0.81</

Start + Finish
 Volts 4.70 4.69
 Clear 14.6 ± 14.07 (Mean of 3 settings)
 Dark 3.82 3.92

No Diaphragm

159



Stars below A₀ only, used in this final curve.

666	20.7	+71	28	6.98
003	17.43.7	+72	12	5.64
4181	16.58.8	+74	26	7.86
66	32.4	+68	12	6.76
22	37.5	+68	48	5.03

4.89

4.12

Bright F8 star, North of 044965.

	Start	Finish
Volts	4.70	4.69
Clear	14.6 \pm	14.07 (Mean of 3 settings)
Dark	3.82	3.92

No Diaphragm

159

Mag + Mag Corrected Differences for (A₀)

-0.32

Mag. of HD 159966 taken as std = 6.21

Curve reading = 6.57

Correction = -0.36

-0.60

-0.48

-0.10

-0.66

-0.30

-0.24

-0.56

-0.78

-0.54

+0.28

Bright F82 star: North of 04265.

4.89

4.12

160

Measured for C-16676
A.G.C. Red Blk 32, 158

I-37403 ^{Star}	Sp	Prj	Reading	DN	HD	α	δ	Curve Reading	Corrected Reading	2
✓ 6	A ₀	8.0	9.00	+6 384	15834	2 27.7	+6.30	8.20	7.84	
✓ 62	A ₀	7.8	7.1	+8 330	130.91	3.0	+8 23	7.48	7.12	
✓ 90	A ₀	7.6	9.20	+11 300	13739	8.8	+11 49	8.30	7.94	
✓ 91	A ₀	8.2	9.30	+10 306	13935	10.5	+10 54	8.34	7.98	
✓ 164	A ₀	9.0	10.16	+13 364	13297	4.8	+11 39	9.40	9.04	
✓ 86	A ₅	7.90	8.62	+12° 315	14203	12.7	+13 0	8.02	7.66	
✓ 14	A	4.34	3.53	+7 388	15318	22.8	+8 1	4.60	4.24	
✓ 100	A ₀	8.6	13.2 13.2	+12 327	14970	19.7	+12 56			
✓ 45	A ₃	6.86	6.00	+9° 321	15165	21.4	+10 7	7.02	6.66	
✓ 28	A ₅	7.56	7.70	+7° 371	14587	16.3	+7 18	7.70	7.34	
✓ 25	F ₀	8.5	8.70	+7 375	14754	17.6	+8 6	8.07	7.71	
✓ 26	F ₀	8.1	8.80	+8 364	14562	16.1	+8 25	8.11	7.75	
✓ 37	F ₀	7.34	8.60	+5° 289	13227	4.1	+5 31	8.02	7.66	
✓ 65	F ₀	8.8	9.92	+9° 280	13556	7.2	+9 51	8.78	8.42	
✓ 48	B ₃	5.41	4.00	+9° 316	14951	19.5	+10 9	5.33	4.97	
✓ 47	B ₉	7.62	7.58	+9° 318	15842	20.3	+10 3	7.66	7.30	
✓ 96	B ₉	7.60	8.9	+12 292	13248	4.4	+12 42	8.16	7.80	
✓ 44	X₅	7.10	6.45	+9° 323	15228	22.1	+9 49	7.25	6.89	
60	F				13026	2.4	+8 22			
✓ 63	F ₅	8.5	10.00	+8° 328				8.90	8.54	
✓ 78	F ₅	7.94	8.40	+11 335	15029	20.2	+11 32	7.94	7.58	
159	G _{2.5}	5.32	4.30	+8 345	13611	7.7	+8 32	5.68	5.32	
160	G ₀	6.30	5.40	+7 347	13421	6.1	+8 6	6.64	6.28	

Measured for C-16676
A.G.C. Ref Bb 32, 158

Volts Start
Dark 4.65
Clear 3.30
11.27

Finish
4.60
3.47
11.37

No Diaphragm

I-37403 ^{Star}	Sp	Prj	Reading	DN	HD	V	C	Comp	Correct
6	A0	8.0	9.00	+6	334	1582			
62	A0	7.8	7.1	+1	330	1509			
90	A0	7.6	9.20	+1	320	1433			
91	A0	8.2	9.30	+1	320	1433			
104	A0	9.0	10.16	+1	300	1390			
86	A5	7.90	8.62	+1	315	1480			
14	A	4.34	3.53	+7	308	1571			
100	A0	8.6	13.2	+1	297	1470			
45	A8	6.86	6.00	+9	300	1480			
28	A5	7.56	7.70	+7	311	1510			
25	F0	8.5	8.70	+1	316	1520			
26	F0	8.1	8.80	+8	308	1571			
37	F0	7.34	8.60	+5	307	1560			
65	F0	8.8	9.92	+9	320	1536			
48	B5	5.41	4.00	+9	306	1545			
47	B9	7.62	7.58	+9	318	15842			
91	B9	7.60	8.9	+12	292	13245			
44	X ⁰	7.10	6.45	+9	323	15228			
60	F					(130 26)			
63	T5	8.5	10.00	+8	328				
78	F5	7.94	8.40	+11	325	15822			
59	G2.5	6.32	4.30	+8	345	13611			
60	G0	6.30	5.48	+7	347	1342			

Galk. Deflection.

I 37403

for
C-16676 Magnitude Correction

Magnitudes 5.0 6.0 7.0 8.0 9.0

Material

I 37403

for
C-16676 Magnitude Correction.3.0
4.0

5.0

6.0

7.0

8.0

9.0

1924phae.proj.111138

	Start	Finish
Volts	4.65	4.60
Dark	3.30	3.47
Clear.	11.27	11.37

No Diaphragm

161

} Clear readings mean of three settings

Mag + Corrected Mag Differences for Δ .)

- 0.16 Magnitude of HD 13611 taken as standard = 5.32

- 0.68 Magnitude from Curve = 5.68

+ 0.34 Correction = -0.36

- 0.22

+ 0.04

~~- 0.24~~

- 0.16

- 1.16

+ 0.38

6 | - 0.78

- 0.13

162

Measured for C. 16023
A.G.C. Reid Blk 30, 180

I 37372	Star No	Sp	Ptg	Reading	B D	H D	α	δ	Curve Reading		
	9	A ₀	7.70	11.10	+14 492	18192	2	50.2	+14 18	7.60	7.87
	34	A ₀	7.9	10.40	+16 398	19647	3	4.7	+16 26	7.40	7.67
	38	A ₀	7.34	9.05	+15 450	20086		8.6	+15 12	6.97	7.24
	41	A ₀	7.42	10.90	+13 535	20458		12.4	+13 29	7.54	7.81
	64	A ₀	6.94	7.90	+17 471	18654	2	54.9	+17 36	6.54	6.81
	78	A ₀		8.65	+18 418						
	120	B ₉	5.89	5.95	+11 445	3 5.2 (196 98)			+11 30	5.69	5.96
2 ft	125	F ₅	7.84	12.05	+10 418	19504	3	3.0	+10 25	7.85	8.12
	155	F ₅	5.99	6.6	+17 458	18256	2	50.8	+17 37	6.02	6.29
	159	F ₂	6.72	8.25	+15 400	17918	2	47.6	+16 5	6.67	6.94
	17	G ₅	6.62	7.50	+12 436	19270	3	0.9	+12 48	6.40	6.67
	28	G ₅	7.22	9.50	+12 452	19789	3	5.9	+12 40	7.10	7.37
	50	G ₅	7.04	10.45	+17 442	17459	2	42.9	+17 52	7.40	7.67
	60	G ₅	9.0	11.05	+15 401	17996	2	48.4	+15 35	7.60	7.87
	49	B ₉	5.18	5.0	+16 355	17543	2	43.7	+17 3	5.06	5.33
	77	K ₅	7.66	9.6	+18 414	19460	3	2.6	+18 26	7.14	7.41
	23	K ₅	7.38	10.0	+10 401	18200	2	55.3	+10 29	7.27	7.54
	36	A ₂	7.38	9.6	+15 447	19896	3	6.8	+16 7	7.14	7.41
	79	K ₀	5.53	5.9	+19 477	19787	3	5.9	+19 21	5.66	5.93
	78	A ₀	6.97	8.3	+18 418	19568		3.8	+19 0	6.70	6.97

