

RS Series

Slitless Spectrograph

on 24-inch Reflector

1940-



Observers

Km = P. C. Keenan

Kg = W. Knag Dahl

Gr = I. Greenstein

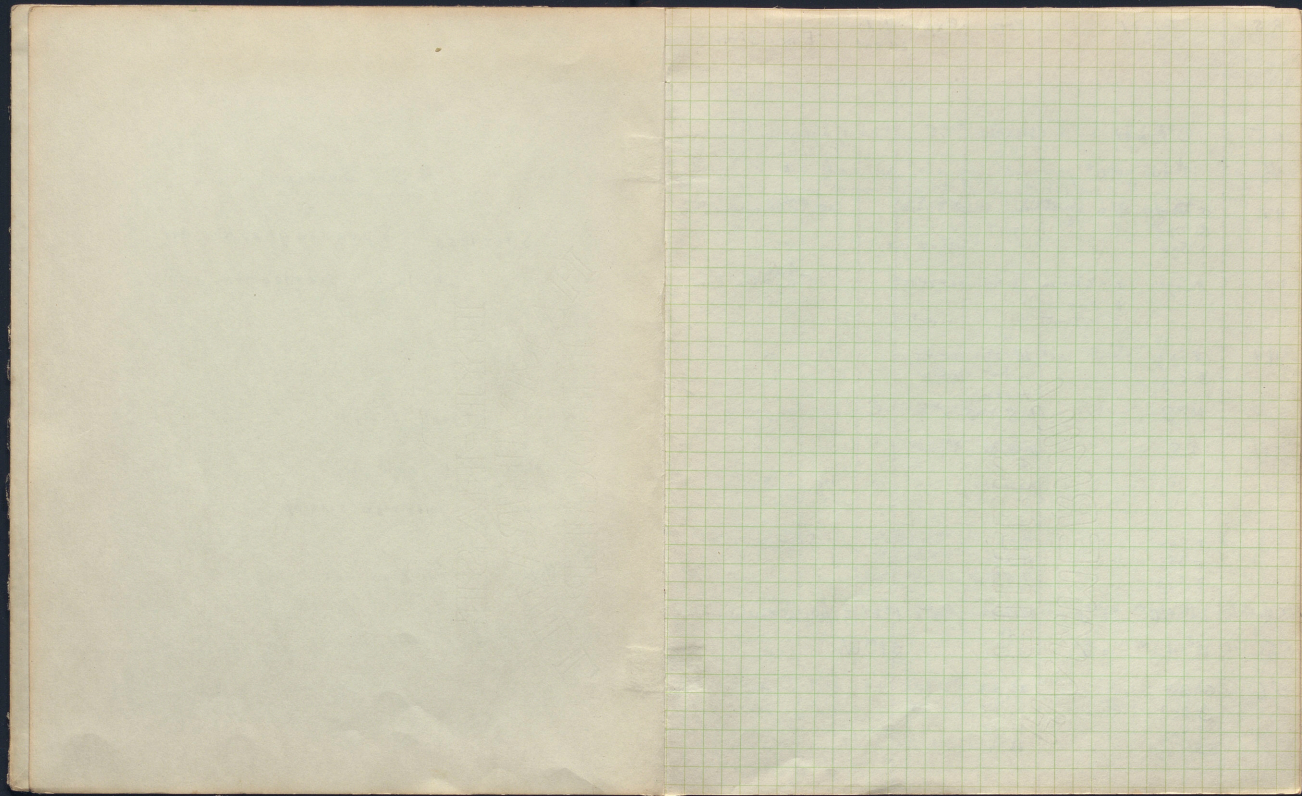
RS Series

Slitless Spectrograph on
24-inch Reflector

Focal Scale

λ	
4000	$\frac{1}{4}$ turn in
4200	knife edge setting
5000	$\frac{1}{4}$ turn out

For best focus of camera, end of tube should
be 1.5 mm above lens flange.



R.S.	Field	Date	Exp.	H.A. at end	Emulsion	Development	Observer	T/S
		1940						
45	CB 20	6/25/40	7.5"		Super Pan Persar	Focus test plate		3 min in D72 at 6.5°
46	18h 40m, +6°	"	"	"	"	Obscure - Kg		Right clouds passed nearly during exposure. Exposure cut short by moonrise at about 11:00.
47	σ Drac. X 10 Cyg. 2 Sge	13.07	15.5, 7.5, 30° " " " 15.5, 7.5, 30°	"	Agfa Super Pan Persar	D-72, 66°, 2 1/2 min	Km	Clouds bothering all night.
48	σ Sgr a - 1/4 turn in 4 - Funs a - 1/4 turn in	13.12	5.17, 7.5, 15° " " " " " "	"	Agfa Super Pan Persar	" 3 min	"	
49	7 Cyg. 3 Cyg.	14.25	5.17, 7.5, 15° " " "	"	"	"	"	Focus set 1/16 turn inside. Clouds bad.
50	NPS	9.18-D:118	1h	"	"	P-72, 64°, 3 min	Km	3 5 min steps
51	2S	10.48-32	4 min, 2 min	"	"	"	"	16 steps, 15 steps
52	"	10.46-44	"	"	Sagittarius	" 2 3/4 min	"	"
53	n Ser σ Dra 7 Cyg.	11.31 11.39 11.45	"	"	Sagittarius	D-72, 65°, 3 1/2 min	"	15.5, 7.5, 15° 15.5, 4.5, 7.5 15.5, 7.5, 4.5, 15.5
54	18h 40m +6°	6/29/40	90 min	1h 22m E.	Super Pan Persar		Kg	Plate moved every 9 min. - Seeing not too good
55	18h 42m +6°			21m W.	"		"	"
56	ε Dra β Del 5 Cyg 55 Cyg	12.53 13.00 13.08 13.14	"	"	"	D-72, 66°, 2 1/2 min	Km	3+ 15.5, 7.5, 4.5, 15.5 7.5, 15.5, 30° 3/16 turn

RS	Field	Date	Exp.	H.A. at end	Emulsion	Development	Observer	T/S
57	55 Crg. 61 Crg. 2 Agi- 8 Cep	June 29/30 13.47 14.00 14.07 14.13			Agfa Superflexa Panchro-10, 64°, 3mm	Km	3	7.5, 4.5, 15.5 15.5, 3.5, 1m, 30.5. A few light clouds. 7.5, 5.5, foot. 15.5, 7.5, 5.5, foot
58	7 D-2	June 30- July 1 12.29	15.5, 7.5, 30.5		"	Km	2	Focus lost - knife-edge setting, 1/4 turn out, 1/4 turn in.
59	7 D-2 E D-2 55 Crg. 61 Crg.	12.57 13.03 13.09 13.15	3.5		"	Km	3	Foot, 7.5, Foot, Foot 15.5, 7.5, Foot. 7.5, 4.5, Foot. 7.5, 15.5, 30.5, 1m
60	8 Crg. 5 Crg. 7 Cep 2 Agi-	13.43 13.48 13.54 14.03			"	"	"	7.5, 4.5, foot, 15.5 Foot, 7.5, 15.5 7.5, Foot, 15.5, 30.5 Foot, 4.5, very foot. Foot, 7.5, 15.5, 4.5 4.5, 7.5, Foot, 15.5 4.5, Foot, 7.5 Foot, very foot, 4.5, 7.5
61	8 Cep E cep 4 Lac 7.2 Lac	14.17 14.22 14.26 14.30			"	"	"	Focus lost plate - lost exp. 1/4 turn out 5 exps. in all each 1/4 turn different. 12 light min. exposures
62	β Comae	7/3/40			"	Kg		Focus lost - Foot, 4.5, 7.5 9.5 min. out 1/4 turn out knife-edge setting, 1/4 turn in 12 exp, 7.5, and each
63	N.P.S 15 + neighbor.	7/4-5/40	96m		"	"		
64	Q Boor	8.45			"	Km		
65	NPS 16	9.22 10.55	93m 44m	1.55 W on E side		"		
66	NPS b		44m +25-27"			"		
67	18 ^h 41 ^m +1°	7/6/40	60m	35 ^m E	E. Process	Kg		Straight photograph without spectrograph
68	+96° (20 ^h 28 ^m)	"	60m	1.5 ^m E	"	"		5m trail at end of exposure

