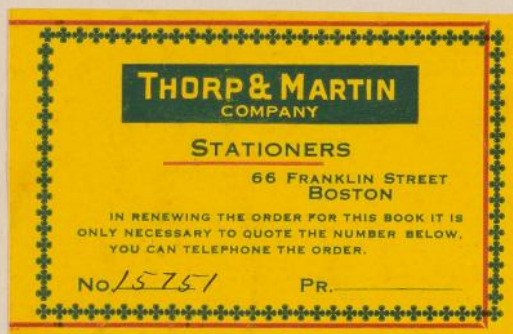


KG
11365
690

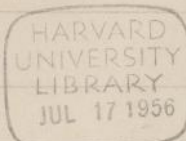
KG 11365-6900



Carol Jane Anger

KG 11365.69D

mel 15	186
NGC 2422	147
NGC 2548	149
NGC 457	152
NGC 1039	153
Prosepe	158
NGC 2437	159
h and χ Persei	160
Examination of Short X Spectra	170, 171
Observations of Bright line stars in dr224	173
NGC 2301	183
NGC 6633	185
NGC 1647	186
IC 4725 sp.	188
" mag	191
NGC 2301 mag	193
M7	197
M6	201
NGC 6416	204
H18	206
NGC 6322	208
H12	209
623'	216
6242	219



Contents

NGC 2281 magnitudes	5
2264 "	10
2422 "	19
Sco-Cen, Orion	30 ff
γ Carinae	
Bok's 110 stars	48
X Pleides	60, 65, 76, 77, 83, 84
MF "	66 ff
Perseus	78
Pleides, C and MF	82, 85, 88
M7	86
M6	87
Pleides, means of MF	89
M7 " " "	91
Magnitudes in γ Car. not measured by Bok	94
1932-33 Schilt maps for M39	100
K Crucis	104
θ Carinae	104
Wilson - Taurus Group	106
Comparison of E O + C O A scales	108
Examination of MC Spectra	115
NGC 3114 (MF)	117
Pleides, MC	123
NGC 2244	125, 130, 135, 168
Emission line stars in direction of 2244	127
NGC 2323	132
NGC 7243	136
2168	142, 156
1912	143, 157
663	145

Variables in Clusters (Hertzsprung)

CPD -58 3066 8.7 = H.D. 96368 8.9
 Algol type 4.29480 in 3532

CPD -60° 3723 9.2 in NGC 4103
 p Syrae type 1.417722

CPD -58° 2404 8.7 = H.D. 92174 B9
 η Car. p Syrae (± 0.3) +1.53556

CPD -60° 2965 8.6 = H.D. 99769 B8
 Algol +3.48916

CPD -57° 5375 8.4 = H.D. 106871 B₀
 Algol +1.706750

CPD -61° 2574 9.5 Algol
 +1.843376

CPD -62° 2575 8.8 = H.D. 105055 B8
 Algol 1.86216

Also Klein-Wassink 552, a member of Praesepe,
 is an eclipsing variable - S Cancri

SS Lac in 7209 A-type eclipsing

2 ^a	33	32	33	32
4 ^a	37	36	37	36
5 ^a	34	34	34	34
6 ^a	39	39	39	39
7 ^a	38	38	38	38
7 ^a	40	40	40	40
8 ^a	44	44	44	44
9 ^a	47	47	47	47
9 ^a	50	50	47.5	47.5
10 ^a	53	51	53	51.5
10 ^a	55	54	53	51.5
11 ^a	54	54	54	54
11 ^a	56	56	54	54
12 ^a	58	56	56	53.5
13 ^a	60	59	58	57
14 ^a	62	60	60	58.5
15 ^a	62	61	62.5	61
16 ^a	67	66	67	65.5
17 ^a	67	66	65	65.5
18 ^a	67	67	65	65.5
18 ^a	69	68	67	-
19 ^a	70	70	-	68
20 ^a	-	-	-	-
21 ^a	73	74	71	72
22 ^a	-	-	-	-
23 ^a	-	-	-	-

									Mean	MP 10022
1504	1	48	51	48.5	932	932	948	913	9.31	40 50 50
not in	2	62	64	62	1067	1032	1070	1041	10.52	68 90 90
1506	3	58	60	58	1028	1004	998	996	10.06	40 75 70
1507	4	56	58	56	1008	1026	998	996	10.07	40 75 80
1508	5	58	59	57.5	1022	1010	1003	1007	10.10	40 75 65
1509	6	65	66	64.5	1086	1048	1027	1041	10.50	40
increased not in	7	66	68	66	1100	1086	1086	1117	10.95	-

Variables in Clusters (Herzsprung)

CPD -58° 3066 8.7 = H.D. 96368 8.9
 Algol type 4.29480 in 3532

CPD -60° 3723 9.2 in NGC 4103
 p Lyrae type 1.417722

CPD -58° 2404 8.7 = H.D. 92174 B9
 Car. p Lyrae (± 3) +1.53556

CPD -60° 2965 8.6 = H.D. 99769 B8
 Algol +3.48916

CPD -57° 5375 8.4 = H.D. 106871 B₀
 Algol +1.706750

CPD -61° 2574 9.5 Algol
 +1.843376

CPD -62° 2575 8.8 = H.D. 105055 B8
 Algol 1.86216

Also Klein-Wassink 552, a member of Praesepe
 is an eclipsing variable - S. Cauchi

SS Lac in 7209 A-type eclipsing

2 ^a	33	32	33	32
4 ^a	37	36	37	36
5 ^a	34	34	34	34
6 ^a	39	39	39	39
7 ^a	38	38	38	38
7 ^a	40	40	40	40
8 ^a	44	44	44	44
9 ^a	47	47		
9 ^a	50	50	475	475
10 ^a	53	51		
10 ^a	55	54	53	515
11 ^a	54	54		
11 ^a	56	56	54	54
12 ^a	56	53		
12 ^a	58	56	56	535
13 ^a	58	57		
13 ^a	60	59	58	57
14 ^a	60	59		
14 ^a	62	60	60	585
15 ^a	62	61		
15 ^a	65	63	625	61
16 ^a	67	66		
16 ^a	69	67	67	655
17 ^a	65	66		
17 ^a	67	67	65	655
18 ^a	67	-		
18 ^a	69	-	67	-
19 ^a	68	70	-	68
20 ^a	-	-	-	-
21 ^a	73	74	71	72
22 ^a				
23 ^a				

										Mean	MP 10022
+41	1504	1	48	51	485	932	932	948	913	9.31✓	40 50 50
not in		2	62	64	62	1067	1032	1070	1041	10.52✓	68 90 90
1506		3	58	60	58	1028	1004	998	996	10.06✓	40 75 70
15087		4	56	58	56	1008	1026	998	996	10.07✓	40 75 80
1508		5	58	59	575	1022	1010	1003	1007	10.10✓	40 75 65
1509		6	65	66	645	1086	1048	1027	1041	10.50✓	43
not measured											
not in		7	66	68	66	1100	1086	1086	1117	10.95✓	-

1515	8	60	62	60	1048	1057	1020	1062	10.47	A5	
not in	9	61	63	61	1057	1046	1053	1041	10.49	A2?	
15182	10	51	54	515	961	950	960	933	9.51	B2	35.00
15184	11	39	-	39	830 812	812	822	828	8.23	B2	44.40
1516	12	43	-	43	874	862	870	899	8.71	B2	56 60
1518	13	62	64	62	1066	1037	1049	1041	10.48	A2	
1519	14	57	59	59	1018	1022	993	1017	10.12	A0	74:
1520	15	54	56	54	988	1010	980	996	9.91	A0	50: 50
1522	16	42	-	42	862	832	870	853	8.54	A1	
^{not in} 1523	17	61	64	615	1062	1043	1049	1072	10.56	A2	
not in	18	59	60	585	1033	1043	1038	1041	10.39	A0	80 70
1532	not? 19	41	-	41	852	832	870	842	8.49	A0	62 62

All ~~are~~ early are members except 19 (?)

I 50308

Scale 2 Dec. 30

7

2	34	35	34	35
4	38	37	38	37
5	35	34	35	34
6	39	39	39	39
7	42	41	42	41
7a	42	41	42	41
8	44	44	44	44
9	45	45	45	45
10	50	50	50	50
	52	51	52	51
11	54	53	52	51
	55	54	55	54
12	57	56	55	54
	55	55	55	55
13	58	57	58	57
	58	58	58	57
14	60	59	58	57
	60	60	60	60
15	62	62	60	60
	62	62	62	62
16	65	65	62	62
	60	61	60	61
17	63	63	60	61
	61	62	61	62
18	64	65	61	62
	64	64	63	64
19	66	66	63	64
	67	67	67	67
21	69	69	67	67

1	47	-	47	932
2	56	58	56	1032
3	53	58	53	1004
4	55	58	55	1026
5	54	56	54	1010
6	58	59	57	1048
7	61	63	61	1086
8	59	60	58	1057
9	57	59	57	1046
10	48	51	48	950

2000	39	-	39	812
11	42	-	42	862
12	50	58	56	1037
13	55	57	55	1022
14	54	56	54	1010
15	40	-	40	832
16	57	59	57	1043
17	57	59	57	1043
18	40	-	40	832
19				

ISO263 Scale Dec. 30

2:	29	30	29	30
4	36	36	36	36
5	34	35	34	35
6	36	37	36	37
7:	35	36	35	36
7a	39	39	39	39
8	41	44	41	44
9	41	43	41	43
	48	49		
10	50	52	48	49.5
	49	50		
11	51	53	49	50.5
	49	52		
12	51	53	49	51.5
	53	54		
13	55	56	53	54
	54	55		
14	57	57	54.5	55
	57	57		
15	59	59	57	57
	59	58		
16	61	61	59	58.5
	59	59		
17	60	61	59	59
	59	60		
18	60	61	58.5	59.5
	63	62		
19	66	65	63.5	62.5
	66	65		
21	68	68	66	65.5

1	465	-	465	948
2	57	59	57	1070
3	50	53	50.5	998
4	50	53	50.5	998
5	51	53	51	1003
6	53	55	53	1027
7	59	60	58.5	1086
8	52	55	52.5	1020
9	56	57	55.5	1053
10	48	49	47.5	960

11	37	-	37	822
12	40	-	40	870
13	55	57	55	1049
14	50	52	50	993
15	49	51	49	980
16	40	-	40	870
17	55	57	55	1049
18	54	56	54	1038
19	40	-	40	870

I 50590 April 7, 1932 Scale B

9

2:	30	30
4	34	35
5	35	36
6	37	37
7:	38	39
7 ^a	40	40
8	43	45
9	45	46
10	53	54
11	58	55
12	53	54
13	56	57
14	58	58
15	61	60
16	64	64
17	61	61
18	62	62
19	66	66
21	74	74

1	46	913
2	58	1041
3	54	996
4	54	996
5	55	1007
6	58	1041
7	65	1117
8	60	1062
9	58	1041
10	48	933

11	39	828
12	43	879
13	58	1041
14	56	1017
15	54	996
16	41	853
17	61	1072
18	58	1041
19	40	842