Volts
Dark
Clear

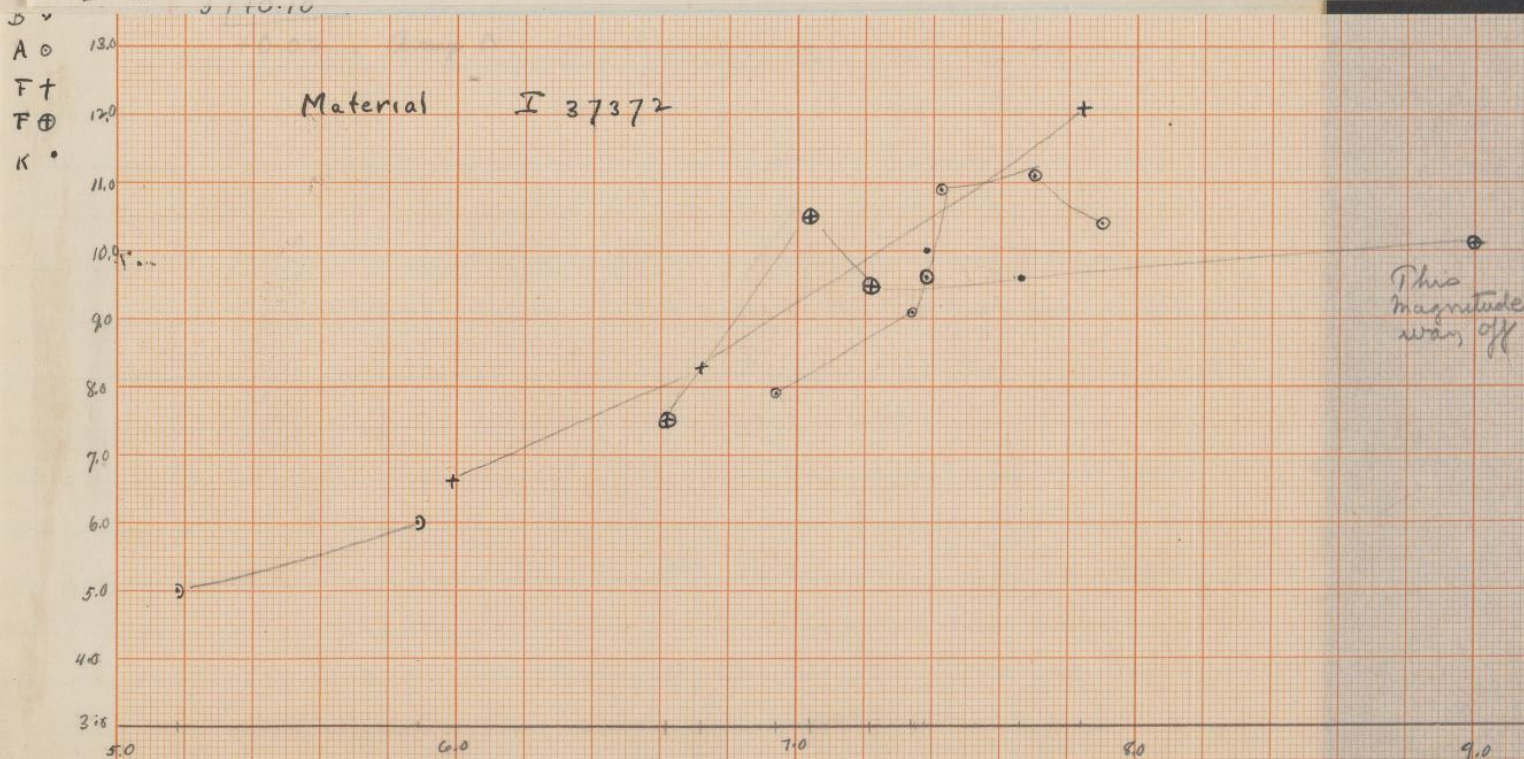
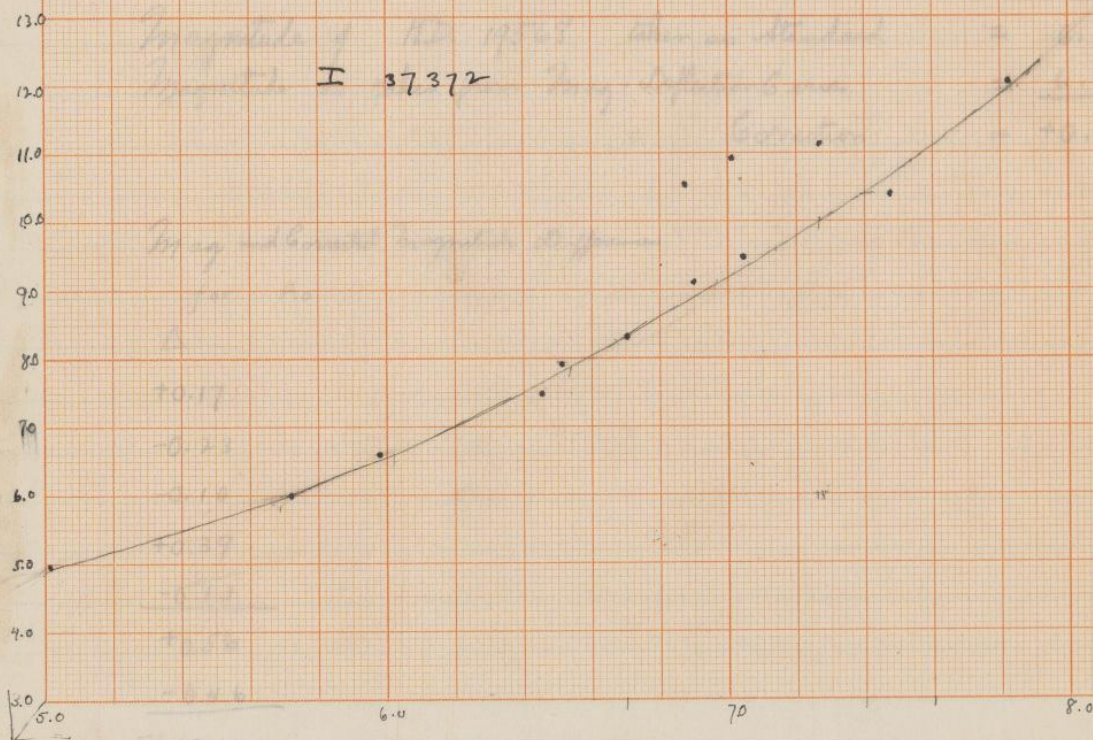
Start
4.60
3.54
13.97

Finish
4.50
3.70
13.8

No Diaphragm

163

} Mean of three readings



Volts
Dark
Clear

Start

4.60

3.54

13.97

Finish

4.50

3.70

13.8

No. Diaphragm

163

} Mean of three readings

$$\begin{aligned}
 \text{Magnitude of H.D. 19568 taken as standard} &= 6.97 \\
 \text{Magnitude as taken from Mag-Deflection Curve} &= \underline{6.70} \\
 \text{Correction} &= +0.27
 \end{aligned}$$

Mag and Corrected Magnitude Differences
for A₀

 Δ

+0.17

-0.23

-0.10

+0.39

-0.13

+0.56

-0.46

5 | +0.10

+0.02 = Average Δ

164

Measured for c - ~~16652~~
14974
A.G.C. Rel Bl 86, 36

I 38099	Star No.	SP	Ptg	Reading	BD	HD	\angle	S	Curve reading	Curve Reading + Cor.
	16	A ₀	6.79	4.6	+32 4263	207469	21 44.1	+32 20	5.92	6.05
	31	A ₀	7.62	6.6	+31 4575	208312	21 50.4	+32 13	7.09	7.22
	41	A ₀	9.0	7.8	+33 4406	209148	21 56.1	+33 31	7.84	7.97
	64	A ₀	7.49	6.6	+30 4586	209205	21 56.5	+31 3	7.09	7.22
2 ft	66	A ₀	8.2	8.0	+30 4594	209516	21 58.9	+30 30	8.16	8.29
	85	A ₀	7.72	6.3	+34 4540	207663	21 46.5	+34 27	6.94	7.03
	88	A ₀	8.0	6.9	+33 4375	208136	21 49.1	+33 48	7.22	7.35
2 ft	101	A ₀	8.4	7.3	+34 4584	209221	21 56.6	+34 39	7.44	7.57
	133	A ₀	8.0	7.3	+36 4674	207668	21 41.4	+36 56	7.44	7.57
2 ft	149	A ₀	8.4	7.7	+34 4571	208686	21 52.9	34 52	7.73	7.86
5 ft	151	A ₀	8.4	7.6	+37 4438	207701	21 45.8	+37 17	7.66	7.79
	164	A ₀	5.62	3.8	+37 4408	206774	21 39.3	+37 50	4.80	4.93
	165	A ₀	6.87	5.3	+37 4410	206807	21 39.5	+37 51	6.42	6.55
	170	A	5.00	3.6	+29 4525	207650	21 45.1	+29 43	4.410	4.53
2 ft	171	A ₀	8.2	7.8	+29 4526	207674	21 45.6	+29 19	7.90	8.03
2 ft	12	A ₅	7.50	6.5	+32 4249	207021	21 41.0	+32 19	7.04	7.17
	46	A ₃	6.95	5.6	+32 4324	209439	21 58.3	+32 54	6.58	6.71
	91	A ₂	7.48	5.3	+34 4563	208344	21 50.6	+34 19	6.42	6.55
	106	A ₃	7.80	7.1	+35 4712	210087	22 2.8	+35 37	7.33	7.46
	109	A ₂	6.90	5.5	+34 4614	210513	22 5.8	+34 43	6.52	6.65
	179	A ₅	6.52	5.1	+29 4604	210594	22 6.3	+30 4	6.30	6.43
		A ₀	5.58	4.1	+38 4284	209833	22 1.1	+28 28	5.28	5.41
	130	K ₀	7.60	5.4	+35 4626	207088	21 41.5	+35 24	6.47	6.60
	19	K ₀	7.90	6.5	+31 4558	207756	21 46.2	+32 11	7.04	7.17
	46	K ₅	8.11	6.9	+33 4405	209126	21 56.0	+34 8	7.22	7.35
	145	K ₀	7.91	6.2	+35 4675	208442	21 51.1	+35 41	6.90	7.03
Mag. Std	55	K ₀	6.65	5.5	+32 4349	210354	22 4.8	+32 41	6.52	6.65
	a	F ₅	4.90	3.7	+32 4352	210459	22 5.5	+32 41	4.80	4.93

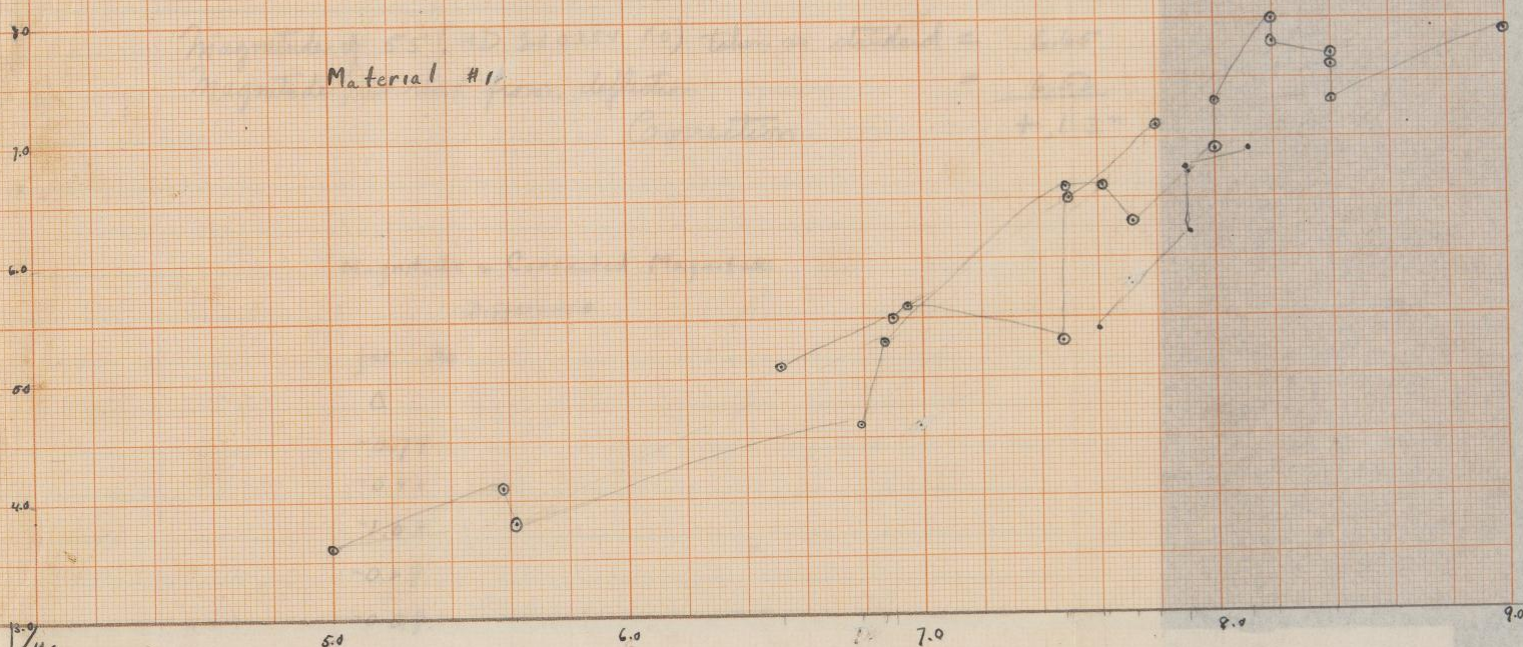
	Start	Finish
Volts	4.80	4.80
Dark	3.5	3.6
Clear	9.0	8.8