RS	Field	Date	Exp.	H.A. at end	Emulsion	Development	Observer	T/S
6949	♀ cyp.	Jul 5, 6-7 13.18	Box 2 15 ^s	3	Agfa Super Phosphor Screen		Km	3- 1/4 turn out, focused, 1/4 turn in
70	NPS 4 15	13.50 -14.44	54 ^m	0.47E	"	D-72, 64°, 3 1/3 ^m	"	8 turns, 7 ^m each.
71	B Cane	Jul 7, 11/4 9.27			"		"	1/2 turn out, focus, 1/4 turn in
72	B Box	Jul 7, 11/10 9.59			"	D-72, 67°, 2 3/4 ^m	Km	1/2 turn out, focus, 1/4 turn in
73	S Box S Cph. σ aph	10.22 10.28 10.34			"		"	3 Foc 4 ^s , 7 ^s , 15 ^s . Focus moved 1/4 turn in. +30 ^s
74	σ Oph. M Hen. S Dna	10.58 11.03 11.10					"	3- 11 ^s , 7 ^s , 15 ^s , 1 ^m Foc 4 ^s , 7 ^s , 15 ^s 11 ^s , 15 ^s , 30 ^s
75	♀ Dna K Hen. σ Hen.	7/12/40 12:50 A.M.	4-12-36 ^s 4-2-36-36 ^s " 2 ^s 50 ^m W	2 ^s 25 ^m W 2 ^s 44 ^m W 2 ^s 50 ^m W		D-72, 3 ^m	Kg	Knife edge-focus used Discarded
76	70 Oph. 670 ph. of sex.	1:30 A.M.	3-12-36 ^s 3-36 ^s 3-36 ^s	2 ^s 15 ^m W 2 ^s 28 ^m W 3 ^s 15 ^m W		D-72, 3 ^m	"	Focus 1/4 turn inside knife-edge
77	i Purr K Apple. of Apple.	2,30	3-36 ^s 3-36 ^s 3-12-36-2	2 ^s 15 ^m W 2 ^s 35 ^m W 2 ^s 25 ^m			"	
78	η Box	Jul 12, 13/14 8.47	8, 4, 7.5, 1.5		"		Km	3 Focus plate. 1/2 out, knife-edge setting, 1/4 in.
79	η Box ρ Box S Box	9.11 9.16 9.23	3, 3, 4, 2 9.75, 19.35 ^s 7.5, 15.3, 31 ^m				"	24 Focus 1/4 turn inside knife-edge

RS	Field	Date	Exp.	H.A. at end	Emulsion	Development	Observer	T/S
		1940						
80	£ Boo	July 12/41 10:03	5 ⁵ 7 ⁵ 15 ⁵		Agfa Super Polaroid 256-753		Kn	2
								Camera on-focus. Focus Plate. Knife-edge setting, $\frac{1}{8}$ in, $\frac{1}{4}$ in.
81	i Dra	10:30	5 ⁵ 7 ⁵ 15 ⁵				"	3-
	n Her	10:36	4 ⁵ 3 ⁵ 7 ⁵ 15 ⁵					Focus on inside knife-edge.
	o oph	10:43	5 ⁵ 7 ⁵ 15 ⁵ m					
82	o Her.	10:55	5 ⁵ 7 ⁵ 15 ⁵ 30 ⁵				"	2+
	67 oph.	11:01	5 ⁵ 7 ⁵ 15 ⁵ m					
	70 oph.	11:05	5 ⁵ 7 ⁵ 15 ⁵ 30 ⁵					
93	55454	12:00	30 ⁵ 1 ⁵ 3 ⁵ 4 ⁵				"	3-
84	"	12:20	"					
85	N.P.S. 15	1:00	17X6 ^m				Kn+Kg	
							Kn	
86	SOph.	7/14/40 9:40		3-12-36 3-12-36	"		Kn	
							Kn	1/4 turn inside knife-edge. Clock stopped turned and cut exposure short the third time. 1/4 turn inside knife-edge focus. Test plate - 2 nd exp. 3/4 turn inside
87	n Agl	12:44	5 ⁵ 7 ⁵ 15 ⁵				Kn	Focus plate 1/2 cut, knife-edge, 1/4 in.
88	HD 158209	13:22	7 ⁵ 15 ⁵ 30 ⁵				"	+ 1 exp with stars near edge of field.
89	B Del	13:55	5 ⁵ 7 ⁵ 15 ⁵				"	Front plate turned end for end.
	d Del	13:59	5 ⁵ 7 ⁵ 15 ⁵					
	3 Cyg.	14:05	5 ⁵ 7 ⁵ 15 ⁵ m					
90	3 Cyg.	14:29	5 ⁵ 7 ⁵ 15 ⁵ m				"	Front plate turned back.
	63 Cyg.	14:36	7 ⁵ 15 ⁵ 30 ⁵ m					
	o Cyg.	14:44	5 ⁵ 7 ⁵ 15 ⁵ 15 ⁵ F					
91	31 Agl	July 27/39 8:43	7 ⁵ 15 ⁵ 11 ⁵ 12 ⁵				Kn	New guiding system installed. Focus plate
92	20 h 15 ^m , +33.9	10:49-11:03	14 ^m				"	4 ^m each

R S	Field	Date	Exp.	H.A. at end	Emulsion	Development	Observer	T/S
		1940						
93	70 Cph	Jul 22/29 10:39	4/25, 15, 30		Agfa Super Plane Pak		Km	3- Focus plate. Knife-edge setting, $\frac{1}{4}$ out, $\frac{1}{4}$ in.
94	70 Cph. 3) Agf 5 Dna	11:44 11:49 11:55	F20-18, F 7.5, 15, 24, 1"m 4, 7.5, 15, 20		"		"	3 "8 in.
95	B Cym Y Sdc P Cym	12:40 12:50	4-12-36 8-12-24 4-12-36		"		Kg	Focus $\frac{1}{16}$ in from previous setting
96	B Agur	1:45	3-12-24				"	
97	2-20 1/2 23 1/2 +37.0	13:03-13:12	39 m	2:00	"		Km	3- Clock stopped at end.
98	63 Cyp	14:37	7.5, 15, 1"m				"	Test with graph. Tilted.
99	"	15:14	7.5, 15, 30				"	Camera tilt reduced by $\frac{3}{16}$ inches.
100	B Hec (center) (side) (opp. side)	Aug 4/5 8:25	5, 7.5, 30		Super Planachrome Press		Km & Kg	Focus set $\frac{1}{16}$ outside knife-edge.
101	"	9:15	5, 7.5, 1"m		"		"	Tilt of prism increased about .4 degree.
102	70 Ophine	10:45			"		"	Prism tilt decreased about .8° from above position.
103	63 Cyp	12:30	7, 15, 60		" 3 exp		Gr	2 Camera tilt changed.
104	P Cyp	2:51:15	4/2 3/6 4/2 3/6		Exp Plan Pk focus 1/4 in out		"	Prism tilt increased 20, Blue Plate, 1/4 out
105	B Hec	Aug 8/9 20:30	5/15 1/11 20		Exp Plan Pk	Tree as possible	Gr	1 Focus same as previous.
106	B Cyp UX Gra 1909 18		7/15/48 30/90/1270 30/120				"	1