NGC 2264 I 50225 Scale 7 Dec. 30

RV

classifications
mean $\angle 180^\circ$

Mean \rightarrow Mean

MF 89Q1

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RV S Mon 0.5

Mean

RV
+33

+9	1331 B8	18 ^a	355	—	355	794	833	750	773	7.88	B 8	30
+9	1332 B9	20 ^a	375	—	375	820	890	845	836	8.48	B	46
+10	1215 B9	22 ^c	40	—	40	853	878	845	836	8.53	A0	50
+10	1218 FP 10.4	23 ^b	61	64	615	1081	1067	1057	1062	10.67	—	
+9	1334 B2	24 ^a	33	—	33	753	819	750	773	7.74	A0	30
+9	1335 B8 9.0	25 ^a	42	—	42	878	900	903	850	8.86	A0	60
+9	1337 B5 9.7	26 ^b	50	52	50	966	977	961	969	9.68	A0	65
+9	not in A0 10.2	27 ^a	60	63	605	1071	1074	1053	1053	10.50	A0?	80
+9	1336 A0 10.0	28 ^a	55	56	545	1010	1006	978	1023	10.04	A1	
+9	1338 A0 9.2	29 ^a	44	—	44	902	927	909	945	9.21	A1	
+10	1219	30 ^a	40	—	40	853	878	860	850	8.60	A0	55
+9	1339 B8 9.7	31 ^a	55	57	55	1016	1031	982	1000	10.07	A0	74
+9	1343 A0 10.9	33 ^b	54	56	54	1004	1026	978	1012	10.05	A0	60
+9	1341 B9 9.0	35 ^b	43	—	43	891	913	860	877	8.85	A0	—
+9	1342 B5 9.6	36 ^b	54	56	54	1004	1005	978	1085	9.92	A0	—
+9	not in	37 ^a	66	68	66	1123	1097	1078	980	10.96	A1?	—
+9	1344 B3	38 ^b	43	—	43	87	87	—	—	8.7	A3?	—
+9	1347 F0 9.4	39 ^b	53	54	525	990	989	982	990	9.88	A0	70
+9	1346 B5 9.0	40 ^a	44	—	44	902	900	873	918	8.98	A0	60
+9	not in 12 9.8	41 ^c	56	58	56	1026	1026	987	1012	10.13	A0	80
+9	1348 B3 8.6	42 ^c	43	—	43	891	926	860	877	8.88	A0	50
+9	1352 F8 9.6	45 ^b	56	57	555	1021	1016	978	990	10.01	late	
+9	1357	46 ^c	53	55	53	995	1016	962	980	9.88	late	
+10	1225 B8 9.4	47 ^b	53	55	53	995	997	997	990	9.95	A0	66
+10	1226 G5 9.2	48 ^c	50	52	50	966	977	966	968	9.69	late	
+10	1221 A0	49 ^c	39	—	39	840	863	809	836	8.37	A0	40
+10	1223 B9 9.2	50 ^a	43	—	43	891	877	860	905	8.83	—	
+9	1349 B9	54 ^a	39	—	39	840	877	826	850	8.48	A0	60
+9	1350 B5	55 ^a	30	—	30	7.2	7.2	8.7	7.0	7.0	A0	<30
+9	1351 A2 9.3	56 ^a	47	49	47	936	938	898	930	9.26	A0	68
+10	1220	57 ^a	—	—	—	—	—	—	—	—	—	

+19

+27

												Mean		
+9	1353	A2	9.5	57 ^a	52	53	515	981	993	992	1033	1000✓	A0	77
+9	1355	A0	9.2	58 ^a	49	51	49	956	956	956	957	956✓	A0	70
+10	1230	A0	9.6	59 ^b	50	52	50	966	989	978	968	975✓	A0	70
+9	1356	B9 F5		61 ^b	395	-	395	846	900	873	861	870✓	A0	42
+9	1359	A2	9.5	63 ^c	53	55	53	995	972	972	957	974✓	A0	70
+10	1238	F0	9.3	64 ^c	57	59	57	1036	993	1007	1023	1015✓	A5	
+10	1239													
+9	1359	F0	9.6	65 ^c	55	56	545	1010	1002	1022	1000	1008✓	A0??	
+10	1240	A0		66 ^c	41	-	41	865	890	909	891	889✓	A0	50
+9	1364	F0	10.0	67	58	59	575	1031	1026	1032	1023	1028✓	A2	
+9	1367	F8	10.6	68	60	61	595	1060	1070	1052	1053	1059✓	-	

All early types are members except as indicated

2	32	31		
3	31	31		
4	33	34		
4a	37	31		
5	40	39		
6	37	37		
7	39	39		
8	43	42		
9	46	45		
	48	50		
9a	51	52	485	50
	53	53		
10	55	55	53	53
	55	53		
11	57	55	55	53
	54	54		
12	56	56	54	54
	57	57		
13	60	59	575	57
	61	61		
14	63	63	61	61
	63	63		
15	65	65	63	63
	68	68		
17	70	71	68	685

1	49	51	49	977	18	37	—	37	833
2	50	53	505	983	20	41	—	41	890
3	40	—	40	878	22	40	—	40	878
4	50	53	505	983	23	58	60	58	1067
5	33	—	33	765	24	36	—	36	819
8	375	—	375	841	25	42	—	42	900
9	39	—	39	863	26	49	51	49	977
10	59	62	595	1080	27	59	60	585	1021
12	54	56	54	1026	28	52	54	52	1006
14	40	—	40	877	29	44	—	44	927
16	58	60	58	1067	30	40	—	40	878
17	46	—	46	948	31	55	56	545	1031

33	53	55	53	1026
35	43	-	43	913
36	52	54	52	1005
37	61	63	61	997
38	63		63	97
39	57	52	50	989
40	42	-	42	900
41	55	55	54	1026
42	44	-	44	926
45	53	55	53	1016
46	53	55	53	1016
47	51	53	51	997
48	49	57	49	977
49	39	-	39	863
51	40:	-	40:	877
54	40	-	40	877
55	31	-	31	772
56	45	-	45	938
57	50	53	505	993
58	47	-	47	956
59	50	52	50	989
61	42	-	42	900
63	49	50	485	972
64	50	53	505	993
65	51	54	515	1002
66	41	-	41	890
67	54	56	54	1026
68	59	60	585	1070

I 50309

Scale 2 ~~Dec 3~~ Jan. 2, 1932 15

2	31	32		
3	34	34		
4	36	36		
4a	38	38		
5	40	39		
6	38	37		
7	40	40		
8	44	43		
9	47	46	465	455
9a	50	49	505	49
10	53	52	55	54
11	53	53	54	54
12	55	54	545	54
13	60	60	58	58
14	61	61	61	61
15	64	64	64	64
17	72	71	76	74

1	49	51	49	967	18	34	-	34	750
2	46	49	465	940	20	39	-	39	845
3	38	-	38	827	22	39	-	39	845
4	50	52	50	978	23	58	60	58	1057
5	33	-	33	73	24	34	-	34	750
8	38	-	38	827	25	43	-	43	903
9	38	-	38	827	26	49	50	485	961
10	60	61	595	1073	27	58	59	575	1053
12	54	57	545	1022	28	50	52	50	978
14	40	-	40	860	29	44	-	44	909
16	58	60	58	1057	30	40	-	40	860
17	44	-	44	909	31	50	53	505	982

33	50	52	50	978
35	40	-	40	860
36	50	52	50	978
37	60	62	60	1078
38	5		-	-
39	50	53	50.5	982
40	41	-	41	873
41	51	53	51	987
42	40	-	40	860
45	50	52	50	978
46	48	51	48.5	962
47	52	54	52	997
48	49	51	49	966
49	37	-	37	809
51	40	-	40	860
54	38	-	38	826
55	30	-	30	87
56	43	-	43	898
57	51	54	51.5	992
58	48	50	48	956
59	50	52	50	978
61	41	-	41	873
63	50	57	49.5	972
64	53	55	53	1007
65	55	56	54.5	1022
66	44	-	44	909
67	56	57	55.5	1032
68	57	60	57.5	1052

I 50589 April 8 Scale 2

17

	30'	30"
2	33	34
3	33	34
4	36	37
4a	38	38
5	40	41
6	40	40
7	43	42
8	46	40
9	49	49
9a	49	49
10	53	53
11	54	55
12	55	56
13	59	59
14	62	62
15	67	61
17	70	69

1	53	1000
2	50	969
3	41	850
4	51	980
5	36	773
8	39	820
9	40	836
10	60	1073
12	55	1023
14	40	836
16	61	1084
17	46	918

18	36	773
20	40	836
22	40	836
23	59	1062
24	36	773
25	43	877
25	41	850
26	50	969
27	58	1053
28	55	1023
29	48	945
30	41	850
31	58	1000

33	54	1012
35	43	877
36	61	1085
37	51	980
38	301	—
39	52	990
40	46	918
41	54	1012
42	43	877
45	52	990
46	51	980
47	52	990
48	50	968
49	40	836
51	45	905
54	41	850
55	32	710
56	47	930
57	56	1033
58	49	957
59	50	968
61	42	861
63	49	957
64	55	1023
65	53	1000
66	44	891
67	55	1023
68	58	1053

NGC 2422 I 50246
Images very poor

Jan. 2

Scale ~~7.5~~ 19
fuzzy

708	1	52 60	60	60	60
745	2	—	—	—	—
760	3	67	68	67	68
774	4	64 65	63 66	645	645
815	5	69	69	69	69
854	6	73 71	73 71	72	72
856	7	71	71	etc.	
891	8	72	71		
850	9	70	70		
906	10	74	74		
932	11	75	75		
969	12				
961	13	77	76		
1013	14	79	80		
1032	15	82	82		
1008	16	82	81		

a	63	741
b	77	962
c	66	790
d	69	837
e	81	1027
f	78	980
g	76	947
h	76	947
m	69	836
n	68	820
2	75	933
3	77	962
4	72	883
5	77	962

7	79	996
8	79	996
11	76	947
12	65	774
14	77	962
15	75	933
18	80	1012
19	74	914
20	73	899
21	70	853
22	66	790
23	71	868
24	73	899
25	77	962

26	63	741
27	71	868
28	68	820
29	80	1012
30	77	962
31	71	868
33	79	996
34	61	710
35	79	996
36	76	947
37	65	774
38	77	962
39	79	996
41	-	-
43	76	947
44	68	820
47	74	914

I 50264 Jan-4 Scale 2

By comparing Zug and
2437, it appears that **21**
these should be corrected
by +0.2 - Also some
evidence of scale error
brighter than 8.0 -
Zug is brighter,

 $7^k - 15^0$

1	32	30	32	30
3	40	40	40	40
4	36	36	36	36
5	42	42	42	42
6	47	47	47	47
7	44	42	44	43
8	47	47	47	47
9	45	44	45	44
10	47	47	47	47
11	48	48	48	48
12	60	59	60	59
13	51	52	51	52
14	57	58	57	57
15	58	58	58	58
16	52	56	55	56

low weight

mean

MT
783

-13	2104	a	37	-	37	768	741	809	770	7.75	B9	60624
-13	2107	b	56	57	555	1001	962	986	973	9.83	A0	60609
-13	2109	c	40	-	40	803	790	814	804	8.03	B5	60718
-13	2124	d	45	-	45	869	837	840	829	8.44	B9	61044
-13	not in	h	59	61	59	1043	1027	1042	1043	10.40	-	-
-13	2136	i	58	59	575	1026	980	986	993	9.98	A0	
-13	2144	j	56	57	555	1001	947	995	973	9.84	A0	61368
-14	2059	k	49	50	485	911	947	943	953	9.367	A2	61348
-14	2066	x m	45	-	45	868	836	847	878	8.60	A0	61464
-14	2067	n ^c	41	-	41	817	820	826	818	8.20	B9	61485
-14	1985	2 ^h	55	58	555	1001	933	986	993	9.85	A2	60761
-14	1986	3 ^h	53	55	53	972	962	953	953	9.58	A0	A2 60762
-14	1987	4 ^h	46	-	46	881	883	872	854	8.71	A0	60782
-14	1988	5 ^h	55	57	55	996	962	981	963	9.77	A2	
-14	1990	7 ^h	56	58	56	1007	996	953	973	9.80	-	A2 60781

1932phae.

					low wght				Mean		
4	1993	8 ^h	56	58	56	1007	996	1023	1003	10.08	AO?
-14	1996	11 ^a	53	54	525	965	947	960	943	9.55	B8?
-14	1994	12 ^h	38	-	38	780	774	794	770	7.85	B9
-14	2003	14 ^a	55	57	55	996	962	991	963	9.80	A1?
-14	2005	15 ^a	54	57	545	990	933	972	953	9.65	-
-13	2116	18 ^h	59	60	585	1038	1012	1011	1002	10.17	AO
-14	2009	19 ^h	58	60	58	1032	974	1035	1050	10.39	-
-14	2010	20 ^a	46	-	46	880	899	847	890	8.78	AO
-14	2013	21 ^a	46	-	46	880	853	847	890	8.70	AO
-14	2012	22 ^a	40	-	40	803	790	833	805	8.10	A
-14	2014	23 ^a	47	-	47	893	868	872	900	8.85	AO
-14	2015	24 ^a	47	-	47	893	899	917	922	9.10	AO
-13	2118	25 ^h	55	56	545	990	962	972	963	9.73	AO
-14	2016	26 ^a	35	-	35	746	741	7.3	6.8	7.2	B9
-14	2018	27 ^a	44	-	44	852	868	847	854	8.53	AO
-13	2119	28 ^h	42	-	42	829	820	847	818	8.29	B9
-13	2122	29 ^h	58	61	585	1038	1012	1060	1033	10.39	-
-13	2121	30 ^h	50	53	505	937	962	938	953	9.45	-
-14	2019	31 ^a	45	-	45	868	868	859	829	8.54	AO
-14	2023	33 ^a	57	58	565	1013	996	1001	1003	10.04	-
-14	2025	34 ^a	35	-	35	746	710	7.1	6.7	7.0	B9
-14	2028	35 ^a	56	58	56	1008	996	1023	1033	10.14	AO
-14	2032	36 ^a	50	53	505	937	947	948	973	9.52	AO
-14	2029	37 ^a	38	-	38	780	774	808	793	7.91	AO
-14	2034	38 ^a	55	57	55	997	962	971	988	9.82	-
-14	2033	39 ^a	58	59	575	1024	996	1015	1033	10.15	-
-14	2040	41 ^h	58	60	58	1033	-	1036	1023	10.31	late??
-14	2041	43 ^h	51	53	51	945	947	981	953	9.58	AO
-14	2052	44 ^a	43	-	43	842	820	858	830	8.40	AO
-14	2057	47 ^h	43	-	43	842	914	893	865	8.73	AO