No Diaphragm

165

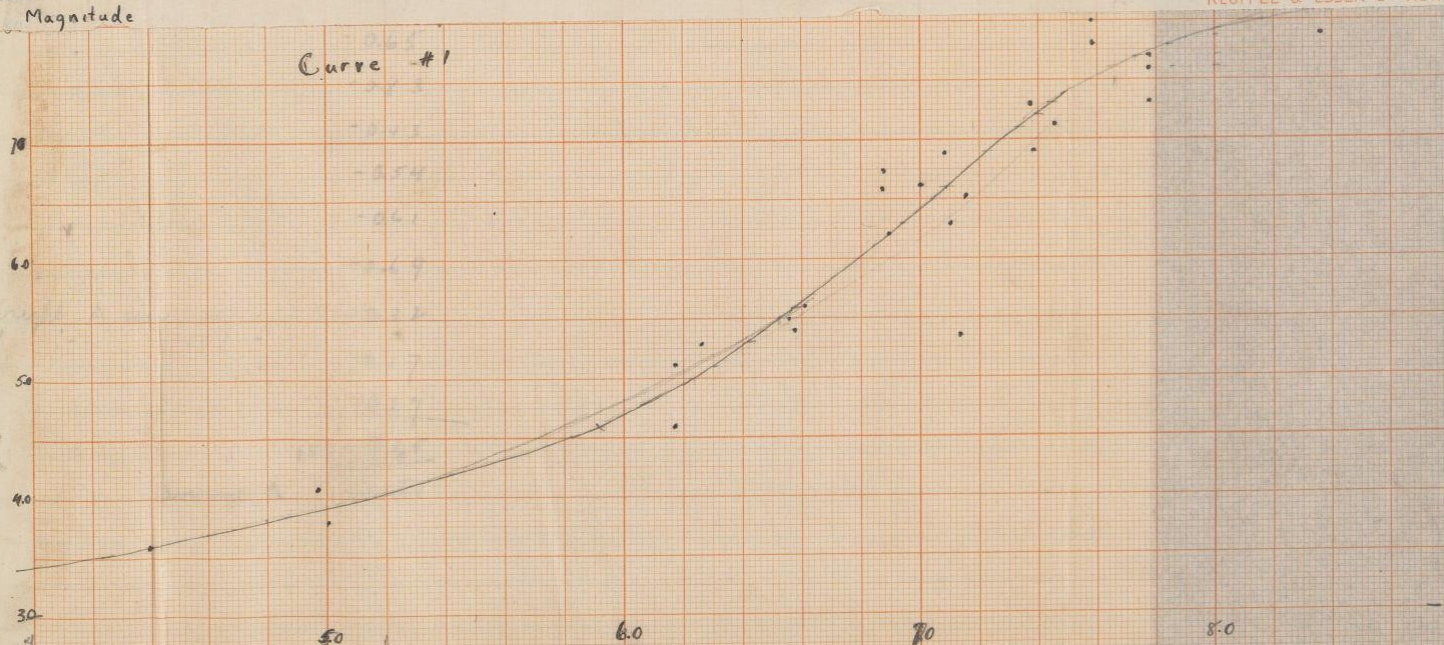
} Mean of three Settings

Material #1



KEUFFEL & ESSER CO NEW YORK

Curve #1



	Start	Finish
Volts	4.80	4.80
Dark	3.5	3.6
Clear	4.0	8.8

No Diaphragm

165

} Mean of three Settings

Magnitude of 55 (HD 210354 K0) taken as standard = 6.65
 Magnitude, as read from deflection = 6.52
 Correction + .13^m

Magnitude & Corrected Magnitude
Difference

for A₀

Δ

-0.74

-0.40

-1.03

-0.29

-0.09

-0.69

-0.65

-0.83

-0.43

-0.54

-0.61

-0.69

A star near

177

-0.32

-0.17

-0.17

15 | - 7.65

Average A -0.51

Same plate as the one on page 164

	SP	Ptg	Reading	Curve Reading	Curve Reading + Correction	Mean Corrected Mag		
	16	A ₀	6.79	4.9	6.14	6.25	6.15	
	31	A ₀	7.62	6.9	7.61	7.72	7.47	Mag + Corrected Mag
	41	A ₀	9.0	8.1	8.37	8.48	8.23	Difference A ₀
	64	A ₀	7.49	6.9	7.61	7.72 *	7.47	Δ
~ ft	66	A ₀	8.2	8.1	8.37	8.48	8.39	-0.64 -0.54
	85	A ₀	7.72	6.5	7.41	7.52	7.23	-0.15 +0.10
	88	A ₀	8.0	7.1	7.72	7.83	8.59	-0.77 -0.52
	101	A ₀	8.4	7.5	7.94	8.05	7.81	+0.02 +0.23
	133	A ₀	8.0	7.7	8.06	8.17	7.87	+0.19 +0.28
~ ft	149	A ₀	8.4	8.1	8.37	8.48	8.17	-0.49 -0.20
	154	A ₀	8.4	7.9	8.20	8.33	8.06	+0.59 -0.17
	164	A ₀	5.62	4.2	5.26	5.37	5.15	-0.59 +0.35
	165	A ₀	6.87	5.8	6.98	7.09	6.82	-0.13 +0.17
	170	A	5.00	4.0	4.82	4.93	5.23	-0.23 +0.08
~ ft	171	A ₀	8.2	8.1	8.37	8.48	8.26	-0.34 -0.07
		A ₀	5.58	4.5	5.67	5.78	5.32	-0.47 -0.25
	91	A ₂	7.48	5.6	6.82	6.93	6.74	-0.05 +0.22
	109	A ₂	6.90	5.8	6.98	7.09	6.87	+0.23 +0.09
	416	A ₃	6.95	6.0	7.12	7.23	6.97	+0.06 +0.28
	106	A ₃	7.80	7.7	8.06	8.17	7.82	-0.26 +0.20
	12	A ₅	7.50	7.0	7.66	7.77	7.47	-4.14 -2.11
	179	A ₅	6.52	5.6	6.82	6.93	6.63	+1.07 156
	130	K ₀	7.60	5.5	6.74	6.85	6.73	-55
	19	K ₀	7.90	5.9	7.06	7.17	7.17	16 | -3.07 -3
	145	K ₀	7.91	5.9	7.06	7.17	7.10	-0.19 x Average Δ
	40	K ₅	8.11	6.4	7.35	7.46	7.41	
|||	55	K ₀	6.65	5.3	6.54	6.65	6.65	
	2	F ₅	4.80	3.7	4.14	4.25	4.59	