R S	Field	Date	Exp.	H.A. at end	Emulsion	Development	Observer	T/S
107	o cgg.	Aug 5/19 12.11.9	4 ⁸ , 7 ³ , F		Agfa Super Phosphor		Km	2
108	"	"	4 ⁵ , 7 ⁵ , 3 ³				"	"
109	i Cep	Aug 12/19 14.10.8	5 ² , 7 ⁵ , 13 ³⁰		"		Km	3-
110	"	14.3.8	8 ¹ , 5 ³ , 7 ⁵ (30)		"		"	2+
111	B Cys	Aug. 19/19 10.1.37	3 ⁵ , 5 ⁵ , 4 ⁵		"		"	3-
112	Q cgg.	11.1.26	"		"		"	"
113	Q Cgg. 8 Sge	Aug 20/19 10.5.3 10.5.8	3 ⁵ , 5 ⁵ , 7 ⁵ Focus 1/2 5 ⁵ , 15 ⁵ , 1 ⁵ Focus 1/2 out				Km	3-
114	7 Sge	11.1.26	3 ⁵ , 5 ⁵ , 1 ⁵				"	"
115	Field No 183113	Aug 21/19 57 18.20	12/13 20m +18.30	(C)	"		Gr	3
116	M Har 3 Dna 7 Cep	20.4.10 " 11 20.4.25	3, 5, 8, 130 113, 7, 15 3, 8, 45		Contex		"	Reflex
117	193793 41 cgg 199539	20.4.10 20.4.5 20.4.30	15, 60, 210 2, 5, 10 15, 30, 60				"	"
118	183113	21.1.00	30, 60, 120				"	"
119	9 Cep 1 Cep 9 Peg	21.1.15 21.2.0 21.3.0	5, 15, 45 7, 20, 120 5, 8, 15, 30				"	Variable limits
120	P Boo R Cor Bor	Aug 29/19 7.47 7.58	5, 7, 8, 30, 1 ⁵ 7.3, 15, 30 ⁵ 15, 30, 1 ⁵		"		Km	"

R S	Field	Date	Exp.	H.A. at end	Emulsion	Development	Observer	T/S	
		1940							
121	R Cor Box HD 156674	Aug 28/30 8:26 8:45	15, 2, 1, 3 17, 5, 5				Km	3	Focus set in 1/8 turn Telapye re-focused - set 1/8 in 18 18 11 5
122	HD 192016 HD 193143	9:46 10:05	17, 5, 10 30, 2, 2				"		Telapye re-focused - set 1/16 in 3 47
123	X Sco C Box S Ner	Aug 30/31 18:50 19:00 19:02	13, 5, 15 4, 3, 5, 15 1, 3, 8	2:20 44 2:30	Exp. Box Pano		Gr	2	Re-fo. Box 1/8
124	R Cor Box O Dra O Oph	19:25 19:35 19:40	15, 45, 120 3, 8, 15, 30 3, 8, 30, 60	3:40 3:35 2:17	"				Re-focused
125	R Scate O Dra K Lyr	20:15 20:30 20:35	8, 15, 45 120 1, 3, 8, 15 3, 5, 15, 30	1:30 3:00 2:20					abt 5.3 mag? Uns Re-focused 19 51 19 19 1 33
126	X Dra P	20:43	3, 8, 15, 30	2:20					
		Sep 1-2							
127	X Lyr S Dra X Cyg	9:07 9:15 9:20	3, 7, 5, 15, 30, 175 8, 7, 5, 15, 30, 15 5, 7, 5, 15, 30, 175			D-72, 69°, 204"	Km	3-	
128	S Dra UX Dra	9:55 10:22-10:32	F-32 exp. 19, 31, 15, 30, 175				"	2+	Focus checked - moved out 1/16 22 05 20 44 21 29 (24 19 17 21 2
129	HD 193793 41 Cyg n Cep	11:08 11:15 11:22	30, 1, 2 1, 5, 7, 15, 15 7, 5, 7, 5, 31, 15 F				"	2+	Re-focused - moved in 1/16 20 05 20 27 1 35
130	NPS 116	12:12-12:21	69"	2:05 W			"	3	
131	51 Peg. 19 Psc	13:46 13:56	7, 5, 15, 30, 175 7, 5, 15, 30, 175						Re-focused, moved out 3/16. 24 26 22 55 1 31

RS Field Date Exp. H.A. at end Emulsion

		1940			
132	P Cas η Cas M Cas	Sept 1/2 14.14 14.39 14.48 Sept 2/3 12.57-13.08 13.11-13.35	5 ^h 5.5.13.35 5.5.13.12 F 5.5.13.12 10 ^m 24 ^m		0.0
133	Cas Field #36 H.D. 3022	14.39-14.49 14.46-15.10 15.14-15.17	15 ^m 24 ^m 44 ^m		0.01
134	V Ari	15.33 15.41 Sept 3/4 12.54-12.59 13.04-13.35	5 ^h -2 ^m 3 ^h -1 ^m 5 ^m 31 ^m		0.06
135	X Ceti (?) X Per	13.53 14.07	F-1 ^m 5 ^h -1 ^m		
136	Cas Field #28 0 ^h 29 ^m +55 ^m 22 ^s	30.1 ^m 2.5.5 ^m 14.07-15.21 Sept 5/6 10.59 15.25-20.35	14.40 34 ^m 11.06 11.16		0.44
137	η Per SU Cas	11.33 11.42 11.49 Sept 25/26	5 ^h -1 ^m 5 ^h -2 ^m 5 ^h -1 ^m 2 ^h 50 ^m 25 ^s 22 ^h 10 ^m 25 ^s 15 ^m 60 ^s 22 ^h 30 ^m 15 ^s		3 ^h 55 ^m 35 ^s W 2 ^h 26 ^m 0 ^s W 2 ^h 30 ^m W
138	4D 19557				
139	β Aql α Aql ε Peg.				
140	γ Peg M Cep 241 Cep				
141	θ Aql X Aql H.D. 190918				

Development

observer T/S

Km 3 Reformed - Mord 1/6 in

Km 3 Good definition

" " Focus moved 7/8 out

Km 3-

" " Focus checked.

" " Reformed - Mord 1/6 out

D-72, 67°, 23 1/4 Km 2

Reformed - Mord 1/6 out

Gr 3/2

S Plan PT

R S	Field	Date	Exp.	H.A. at end	Emulsion	Development	Observer	T/S
142	204172 199579 13 Exp	1940 Sept 25/26 22 ^h 44 23 ^h 45 23 ^h 40	5 ^h 15 ^h 30 ^m 15 ^h 30 ^m 15 ^h 30 ^m	1420 W 1455 1410 W	Super Pleva		Gr	2/2
143	63 Egg σ Egg 72 Egg	23 ^h 17 23 ^h 30 23 ^h 35	5,15,15,20 2,5,15 2,5,15	2412 W 2415 W 1410				
144	1 Pegg 0 Egg 0 Pegg	23 ^h 50 23 ^h 59 24 ^h 20	2,8,15,60 2,7,15,60 5,15,15	2432 2425				
145	0 Her	1940 Sept 26/27 8:35	5 ^h 30 ^m 5 ^h 30 ^m	Super Pleva			Km	K.A. form. 1/16 in
146	HD 195 177	9.23-10.26	63 ^m				"	Focus moved 3/16 in. 11 exp of 6 ^m each
147	Cass. Field # 53	11.11-11.53 Sept 27/30 7.22-7.34	1 ^m 47 ^m 15 ^h 30 ^m 5 ^m				"	Focus - 1/16 out.
148	R Scuti σ Oph	7.22-7.34 7.43	3 ^h 30 ^m 3 ^h 30 ^m			D-72, 60°, 2 1/2 ^m	Km	3- Focus shifted 1/16 in
149	V Aql. σ Aql	8.08-8.19 8.26	20 ^h 51 ^m 25 ^s 10 ^m F-155				"	4 Refocused. V1a
150	AA Cyg	9.15-9.25 9.29-9.34 Sept 30/Oct 1	10 ^m 10 ^m 7.10 7.18-7.25		Clouds - Hazy Pleva		"	2± 1± Re-focused
151	σ Oph R Scuti	7.10 7.18-7.25	3 ^h 2 ^m 15 ^h 7 ^m 5 ^s 10 ^m				Km	Brightness same as last night.
152	AA Cyg	8.02-8.19 Oct 1/2 7.13-7.23 7.25-7.26	47 ^m 38 ^h 2 ^m 10 ^m 5 ^m		Pleva		"	Re-focused. Moved in 1/8 turn
153	RY Sag.	7.25-7.26	5 ^m	105			Km	Focus moved 1/16 in