ISO 227 Scale 2 Jan 4

23

1	28	28	28	28
3	38	38	38	38
4	33	34	33	34
5	39	38	39	38
6	42	42	42	42
7	40	39	40	39
8	40	41	40	41
9	39	39	39	39
10	41	42	41	42
11	45	44	45	44
12	58	58	58	58
13	58	57	485	485
14	56	54	56	54
15	58	57	58	57
16	56	56	56	555
12	51	54	515	986
3	49	50	485	953
4	41	-	41	872
5	51	53	51	981
6	48	51	485	953
8	55	57	55	1023
11	49	51	49	960
12	35	-	35	794
14	52	54	52	991
15	50	52	50	972
18	54	56	54	1011
19	57	58	565	1035
20	39	-	39	847
21	39	-	39	847
22	38	-	38	833

23	41	-	41	872
24	45	-	45	917
25	50	52	50	972
26	30	-	30	7.3
27	39	-	39	847
28	39	-	39	847
29	59	61	59	1060
30	47	-	47	938
31	40	-	40	859
33	53	55	53	1001
34	29	-	29	7.11
35	55	57	55	1023
36	48	50	48	948
37	36	-	36	808
38	50	52	50	971
39	54	57	545	1015
41	57	58	565	1036
43	57	53	51	981
44	40	-	40	858
47	43	-	43	893
a	36	-	36	809
b	52	53	515	986
c	365	-	365	814
d	385	-	385	840
e	57	59	57	1042
f	51	54	515	986
g	62	55	525	995
h	48	49	475	943
m	39	-	39	847
w	375	-	375	826

ISO 591 April 8 Scale 2

25

1	30	30
2	36	37
4	35	36
5	38	40
6	41	41
7	42	43
8	45	47
9	41	42
10	47	48
11	48	49
13	53	52
14	58	58
15	59	59
16	57	59
17	62	60
a	35	770
b	53	973
c	38	804
d	40	829
e	60	1043
i	55	993
j	53	973
k	51	953
m	44	878
n	39	818
2	55	993
3	51	953
4	42	854
5	52	963
7	53	973

8	52	1003
11	50	943
12	35	970
14	52	963
15	51+	953
18	56	1003
19	61	1050
20	45	890
21	45	890
22	38	805
23	46	900
24	48	922
25	52	963
26	28:	6:8:
27	8 42	854
28	39	818
29	59	1033
30	51	953
31	40	829
33	52	1003
34	25:	-
35	59	1033
36	53	973
37	37	993
38	545	988
39	59	1033
40	58	1023
43	51	953
44	40	830
49	43	865

30

Jan. 16, 1932 & seq

Red are remeasures
Blue are two prism committed to single prism

Boss	Desig	Ptm	M	Plate (prisms)	H8	H8 4026	Plate (prisms)	H8	H8 4026
175	B8	+0.38	5.15	C 16039 (1)	13, 13	13, 13 -1	C 17033 (1)	12.5, 13	13.5, 13.5 -
981	B3	-0.30	4.32	C 17033	8	9, 11 2	C 16091 (12)	8.5	10 3
1048	B8	+1.15	5.50	C 17239 (1)	7	8, 10 0	I 9929	10	8, 10
1084	B5	-1.46	5.32	C 15322 (1)	12.5, 13	13.5, 14 1	=		
1172									
1192*	B8	-1.19	4.81	C 1732 (6)	Too faint				
1203*	B9	+0.39	4.65	C 16060 (1)	12, 12	13, 13 -	C 17235	12	13
1213*	B9		5.19	C 2224	15, 15	16, 16.5 -			
1242	B8	-1.58	4.46	C 16190 (1)	12, 12	13, 13 -			
1262	B5	-2.54	3.68	C 1763	10	11 0			
1277	B1	-1.78	4.29	C 16394 (1)	5.5, 7	6, 7 3.5			
1297	B3	-0.77	5.17	C 15222 (1)	6.5	8, 7 3.5, 4.5			
1301*	B1	-2.78	3.44						
1303	B2	-3.60	1.70	C 3051	too faint				
1313	B3	-0.29	5.31	C 16736 (1)	9	11, 11.5 2	I 10182	4.5, 5.5	6, 6.5
1314*	B2	-1.56	4.66	C 15527	5, 4.5	5.5, 6 3, 3	C 16332	7, 8	9, 9 4, 3.5
1331	B3	+0.28	4.32						
1340	B3	-1.58	4.64	C 17283 (1)	4	4 3			
1343	B2	+0.07	5.30	C 15341 (1)	5.5, 7	6.5, 7 3.5			
1349*	B2	-1.09	5.37	C 15341 (1)	7, 8	8, 8 3.5, 3			
1362	B1	-1.55	4.67	X 3881	too faint				
1365				X 3881	too faint				
1370	B0	-4.71	1.75	X 3851	2	4 1	X 4041	3.5	4.5 2.5
1399*	B3	-1.22	5.00	X 3851	too faint				
1428									
1430									
1435	B0	-3.80	2.20	C 2244	3	3 2.5			
1438	B9	+0.28	4.92	C 15489 (1)	13.5	14.5 -			
1454	B3	-0.55	5.32	C 15283 (1)	9.5, 7	8.5, 8 4			
1467	B5	+0.57	4.89	X 5305	11, 11.5	12, 13 0.5	X 6552	13.5	14.5 4
							7222	13.5	14 3.5

mean

H₈ H₅ H₄₀₂ Remarks

12.9 13.2 -1 2 "K line double"

T6: 8.0 9.5 2.7 3 C 16091 fogged

7.5: 8.5: 0.5: very poor plate

T6: 12.7 13.5 1.5 1

12.0 13.0 - 25 16060 hazy C 17235 poor plate

15.0 15.8 - 1 diff. dist.

12.0 13.0 1 C 16190 fogged

published 3
10.0 11.0 0.0 1 C 1763 diff. dist.; fogged

T7: 6.2 6.5 3.0 1 somewhat hazy

5.5 7.5 4.0 1

10.0 11.5 1.5 1 C 16736 bad focus,

published 2
6.2 7.4 3.4 2 C 15527 hazy 16332 near edge, hazy

published 1

4: 4.5: 2.5: 1 C 17283 very poor plate - very hazy

6.2 7.2 3.8 1

7.0 7.7 3.2 1

Binn neb - many stars in plate

TO: published 1
3.0 5.0 2.5 2 3851 - poor platepublished 1 C 2244
2.5 3.0 2.2 2 thru glass, sharp, diff. dist.

13.5 14.5 -1 1

7.2 8.8 3.8 1

13.0 13.8

11.9 13.5

2.9 3 somewhat hazy

469	B5	...	5.15	X 6180(1)	13.5	14.5	3	X 6273(1)	15	16	4
490	B3	-1.51	4.36	X 5329(1)	9	10	-1	X 7188(1)	12	13	13, 14, 3, 5, 3
1507*	B2p	-1.19	4.71	X 6219	11	12	5	X 5429	11.5	12.5	4
1517	B	+3.25	5.64	X 4432(p)	11, 11.5	12, 12.5	-	X 7236	12, 11	13, 12.5	6
1523	B3	-0.50	5.37	C 2468	2	3	3	C 2502	3	4	3
1537								C 1801	2	3	3
1550	B3	-0.17	4.92	C 1619(1)	11, 10	12, 12					
1554	B3	-0.51	5.09	C 1641(1)	9, 11	13, 12	2				
1572	B9	-0.61	5.36	C 16407	6	7, 9	4, 5, 4	I 14152	201	dd	
1600	B8	-0.68	5.83	X 7194(2)	9	10, 11	-	X 5338	12, 12	13, 13, 14	
1601*	B3	-3.08	3.10	X 6152(0)	1.5	16	-	X 6161	13, 13	13, 12, 10, 6, 7	
1603	B2p	-0.02	5.49	X 8203(2)	10, 12	12, 13, 2	5, 6				
1605	B2	+1.00	5.60	X 4491(1)	9, 10	10, 11	5, 7	X 5448(0)	8, 7	9, 7	4
1634	B3	-0.99	4.98	C 15069(1)	-1.1	1.15	1.5, 7.5				
1641	B5	+0.03	4.48	X 7194(0)	3.5	6	7				
1642	B3	+0.71	5.80	X 6152(p)	4.5	6.5	7	X 7327	11, 12	12, 13, 3, 5	
1566	B3	...	5.21	X 7237(0)	10, 11	11, 12	4	X 6205	12.5, 13	13, 13, 14	4
1666	B3	+1.20	5.02	X 4416	8, 8	9, 9	3	X 7327	11	12	-
1702	B8	...	3.18	X 7237	11, 10	12, 11.5	3	X 6143(1)	14	15	-
1731	B3p	+0.07	5.16	X 6264(1)	16	17	0	X 8266(2)	11, 13.6	12, 14.6	
1736	B3	-0.51	5.91	C 15498	9, 11	11, 12	1	X 8298(2)	11.5, 14	12, 14.6	
1749	B2	-1.90	3.78	X 6153	11.5, 13	14, 13	1.5	X 11433(1)	2, 3	3, 1	
1761	B3	+0.07	5.16	X 4442	11, 11.5	12, 11	-0				
1781	B1	-1.28	4.66	X 11433(2)	1	2	1.5				
1790	B2	-1.90	3.78	X 11433	5	5	3				
1793	B5	-1.48	4.39	X 4469			3	X 6209(2)	3, 4	4	
1804	B1ac	-4.63	1.63	X 7297(2)	Two from			X 6224(2)	2, 4	4	
1805	B5	+0.59	5.07	X 7175(0)	7	8	3	X 5330	5	6	2
1812	B3	-1.57	4.89	C 1640(1)	4.5, 6	6.5, 7	3, 3.5	X 10008(2)	6, 7.6	6, 7.6	2, 2
1817	B5pe	-3.06	3.12	X 8940(2)	5.5	5.6	2.5, 2.5	X 8396(2)	3, 3.2	4, 4.6	2, 2
1819	B5	-2.48	4.07	X 4102(0)	5	6	4				
				X 12243(1)	6, 7	7, 8	3, 3				
				X 6225	5	7	4.5	X 8326(2)	4	5.5	2
				X 6255(0)	6	7	5.5	X 4511(0)	4	5.5	4
				C 1755	11	12	-1				