Start Finish
Volts 8.93
Dark 3.7
Clear 9.9

Diaphragm #1

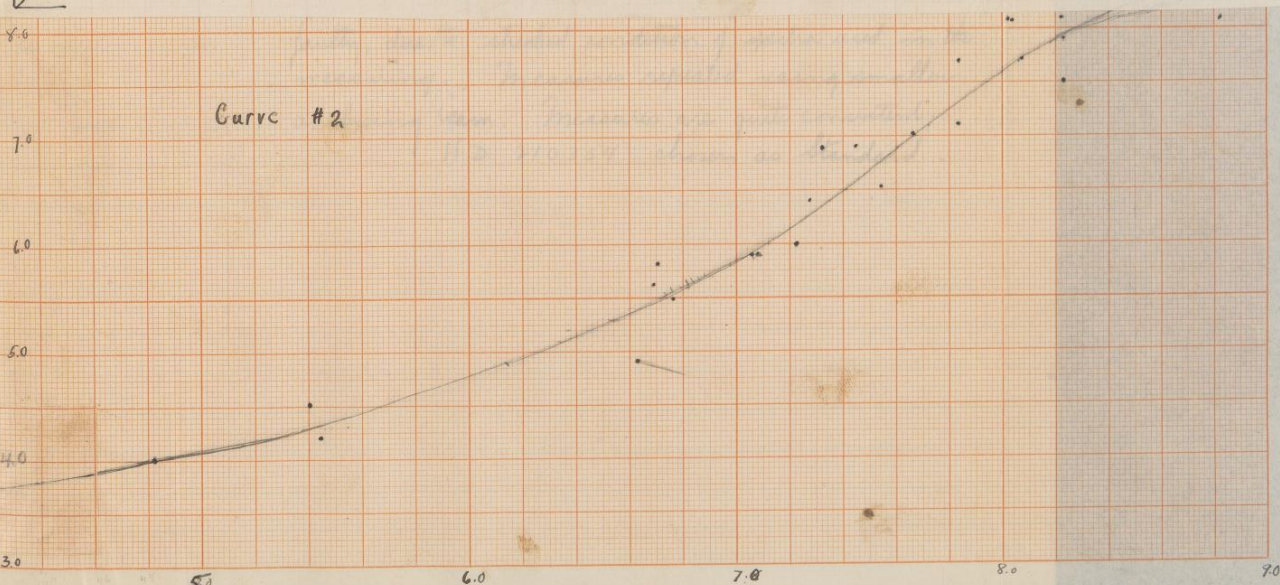
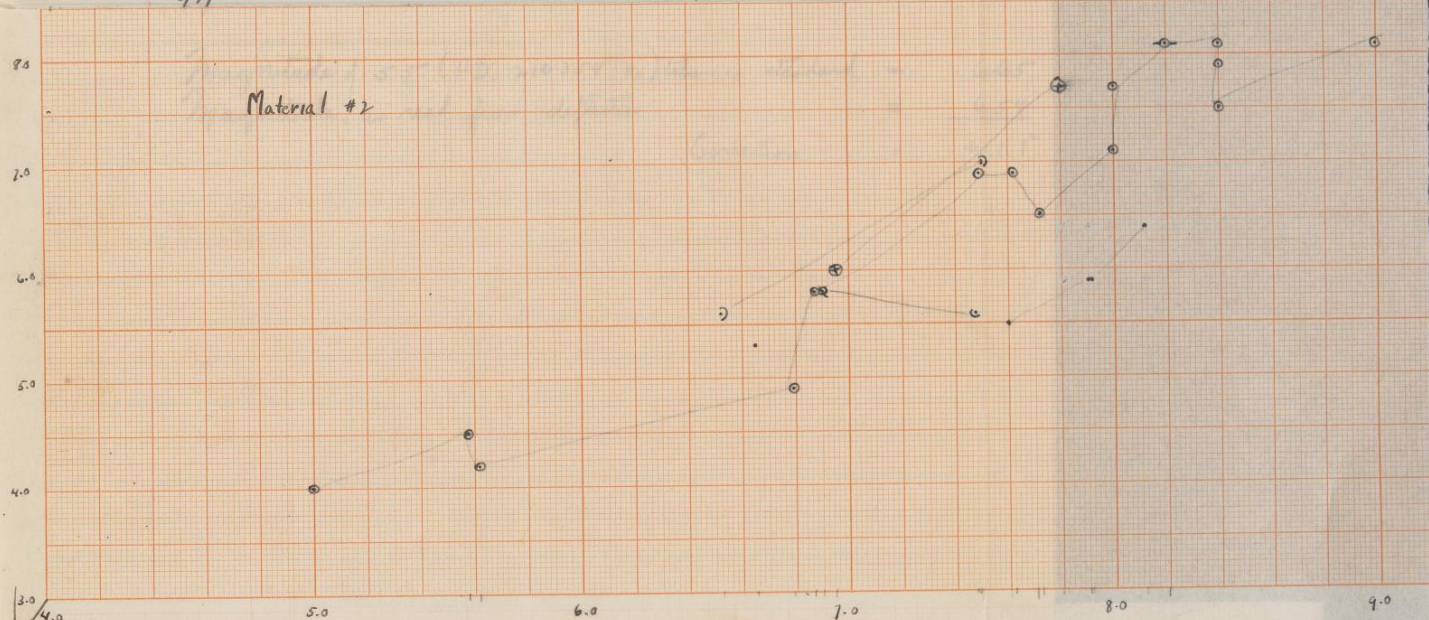
167

} Mean of 3 settings

rected mag
no A₀

-0.54
+0.10
-0.52
+0.23
+0.28
-0.20
-0.17
+0.35
+0.17
+0.08
-0.07
-0.25
+0.22
+0.09
+0.28
+0.20
-2.11
156
-55
-3

Average Δ



	Start	Finish
Volts	8.93	
Dark	3.7	
Clear	9.9	

Diaphragm #1

167

{ Mean of 3 settings

Magnitude of 55 (HD 210354 K ₀) taken as standard	=	6.65
Magnitude, as read from deflection	=	<u>6.54</u>
Correction	=	+ .11 ^m

First measures, see page 164, thought to be faulty, due to streaked condition of spectra used in the measuring. Measures repeated using smaller analysing beam. Measures are quite consistent.
 HD 210354 chosen as standard.

Measured for C-15556

1924

I 38308 star No.	SP	Ptg	Reading	BD	HD						
78	A ₀	4.84	4.2	+43 2058	943 34	10	48.2	+43	43	5.14	4.73
4	A ₂	7.36	6.6	+47 1797	92278		34.2	+47	22	8.02	7.61
30	A ₂	7.13	6.3	+46 1670	941 18		46.7	+46	20	7.80	7.39
5	A ₃	8.4	7.8	+47 1799	92539	*	36.0	+47	9	8.89	8.48
45	A ₅	7.56	6.5	+44 2052	96327	11	1.2	+44	39	7.93	7.52
16	F ₀	7.82	7.2	+48 1897	943 17	10	48.1	+48	13	8.44	8.03
19	F ₈	8.36	7.7	+48 1905	94832		51.8	+48	18	8.88	8.47
59	F ₈	6.62	5.5	+43 2068	952 41		54.7	+43	27	7.10	6.69
37	K ₂	6.74	5.5	+46 1680	952 12		54.5	+46	4	7.10	6.67
35	K ₀	8.00	6.8	+45 1879	95045		53.3	+45	44	8.15	7.74
21	K ₀	8.01	6.8	+47 1839	95379		55.6	+47	5	8.15	7.74
62	K ₀	7.11	5.7	+42 2162	946 69		58.6	+42	33	7.30	6.89
67	G ₀	5.70	4.5	+41 2147	951 28		53.9	+40	58	5.97	5.56
bright star near 46	K ₀	4.15	4.1	+45 2877	968 33	11	4.0	+45	2	* 4.34	3.93
n			6.2								
η			6.5								
z			6.6								
||| a	F ₀	5.56	4.5	+46 1657	927 87	10	37.7	+46	44	5.97	5.56
b	F ₈	8.6	7.0	+46 1658	928 55		38.2	+46	44	8.30	7.89
c	B ₈	6.82	7.2	+46 1659	930 33		39.5	+46	5	8.44	8.03

Volts

Start Finish

No Diaphragm

169

Dark
Clear4.1
8.27.0
8.1

} mean of 3 settings

A ○
F +
K •

I 38308

Material

8.0

7.0

10.0

I 38308

Reduction Curve

9.0

8.0

7.0

6.0

5.0

4.0

(Use Black line)

Volts

Start Finish

No Diaphragm

169

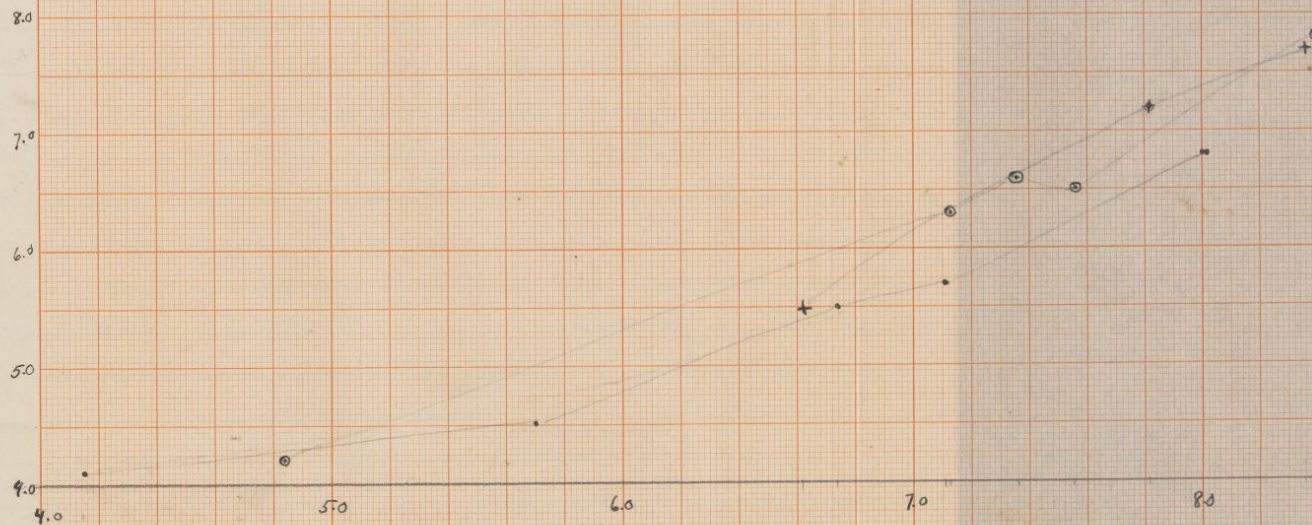
Dark
Clear4.1
8.24.0
8.1

} mean of 3 settings

A ○
F +
K •

I 38308

Material



Volts	Start	Finish	No Diaphragm
Dark	4.1	7.0	} Mean of 3 settings
Clear	8.2	8.1	

169

Magnitude	HD 92787	taken as standard	=	5.56
Magnitude	as read from curve		=	<u>5.97</u>
		Correction	=	- 0.41