RS	Field	Date	Exp.	H.A. at end	Emulsion	Development	Observer	T/S
154	HD 187216	1940 Oct 16 8:07-8:15 8:10-8:15 Oct 27/3	7.5 1.4		Agfa Super Plena Bayer		Kn	3
155	HD 206570 P Cyg.	9:20-9:25 9:31	25-1m 5m 5-1m		11		Kn	24 3
156	RV Cyg.	10:58-10:10 10:10-10:18	15.1m 29m 24m		11		11	11
157	S 7259 ψ And. X Ant	11:23-11:29 11:35 11:41	7.5-2m 4m 5-1m 25-15		11		3-3	Reformed - Moved 1/8 in
158	107 Pis S Tri 45 Ari	12:16 12:25 12:49-12:54	7.5-2m 55-1m 15.3-2m 10m		11			Reformed - Moved 1/32 in
159	67 Oph η Ser "	Oct 31/4 7:26 7:31	15-155 15-305 7.5-305		11		Kn	24-2
160	HD 156074	8:12 8:25	15.1m 3.3 13m	4.10	dark stopped		11	11
161	63 Cyg HD 204172	9:04 9:13	5-2m 5-1m		11		11	11
162	RX Peg	9:51-10:21	15.2-2m 30m					Focus checked.
163	v Peg ψ And	11:08 11:16	5-1m 5-1m					1/8 out
164	hard X Persei	11:40-12:01	2.1m		11		11	Reformed - Moved 1/16 in

24 24
22 48 23 37

41

3 14
0 44

2 30

RS	Field	Date	Exp.	H.A. at end	Emulsion	Development	Observer	T/S
165	SU Cxg. 70 Cxg.	1940 Oct 7/18 9:05 9:14	F5-2 ^m 3 ^s 30 ^s		Agfa Super Blenda Prim.	D-72, 70°, 2 1/2 ^m	Kn	3-2+
166	7 And 7 Cep	9:33 9:41	F-1 ^m F-30 ^s			"	"	" 11 Refocused - moved 1/32 in.
167	7 Cep ε And δ And	10:09 10:17 10:25	F-13 ^s 3 ^s 1 ^m F-1 ^m				"	3-2+ Brilliant aurora
168	ψ Cas " " 14 Per	10:51 — 11:02	5 ^s 15 ^s 30 ^s 5 ^s 5 ^s 1 ^m				"	Focus checked Shooting through aurora.
169	NGC 752	11:57-12:01 Oct 8/19	64 ^m				"	Refocused - moved 1/16 out.
170	HD 25408	13:05-13:35	1 ^m 10 ^m 30 ^m	47			Kn	3+ 3
171	RX Aur.	14:15-14:47	5 ^m 26 ^m 20 ^m 1 ^m 5 ^m					Refocused - moved 1/16 in
172	UU Aur	15:12-15:33	21 ^m					
173	BA 91	Oct 21/32 6:20	7 ^s 30 ^s 3 ^s 2 ^m	" "			Kn	Knife-edge focus. Focus moved 1/8 in
174	σ D-2	6:40	5 ^s 1 ^m 5 ^s 2 ^m				2	Focus moved 1/16 out " " 1/16 in
175	δ Eri γ Eri	13:25 13:35	5 ^s 2 ^m 5 ^s 2 ^m				Kn	2+ 1 Focus moved 1/16 in.
176	τ Tau	13:53	5 ^s 30 ^s				"	2- Clouds.

[illegible]

R S	Field	Date	Exp.	H.A. at end	Emulsion	Development	observer	T/S
185	1 Cern w Cnc 8 Cnc.	1940 Oct. 29/30 15.32 15.43 15.53 Oct. 30/31 8.59 9:07	5°-1" 7.5-2.5" 3°-1"		Plene		Km	3 Focus checked.
186	35 Peg. η Peg.	8.59 9:07	5°-2" F-1"				Km	2
187	8 Pis o Cep ε Cas	9.24 9:34 9.44	F-1" 7.5-2.5" 7.5-2.5"				"	3- Re-focused. Mount 116 in.
188	η And χ Cas HD 9900	10:09 10:25 10:36	5°-2" 5°-2" 7.5-4"					
189	12953 13267 13744 13744 14818	5.515,135 15.69,180 120.46 450 15.45,150	0°18'E 0°10'E 0°10'30" 0°09'W 0°14'W	UV Plate 116			Gr	2/ Focused, 1 2 3 4 5
190	13841.54 13841.54 13841.54 13841.54	30.60 190 210 540	0°37'W 0°46'W 0°45'W 0°55'W				"	
191	14433 14433 14518 14538 14818	30.90 270 15.45,135 60, 180 15.45,135	1°40'W 1°10'W 1°20'W 1°34' 1°44'W	Dark stopped			"	

RS	Field	Date	Exp.	H.A. at end	Emulsion	Development	observer	T/S
192	τ Per 0 Tau S Em	1940 Nov 12 13.40 13.49 13.52	F-1 ^m 55-1 ^m F-1 ^m		Plena		Km	3 22
193	σ Per V Per B Cam	14.13 14.23 14.31	75-2 ^m F-1 ^m 55-1 ^m				"	" Focus checked,
194	46 V Aur X Gem 0 UMa	14.51-15.03 15.12 15.20	75-5 ^m F-1 ^m F-1 ^m				"	" Focus checked - Moved out 1/16. Last 3 with focus moved 1/16 in
195	S Cap " "	Nov. 2/5 6.18	F F-30 ^s 1-1 ^m				Km	11 Focus moved 1/16 in
196	λ Peg μ Peg HD 3421	6.38 6.45 6.55	F-1 ^m F-1 ^m 55-25 ^s				"	" Refocused - moved 1/16 out.
197	HD 21564	8.06-9.03	57 ^m				"	" Focus
198	12953 14818 13267 13744 20011	15.45, 135 " 137E 15.45, 150 45.135 150E	1432 E 137E 1415 E 150E	UV region			JLG	3/2 1 focus. Blue region moved. Post. lighting, light notable, in this night 2 3 possible there may overlap 4 before in coming position
199	13744 13744 14818 14433 14433	45.135 450 15.45, 135 30.40 270	0459 E 450 0448 E 0453 0430 E					1 2 3 4 5
200	14542 14542 384154 " "	45.135 405 30.60 180 540	0417 E 0409 E 0413W 0417W 0425W					1 2 3 4 5

RS	Field	Date	Exp.	H.A. at end	Emulsion	Development	observer	T/S
201	13970 13970 14535 14535 14818	Nov 2/3	60, 180 480 60, 180 540 15, 135	1400W 1408W 1418W 1428W 1425W	UV series Planipr	JLG	3 1/2	Some low around 1000 1000 Refocused But first rate night
202	VX Cfg	Nov 24/25 7.24-8.21	57"		Super Plena prism	Km	22	
203	7 and 7 and 12467 12467	1 1.05 2 1.15 3 1.5, 135 4 15, 235	5, 15, 45, 85 405 15, 45, 135 15, 235	0420W	UV Photoflash	Gr	2	
204	21455 7505 7505 14818 20365	1 Nov 24/25 2 0.50 (5.7) 3 1.18 4 1440 5 1459	3, 6, 18 0.15 35 1, 3, 9 1, 3, 9	235E 0402 0410 0440E 1415E	UV Photoflash	Gr	4 1/2	
205	9653 9653 10648 10648 12467	1 2430 2 2440 3 3100 4 3110 5 3025	6, 15 30 6, 15 30 35, 15	1400W 1410W 1420 1430 1425				Refocused - 204 was before UV probably
206	14818	3440	13, 9	1420W			4 1/2	
207	RW Cas 1438", +57° 27'	11.58-12.37	39"	3.26	Plan	Km	3	6.29 4.27
208	BLOH 6422", +14° 47'	13.25-14.04	39"	0.05	+14° 9', 64° 22'	"		5.11 4.17 54
209	BLOH	Nov 26/29 12.14-12.20	2" 6"	E 1.28		Km	3 1/2	6.42 5.24 1.14
210	"	12.24-12.35	2" 6"		EXT. 10			