T6 12.8⁹ 13.8 2.5 4 6180 poor plate

11.4 12.4 5 4 ^{X 432}

faint X 6219 - much overexposed

T2 2.3 3.3 3.0 3 diff. disp C 2532 good plate - 8 double or 14347

10.2 11.78 2.0 2 16191 faint

7.0 8.0 4.2 1

10.0 10.7 - 116737 hazy, poor plate

15.0 16.8

14.6 15.7 - 35338 very poor plate

T6 10.3 11.8 6.2 3 lines sharp

0 1.2 1.5 1 bright lines -

5.4 7.0 3.7 3 5448 near edge

T5 11.4 12.0 3.5 4

10.8 11.9

- 3 lines broad X 7327 faint

16.1 17.5

15.8 16.3 0 26143 poor plate

10.2 11.5 1.0 1

X 8298 - helium lines hazy X 8266 hazy

T6 12.9 13.8 0.8 4 X 4492 H lines sharp, others absent X 6153 - other lines good

1.5 2.5 1.2 2 bright lines, hazy

T6 5.0 6.0 3.0 1

2.5 4.0 3.9 2 bright lines X 5330 hazy

6.0 7.0 2.5 2

T6 5.2^{6.8} 3.2 1 good plate

T2 5.6 6.0 2.6 4 sharp X 8396 thru glass + too dense

6.5 7.5 3.0 1 not a very good plate

T5 4.9 6.2 4.0 4 very sharp lines

10.0 11.0 1.0 1 C 1755 diff. disp. and bad fog

1845 ⁺	B3	+1.1	4.85	X 10094(2)	12.5 ^{11.5}	13.5 ^{12.5}	3.5 ⁴			
1858	B5	+0.21	5.86	X 6455(2)	11.5 ⁸	12.5 ⁹	6 ⁶			
1862										
1870	B3	+0.63	6.53							
1877 [*] <i>bright line</i>	B3p	-2.59	3.83	X 4417(2)	5 ⁵	6 ⁶	4 ⁴	X 8300(2)	5.6	7.9
1882	B5	+0.60	5.31							
1884	B8	...	4.88	X 6189(1)	14	15	0	X 7205(1)	14	15
1907 [*] <i>double</i>	B3	+0.5	4.68	X 7395(1)	15	16	1			
1924	B8	-1.20	4.87	X 5482(1)	3.7	3.7	4	X 4507(1)	1+1	4
1925	B3	+2.4	5.50	X 6226	6	5	3			
1932	B3	-0.37	5.47	C 15330(1)	9	11	0			
1934 <i>dark</i>	B5pc	-3.28	2.43	X 4470(1)	4.6	5.5	3.3	X 8955(2)	6.5	7.8
1935	B8	+0.70	5.20	C 16390	11	12	1	X 10150(2)	6.6	8.9
1944 [*]	B8	-0.53	3.09	C 16481	12.5	13.5	-1			
1946	B3	-0.06	6.20							
1955	B3	+1.11	5.98							
1961 <i>strong</i>	B9	+0.54	5.52	X 7206(1)	15	16	-			
1964										
1969				X 12303(1)	12.5	13.5	-			
2004	B8	+0.22	4.62	X 7225(1)	15	16	150			
2011 <i>superficial</i>	B8	-0.54	4.50	X 6211(1)	line double; superficial					
2012	B3	+0.05	4.62							
2017	B5	+1.5	4.91	X 11432(1)	9	10	2			
2018 <i>amp. sp.</i>	B5A	+2.5	5.17	X 11432(1)	12.5	13	0			
2038 ^{74 40}	B5	+3.4	6.44	X 5489(1)	13	13	-	X 6234(1)	12	13
2048	B8	+2.6	5.86	X 5489(1)	13	14	0	X 6234(1)	13	14
2060	B3	...	5.11	X 6276(1)	13	13.5	8	X 6234(1)	12.3	13
2070	B0	-0.9	4.25	X 7230(1)	4.5	5.5	3	X 5489	12	13
2071	B8	+0.02	5.11	C 1724(1)	8.9	10.9	-1	X 6193(1)	6	7
2094	B3	+0.3	4.83	X 6444(1)	7.5	8.5	7	X 6507(1)	7	8

11.8 12.8 3.8 1

9.8 10.8 6.0 1/2 mm plate

TG 6.7 8.3 4.9 3 bright lines - dispersion different on X6210

14.5 16.2
TG 14.3 15.3 0.3 3

3.1 5.1 4.1 3 bright lines; 6226 ff 6280 f f b l l

9.5 11.0 0.0 1

TG 7.1 7.8 4.2 2 very sharp

12.8 13.8 1.0 1

15.7 17.2
15.0 16.0 - 1

12303 - much too few

15.4 17.0
TG 14.8 15.8 -0.5 1

9.0 10.5 2.0 1

12.2 13.0 -0.5 1 heavy

12.5 13.0 - 2 5489 too faint 6234 too faint

13.0 14.0 2.0 2 6234 faint

TG 12.5 13.5 6.7 3 5489 sharp 6234 sharp

48 38
TG 5.0 6.0 3.0 2 6173 - d d d

8.5 9.5 1.0 1

7.4 8.5 6.9 3

2095 ^{through} double?	B1	...	4.32	X 9421(1)	5'	5'	-	X 9449(1)	4'	5'	1'
				X 9489(1)	6'	7'		X 6144(1)	4.5'	6'	3.5'
2096	B3	...	5.41	X 12342(1)	9'	10'	4'	X 5468(1)	6'	6'	3.5'
2127 ^{superficial}	B3	+1.9	6.43								
2141?	Od	-0.8	2.27	X 4032	3.5'	3'	1'	X 10922(1)	11'	12'	3.5'
				X 4033	3.5'	3.5'		X 3960(1)	3'	3.5'	0
2158	B3	-1.66	4.34								
2165 ^{8th} -44	B3	...	5.16	X 10118(1)	10'	12'	3.5'	X 10068(1)	10'	11'	3.5'
2187 ^{8th light}	B3	-1.4	4.77	X 5340(1)	-	-	1'				
2188 ^{inf.}	B3	...	5.12	X 5340(1)	4'	5'	1'				
2196	B	+0.2	6.02								
2217 ^{8th 18} -36	B3	-0.6	5.17	X 6258(1)	11.5'	12'	8'				
2225	B5	+2.4	6.07								
2249	B3	+0.2	5.30	X 12293(1)	11.3'	12'		too poor			
2250	B2	+2.5	5.23	X 12296(1)	11.5'	12'					
2257		+3.3	5.82								
2266	B5	-0.1	5.52								
2270	B	+3.4	6.11								
2298	B3	+2.5	5.40	X 9419(1)	13'	14'		X 9388(1)	14'	15'	
2319	B5	+2.1	5.60	X 4503	10.5'	13.5'	4'	X 8380(2)	11.5'	12.5'	3.2'
2332	B5	-1.5	5.23	X 4515(1)	4'	5'	2'				
2337	B3	+2.8	5.48	X 6199(1)	12'	13'	5'	X 6405(1)	11'	12'	-
2342	B2	-2.7	3.70	X 9001(2)	7.9'	7.9'	4.45'	X 8415(2)	5.6'	6.70'	3.3.2'
				X 6268(1)	9.5'	11.12'	6.3'	X 4011(1)	7.5'	8'	5'
				X 8269(2)	6.75'	7.9'	4.45'	X 8250(2)	5.6'	6.70'	3.3.2'
2360	B5	...	5.54								
2363	B3	...	4.63	X 6200(1)	11'	12'	6'				
2365	B9	-0.29	5.19	X 15656	10.5'	11.5'	12'				
2414	B3	-0.9	5.08	X 4516(1)	11.5'	12.5'	7.8'	X 8276(2)	8.10.29	11.6'	
2433 ^{8th 59} -52	B3	+0.4	5.42	X 6212(1)	15'	15.5'	0'				
2451 ^{8th}	B8	+0.15	5.50	X 15258	13.4'	14'	1'				
2457 ^{8th}	B3	...	4.86	X 6222(1)	11.7'	12.9'	7.6'				
2467	B5	-0.8	4.96	X 8195(2)	5.6'	6.26'	4.45'				
2472		+1.6	5.92								
2575 ^{9th 30} -48	B3	-1.4	5.35	X 6331(1)	13.5'	14'	3'	X 5530(1)	11.5'	12'	3.5'

T0 5.1 5.8 2.7 5 very hazy - 8 reversed, on double? 9421 too ff. 9499, 8th ed.
 T6 10.0 11.0 3.8 2 sharp 10822 near edge

3.3 3.3 0.7 3 bright edge to β ; other 2 lines, β , 4650, -86

10.0 11.5 3.5 2 faint; bright line \approx 4330; 10068 near edge

7876

-1 -1 1.0 1 bright lines

3.5 4.5 1.5 hazy (AGC 10974)

T5 11.8 12.5 8.0 1 6258 S

5963
7876

{ ditto
 { much too hazy, focus

13.3 14.5 - 2: 9419 ff; many WR stars? X 10142 large, ff. X 9388 ff

12.6 13.4 3.6 2 4503 yellow 5350 too far from scale

T6 4.2 6.0 2.5 1

11.5 12.5 - 2 ff; 6405 thru glass, faint, near edge

T3 7.7 8.8 4.4 6 6268 SS many lines - bands??

11.0 12.0 6.0 1

11.2 12.2 - 1 not a very good plate

T6 10.9 12.2 - 2

14.8 16.0

(45 15.2 - 0.5 1

T6 13.2 14.0 1.0 1

T9 10.5 10.5 1.0 1 bright, 5 cov.

6 7.6 4.5 faint -

7812 out
7807
7900 dd

12.5 13.2 3.1 2 331 f

7801

743
753

10.5 11.0 1.5 1 too dense for 2 exp scale

3.5 5.0 0.2 1 bright lines

13.0 14.0 2.0 1 X 6358 - dd, *poor*

T6 8.8 9.2 4.8 2 1980 faint 11510 near edge, but sharp

9.5 10.5 - 1 " too "

8.0 9.0 2.0 2

20: 7987
2942
30

11.7 12.9 3.3 3 4036 - faint & hazy X 11157
X 3958 hazy - <10, <11; X 3958 *poor*

12.3 13.0 - 3 958 *poor*. 6487 ft.

12.2 13.3 - 3

11.7 12.3 5.3

10.0 11.0 5.0 1

11.5 12.2 2.0 2 5596 - scratched, edge.

12.2 13.2 - 1 near edge

T6 10.0 11.0 5.0 2 sharp

7.5 8.5 2.8 1 11157 12 *poor* plate

published 2 *poor*
12.3 13.3 - 3 2018 hazy

13.5 14.5 1.5 1
published

T3 4.2 5.0 1.8 1 sharp

published
13.0 14.0 1.0 1 hazy

published
9.8 10.5 3.0 3 bright hydrogen, hazy

T6 10.3 11.1 4.9 4 8385 hazy

8.0 8.5 6.5 2 sharp X 11787

T3 9.3 10.3 5.6 4 sharp 5664 - given image on plates - also 5665 6429 *poor*

7.0 8.0 0.5 1 somewhat hazy

4.2 5.0 2.0 2 very hazy

T2 7.0 7.7 - 3 566 faint 9451 *4th* 9579 2nd.

ME 11984
15:d

3892	15 12 -40	B8	+0.9	5.78	X 6474(1)	14	15	3	X 5052(1)	13	14	0
3929	15 21 -36	B5	+0.4	5.52	X 4721(1)	12.5, 13	13, 13	3.5	X 5108(1)	12.5, 13	12.5, 13	5
4013	15 43 -55	B5	0.0	5.84	X 6411(1)	14	14.5	4.5	X 6305(1)	12.5	13, 13	5
4058		B8	+0.8	5.41	X 11133(1)	5	7	3	X 11501(1)	4	5	2
4087		B8	+0.8	5.41	C 16518(1)	11	12	-				
4178												
4190	16 22 -46	B1p	-1.6	5.46	X 6626(1)	5	6	3	X 9561(1)	3	4	-
4224		B3	+1.5	6.14	X 4492(1)	2	3	1				
4225				2.70	X 11256(1)	11.5, 12	12, 10	4, 3				
4248	16 38	B3	+0.2	5.68	X 11277(1)	9	10	2.5				
4249	38	B3	+0.3	5.94	X 4170(1)	9	11	5	X 4851(1)	11	11	5
4274		B2	...	5.37	X 6310(1)	9	10	5				
4287		B1p	...	4.88	X 5058(1)	3	3.5	3	X 4985(1)	1	2	1
4296		B3p	+1.0	6.57	X 4460(1)	0+0	1	-	X 4985(1)	2+0	2	1
4334		B1p	...	4.87	X 5058(1)	3+3	3.5	3				
4369		B3p	...	5.50	X 11167(1)	5	6	0	X 11592	-	-	
4392		B3	...	5.88								
4405		B1	-3.9	3.51	X 11007(1)	Cont.			X 11001(1)	0	-1	-1
4498		B8	-1.3	4.83	X 11545(1)	7, 8	8, 7	2, 3	X 12742	10, 9	11, 10	3
4509		B8	-1.3	5.97	X 4862(1)	4	5	2	X 4408(1)	3	4	2.5
4548		B5p	-2.3	3.92	X 9729(1)	12.5, 13	13.5, 13	0	X 9580(1)	14	15	-
4599	16 6 -41	B3	...	5.52	X 9453(1)	14	15	-	X 2052	8	8	3
4607					X 12393	9	10	3	C 2918	10	11	4
4637		B8	-0.9	5.39	C 1333	9	9	3				
4642		B3	-1.9	5.42	C 3861	9	9	3	X 1192(1)	6	7	3
4690		B8	+0.8	6.55	X 5112(1)	11.5	12	-	X 4365(1)	13	14	0
4691		B8	+0.8	5.95	X 8823(1)	11.5	12	-	X 7072(1)	11	12	-
4762		B2	-3.4	4.42	X 5030(1)	10	11	3				
4783		B5	...	5.04	X 11246(1)	9	10	3	X 11286(1)	8	9	-
4792		B5	-1.1	5.41	X 11030(1)	13	14	-				
4697		B3	...	5.38	X 11050(1)	10	10	-	X 11269(1)	7	8	3
					X 11050(1)	3	3	-				
					X 4821(1)	6	7	5				
					X 5637(1)	6	7.5	5	X 5031(1)	4.5	6	4
					C 15865(1)	9	10	3				
					X 9323(1)	11.5	12.5	-	X 9111(1)	11	12	1
					X 11278(1)	7	8	3	X 9771(1)	12, 12	13, 13	1

published

13.5 14.5 1.0 26474 too faint

130/135

12.8 13.6 4.3 5108 " "

T5 4.7 6.3 2.7 211501, thru glass, poor plate

11.0 12.0 - 1 very faint, poor

published

published

T3 3.3 4.3 2.0 389492 - faint, spec, 95610 ft - cool - 8 bright?