170

Measured for C 17014

1924

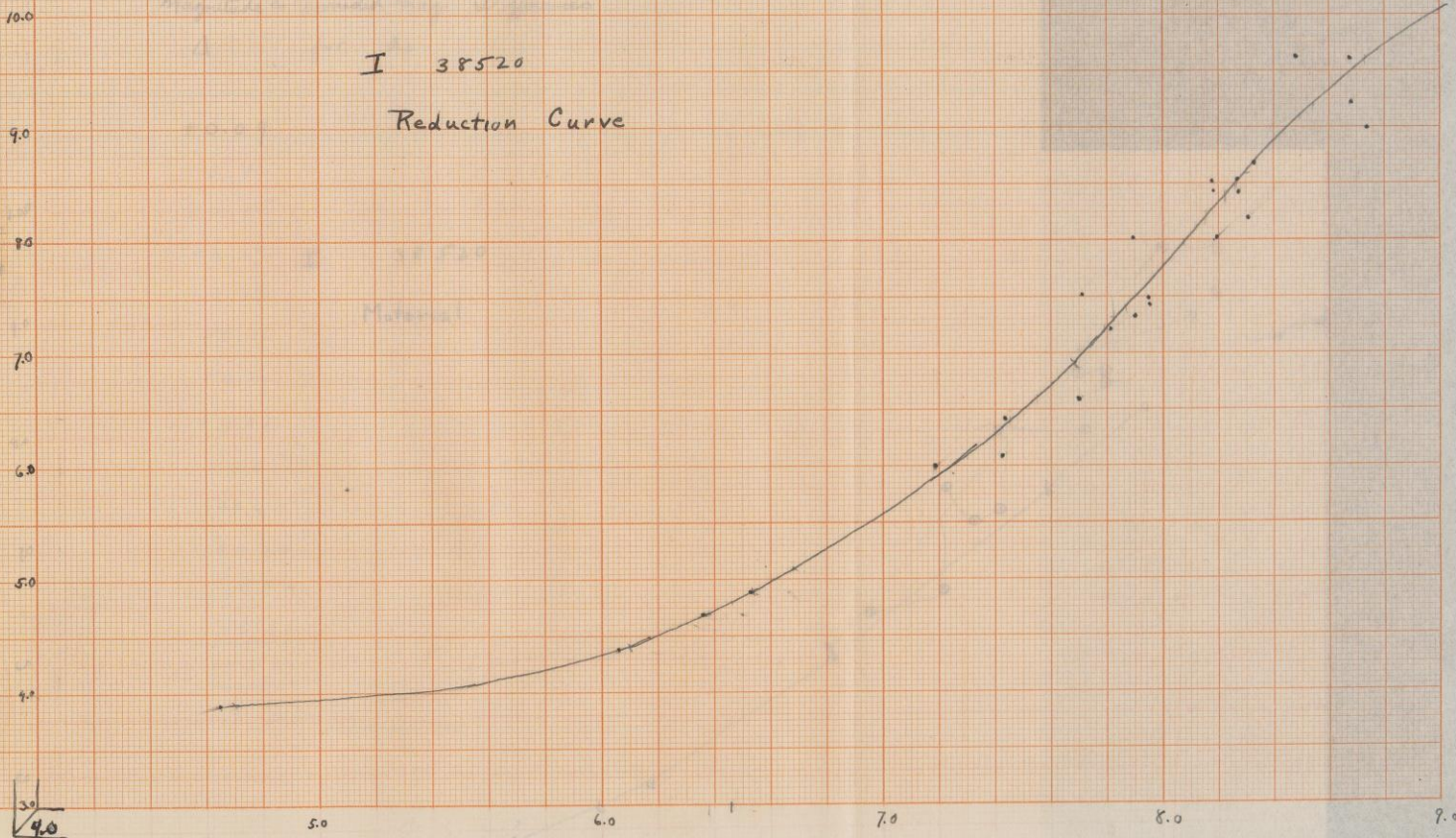
I 38520	Star No.	SP	Ptg	Reading	BD	HD	α	δ	Curve Reading	Curve Reading Corrected	
n fl	7	A ₀	7.72	8.0	+39 2750	182592	19 ^h 20.3	+39 37	8.08	7.81	
	15	A ₀	8.0	9.6	+36 3487	181023	13.7	+37 4	8.73	8.46	
	28	A _{B3}	4.29	3.9	+38° 3490	180163	10.4	+38 58	4.70	4.43	
	30	A ₀	7.8	8.4	+39 3682	179909	8.3	+39 19	8.22	7.95	
	31	A ₀	7.33	7.2	+39 3677	179738	8.6	+39 15	7.79	7.62	
	45	A ₀	7.7	8.5	+38 3424	177877	1.4	+38 35	8.26	7.99	
	47	A ₀	8.2	9.2	+36 2395	178002	1.9	+36 47	8.54	8.27	
	48	A ₀	8.2	9.6	+37 3322	177487	18 59.8	+37 12	8.73	8.46	
	77	A ₃	6.80	6.1	+35 3523	179785	19 8.83	+36 02	7.30	7.03	
	80	A ₀	6.96	6.4	+36 3458	180138	10.3	+36 14	7.45	7.18	
	84	A ₀	7.8	8.5	+36 3543	182737	21.0	+37 0	8.26	7.99	
	87	A ₀	7.23	7.5	+36 3566	183363	24.1	+36 19	7.90	7.63	
	90	A ₀	7.41	8.0	+37 2394	180657	12.2	+37 8	8.08	7.81	
	9.3	A ₀	7.22	6.6	+39 2767	183204	23.3	+39 45	7.55	7.28	
	102	A ₀	7.42	7.3	+39 3593	176342	18 55.0	+39 30	7.82	7.55	
(41 3167?)	81	B ₉	7.8	8.4	+35 3534	180313	19 11.0	+33 59	8.22	7.95	
	98	B ₉	7.95	8.2	+39 3699	180582	12.0	+39 57	8.15	7.88	
	108	B ₉	6.18	4.9	+41 3136	175132	18 48.7	+41 16	6.54	6.27	
	73	B ₉	7.60	7.5	+39 3606	176869	19 57.2	+39 43	7.90	7.63	
	76	B ₈	5.70	4.4	+38 3373	176318	54.6	+38 7	6.10	5.83	
	74	B ₅	6.00	4.7	+40 3544	176502	55.5	+40 33	6.38	6.11	
	73	B ₃	7.60	7.4	+39 3606	176869	57.2	+39 43	7.86	7.59	
	103	A ₂	6.81	6.0	+39 3580	175841	18 52.2	+40 3	7.20	6.98	
	18	A ₂	7.7 6.00	8.7	+39 3719	181469	19 15.5	+39 5	8.33	8.06	
	25	A ₂	8.1	9.0	+38 3514	180915	13.3	+38 42	8.45	8.18	
	n bi	A	5.46	5.1	+37 3398	180809	12.9	+37 57	6.6484	6.41	
		6	A ₀	6.19	4.8	18 3413	181470	15.5	37 16	6.46	6.19
		83	G ₅	7.14	6.9	+37 3467	181655	14 16.2	+37 9	7.68	7.41

	Start	Finish	No. Diaphragm	171
Volts	4.79	4.80		
Dark	3.8	3.7		
Clear	10.2	10.4	} Mean of 3 settings	

Magnitude	1	HD 180809	taken as standard	=	6. ^m 19
Magnitude	1	"	as taken from curve	=	<u>6.46</u>
			Correction	=	<u>0.27</u>

I 38520

Reduction Curve



BC 4.0
A0
A>D

Volts
Dark
Clear

Start	Finish	No. Diaphragm
4.79	4.80	
3.8	3.9	
10.2	10.4	Mean of 3 settings

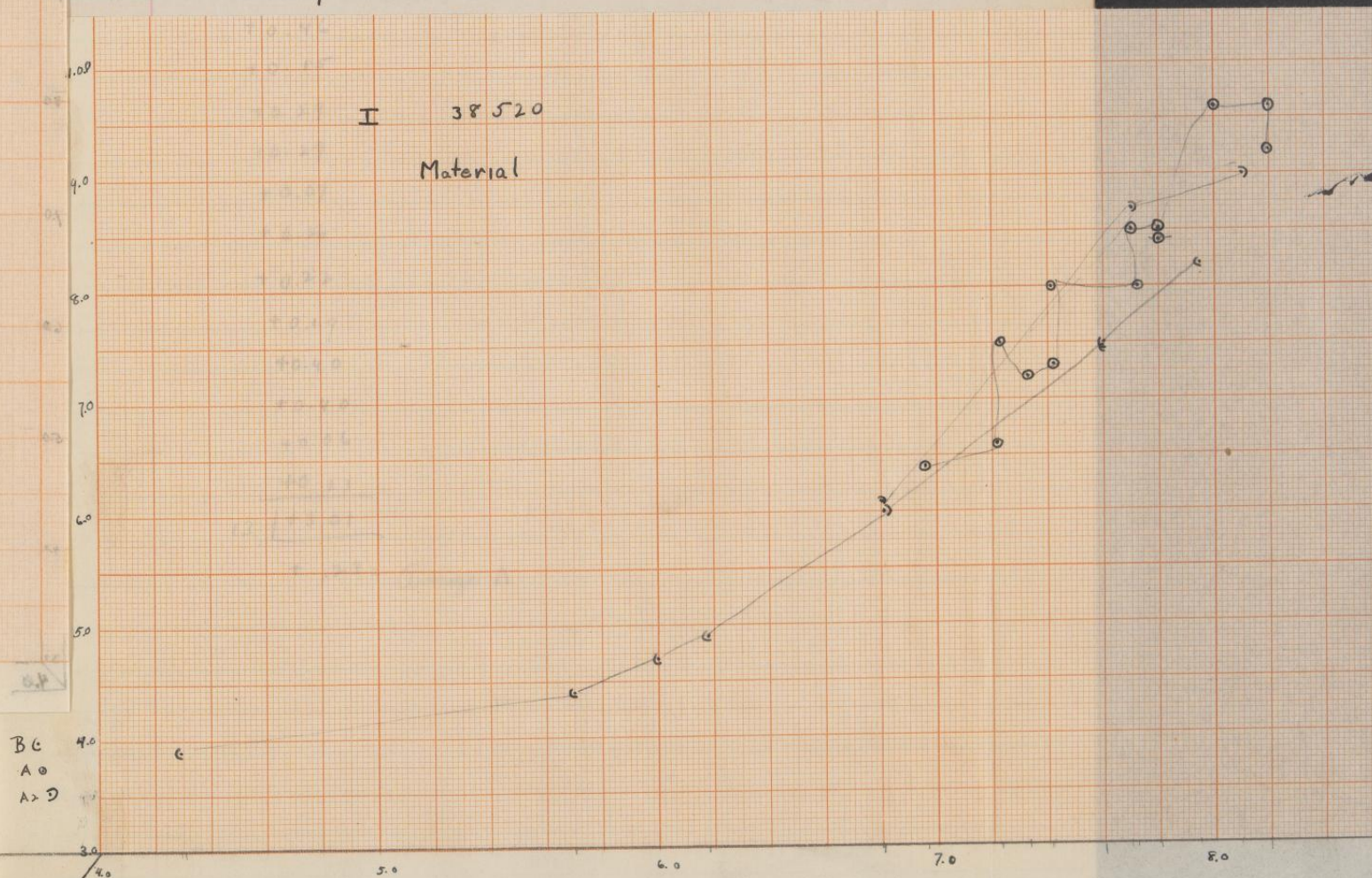
171

Magnitude 1	HD 180809	taken as standard	=	6.19
Magnitude 1	"	as taken from curve	=	6.46
		Correction	=	0.27