R S	Field	Date	Exp.	H.A. at end	Emulsion	Development	observer	T/S	
211	W. Mon	1940 Nov 27/28 1:20-2:30 Nov 28/29 1:50	50m	0° 05'	Agfa Super Plan Plan	0-72, 64-72°, 2 1/2	Km	3 1+	Focus checked, moved 3/16 out
212	12953 13267 14818	1 2 3 2:40-3:20	1/2, 2 2, 6, 16 2, 5, 15	0° 10'E 0° 00' 0° 05'W	1. UV Plate (black)		JLG	2-10	clouds appear wait till 6:00
213	T Par head 2116 + 520	2:40-4:00 6:20-7:10	7:40-8:10 4 1/2 min		Normal Plan		JLG	3-11	Clouds few wispy
214	W2 Cas	8:31-9:41 9:11-9:29	10m 10m 10m 10m		10 steps East 1-0 N. 1/2 W. 1/2 10 steps East 1-5 N. 1/2 W. 1/2		Km	3, 1	Found for orange
215	"						"		
216	"	9:34-9:49	10m 1m	2:43	Super Plan Prime		"		Focus moved 1/4 in
217	S 1037 β Gem γ Ori	Dec 4/5 13:53 14:04 14:13	15-20° 15-20° 20-15				Km	3-3-	Sty quite bright
218	M Gem K Gem W Cas	14:48 14:58 15:11	F-20° F-30° 5°-24°				"	"	Refocused - moved 1/16 out.
219	S Mon β Cas ε Hy	15:24 15:45 15:53	5°-20° 3°-20° F-30°				"	"	
220	24 UMi 11 LMi ε Leo	16:19 16:29 16:37	3°-15° 5°-20° 16:37				"	"	Refocused - moved 1/16 in
221	X Gem β Gem	17:31 17:46 17:18	15-15° 15-15° 15-15°				Km	1-0	Clouds
							"	"	Focus moved 1/4 in.

RS	Field	Date	Exp.	H.A. at end	Emulsion	Development	Observer	T/S
		1940						
222	BCuc "	Dec 7/8 16.107	1 ^m -F 30 ^m -"		Alpha Super Plasma Plate		Km	2 ⁺ Focus moved 1/4 in
223	HR8485 1 Lac 2 Cps	Dec 21/22 7.08 7.18 7.23	3 ^s -2 ^m 3 ^s -2 ^m 3 ^s -1 ^m		" - "		Km	2 2-1 1 ⁺ Focus moved 1/4 in for last 3 exp.
224	12953 12953 14518 14518 132C7	Jan 2/3 5.40 6.402	2.5, 15 2.5 10.15 2.6	34434 2 3 4 5	Alpha Super Plasma Plate D-11 G30 5 1/2 m 10 clocks and stop at 20 s		GT	34/ 1
225	132C7	6.420	2.0	44.15.20	1			1/1 (C)anda
226	14411 23.11.19 8.04 8.10 8.22	3 ^s -1 ^m " 3 ^s -1 ^m		Super Plasma		Km	4 14	Focus moved 3/16 in Focus moved 1/8 out
227	14411 8.36 8.42	3 ^s -1 ^m 3 ^s -1 ^m		" "		" "		Focus moved about 1/16 in Discarded
228	HD 25408	9.45	15 ^s -8 ^m		East. 1-N		" "	Focus moved out 1 turn
229	4 Cps " EE1	Jan 24/25 7.40 7.49 8.05	5 ^s -2 ^m " 5 ^s -1 ^m		Super Plasma		Km	2-3 Focus moved in 1/8, Focus moved out 1/16
230	5 EE1 " A Cam	8.17 8.23 8.53	3 ^s -1 ^m " "			" "	1 2 3	Focus Focus moved in 1/8
231	2 Tau	9.47	3 ^s -3 ^s F-30 ^s				Km	13 Focus moved in 1/8 " " "

RS	Field	Date	Exp.	H.A. at end	Emulsion	Development	observer	T/S
232	E Gem w Gem	1941 Feb 28/29 11:02 11:07 11:17	F-30 ⁵ " 5 ⁵ -1 ^m		Sugar Plasm		Km	24 Focus read 3/16 in
233	w Cnc S Mon "	11:36 11:43 11:47	5 ⁵ -2 ^m F-30 ² F-1 ^m				"	3 ^m Focus read 3/16 in
234	14076396	12:52			East. 1N		"	Focus 1 turn outside N.G.
235	π Cep y Cas	Jan 21/Feb 1 6:18 6:27	3 ⁵ -1 ^m 3 ⁵ -1 ^m		Sugar Plasm		Km	3 ₃
236	S 497 S 525	6:45 6:55	3 ⁵ -30 ³ 5 ⁵ -2 ^m				"	Re-focus read 1/8 in.
237	Vesta "	14:27 x	5 ⁵ -1 ^m 5 ⁵ -2 ^m				"	3 ₂ Focus read 3/16 in.
238	HD 79319 (RU)	- 15:19 Feb 2/3	10 ^m , 2 ^{1/2} 5 ⁵ -1 ^m 3 ⁵ -1 ^m		1N		"	Focus 1 turn outside. Trouble with clock.
239	Vesta E Leo	11:04 11:13	5 ⁵ -1 ^m 3 ⁵ -1 ^m		Sugar Plasm		Km	3 ₂
240	HD 79319	11:53 11:59			East 1C			
241	HD 25408	Feb. 19/24 8:15	4 ^m -2 ^{1/2} 2 ^{1/2} 30 ⁵ , 22 ⁵ , 15 ⁵ , 7 ⁵		" "		Km	3 ₃ 1 turn outside focus
242	HD 30443	8:55 $\pm$ 9:06	8 ^m -15 ⁵ 5 ^m -20 ⁵	2:42	Trained		"	"
243	TU Gem	Feb 25/26 9:35 $\pm$	9 ^m -15 ⁵ 2:00	2:00	East. 1-C		Km	3/8 outside focus

RS	Field	Date	Exp.	H.A. at end	Emulsion	Development	Observer	T/S
244	HD 60826	Feb 25/66 11.07 ³	16" 8" 2 1/2 15"	2.12	East 1-U		Km	2 ⁺ 1/2 turn outside focus.
245	S 3131	11.44	2" - 18"	0.06	"		"	2" Skybed "
246	W CM 2	Feb 23/1970 9.33	4" - 7.5"	1.09	East 1-U 221		Km	3 5/8 turn out
247	"	9.50	4.2, 1.30, 2.15, 7.5"	1.26	East. Super Panchar. Perm		"	3/8 " "
248	1-D. 60826	10.55 11.05	8" - 7.5"	2.13	"		"	1/2 turn out
249	HD 59643 X enc	11.30 11.45	4" - 7.5" + 2" - 7.4" + 2" - 7.4" + 2" - 7.4"	"	"		"	"
250	HD 76846	12.42	4" - 7.5"	2.27	"		"	7/16 turn out. Strong curvature.
251	HD 92839	Mar 4/5 13.58	80° - 55° 85° tilted	2.14	E. Super Panchar. Perm		Km	3 7/16 turn out.
252	SS Vir	14.26	4" - 7.5"	1.62	"		"	"
253	RY Dra	15.10	2" - 40" - 2.8"	1.14	"		"	" Refocused.
254	HD 112869	15.49 Mar 24/55	8" - 7.5"	1.119	"		"	"
255	HD 60826	8.57	9.54	5" - 5.7"	"		Km	4 3 1/8 turn out. 5" each.
256	U Hya	10.21	10.116	2" - 2.5"	"		"	1/4 " " Refocused. 2" each.
257	HD 59643	Apr 22/55 8.25	6" - 12"	3.10	Panchar. no ...	D-72, 66°, 2 1/2"	Km	3 1/8 turn out
258	HD 76396	9.05	1" - 3" - 24"	2.32	"		"	3
259	E Vir	9.45	F-15 ⁵	"	"		"	Refocused used 1/8 in " 1/4 out.