10.8 11.0 3.5 1

T6 9.0 10.0 2.8 1

T6 9.5 10.8 5.0 36310, faint; x 4851 too faint

T6 6231 = #2 of 6231 bright lines (not H)

T2 6231 = #11 of 6231 bright hydrogen

5.5 6.5 1.0 11167 - double - hazy; 11592 much too poor

T6 7.5 8.5 2.7 22742 poor plate

T2 3.5 4.5 2.2 4862 - many lines, somewhat hazy

T6 13.6 14.3 0.7 3453 WR

M7

plate of M7 = H #25 1333, 2052 hazy

T6 9.0 9.5 3.8 4 sharp 22918 diff. disp.

T5 5.5 7.0 3.0 21192 hazy

11.6 12.4 - 55112 H 5030 H and fogged

10.0 11.0 3.0 11246 - hazy

} unexposed - two spectra visible, very hazy

T3, T4, T5 5.3 6.7 4.6 35637 - quite sharp x4821 too faint

T6 9.0 10.0 3.2 1 lines sharp

11.5 12.5 - 3: very hazy plate; 9771 faint, 9111 very hazy

9.7 8.7 3.3 269 hazy

12005

12015

10:20 7916 p
8018

7959

8046

M7 2342

25:

[illegible]

Comp of '31 and '32 Means -

	Count	10175(1)	5	6	-			
2961	2 Cen	X 9732(1)	4	5	-			
2969		X 11408(1)	13	14	-			
		X 12896(1)	15	16	-			
2992	11 Cen	X 6687(1)	12	13	3	X 12897(1)	9	11 -
		X 4745(1)	9	11	3			
3016		X 11473(1)	6	8	11			
3048	A Cen	X 5564(1)	15	16	-			
		X 4771(1)	13	14	-1			
3071		X 11588(1)	3	5	-			
3167		X 11548(1)	11	12	-			
		X 5592(1)	7	8	3			
3393	{ 2 Cen	X 4747(1)	9	10	4.5			
		X 9096(1)	13	14	-			
8419		X 9176(1)	14	15	-	X 9644(1)	12	13 -
3564		X 5617(1)	9	10	5			
3592								
3783		X 5570(1)	13	14	3			
		X 9458	13	13.5	0			
3357		X 3975	12	13	0			
299.								
3910	4 ₂ Luf	X 4721(1)	11, 11	12, 12		X 5108(1)	13	13.5
		X 6411	13	14		X 6305	13	13.5
4253		X 4170(1)	4	5.5	3.5			
3713		X 5604(1)	14	15.5	-			

T6 10.5 11.5 1.5 1

T6 9.0 10.5 5.0 1 very faint

10.0 11.0 2.0 1 fogged

T6 10.2 13.0 10.3 2.3 3

13.0 14.0 1.0 3

1.5 2.0 4.5 4 bright lines etc. - 2 Sgr

16.0 17.3

15.2 16.2 6892 - dense

T6 12.8 13.8 3.0 1

57 6.7

hazy 6182 good plate 6320 dd

x 12897 very poor

very difficult - bright lines, 3 composite
poor plate

9176 - very hazy 9096 hazy 9644 hazy
through glass

Comp. of '31 & '32 Measures and

1173	X 6246	12, 11'	13, 12.3'	5.5	X 6508	13.5, 12.5'	14, 13'	7
2674	X 4545	12, 11'	13, 13'	5:				
3854	X 4079	8:	9, 11'	3.5				
3152	X 6499	15	16	-	X 10940	13.5, 11.5'	14, 12.5'	-
3163	X 11178	14	15.5	-				
3176	X 4708	12, 11'	13, 12'	4.5	X 5600	12, 13'	13, 12.5'	7
3187	X 6512	13.5, 12'	14.5, 13.5'	4				
3222	X 6359	12, +	13, 11'	8				
3328	X 6295	8:	10:	3.5	X 4192	4	4	3
3390	X 9775	9, 13'	11, 13'	2				
3521	X 4125	6	8	4				
3615	X 4056	2	3	1.5	X 5663	4.5	5.5	3
3670								
3910								

Calibration of Prime Scale

2526	X 8189 (2)	7	8	4	X 6550	9:	10:	5:
	X 3995 (1)	6	7	4				
4076	X 4220 (1)	12'	13'					
3688	X 4817 (1)	10	11'	5				
φ Cen 3602	X 5634 (1)	10	11'	5				
β Mus 3320	X 6294 (1)	12'	13.5	6.5	X 6486 (1)	10	11	6
2477	X 6316 (1)	10:	11:	5:				
3289 α Mus	X 6486 (1)	9	10	4.5				
3390	X 9775 (1)	11.5	12.5					
3341	X 11142 (1)	12.5	13.5					
3312	X 11210 (1)	13	14					
3314	X 11210 (1)	13.5	14.5					
3324	X 11210 (1)	7:	8:					
3832	X 11272 (1)	10	11'	3.5				
3529	X 11877 (1)	12'	13'		X 11887 (1)	12'	12'	
4128 16"	X 11896 (1)	11'	12'					
11"	X 14129	5	5	12p				

X 4595
faint

X 10940 poor plate

X 6295 much overexposed

6550 ddd
faint

6486 d
superposed
6486 d

Hazy lined stars re-measured

4064 η Lup	X 4220 (1)	8	10	4			
2992	X 6687 (1)	12.5	13.5	4			
4565 Orion	X 5715	7	9	3.5			
4426	X 5608	13.5	14.5	0			
4474 κ Sco	X 4402	8	9	4.5			
4066 δ Sco	X 4338	4	7	3			
2992	X 4745	11'	12'	2			
3950	X 5677	11'	11.8	5			
3358 μ_1 Cen	X 6471	12:	13:	dd	X 6447	10:	11:
3359 μ_2 Cen		11:	12:		—	—	—
4066 δ Sco	X 6441	8	9				
3269 δ Mus	X 6569	12.5	14				
3237 α_2 Cen	X 6638	12.5	13.5	3			
3238 α_1 Cen	X 7410	4	5	3			
3187 δ Cen	X 6359	10:	11:	6: dd			
3910 δ Lup	X 8409 (2)	8.5	9	6: ff			
4426	7593 (2)	11.5	12				

3134	X 4746	14.5	15.5		X 6577	17	18
3048	X 4771	13.5	14.5				
3343 (842)	X 5592	14	15				
3973	X 5615	13	14				
4094	X 9108	16	18				
3429	X 9645	14	15		X 9734	14	15
3163	X 11178	14	15				
2969	X 12896	14	15				

AGC	X	MF	X	MF
23554	11545	12342	12,5,12,5	40
20142	11189	11984	14,15	50
	14705	7868	12,5,13,5	80
	13437	7068	11,11	56
	13443	7973	14,15,15	62
F	"	"	11,12	30
B	"	"	10,11	30
PGC3802	11897	"	4,6,8	25
AGC20172	X11937	"	5,6,12	40
20141	"	"	11,12,5	60
20112	11202	"	9,10	25
21399	12329	7989	15,14	70
br.	9108	"	13,14	45
PGC4094	9406	"	16,17	75
23098	9109	7985	3,4	28
	12001	12001	11,12	58
4219	11007	11007	3	31
G	"	"	8,5,6	28
	11616	"	14,15	85
	11608	"	15,16	80
	"	"	15,16	80
23604	"	"	11,12	28
23356	11529	"	14,15	78
23408	11600	"	14,15	74
13324	"	"	9,5,10,5	30
	12448	7864	12,13	96
	11848	"	13,14	74
	70186	7852	12,13	40
	"	"	3,3	2

Measurement of Stars in γ Car.

		H.D.			
1	B2	91826	1,9	34	29 B5 930103, 5
2	B	91837		33	30 B3 93003 5,3; He 421 faint
3	B9	91825		50	31 B9 93234 0,2
4	A2p	92207	1,7; like 2 Cyg	32	45 93070 1,5 3,8; w Car.
5	B5	92061		33	F2 93057
6	F5	92062		36	34 B25 93028
7	B5	92087		35	35 B3 93027 1,4-
8	B5	92072		30	36 B8 92977
9	A	92088		28	37 B3 92741 5,3
10	A2	92105		38	F2 92617
11	B9	92174		22	39 B8 92607
10, 12	B9	92190		25	40 B8 92644
13	K0	92063	0,6; t' Car	27	41 Dcp 92740 H+K dark + narrow 4059 very bright; no H+K 2, 1, 75, R 9+10
14	B3	92025	0,7	42	F2 92662
11	B	92206		30	43 B8 92937
16	A3	92313		26	44 B8 92725
13	B8	92272		26	45 B8 92739
16a	A0	92406		30	46 B3p 92964 lines are narrow
19	Mb	92436	5,3	20	47 B9 92553
14	B9	92288		24	48 B8 92630
15	B9	92384		38	49 B9 93055
22	A	92392	0,4; L ² Car. Dist 15" 23	50	50 93054 2,4
16	A0	22399	2,6	31	51 B0 92982
17	B9	92421		43	52 A0 93159 2,7
18	B8	92451	lines are narrow	53	A3 93114
23	A	92608	partly superposed	51	54 B 93249
19	B3	92505	2,4	40	55 B 93129 appearance of br. lines on
21	A0	92566		44	56 A3 93161 appearance plot. in sp. of one.
29	B9	92864	0,7	52	57 B 93250 H+K 4.8. In sp. of following H+K
32	A0	92984		58	Pec. 93308

4759	53 B	93205 ^{neb.} app. lines of br. lines	8589	Ar	94570 ¹ , 7
4560	OC	931620, 4	8190	B8	94465
45061	Ar	93A1	91	As	94385, 3
4162	B5	93130	92	FO	94245
4863	B0	93204 ^K stronger than normal	93	B9	94129
4964	B2	93222	7094	Ar	93943 0, 8
4365	B	93146 auriferous.	6895	B0	93873
4366	OC	9313, as above - neb.	6696	B	93795
3967	B9	93056	6097	Ar	93682
5468	Ar	934210, 4	6498	B5	93723
5769	Ar	935020, 7	6599	42p	937370, 6 lines are narrow
5870	B9	93504 lines are narrow	90100	B8	94054 " " "
6171	B2	93683 0, 7	74101	B1	94230
5672	B3	93501	75102	B8	94345
6273	B5	936950, 6	73103	Ar	94173
5574	B9	93500	69104	B5	93911 lines are narrow
5375	B0	93403	67105	Ors	93843 0, 7; H β suspected bright
76	As	93469 ³ , 1	106	Go	93958
6377	Ar	93712	71107	Ar	94079 ¹ , 7
7678	B2	94369	93108	B1	94493 ¹ , 6
79	A2	94304	72109	A3	94460
8080	B8	94409	67110	Ar	93844 ¹ , 4; lines are narrow
7781	B3	94370	46111	Ar	93192
82	FO	94332	59112	B9	93621
8483	B8	94533			
84	K0	94510 ⁵ , 10 u Car.			
8285	B3	944412, 9-			
7986	B9	94394			
7887	B8	94380			
8688	Ar	94558 ¹ , 7			