Magnitude & Corrected Mag Differences

Δ for A_0

+0.09



	Start	Finish	No. Diaphragm
Volts	4.79	4.80	
Dark	3.8	3.9	
Clear	10.2	10.4	} Mean of 3 settings

171

Magnitude	1	HD 180809	taken as standard	=	6.19 ^m
Magnitude	1	"	as taken from curve	=	6.46
			Correction	=	0.27 ^m

Magnitude & Connected Mag Differences

 Δ for A_0

+0.09

+0.46

+0.15

+0.29

+0.29

+0.07

+0.26

+0.22

+0.19

+0.40

+0.40

+0.06

+0.13

13 | +3.01

+ .23 = Average Δ

172

Measured for C - 2396
A.J.C. Red Bh 37-2

1924

I	37241	Star No	Sp	Ptg	Reading	BD	HD	α	δ	Curve Reading		
#		3	A ₀	7.45	8.9	158 2545	220949	23	23.3	+59 8	7.77	7.88
		12	A ₀	8.4	9.6	+58 2607	221886		30.8	+58 22	8.09	8.20
		22	A ₀	7.7	9.8	+58 2657	223581		45.6	+59 4	8.22	8.33
		34	A ₀	8.8	9.6	+59 2828	135	8	1.1	+59 54	8.09	8.20
		46	A ₀	8.0	9.3	+56 3015	221238	23	25.2	+56 15	7.95	8.06
overlaps another slightly		56	A ₀	7.22	6.9	+57 2780	222514		36.2	+57 17	7.06	7.17
		74	A ₀	7.28	6.5	+56 3027	224624		54.3	+57 7	6.89	7.00
		96	A ₃	7.55	7.8	+56 31	1210	0	11.4	+54 6	7.38	7.49
		125	A ₀	7.30	7.3	+54 3044	22351	23	42.0	+54 19	7.22	7.33
		135	A ₀	8.0	9.3	+55 14	612	0	5.4	+55 30	7.45	7.56
		177	A ₀	7.9	8.6	+52 3467	221513	23	27.7	+52 45	7.66	7.77
n.p. forms		30	A ₅	5.84	5.1	+60 2657	224893		56.5	+60 40	6.05	6.16
		160	A ₃	7.55	8.3	+53 31	1210	0	11.4	+54 6	7.55	7.66
		161	A ₃	7.72	9.0	+54 25	1278	0	11.9	+54 26	7.82	7.93
		162	A ₂	6.87	6.1	+63 3151	220485	23	19.0	+53 29	6.69	6.80
		259	B ₉	7.11	7.2	+51 12	567	0	5.0	+51 42	7.18	7.29
		78	B ₃	6.34	5.7	+57 2855	220257	23	59.7	+57 58	6.46	6.57
		141	B ₂	4.74	3.9	+54 3082	224572		53.9	+55 12	4.77	4.88
		110	B ₃	7.24	7.1	+54 3006	221711		29.4	+54 56	7.14	7.25
		156	B ₈	7.36	7.3	+55 15	709	0	6.4	+55 24	7.22	7.32
		188	B ₈	6.46	5.5	+52 3503	222762	23	38.3	+52 36	6.34	6.45
overlaps another sp 5		5	B ₅	4.72	3.9	+57 2748	221253		25.4	+58 0	4.77	4.88
		228	F ₂	6.87	6.7	+50 4165	223552		45.4	+51 4	6.98	7.09
		207	F ₀	7.08	6.8	+52 19	761	0	6.9	+53 4	7.02	7.13
		191	F ₅	7.64	7.6	+53 3238	223582	23	45.6	+53 39	7.32	7.43
		139	F ₅	6.11	4.7	+54 3076	224355		52.1	+55 9	5.70	5.81
|||		69	F _{8P}	5.35	5.7	+56 3111	224014		49.4	+56 57	6.46	6.57
		71	B ₀	5.81	4.7	+56 3115	224151		50.5	+56 53	5.70	5.81

	Start	Finish
Volts	4.78	4.73
Dark	3.6	3.6
Clear	11.1	11.4

No Diaphragm used

173

Mean of three settings

Mag-Corrected Mag Difference

Magnitude of HD 224151 (71) taken as Standard = 5.81

Magnitude, as taken from Mag-Deflection Curve = 5.70

Correction = +.11

+0.43

-0.20

+0.63

-0.60

+0.06

-0.05

-0.28

+0.03

-0.44

-0.13

-1.70

+1.15

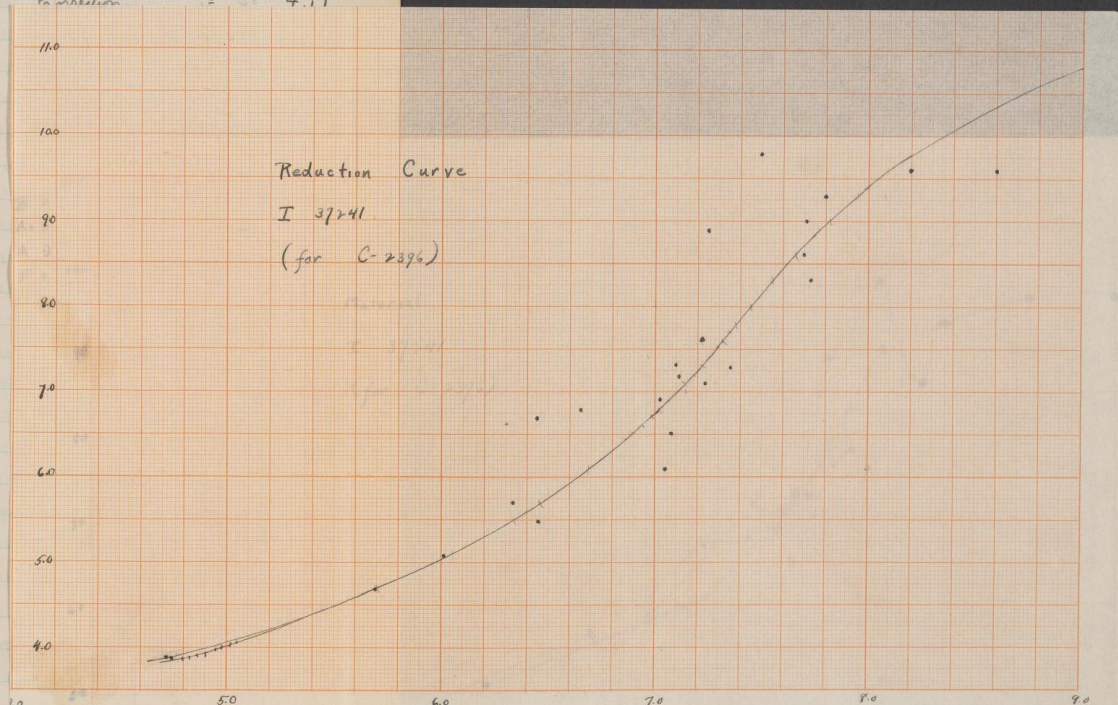
10 -0.55

-0.55 = Average Δ

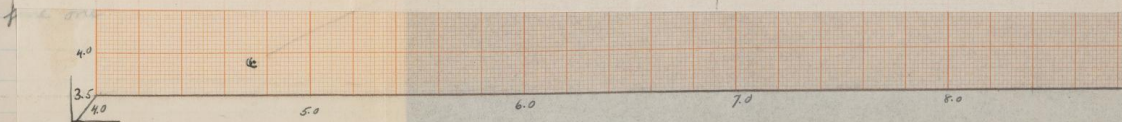
Reduction Curve

I 37241

(for C-2396)



This plate is a very f



	Start	Finish
Volts	4.78	4.73
Dark	3.6	3.6
Clear	11.1	11.4

No Diaphragm used

173

Mean of three settings

Mag-Corrected Mag Difference

+0.43

Magnitude of HD 224151 (71) taken as Standard = 5.81

-0.20

Magnitude, as taken from Mag-Deflection Curve = 5.70

+0.63

Correction = +1.1

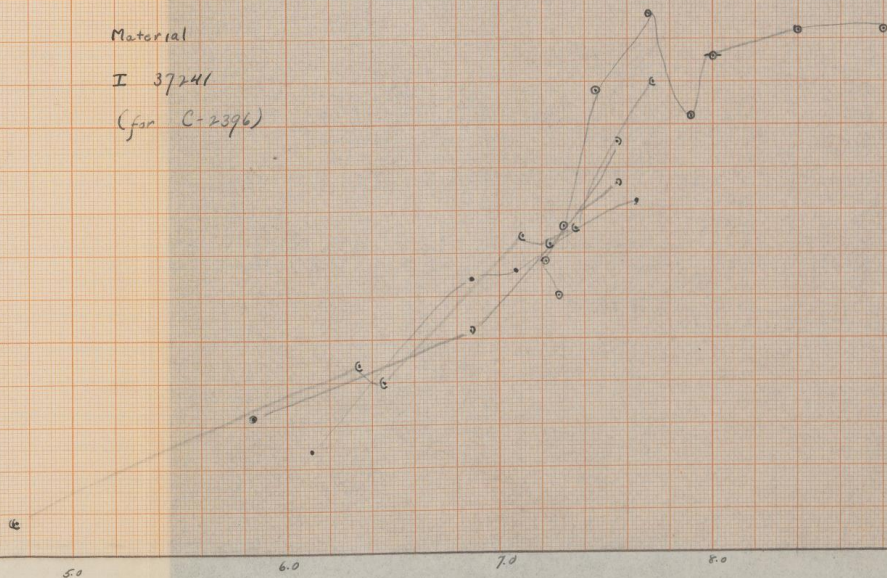
Reduction Curve
Type I
(for 2.5 sec)

Material

I 37241

(for C-2396)