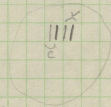
RS	Field	Date	Exp.	H.A. at end	Emulsion	Development	observer	T/S	
260	X Cnc	1941 April 25/26 8:08 8:26	30" 2 1/2 24"		East, Sugar Plover, Palm		Kn	3-	Focus not 1/8 out
261	SA 32 α -12 ^h 53 ^m S = +14° 37'	9:43	1401 ^m		"		"	"	Re-focused.
262	1 Drac	July 14/15 9:26 9:31 9:42	F-20" F-1" F-1"		Sugar Plover Palm		Kn, PR	3-	Focus moved 1/8 out
263	(Drac	July 16/17 9:00	52-30S 15"		"		Kn, PR	3-0	Clouds - Focus moved 1/8 out <i>NG</i>
264	(Drac	July 23/24 9:10 9:15 9:18	F-1" 52-1" 52-1"		"		Kn, PR	2	Focus moved 3/16 out
265	(Drac E Umi "	9:54 10:10 10:13	52-30S 52-1" "	1.32	"		"	2 2-	Focus moved 1/8 in
266	O Her " "	10:29 10:33 10:41	F-1" F-1" "	1:00	"		"	" "	Discarded FD
267	E Umi " B Her	July 28/25 11:03 11:05 11:12			"		Kn, PR.	2+	Focus moved out 1/8 "
268	O Her 3:42 "	11:28 11:43 11:48			"		"	"	Focus moved in 1/8 Re-focused Focus moved out 1/8
269	9 Peg " "	12:10 12:14 12:18		1:05	"		"	"	Re-focused. Focus moved out 1/8 "

Discarded

RS	Field	Date	Exp.	H.A. at end	Emulsion	Development	observer	T/S
		1941						
270	i. Rm	July 26/27					PR	3
	"	10:00	F-1 ^m		Sugar plane press			
	EUMW	10:08		3 1/10 ^m				Focus moved out 1/2
		10:21	"	1 1/55 ^m				" " in 1/16
271	EUMi	10:30	"	2.05				" " out 1/16
	O Her	10:40						" " in 1/16
	"	10:47	F-2 ^m	1:19				" " out 1/16
272	UWD-2	July 27/28						
		10:36	2 ^m	1:41	E. Sugar	0.72, 68°, 2 1/2 ^m		
		11:01	10 ^m		Pavetta Press		Kn	
273	31 Ag		5 ² -2 ^m					
		11:45	F-1 ^m					Focus moved out 1/8
		Aug 13/14						
274	EUMi	9:29	F-1 ^m		E.S. sugar plane press		Kn/PR	
	"	9:33	"	2:17W				Focus moved out 1/8
	O Her	9:40	"					" " in 1/8
275	O Her	9:49	F-1 ^m	1:32			"	Focus moved out 1/8
	9 Dec	10:11	"					Refocused
	" O	10:15	"	1:48				Focus moved out 1/8
276	UWD-2	Aug 15/16					Kn	
		8:25	2 ^m		Alpha Sugar Pan Press			
		8:32	5 ^m					
		8:48	8 ^m	0:38				Focus moved out 1/8
277	O Her	Aug 19/20						
		8:32	F-1 ^m		Sugar Plain Press		Kn	
		8:47	"		E. Sugar Pavetta Press	0.72, 68°, 2 3/4 ^m	"	Calibration: 3gg, 7 thick blue and thin blue, 8°, 20°
278	V Set	9:42	4g ^m					
		10:12	5 ^m	1:39				
279	R Lyr	9:23	5 ² -5 ^m		Sugar Plain Press		Kn	
		9:35	F-1 ^m					Focus moved out 3/16
		Sept 14/15						

RS	Field	Date	Exp.	H.A. at end	Emulsion	Development	Observer	T/S
280	d Hei	1941 Sept. 16/17 7:16 7:21	F-2 ^m F-1 ^m		Sugar Plain Print		Km	3 3
281	d Hei " Rly	7:29 7:33 7:42	F-1 ^m F-1 ^m	2:11 0:57	Agfa Super Pan Print	D-72, 68", 3m	"	"
282	3 S 6473	Sept 17/18 7:51 8:30	5 ^m 61 ^m	W 0:05	Plena		"	3+ 3
283	"	9:10	6 ^m	0:16	Sugar Pan		"	
284	571A "	9:51 10:24	5 ^m 58 ^m		Plena			
285	"	11:07	5 ^m	1:10	Sugar Pan			
286	S 6473	Sept. 21/22 7:54	38 ^m	0:25	Plena			2+ 3
287	S 5968	8:51	30° 8 ^m 15°	1:38	"			1 Focus moved 3/16 out
288	O Peg. C C P	Oct. 22/24 7:26 7:38	5-24 ^m F-1 ^m	0:55 0:17	Sugar Plain Print	D-72, 70", 3m	Km	3 3
289	HR 8752 56 Peg Y Peg	8:33 9:05	F-2 ^m F-1 ^m F-2 ^m	0:06 0:49	"		Km, Rk	
290	u Peg " g "	9:46 9:50 9:56	F-30° F-1 ^m F-30°		"			Focus moved 1/8 in Refocused Focus moved out 1/8 " " in 1/8
291	C Cep "	10:08 10:15	F-30° F-30°	1/43	"			Focus moved out 1/16
292	28 Tau (P13ione)	10:36	1 ^m	2:53	"		Km	

RS	Field	Date	Exp.	H.A. at end	Emulsion	Development	Observer	T/S
293	M Cas	1941 Oct 27/65			East Center Trans.		Mg	3 2
294	M Cep 36 Lac	9.00 9.15	P-2" P-1"	W 1.14	plano.		K	
295	RR Lyræ	1946 July 20 8 ^h 10 ^h 10 ^h	f 1/2 in C 1/2 out	0.05 ^W	1033-0		hi	3 3
296	RR Lyr compens * 0.40	July 29 0.23 0.40	12 ^h 10 ^h	1.45 ^W			"	3 2
297	RR Lyr comp *	July 29 1.25-1.55	12 ^h	3.00 ^W			"	
298	RR Lyr + comp	July 7.10-200	5 ^h 25 ^s 3 ^h 15 ^s					



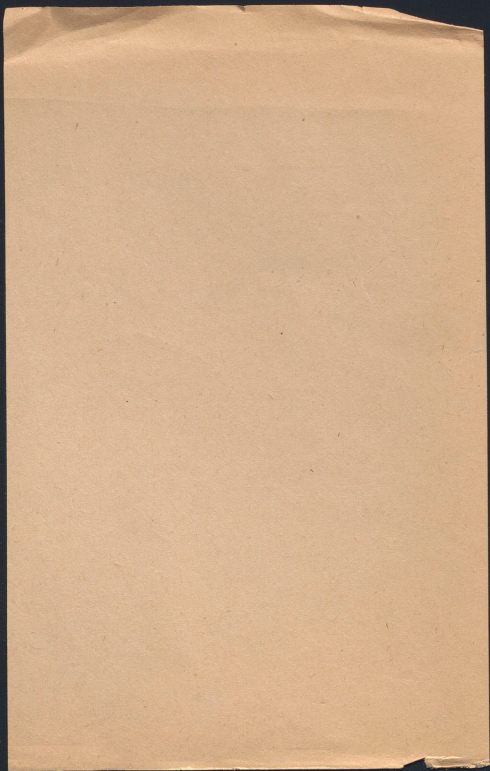
γ Lyr

18 55

+32 33

$m = 3.3$, 40 p

- | | | | |
|---|--------------------|------|------|
| 1 | Knife-edge setting | 80° | 1x1° |
| 2 | 1/4 in | 90° | 1x1 |
| 3 | 1/2 in | 140° | 1x1 |
-



RS

Field

Date

Exp.

H.A.
at end

Emulsion

Development

observer

T/S

RS

Field

Date

Exp.

H.A.
at end

Emulsion

Development

observer

T/S

R S

Field

Date

Exp.