Carinae Jan 22+23

X15316

a	12'	13'	-	too faint, hazy
b	13	14	"	"
21	12, 12'	13, 13'	"	"
23a	9, 12'	10		hazy, focus?
24	small			very hazy
25				two stars
47	15	16		hazy
48	13'	14'		faint, hazy
39	3.5	4	0	hazy, TO?
40	5	6	-	very hazy
44	5	7	2	hazy, defect on dr
45	6	7	-	"
37	4	4.5	1	not quite so hazy?
41			0:	O star - now bright lines
c	12'	13'		too faint
d	12	13		"
36	10	11	3:	hazy
e	10	11, 11'	-	"
f	large?			faint
g	16	16		faint
h	small			too faint
43	7:	8:		not so hazy, but too faint
46	2	3	1	sharp, dense
i	15	16	-	faint
j	7:	8:	3:	very faint
k	11:	12:	-	"
l	8:	9:	-	"
m	7:	8:	-	"
n	7:	8:	-	"
34	{ 8, 7 6 }	{ 10, 8 7 }	2	fairly hazy

35	^{7.7} 7.7	^{9.9} 9.9	2	somewhat faint -
49	13.5	14	-	lines good
50	13, 12.5	14	-	hazy
8	15	15	-	too faint
67	6	-	-	8 superposed, hazy, somewhat faint
p	4	3	-	faint, somewhat hazy
9	large			too faint
66	Bright	-		strong K line
55	3	-	-	hazy, somewhat faint, a little neb.
56	4	4	-1	Bright 4050?, strong K " "
62	3	-	-	8 superposed -
65				Two stars
R₂	4	7	-	^{also some H} strong K, a little neb.
60	almost cont.			bright lines, " "
R	small			too faint
t	small			" "
u				bright lines, faint
63	3	3.5	0	TO
v	15	15		faint
61	13.5	14		crowded, fairly faint
w	5	6	1.5	
59	5	6	-	very crowded, diffi.
64	3.5	4	1.5	pretty good
x	4	6	-	" faint, nebula -
y	7	8	-	too crowded, superposed?
56	3	-	-	" " 8 superposed
57	45	45	1	4552 strong, but crowded, neb, + " 4200 strong K
z	In small			faint & measure
aa	13	14		faint, neb.
ab	1	0	-	next to y, very weak + hard to see

ac	-1	-1	-	practically cond.
ad	small			too faint
ae	small, sharp,			two stars? neb.
af	10'	11'	-	too faint
g	14	15	-	too faint
h	¹³ 14.5	¹⁴ 15	-	" "
i	13:	14:	-	" "
75	4.5	4	0	strong K, fairly sharp lines
68	14.8	15.5	-	
76	13	14		late type
74	15	15	-	
72	3.1:	4.1:	-	too faint for scale
69	¹³ 13.5	¹⁴ 13.7	-	dim
j	15:	-	-	too faint, superposed, neb.
k	8:	9:	7:	" "
kl	3	4	-	β sharp, others very hazy
l	14	15	-	faint
m	13.5	14	-	good, why no number?
78	³ 2:	⁴ 3:	-	very hazy
73	⁹ 5	¹⁰ 7	2	
98	14	15:	-	
o	large			too faint
p	large			" "
n	13:	14:	-	" "
77	15	16	-	faint
97	11, 10	12, 11	4:	
99	4	5	-	α Cyg type
96	small			quite sharp, faint
105	4	4.5	-1	K visible
s	quite large			too faint

95	3	3.5	2.5	T ₂ , lives quite sharp.
t	14	15	-	faint
104	4	5	2	lives sharp
v	large			too faint
94	13	14	-	overexposed
W	medium	?		too faint
y	large			" "
100	12	13	2	
93	13	14	-	
103	11	12.5	-	
101	2	4	1	many lives, sharp.
102	small			too faint
87	13, 12	14, 13	-	
91	large			too faint
PG	12, 12.5	13		
fg	large			
90	fairly small			too faint
88	15	16	-	
89	14	15	-	

Jan 24

	X	1	3	4	13	
69	^{14.5} 16		¹⁶ 17		-	
94	15.5		17		-	
73	¹⁸ 12, 13		¹⁴ 13		3.5	
99	6		6		-	Hzp
103	15		16		-	
105	small					too faint
63	2		2		0	
66	emission					- what is strong em to red of H δ
55	4:		4:		-	faint
46	3		4		3	T 3:
41						Di emission ?
37	small					too faint
23 213	13		14		0:	

Jan 24

X 13739 good plate

103	12, 13, 13, 13	-	
101	small		faint, strong line ~ 4350
93	14: 15:	-	faint
87	12'	-	too faint
86	12' 13'		too faint
88	14: 15:	-	" "
89	14: 15:	-	" "
28a	12, 11.5, 13, 12.5	-	hazy
39	almost invisible		hazy?, too faint
21	11.5	-	faint
37	3 4 2		
41			12 visible
?	WR star		near edge has remarkably strong
36	9 10, 11	-	band - variable? } too faint
46	2.5 3.5 10		T3
35	lines very sharp		too faint
33	11: 11:	-	faint
49	13 14		"
53	large		too "
56	3: 4:	-	superposed, hazy, em. lines (not H?)
71	7: 8:	-	faint, hazy
72	6: 7:	-	" "
66	WR		
62	sharp		too faint
65	hazy		" "
W H emission			
63	2 3	-	somewhat hazy
64	3: 3:	-	too faint
61	14: 15:	-	" crowded, faint
59	4 5:	-	" "

54	small				too faint for scale
59	3.5	4.5	-		sharp
75	4	5	-		fairly " N star near it has
68	13	14			shifted most very much faint
69	^{12.5} 11.5	^{13.5} 12.5	-		
76	13	14	-		faint
74	14	15	-		too "
ak'	small				very sharp, too faint
71	²¹ 12	³¹ 13			too faint <i>hazy, emission?</i>
73	9	10	1		
99	5	5	-		sharp
102	4	4	-1		sharp
95	small				too faint; either strong line & red in H γ area
104	"				sharp, too faint
94	13, 12	14, 13	-		dense

Jan 25

57

X 13410

223	12'	13'	-	too faint
4	3	4	-	very sharp, 42p,
46	3	4	1.5	sharp
8	10'	11'	-	too faint,

X 13412

99	7.5	7	-1	close to edge, focus of 8 doubtful, for
73	11.5	12	3	" " "
94	14	15	-	
85	11.5	12.5	2	
46	3	4	2	

X 13408 good plate

46	2.5	3	2	
63	3	4	-1	near edge, very hazy
223	10'	11'		poor
4	3.5	3.5	-	sharp
8	11.5	12.5	-	somewhat faint
7	13'	14'	-	too

X 13035 good quality but not very dense, scratched

46	2	3	1.5	
63	3'	3'	-1	hazy, faint
69	13	14	-	
73	11.5	12'	-	
99	4	5	-	slightly faint for scale
94	14	14.5	-	
103	13	14	-	

	X 14939	very good		
99	5.5	6	0.5	T ₆
73	9	10	3	too dense for a C ₂ scale but <11 + >8
105	4.5	4.5	-	fairly sharp
75	3.5	off plate	very hazy, but very near edge	
ab	very small, very hard to see, hazy?			
ac	practically continuous			
97	11'	12'		
98	large	too faint		
am	13:	13, 13'	" "	
69	14	14	- overexposed	
68	large	too faint		
57	4.5	5	2	hazy, K strong
64	4	5	-	too faint for scale, but >3
63	1.5	2.5	0	hazy
61	13	14	- too faint	
56	3	3.5	-	some emission, H ₁ ? K very strong
r ₁	9 ⁸	10 ⁷	somewhat faint	
r ₂	9 ⁸	10 ⁷	" "	
65	2	superficial		
62	3	3	- hazy, line to red of H ₁	
66	emission		strong K	
35	quite small, too faint for scale <<11			
36	fairly	"	"	<11
41	very	strong K		
37	4.5	5	2	
39	too hazy + faint			

X10482 lines slanting

69 14 12.5 -

103 12.5 13.5 -

99 4 5 -

63 2 3 -

73 11' 11' -

26 ^{12.5} 11.5 ^{13.5} 12 -

29 9 10 -

30 9 10 -

somewhat faint for scale

" " " " " hazy?

too

X 10649

99 too faint for scale

63 " " TO

46 3 4 1.5 strong K.

73 11' 12' somewhat ft.

94 13.5 14.5 -

69 14 14.5 -

X15318 - poor quality, but goes faintest. Identification

a	11'	12'	-	-	too poor for use
b	14.5	15	-	-	very hazy
23	9:	10:	-	-	
21	10	11'	-	-	
23a	10	11'	-	-	
24	6:	-	-	-	very hazy, near edge
39	1:	2:	-	-	" "
40	3	3	-	-	hazy
47	14	15	-	-	
48	13	14	-	-	faint
44	5	4	-	-	H lines hazy, others not?
45	4	6	1	-	
37	3	4	2	-	sharp; TO:
41	e	e	-	1.1:	focus poor at vi.
c	11	12	-	-	faint
d	11'	11'	-	-	too "
e	small				" "
f	13	14	-	-	faint
36	7	7	3	-	somewhat hazy
g	14.5	15:	-	-	faint
h	4:	-	-	-	too "
43	5:	6:	-	-	" " + "
46	2:	3:	-	1:	overexposed
i	13:	14:	-	-	too faint
j	5:	6:	-	-	" "
k	9:	10:	-	-	" "
l	6:	7:	-	-	" "
m	small				" " + hazy
34	3	4	2	-	hazy
35	3	3	-	-	" faint

33	9	9	-	-	
67	6'	-	-	-	hazy
@	12	-	-	-	& too faint, & faint
49	12.5	13'			
50	11'	12'	-	-	difficult - faint, hazy
p	4	5	3	-	& very sharp, & less so. sl. ft.
q	11'	12'	-	-	faint
66	sun.		2, 2		hazy; focus.
53	11'	12'	-	11'	
55	pr. cont.				superposed too diff.
56	4	5	0	2	" hazy
62	3.5	superposed			fairly sharp
65	3	4			strong hazy, superposed?
r ₁	5	6	-	-	present but too ft & hazy
r ₂	"	"	-	-	
s	3'	4'	-	-	too faint, sharp
t	3'	4'	-	-	" " hazy
u	bright				very sharp br. p & s
63	1	2	1	1	" hazy, dense
v	13	14	-	-	too faint
61	12.5	14	-	-	sl. "
w	4	5'	-	-	" "
59	3.5	4	-	-	too crowded, superposed?
64	4	4.5	-	-	fairly hazy
x	5	6	-	-	& sharp; neb.
y	6	8	-	-	crowded, hazy.
54	3	sup.			β emission & sharp abs?
57	5	5	-	-	quite sharp
z	small				too hazy & defect
aa	11.5	12.5	-	-	faint & hazy

ab	01	01	-	-	almost cont.
ac	cont	?			
ad	too ft	7	hazy	-	almost cont
ae		1			" "
af	12	12			too ft
g	13	14			" "
h	12	13			" "
i	14	15			" "
75	4	5			somewhat hazy
68	13	14	-	-	
69	13.5	14.5	-	-	overexposed
72	small				too ft & hazy
74	13	14	-	-	
j	fairly large				too ft & hazy
k	7	8	-	-	too faint; neb
k'	3.5	4	-	-	superposed; faint; strong line next
l	14	14	-	-	too faint
m	13, 12.5	14	-	-	
71	3	5	2	-	He not so hazy? H slightly hazy; near edge, H & dark
73	9	10	3	-	overexposed
98	12.5	13	-	-	ft.
97	4.5	13			
99	4	5	-	-	
n	11	12	-	-	too ft
77	15	15	-	-	
o	too faint	hazy			two stars?
p	14	15	-	-	faint
96	6	8	-	-	too " - β emission?
105	4	5	-	2	
q	6	7	-	-	too faint

n	medium				too faint
n	11' 12'	-	-		faint
95	3.8 5 4				To, strong line near
104	4 4 2.5 2				sharp
t	12' 13' 11' 12.5	-	-		
n					can't dist, lines -
v	large				too faint
94	13 14	-	-		overexposed
107	13 off	-	-		
100	10' 11'	-	-		
w	11 13	-	-		faint
x	medium				too faint
y	fairly large				" "
z	" "	1'			" "
903	13, 12.5 14	-	-		
103	12.5 13 13 14	-	-		dense, heavy
101	3 4 1	-	-		T3, sharp.
hh	9' 10'	-	-		too faint
102	small				too faint
87	11' 12'	-	-		
91	10' 11'	-	-		late type
86	11.5 12.5	-	-		
g	fairly large				too faint
90	4' 5'	-	-		" " + heavy
f	11' 12'	-	-		" " "
88	14 15	-	-		
89	13 14	-	-		

X 4044

99 5 7 - *sl faint per scale*

73 10.5 12 3.5

94 14 15 -

103 13 14 - *ff*

69 15 15 -

46 2.5 4.5 2

63 small *too ft - To*

X 10644

85 12' 12'

to faint

46 3 3.5

*T 3 to faint*X 13072 *poor quality - all stars hazy*

29 10 11

30 11 12

69 13.5 14

99 4 5

73 11 11

26 10.5 11.5

faint, hazy

X 13258

85 11.5 12.5

very hazy

X 13371

99 4.5 4.5 -

73 11.5 12.5 3.5

103 14 15 *faint*

29 10 10 2

30 11.5 12.5 -

too faint

26 10 12 -

	x	1	5	3	1	7	iso -
a	11	12	-	-	-	-	faint
b	13.5	14.5	-	-	-	-	"
21	15	14.5	-	-	-	-	
22	overexposed						
23a	13	14	-	-	-	-	
47	14.5	15	-	-	-	-	
48	13	14	-	-	-	-	too faint
39	6:	7:	2:	2:	-	-	very hazy
40	5	4	-	-	-	-	" "
44	7	8	2	-	-	-	
45	10:	11:	-	-	-	-	hazy
37	6	7	3	1.5	-	-	dense

too hazy to continue!