4.0
3.5
4.0



174

Measured for C-16985
agc B288 76

I	38101	star no.	Sp	Ptg	Reading	BD	HD	α	δ	Curve Reading	Corrected Reading	M
		10	A ₀	4.95	3.8	+8 4901	216735	22 50.2	+8 17	5.10	4.87	
		68	A ₀	6.89	6.6	+14 4879	216308	46.8	+14 34	7.48	7.25	
		86	A ₀	6.81	5.5	+14 4929	218155	23 0.6	+14 25	5.50	5.27	
		101	A ₂	7.9	7.1	+15 4752	217785	22 58.0	+15 55	7.75	7.52	
		15	A ₃	6.54	5.1	+11 4904	216900	22 57.8	+11 19	6.58	6.35	
		31	A ₃	8.6	8.7	+8 4990	218046	59.8	+8 32	8.77	8.54	
		84	A ₃	8.8	8.9	+12 4932	217938	59.1	+12 17	8.92	8.69	
		87	A ₅	8.6	8.0	+12 4940	218499	23 3.4	+13 11	8.28	8.05	
		18	F ₀	6.07	4.4	+10 4859	217232	22 54.2	+11 12	6.02	5.79	
		25	F ₀	8.9	8.8	+9 5147	217955	55.7	+9 45	8.83	8.60	
		58	F ₀	8.0	7.7	+11 4966	219386	23 10.3	+11 54	8.10	7.87	
		72	F ₀	8.06	8.5	+13 5025	216049	22 52.1	+13 29	8.62	8.39	
		80	F ₀	8.0	8.0	+13 5033	217339	22 54.9	+13 19	8.28	8.05	
		88	F ₀	8.6	7.7	+11 4940	218499	23 3.4	+13 11	8.10	7.87	
		38	M ₂	6.04	6.8	+8 4997	218329			7.60	7.37	
		42	B ₈	5.29	4.0	+9 5170	218700			5.52	5.29	
		43	M ₆	6.76	7.2	+7 4981	218634			7.81	7.58	
		44	A ₃	5.23	4.0	+7 4991	218918			5.52	5.29	
		74	F ₂	8.1	7.7	+12 4919	217075	22 52.9	+13 5	8.10	7.87	
		3	F ₅	5.72	4.4	+9 5122	216385	42.4	+9 18	6.02	5.79	
		4	F ₅	7.16	6.6	+9 5123	216384	47.4	+9 52	7.48	7.25	
		5	F ₅	7.68	7.6	+9 5125	216417	47.6	+9 41	8.03	7.80	
right		19	F ₅	9.0	8.4	+10 4856	217130	53.3	+10 44	8.55	8.32	
		41	F ₅	7.93	8.0	+10 4887	218550	23 3.8	+10 25	8.28	8.05	
		51	K ₀	6.94	5.4	+10 4902	219139	8.5	+10 31	6.77	6.54	
out of focus		100	K ₀	7.9	6.5	+15 4752	217785	58.0	+15 50	7.43	7.20	
		102	K ₀	7.74	7.8	4751	217732	57.6	+15 42	8.16	7.93	
		104										

	Start	Finish
Volts	4.73	4.71
Dark	3.6	3.6
Clear	9.9	10.0

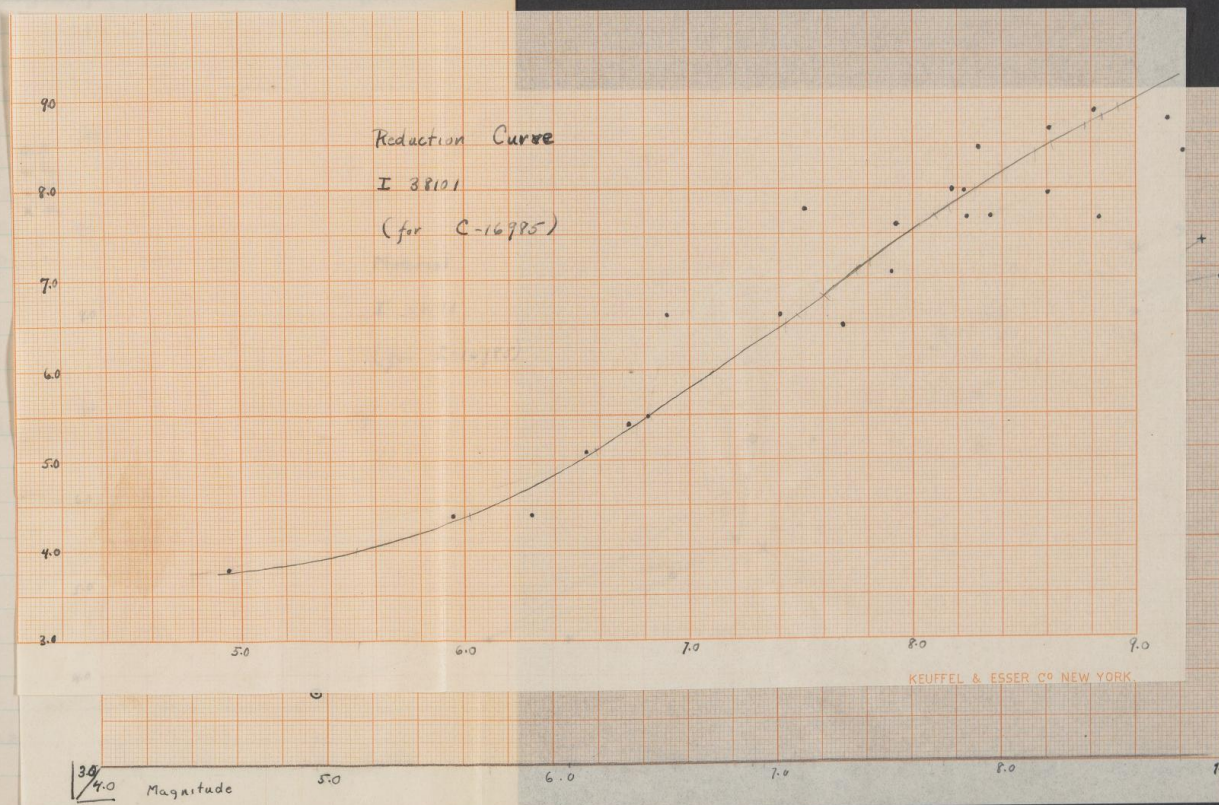
No Diaphragm

175

Mag - Corrected Mag Diff (For A₀)

-0.07
 $+0.36$
 -1.54
 -0.38
 -0.19
 -0.06
 -0.11
 -0.05
 ~~-0.38~~
 -1.61
 $+0.36$
 -1.25
 -4.2 Average Δ

HD 218700 taken as standard star Magnitude = 5.29
 Magnitude, as read from Mag-Deflection Curve = 5.52
 Correction = -0.23



	Start	Finish
Volts	4.73	4.71
Dark	3.6	3.6
Clear	9.9	10.0

No Diaphragm

175

Mag-Corrected Mag. Diff (For A₀)

-0.07	HD 218700 taken as Standard star	Magnitude =	5.29
+0.36	Magnitude, as read from Mag-Deflection Curve	=	5.52
-1.54	Correction	=	-0.23
-0.38			
-0.19			

38101 I

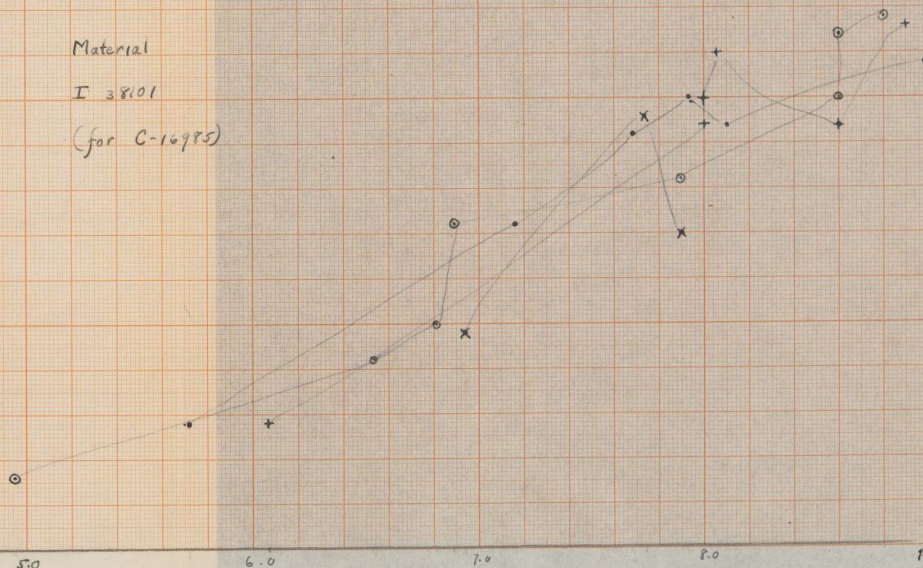
1913 I

(289410-5 m.)

Material

I 38101

(for C-10985)

34
4.0
Magnitude


176

Diaphragm 3

Reductions for I 37372, Bk. 41, p. 2.

Star	H β Mean			H γ Mean			H δ Mean			H ϵ Mean			F
	Line	2	21	Line	2	21	Line	2	21	Line	2	12	
* 9	..	..	..	?	17.8	17.9	18.8	18.0	18.2	18.6	18.1	18.1	..
* 34	18.5	18.2	18.1	17.8	17.1	17.0	18.1	17.2	17.3	18.3	17.4	17.8	18.2
* 38	18.3	17.6	17.8	17.4	16.4	16.3	17.7	16.4	16.6	18.0	16.8	17.3	17.7
* 41	18.8	18.4	18.2	17.8	17.0	17.0	18.0	17.2	17.2	18.6	17.6	18.1	18.3
* 64	17.9	17.6	17.5	16.9	15.8	15.8	17.2	15.9	16.0	17.4	16.2	16.8	17.6
20	16.8	16.4	17.0	15.6	15.0	14.9	16.0	15.0	15.1	16.2	15.3	15.6	16.7
55	16.7	16.6	16.8	15.2	15.0	15.1	15.6	15.3	15.4	16.6	15.8	16.0	16.6
59	17.4	17.1	17.4	16.4	15.8	15.9	16.6	16.2	16.3	17.9	17.0	16.9	17.2
17	16.4	16.6	17.0	16.8	16.1	16.4	16.8	16.6	16.8	18.4	17.6	17.8	16.8
49	15.6	15.8	16.5	14.6	14.4	14.5	14.8	14.6	14.6	15.0	14.7	14.8	16.2
36	18.4	17.7	..	17.8	16.6	16.6	17.9	16.8	17.0	18.1	17.3	17.6	17.7
* 78	17.8	17.6	17.6	17.1	17.0	16.1	17.3	16.2	16.6	17.8	16.6	16.9	17.6

For mean A

Line	[β]	[γ]	[δ]	[ϵ]
9	7.06	7.70	7.75	7.75
34	7.78	7.48	7.52	7.65
38	7.67	7.26	7.30	7.48
41	7.79	7.48	7.52	7.69
64	7.65	6.88	7.00	7.31
78	7.65	7.00	7.26	7.42
Σ	38.24	33.80	44.35	45.30
Mean	7.67	7.30	7.39	7.55
	7.75			

* Second approximation

* This diaphragm clearly too small.