H.A.
at end

Emulsion

Development

observer

T/S

R S

Field

Date

Exp.

H.A.
at end

Emulsion

Development

observer

T/S

RS

Field

Date

Exp.

H.A.
at end

Emulsion

Development

observer

T/S

R S

Field

Date

Exp.

H.A.
at end

Emulsion

Development

observer

T/S

R S

Field

Date

Exp.

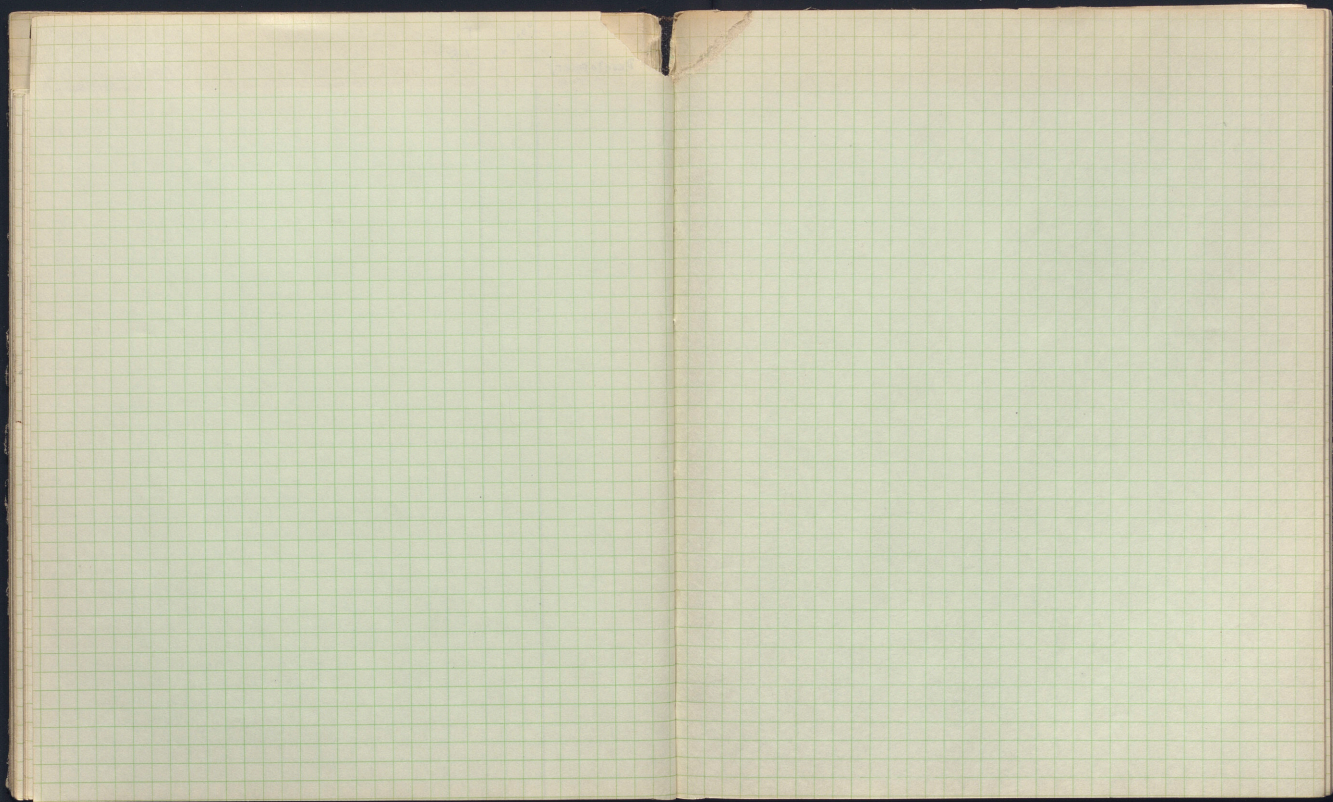
H.A.
at end

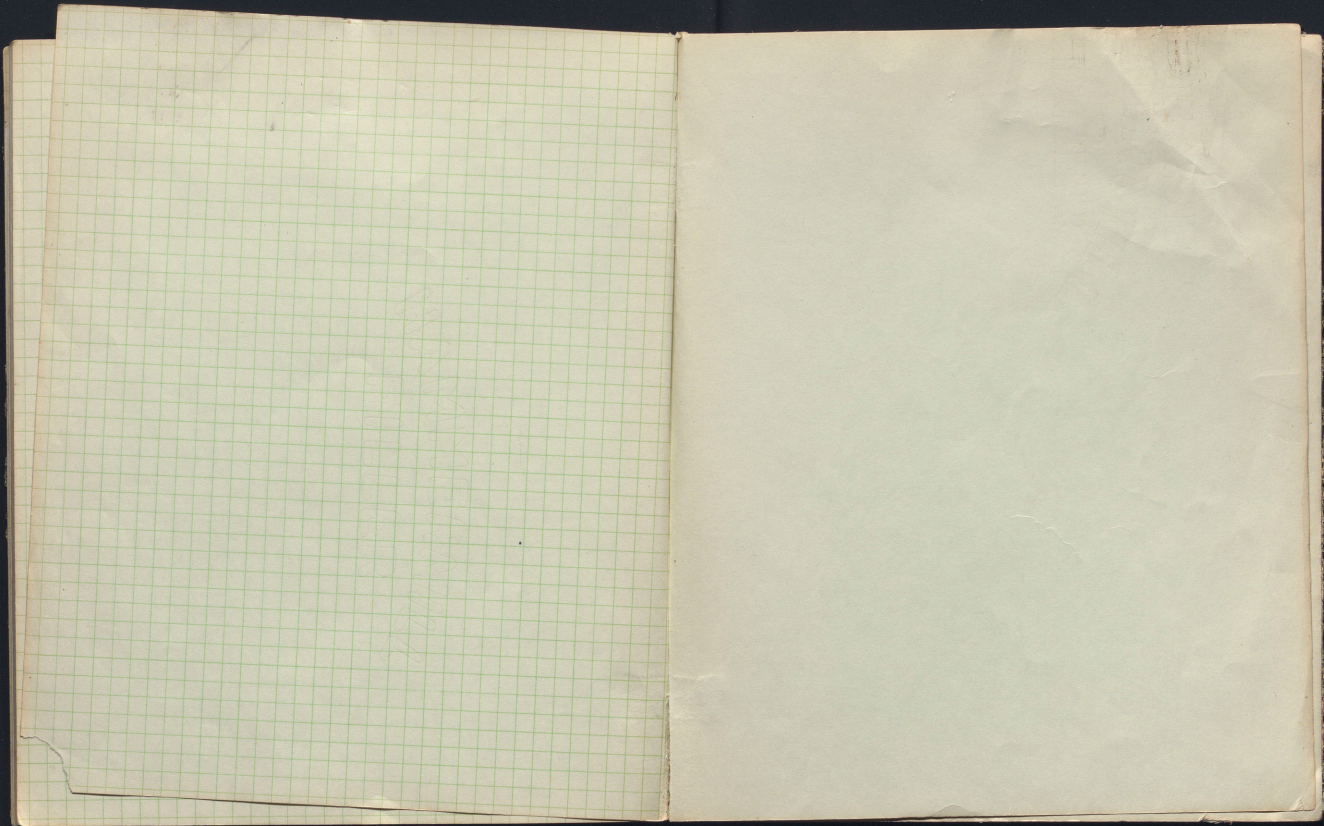
Emulsion

Development

Observer

T/S





Standard Stars - Slitless Spectrograph

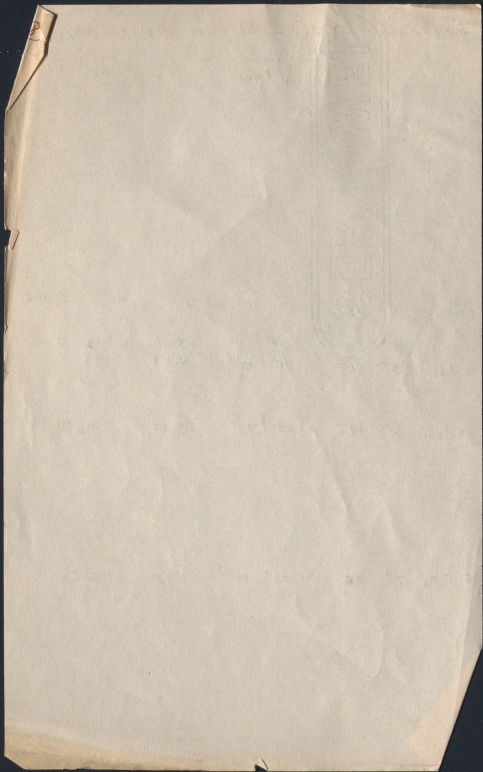
$\alpha 1940$

$\delta 1940$

m v

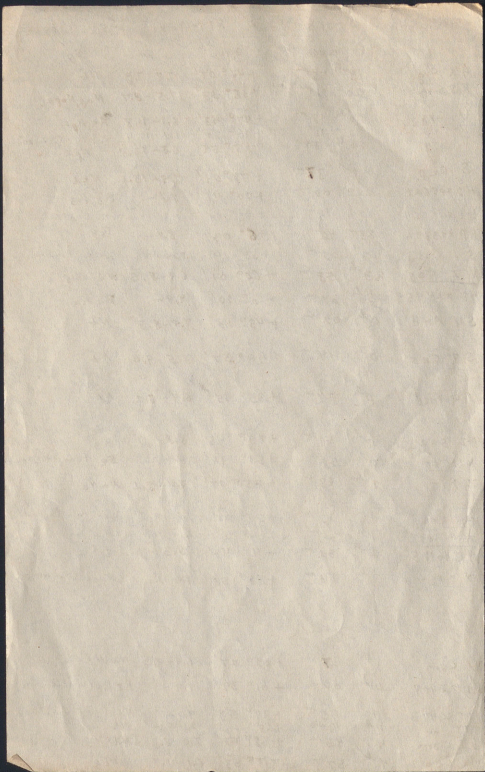
sg.

S 1747	5 ^h 28 ^m	-3° 40'	8.08	M3 V (standards)
α Ori	5 ^h 52 ^m	+7° 24'	0.5-1.1	M2 I
π Aul	5 ^h 56 ^m	+45° 56'	4.59	M3
μ Gem	6 ^h 19 ^m	+22° 33'	3.19	M3 III
δ CMa	7 ^h 08 ^m	-26° 18'	1.98	F8 Ia



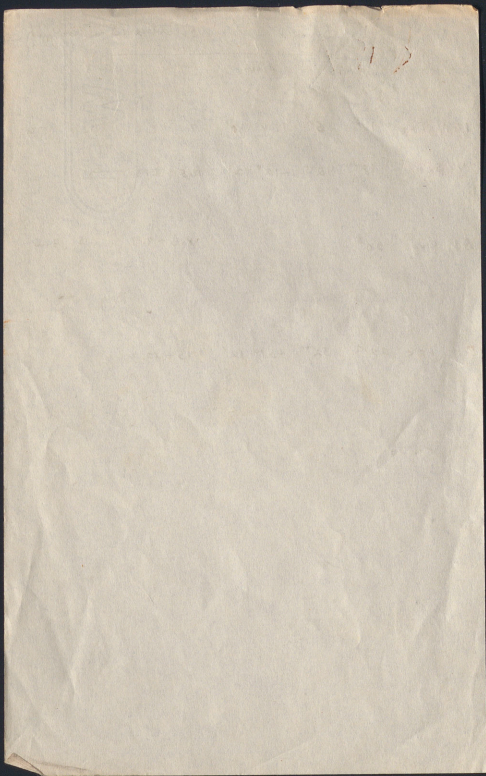
Cyanogen Stars for Slitless Spectrograph

	$\lambda 1940$	$\delta 1940$	m.v.	Sp
AX Cyg	19 ^h 55 ^m	+44° 07'	7.4-7.9	Nb
RS Cyg	20 ^h 11 ^m	+38° 33'	7.5-8.7	Na ₀ , N ₀ pe.
U Cyg	20 ^h 18 ^m	+47° 43'	6.1-11.8	R ₉ , N ₀ pe
R Sge	20 ^h 11 ^m	+16° 32'	8.6-10.4	c & T _v (KVT ₂₀ ?)
V Cyg	20 ^h 39 ^m	+47° 56'	6.8-13.8	N ₀ pe
S Cep	21 ^h 38 ^m	+78° 21'	7.9-13.1	N ₀ pe
HD 209621	22° 02 ^m	+20° 46'	8.8-	R ₃ R ₃
HD 211564	22^h 14^m	+55° 19'	11.07	O_c [Wolf-Rayet]
HD 223392	23 ^h 46 ^m	+6° 03'	8.8-	R ₃
SW Cas	23 ^h 05 ^m	+58° 14'	10.24-11.49	G ₀ -K ₀ (Cygnus)