Numbers 39, 37, 41, 46, 34, 66, 56, $r_1 + r_2$,
 66, 63, 59, 54, 75, ab , 95, 105
 show lines of interstellar?
 Calcium.

Apparently this completes the
 X plates. — no — see later

66

Jan. 27

MF X	MF7901	MF7957	MF7902	mean
9.2 1	1 ³⁶ / ₃₀ d	— dd off	33 1 9.2	8.8
4.2 1	2 ¹⁰ / ₁₈ 5	— dd off	14 1 4.2	11.5
14.6 2	3 ⁶⁵ / ₆₅ —	77 — d off	71 2 14.6	13.
3.4 2 3	4 much too dense	— dd —	— —	—
7.6 1	5 ²⁸ / ₃₀ —	— dd off	29 1 7.6	—
—	6 late	— dd off	— —	8.0
12.8 1 $\frac{1}{2}$	7 ⁶⁰ / ₃₆ — dd	50:1	50:1 1 12.4	7.0
12.1 $\frac{1}{2}$ ($\frac{1}{2}$)	8 55: — dd	off	55: $\frac{1}{2}$ 13.0	9.4
14.3 1 #	9 ⁶² / ₇₂ — —	—	67 1 14.3	4.4
14.4 1 #	10 ⁶⁵ / ₆₅ — late	—	70 1 14.4	—
13.5 $\frac{1}{2}$	11 62 — —	51 — d 65:	59 $\frac{1}{2}$ 13.5	3.5
15.0 2	12 78 — —	75	76 2 15.0	5.9
—	13 late	—	— —	2
4.6 $\frac{1}{2}$	14 15 — d	20:	18 $\frac{1}{2}$ 4.6	—
3.6 1	15 ⁸ / ₁₀ —	— dd off	9 1 3.6	8.5
>16 2	16 100 — A3	90	95 2 >16	7.0
14.3 3 1	17 70 — —	76 d 72	73 3 14.7	8.0
11.7: 2 1	18 51 — —	62	56 2 13.1	2.9
—	19 late	—	— —	16
13.7 $\frac{1}{2}$ 1	20 62 72 d	74:	70 $\frac{1}{2}$ 14.5	14.
13.2 $\frac{1}{2}$ $\frac{1}{2}$	21 65 — —	50: d 78	76 $\frac{1}{2}$ 14.1	14.
—	22 late	—	— —	15:
11.7 — $\frac{3}{2}$	23 — dd	—	— —	3.7
12.7 $\frac{1}{2}$ 4	23a 72 — —	75: dd	73 $\frac{1}{2}$ 14.7	15.5
9.2 $\frac{1}{2}$ $\frac{1}{2}$	24 30 — —	40	35 2 9.8	—
— $\frac{1}{2}$	25 supposed	—	— —	3.
12.1 $\frac{1}{2}$ $\frac{1}{2}$	26 ³⁰ / ₃₀ —	50: dd	50: $\frac{1}{2}$ 12.4:	3.
14.3 2	27 60 — —	75	68 2 14.3.	4.
14.2 $\frac{1}{2}$	28 65 — —	62 82:	67 $\frac{1}{2}$ 14.2.	5.
>16 3	28a >100	90 85	95 3 >16	—

3.8	4	29	only pond	-	dd	-	-
11.5	$\frac{1}{2}$ 3	30		60	dd	60	$\frac{1}{2}$ 13.6
13.8	2	31	62 -	62	S	62	2 13.8
-	-	32	late	-	-	-	-
-	-	33	late	-	-	-	-
8.0	$\frac{1}{2}$ $\frac{2}{2}$	34	$\frac{40}{60}$ - a	-	oo	47	$\frac{1}{2}$ 11.9
7.0	1 2	35	$\frac{28}{38}$ - o	-	oo	25	1 6.3
9.4	2 $\frac{1}{2}$	36	25 - -	38	$\frac{32}{25}$	2	$\frac{8.8}{6.3}$
4.4	$\frac{1}{2}$ 5	37	small dd	20	dd	20	$\frac{1}{2}$ 5.0
-	-	38	late	-	-	-	-
3.5	2 $\frac{1}{2}$	39	15 -	25	-	20	2 5.0
5.9	2 2	40	25 -	25	-	25	2 6.3
2	-	41	curious	-	-	e	e
-	-	42	late	-	-	-	-
8.5	2 1	43	28 h	35	8	32	2 8.8
7.0	2 $\frac{1}{2}$	44	35	30	-	32	2 8.8
8.0	2 $\frac{1}{2}$	45	35	36	-	36	2 10.0
2.9	9	46	- dd	-	dd	-	-
16	3 3	47	$\frac{100}{100}$ 90	100+	-	98	3 >16
14.3	3 $\frac{1}{2}$	48	$\frac{100}{65}$ 85	75	-	76	3 15.0
14.3	2 $\frac{1}{2}$	49	78	84	-	81	2 15.3
15	2 $\frac{1}{2}$	50	85	100	-	92	2 >16
3.7	2 $\frac{1}{2}$	51	10	10	-	10	2 3.0
15.5	2 1	52	100 d	100	-	100	2 >16
-	-	53	70 s	90	-	80	2 15.3
3.5	1 1	54	5 - d	-	-	5	1 3.0
3.7	1	55	- n	-	-	-	-
4.1	$\frac{1}{2}$	56	- du	-	-	-	-
5.0	1 $\frac{1}{2}$	57	12	-	-	12	1 3.9
-	-	58	11	-	-	-	-

193225	5.0	1	1½	59	5							5	1	3.0	14.2
	e			60	bright line							e	e		5.3
	14.5	1	3	61	80	n						80	1	15.3	-
	3.3	2	2	62	5				10			8	2	3.5	-
	2.6		8	63	small	dd			-			-	-		14.3
	4.2	2	3	64	20	-	-		8			14	2	4.1	14.5
	3.2	1	1½	65	5		e?		-			5	1	3.0	4.2
(4.5)	e		1	66	e				-			e	e		6.0
	7.9	2	½	67	30	-	-		30			30	2	8.0	13.4
	16	2	3	68	>100	-	-		100			>100	2	>16	13.4
	14.4		10	69	-		dd		-			-	-		5.3
	13.0	2		70	50	sup.	-		60			55	2	13.0	12.6
	3.1	2	2½	71	8	12	-		2	5	-	5	2	3.0	3.5
	5.7	2	½	72	5	-	o?		36			26	2	6.6	6.0
	10.7		13	73	-		dd		-			-	-		13.8
	15.4	2	2½	74	85	-	-		90			88	2	16.0	4.5
	4.8	2	4½	75	5	-	d		15		d	10	2	3.6	4.5
	-			76	78				75		A3	76	2	15.0	-
	16.6	2	2	77	>100				100			>100	2	>16	14.6
	2.8	2		78	3:		de?		5		d	4	2	2.8	4.1
	3.5	2		79	5:		d		10		d	8	2	3.5	-
	15.0	2		80	77				68			76	2	15.0	14.3
	3.6	2		81	10	3	-		10			10	2	3.6	9.2
	-			82	50	-	late		-			50	1	-	7.9
	14.1	2		83	64	-	-		65			65	2	14.1	5.8
	-			84	late		dd		-			-	-		5.9
	12.1	½	1	85	-		dd		50:		dd	50:	½	12.4:	9.2
	13.4	2	2½	86	60		s?		65			62	2	13.7	5.8
	12.6	2	2½	87	48		s?		64			48	2	12.1	9.2
	15.7	2	2½	88	76	-	-		45			85	2	15.7	-
									50						
									90						
									100						

4.2 2 $2\frac{1}{2}$	89 70				65 ⁷⁷		71 2 14.5
5.3 2 $\frac{1}{2}$	90 20				25	@	22 2 5.5
-	91 62	late	60		-		61 2 -
-	92 77	late			-		77 1 -
14.3 2 $2\frac{1}{2}$	93 62				62 ⁷⁰		64 2 14.0
14.7 9	94 -	dd			-		-
4.2 2 2	95 10	-	k		18		14 2 4.1
6.0 2 $\frac{1}{2}$	96 8	-	-		15	noon 13??	12 2 3.9
13.4 2 2	97 76	-	-		80		78 2 15.1
13.0 2 2	98 45	-	-		45		45 2 11.6
5.3 10	99 -	dd			-		-
12.6 2 2	100 45	-	-		60		52 2 12.6
3.5 2 2	101 8	-	k		15 ²³⁰		12 2 3.9
6.0 2 1	102 30	-	-		30 ⁴³⁰		30 2 8.0
13.8 9	103 -	dd			-		-
4.5 2 2	104 20	-	h sit?		10		15 2 4.2
4.5 2 4	105 late 2!	d			10	dd	6 2 3.2
-	106 late				-		-
14.6 2 $\frac{1}{2}$	107 72	-	-		76		74 2 14.8
4.1 2 1	108 12:	dd			5:	dd	8 2 3.4
-	109 70	-	-		76	late	70 14.5
14.3 2	110 77	-	-		60		68 2 14.3
59 2345	a 40	S, B	45		mean		42 2 11.2
92 224 B830	b 75	-	75		12.0 2 $1\frac{1}{2}$		75 2 14.9
92 273 A2.3	c 62	-	50 40		14.9 2 $1\frac{1}{2}$		53 2 12.7
59 2543 A077	d 80	-	62		12.8 2 $1\frac{1}{2}$		71 2 14.5
59 2472	e 28	10 sit?	30	k	13.9 2 1		19 2 4.8
92 853 B9 64	f 80	-	68		6.8 2 1		73 2 14.7
92 476 B5 59	g 100	-	100		14.5 2 1		100 2 >16
59 2475	h 20	-	30		16.5?		25 2 6.4
92 863 A0 53					5.3 2 1		
59 2570							
92 909 A2 84							
late B 90							
59 2573							