Final Means				Reduced				not used ↓				Sp
β	γ	δ	ϵ	$[\beta]$	$[\gamma]$	$[\delta]$	$[\epsilon]$	$\frac{[\beta]}{[\beta]}$	$\frac{[\gamma]}{[\gamma]}$	$\frac{[\delta]}{[\delta]}$	$\frac{[\epsilon]}{[\epsilon]}$	AO
1	..	17.8	18.1	18.1	7.70	7.75	7.75	+31	+40	+36	+20	AO
8	18.2	17.0	17.2	17.6	7.78	7.48	7.52	+11	+18	+13	+10	AO
3	17.7	16.4	16.5	17.0	7.67	7.26	7.30	-8	-04	-09	-03	AO
1	18.3	17.0	17.2	17.8	7.79	7.48	7.52	+11	+18	+13	+14	AO
8	17.6	15.8	16.0	16.5	7.65	6.88	7.00	-02	-42	-39	-24	AO
6	16.7	15.0	15.0	15.4	7.39	5.92	5.92	-28	-138	-137	-113	Bq
0	16.7	15.0	15.4	15.9	7.39	5.92	6.42	-28	-138	-97	-60	F5
9	17.2	15.8	16.2	17.0	7.52	6.88	7.14	-15	-42	-25	-07	F2
8	16.8	16.2	16.7	17.7	7.42	7.14	7.39	-25	-16	00	+12	G5
8	16.2	14.4	14.6	14.8	7.14	5.08	5.46	-53	-222	-193	-187	B5
6	17.7	16.6	16.9	17.4	7.67	7.35	7.45	-06	05	06	04	A2
9	17.6	16.0?	16.4	16.8	7.65	7.00	7.26	-02	-30	-13	-13	AO

The two B stars are discrepant because they are both very bright, and fall on unreliable parts of the reduction curve.

Voltage 4.82
 Dark 4.45 4.5
 Clear 14.40 14.00
 Mean clear 14.20
 dark 4.48

	H β	H γ	H δ	H ϵ	H ζ	H η	H θ	H ι	H κ		T.D.	β
* 1	10.10	9.15	9.50	11.10	13.15	13.5				13.6	9.1	76
	562	467	504	662	867	902						
2	6.80	6.60	7.00	8.6	10.65	12.10	12.85			13.4	8.9	146
	232	212	252	412	617	762	837					
3	5.65	6.95	12.9							13.3	8.8	173
	117	247	847									
4	9.5	8.45	8.8	9.75	11.5	12.55				13.5	9.0	88
	502	397	432	527	702	807?						
5	9.15	9.65	11.1							13.5	9.0	96
	467	517	663									
6	9.2	8.9	9.85	11.2	12.6	13.3				13.4	8.9	94
	4.72	4.42	5.37	6.72	8.12	8.84?						
7	6.45	7.3	10.7	12.15						13.5	9.0	156
	197	282	622	767								
* 8	10.6	9.95	10.35	11.85	13.4					13.5	9.0	64
	612	547	587	737	892?							
* 9	8.75	7.9	8.25	9.5	12.75	12.85				13.5	9.0	105
	427	342	377	502	827	837?						
10	9.9	10.9	12.0	13.9						13.9	9.4	84
	542	642	752	942								
11	9.65	10.35	12.25							14.5	10.0	97
	517	587	777?									
12	12.05	10.75	11.25	12.7	13.75	13.9				13.9	9.4	39
	757	527	677	792	927	942?						
13	13.5	10.0	10.3	11.5	13.05	14.05				14.1	9.6	120
	9.0	5.5	5.8	7.0	8.6	9.6?						
* 14	5.4	5.0	5.05	5.35	6.7	10.1	10.1	11.5	12.1	14.1	9.7	181
	0.9	0.5	0.6	0.8	2.2	5.6	5.6	7.0	7.6			
15	4.85	4.65	4.6	4.8	5.4	6.25	6.5	7.3	7.7	7.95	8.2	192
	0.4	0.2	0.1	0.3	0.6	1.2	1.3	1.8	3.2	3.4	3.7	
16	5.3	5.35	6.35	9.1	13.3					13.9	9.4	183
	0.8	0.8	1.8	4.6	8.8							
17	13.5	10.65	11.35	13.05	13.4					14	9.5	11
	9.0	6.2	6.9	8.4	8.9							
18	12.1	11.9	12.65	13.45						14	9.5	40
	7.6	7.4	8.2	9.0								
19	12.5	11.0	11.55	12.55	13.6					14.1	9.6	34
	8.0	6.5	7.0	8.0	9.1							
20	11.9	12.75	13.0	13.65						14.1	9.6	46?
	7.4?	8.2	8.5?	8.6?								
21	9.4	11.05	11.8	14.4						15.1	10.6	107
	4.9	6.6	7.3	9.9?								
22	9.45	11.85		15.8						15.1	11.0	99
	5.0	7.4	...	10.5								
23	10.5	9.5	9.9	11.25	14.6	14.7	15.1			15.4	10.9	90
	6.0	5.0	5.4	6.8	10.1	10.2	10.6					
24	7.6	6.8	7.15	8.1	12.2	13.9	13.5	14.5		15.1	10.6	141
	3.1	2.8	2.6	3.6	7.7	9.4	9.0	10.0				
25	11.4	11.1	11.6	13.1	15					14.8	10.3	164
	6.9	6.6	7.1	8.6	10.5							
26	5.9	6.4	7.25	10.55	13.4					14.85	10.4	173
	1.4	1.9	2.8	6.0	8.9							
27	12.15	12.1	13.05	14.7						14.7	10.2	51?
	7.6?	7.7?	8.6?	10.2?								

Settings are to the violet of the H lines

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Reduced know subtracted from 200						Magnitudes (Standards are Mean \bar{A}_0)					Magnitude minus standard					181		
T.D.	β	γ	δ	ϵ	z	No.	222	193	208	263	428	β	γ	δ	z	Class	$\gamma - \delta$	$\beta - \gamma$
9.1	76	97	89	54	10	1	231	197	209	269	428	9	4	1	6	A0	+3	+5
8.9	146	152	143	107	61	2	119	110	124	181	256	-103	-83	-74	-82	F2	-9	-20
8.8	173	143	8	..	..	3	73	124	446	..	..	-149	-69	+138	..	Ma	-20	-7
9.0	88	112	108	283	44	4	211	173	180	219	288	-11	-20	-28	-44	B8	+8	+9
9.0	96	85	52	..	..	5	198	216	273	..	..	-24	+23	+65	..	G5	-42	-47
8.9	94	101	80	49	17	6	201	190	224	278	379	-21	-3	+16	+15	F0	-19	-18
9.0	156	137	61	30	..	7	103	133	256	374	..	-119	-60	+48	+61	M6	-108	-59
9.0	64	78	69	36	2	8	251	228	243	308	..	+29	+35	+35	+45	A0	0	-6
9.0	105	124	112	88	16?	9	184	154	173	211	385?	-38	-39	-35	-52	A0	+4	+1
9.4	84	63	40	0	..	10	217	253	297	..	..	-5	+60	+89	..	K0	-29	-65
9.0	97	83	44	..	..	11	197	219	288	..	..	-25	+26	+80	..	K0	-54	-61
9.4	39	88	56	31	3	12	300	209	265	321	..	+78	+16	+57	+48	F5	-41	-62
9.6	120	85	79	54	21	13	413	216	226	269	358	+91	+23	+28	+6	A0	-5	+68
9.7	181	189	198	194	154	14	55	27	31	46	106	-167	-166	-177	-217	B5	..	..
9.5	192	194	198	194	187	15	8	..	..	..	36	-214	..	..	..	K0	-29	-29
9.4	183	183	162	104	13	16	49	49	93	185	406	-173	-144	-115	-78	G0	-11	+49
9.5	11	69	54	23	12	17	421	243	269	349	413	+199	+50	+61	+86	F0	-21	-20
9.5	40	44	27	10	..	18	297	288	334	428	..	+75	+95	+116	+155	A3	-5	+35
9.6	34	65	54	34	10	19	313	249	269	313	428	+91	+56	+61	+50	K0	-7	+72
9.6	46?	29	23?	21?	..	20	284?	327	349?	358?	..	+62	+134	+141	+95	K5	..	-89
9.6	107	75	62	13?	..	21	181	233	255	406?	..	-44	+45	..	+126	G0	+7	+8
1.0	99	66	..	9	..	22	178	248	..	437	..	-41	+40	+47	+143	A0	+5	-1
0.9	90	108	101	75	14	23	208	180	190	233	399	-14	-13	-18	-30	A0	+6	-4
0.6	141	157	151	192	54	24	127	102	111	141	269	-95	-91	-97	-80	A5	-2	-16
0.3	164	172	162	33	0	25	251	238	255	316	..	+29	+45	+47	+53	G5	-18	-48
0.4	173	163	146	84	31	26	73	92	119	217	337	-149	-101	-89	-46	K0	-26	-33
0.2	51?	49?	32?	0?	..	27	274?	278?	319?	..	..	+52	+85	+111	..	..	..	..

Plates Measured for Magnitude Corrections

Plate No	Standardising Plate No	Page
	I 38034	150
	B 20558	154
C-17054	I 37878	156
C-15906	I 38095	158
C-16676	I 37403	160
C-16023	I 37372	162
C-14974	I 38099	164 & 166 } Two sets of
C-15556	I 38308	168 measures
C-17014	I 38520	170
C-2396	I 37241	172
C-16985	I 38101	174

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