WZ Cas	23 ^h 58 ^m	+60° 01'	6.9-8.5	Na N ₀ pe
HD 224959	23 ^h 57 ^m	-3° 10'	9.9-	R ₀ R ₀
SU And	0 ^h 02 ^m	+43° 13'	7.9-8.5	Nb
ST Cas	0 ^h 14 ^m	+49° 57'	7.5-9.0	Nb
AQ And	0 ^h 24 ^m	+35° 15'	6.9-8.2	Nb
HD 5223	0 ^h 51 ^m	+23° 45'	8.8-	R ₃
W Cas	0 ^h 51 ^m	+58° 14'	8.4-12.2	Se (min. 1941, Jan)
Z Pis	1 ^h 13 ^m	+25° 27'	7.4-8.1	Na N ₀
RW Cas	1 ^h 33 ^m	+57° 27'	8.82-9.8	G ₂ -m (Cygnus)
WW Cas	1 ^h 30 ^m	+57° 26'	9.1-11.7	(N ₁)
HD 16115	2 ^h 32 ^m	-9° 43'	8.3-	R ₃ R ₃
X Cas	1 ^h 53 ^m	+58° 58'	8.4-13.1	(N ₁ , 2) (min 1941, Jan)
U Cam	3 ^h 38 ^m	+62° 27'	6.9-9.0	N ₄ N ₅
HD 25408	4 ^h 01 ^m	+61° 39'	7.9-	R ₈ R ₈ (Witt-blue)
HD 30443	4 ^h 45 ^m	+34° 53'	9.0-	N ₆ (Witt - very blue)
TT Tau	4 ^h 49 ^m	+28° 25'	8.1-8.8	N ₆ N ₃
ST Cam	4 ^h 45 ^m	+68° 03'	7.0-8.3	N ₄ N ₅
R Lep	4 ^h 57 ^m	-14° 53'	6.1-9.7	N ₆ pe



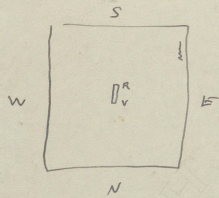
Variable Stars for Slitless Spectrograph.

	$\alpha 1940$	$\delta 1940$	m_v	S_B
<u>UW Dra</u>	17 ^h 56 ^m	+54° 40'	7.0 - 8.0	K5p 9mag.
<u>V Ser</u>	18 ^h 45 ^m	-12° 12'	9.5 - 11.3	?
AD Cyg.	20 ^h		8.3 - 9.9	S 9mag.
BH Lac	22 ^h 32 ^m	+51° 12'	10.5 - 12.3	

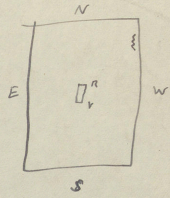


Scale: $426 \text{ \AA/mm}$ between H_β and H_ϵ

Orientation of Plates
(Film Side Down)



Telescope W



Telescope E

1523
1374

Turning lens in ~~waves~~ focus out and shifts focus
towards violet

$\therefore$ Plate is outside visual focus when violet
is in best focus.