										Mean		
-59 2449 ✓	AO	61	i	90	—	80				15.7	2	1 1/2
-59 2502	B	65	j	25	5	small	do			6.4	1	1
-59 2509 ✓	B	67	k	30	—	30				9.3	2	1
-58 2592	B	119	l	25		20				6.6	2	1
93002	B	121	m	35		20				7.6	2	1/2
-58 2594	B	121	n	76		84				15.0	2	1
93026	AO	74	o	25	—	20	d			4.9	2	1 1/2
-59 2538 ✓	B	68	p	62		77				13.9	2	1
-59 2544 ✓	B	69	q	—	o	—	od			7.6	2	—
AS neb	127	r	—	o	—	od				7.2	3	—
AS neb	128	s	5	—	thin	10				3.5	2	1/2
-59 2560 ✓	B	183	t	2	—	emission?				3.0	1	1/2
-59 2563 ✓	B	182	u	0	c	0	c			e	2	c
-58 2637	AO	122	v	74	—	60				14.6	2	1 1/2
93190	B	180	w	185	o?	5				5.8	2	—
-59 2575	AO	180	x	10	o?	5				5.8	2	2
-59 2580	B	129	y	5	thin	5				7.0	2	1 1/2
-58 2652	B	131	z	10	thin	20				4.3	2	—
-59 2603	B	132	aa	70	o?	74				14.1	2	2
-58 2665	AO	130	ab	2	thin?	0				1	2	1 1/2
-59 2628	B	133	ac	0	oo	—				—	—	—
-58 2674	B	123	ad	50	oo	—				—	—	—
93342	B	169	ae	80	thin?	0	*			c	2	c
-60 2251	B	178	af	100	thin?	0	*			12.4	2	1
-59 2648	AO	178	ag	95	thin?	0	*			15.7	3	1
-58 2679	AO	125	ah	100	thin?	0	*			85	A2	90
-58 2681	AO	101	ai	80	thin?	0	*			15.4	2	1
93402	AO	101	aj	80	thin?	0	*			16.0	2	2
12-3 neb	135	ak	80	thin?	0	*	*			15.7	1	1/2
-59 2696	B	136	al	20	thin?	0	*			6.8	2	1
-59 2696	B	136	am	2	thin?	0	*			4.0	1	1/2
93632	B	136	an	2	thin?	0	*			—	—	—

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-58 2361 ✓	A?	9	100:	off*	77		84	2	15.6
-58 2382 ✓		10	100:	off*	20	h	15	2	4.2
92086 ✓ A0		11	100:		62		81	2	15.4
-58 2368 ✓ A0		11	74		70		72	2	14.6
-58 2400 ✓ A0		12	100	d	74	de	85	2	15.7
-58 2424 ✓ A0		13	90		100		95	2	>16
-58 2413 ✓ A0-A2		14	50		50		50	2	12.4
-58 2418 ✓ A0		15	75		74		74	2	14.8
92234 ✓ A0		16	100:	s	100	g	100	2	>16
-58 2421 ✓		17	55		45		50	2	12.4
-58 2427 ✓		18	95	A1 g	77		86	2	15.8
-58 2440 ✓ A0-A2		20	80	A2?	74		77	2	15.1
92235 ✓ A2		21	77		95		86	2	15.8
-58 2399 ✓		22	20		20		20	2	5.0
-58 2432 ✓		24	100	A0	100		100	2	>16
92289 ✓ B8		25	100	A0	90		95	2	>16
-58 2426 ✓ A0		26	2	h, B	-		8		-
-58 2423 ✓ A0		27	82	A0	80		81	2	15.4
92251 ✓ A		28	25	B	28		26	2	6.6
-59 2325 ✓		31	60	A0	70		65	2	14.1
-59 2314 ✓		32	62	A0	65		64	2	13.9
-59 2358 ✓		33	68	A1 m	60		64	2	13.9
-59 2374 ✓		34	30	-g	40		35	2	9.7
-59 2384 ✓		36	38	88	28		33	2	9.2
-59 2332 ✓		37	20	h	36		28	2	7.3
-59 2324 ✓ B		38	50		36		43	2	11.4
-59 2299 ✓ B8		39	54		50		52	2	12.6
92064 ✓ B8		40	50		56	d	53	2	12.7
-60 2040 ✓		41	62		62	A2	62	2	13.7
-60 2064 ✓ A0, narrow		42	90:	85	54		52	2	12.6
92253 ✓		43	2:	h	12		7	2	3.4
-60 2115 ✓									
-60 2114 ✓ B8-									
-60 2126 ✓									
92554 ✓ Oes									

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		85	emission?		emission or doublet		λ'	λ
-58 2542 ✓		86	15		15		15	2 4.2
-58 2545 ✓		87	40	3	30		35	2 9.8
-58 2552 ✓		88	3	f	20	hh	12	2 3.9
92 85 2 B9		91	40		90	dd	90	2 16.0
-58 2555 ✓	#47	92	78		100		92	2 >16.
-58 2584 ✓		93	70		85	d	78	2 15.1
-58 2517 ✓	#48	94	10:	HeS e?	8	hh	9	2 3.5
-58 2478 ✓		95	95		85	d	16.2	2 1 90 2 16.0
-57 3628 ✓		96	30		15		22	2 5.4
92 714 -57 3621 ✓		97	54		60		12.9	2 1 57 2 13.2
92 352 ✓ B9		98	88	A3	80		89	2 15.9
-57 3613 ✓		99	90		80		15.3	2 1 85 2 15.7
-57 3687 ✓		100	80	f	65		72	2 14.6
92 819 A0		102	55		50		52	2 12.6
-58 2580 ✓		103	77		90		84	2 15.6
-57 3829 ✓		104	80	f A3	-		80	2 15.3
93 826 A0		105	80	f	68		74	2 14.8
-57 3783 ✓		108	84	f	95		90	2 16.0
93 482 A0		111	90	f A2	80		90	2 16.0
-58 2744 ✓		112	90	f A2	80		85	2 15.7
-58 2761 ✓		113	77	bb	70:	defect	74	2 14.8
-58 2748 ✓		115	25	6	35		30	2 8.0
-58 2712 ✓		116	15	6	5		10	2 3.7
-58 2708 ✓		117	40		45		42	2 11.2
-58 2628 ✓		118	80		77		78	2 15.1
-58 2624 ✓		120	22		25		24	2 6.0
-58 2588 ✓		124	15		10		12	2 3.9
-58 2675 ✓		126	2	f?	5		4	2 3.0
-58 2604 ✓	B	124	5:	af				
		125						

58 2831 ✓	140	55	0	62		56	2	13.1
59 2808 ✓	145	70	h	62		66	2	14.2
59 2740 ✓ B	148	25	h	15	8	20	2	5.0
59 2713 ✓	149	5	h	62		—		—
59 2805 ✓	150	25		30		28	2	7.3
59 2801 ✓	151	40		30		35	2	9.8
59 2788 ✓	152	74	a	62		68	2	14.3
59 2774 ✓	154	50	f	38		44	2	11.5
60 2324 ✓	155	18		20		19	2	4.8
60 2334 ✓	156	15	f	5	5	10	2	3.7
60 2326 ✓	157	48		48		48	2	12.1
	158	20		35		38	2	7.3
	159	16	S, A2	60		63	2	13.8
59 2722 ✓	162	100	f	90		95	2	16
	163	50	0, A2	40	dd	45	2	11.6
60 2213 ✓	164	75	f	62		68	2	14.3
60 2280 ✓	165	50	f	40		45	2	11.6
60 2282 ✓	166	75	f	40	35	45	2 1/2	11.6
60 2295 ✓	167	18		38		23	2	5.8
60 2263 ✓ B8	168	7100		90		98	2	16
60 23422 B9	170	15	f	5		10	2	3.7
59 2677 ✓	173	? on strong		5		5	1/2	3.0
59 2727 ✓	175	20		25		22	2	5.5
59 2684 ✓	177	2	pu	0		1	2	c
59 2680 ✓	179	77	f	50		68	2	14.3
59 2643 ✓	181	80	f	56		70	2	14.5
59 2612 ✓	184	100	L	100		100	2	16

X14906 fair - faint 90 min.

17 11.5 12.5

A13 16 16

20 11 12

hazy

21 11.5 12.5

23a 11 12

A97' 11 11.5

ff

18 7 8 1

A96

ff + small

A95 15 16 -

47 13 14

48 11 12 -

A97

continuous ?

44 2' 3'

45 2' 3'

A99 13 14

A89 13 14

A90 3' 4'

hazy

51 3' 4'

"

119 medium

hh

120

hh

52 13 14

49 11.5 - -

50 - 11 -

53 11.5 12.5 -

A101 14 15 -

X 14961 - pretty good

46	2	3	2
37	5	6	3
66	4	5	3
56	4	4	-1
r ₂	7:	8:	-
54		H	
57	2	-	-
75	5	5	-
99	5.5	6	
73	10	11	
94	13.5	-	

strong line to min of δ ?

78

Perseus Cluster - Rasmuson

1932plate

GC.	Sp.	m	M	I 38872	H α	H β	I 38591	6:	7:	forms	
197	1 Cas	B5	4.88	-1.03	C1408	14, 14	15, 15	-	I 38557	6: 4, 7: 5	forms
172*	2 Cas	B9	5.03	-1.67	C15969	9	10	-	I 38557	4, 5	
199*	♂ Cas	B0p	2.25	-4.85	C15196	10	11	-1			
201	Bravo	B8	5.54	-0.87					I 16891	96, 7, 8	
263		B9	5.46	-7.02	C15251	13.5	14	-1	I 37974	7, 8	forms
301		A0	6.32	+0.73					I 37974	8, 9	
379		B8	5.45	-0.57	C16258	14	14	-	I 37474	7, 8	
384*	♂ Per	Bp	4.19	-2.85	I 37522	3.5	4	1.5	I 37319	2, 3, 3.4	
412		B3	5.49	-1.35	C19123	9.8	10.9	3.3, 3.5	I 38965	3, 3.3, 3.5, 4	
419	ε Cas	B5	3.40	-2.91	C19121	10	11	3.5	C19147	8, 9	3.5
531	4125-30	A0p	5.56	-0.57	C17008	13	14	-	I 37330	large 6, 6.5	
609		A0	5.66	-0.18					I 37320	77.5, 6, 6.5, 7	
678	Bravo	B5	5.42	-1.02	C1616	12	13	-	I 37330	7, 7.5	forms
715		A0	5.60	-1.18	C17044	10	11	-	I 38884	5.5, 6.5	
740		B5	6.38	-0.41	C17109	12	13	-	I 26779	80, 8, 9	
742		B3	5.30	-1.11	I 27304	50p	3.5, 4		I 27310	66, 4, 4.5	
744		B3	5.08	-1.48	I 27304	40	3, 3.5		I 27310	70, 3.5, 4	
767		B3	5.30	-1.55	C2257	13	13	3.5	I 27304	50, 3, 3.5	
774		A0	5.64	-0.82	C16119	13.5	14	-	I 37416	6.5, 7.5	
780*		B3	4.90	-2.21	C2235	12	12	3	I 27304	66, 3, 3.5	
783		B5	5.64	-0.59	C17010	12	13	0	I 27310	40, 4, 4.5	
787		A0	5.60	+0.10	C2257	12	13	0	I 37416	11.5, 12.5	
790		B3	4.67	-1.75	C17010	10	11	4	I 27310	7, 7.5	
796		B8	6.04	-0.28	C2464	12	13.5	-	I 27310	60, 2.5, 3.5, 4	
802		A0	5.52	-1.16	C2257	12	13	-	C2235	11, 12, 4	
817	♀ Per	B5p	4.26	-2.21	C2464	10	11	4	I 26779	110, 11.9	forms
833		B5A	5.57	-1.59	I 37451	5	6		I 26779	90, 7.5, 8	forms
838	♂ Per	B5	3.10	-3.24	C3029	10	11	1	I 26779	40, 3.5, 4.6	
845		A2	5.57	-0.41	C16005	14	15	-	I 3029	5, 7	
853		A0	5.64	-1.27	I 38087	5	6		I 38081	5, 6	forms
					I 38335	4	5		I 37416	4, 5	forms
									I 27310	66, 6.5, 7.5	
									I 38933	5, 6	

I I converted

C Means

n

good I

5.2	10.4	6.2	11.4	-	3
14	10.5	15	11.5	-	1
4.5	9.6	5.5	10.7	-	1
9.5	9.5	10.5	10.6	-	2

1408 hazy

5, 10.7, 6, 11.8

4.5 5.5

10.1 11.2

6.5	7.5	-	-	1
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11.8	12.8	-	-	1
------	------	---	---	---

16891 up from

7.5	12.8	8.5	13.8	-	1
-----	------	-----	------	---	---

13.2	13.0	14.0	13.9	-	1
------	------	------	------	---	---

8.0	9.0	-	-	1
-----	-----	---	---	---

13.5	14.3	-	-	1
------	------	---	---	---

7.5	13.0	8.5	13.8	-	1
-----	------	-----	------	---	---

13.0	13.0	13.5	13.6	-	2
------	------	------	------	---	---

15086 not very good 16258 poor

8 9

14.0 15.0

7.5 8.5

13.4 14.4

3.1	3.9	1.5	2
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8.0	9.0	-	-	1
-----	-----	---	---	---

3.2	8.2	3.8	8.9	-	1
-----	-----	-----	-----	---	---

8.6	8.5	9.6	9.4	3.5	3
-----	-----	-----	-----	-----	---

19121 dd

3.1 3.9

8.5 9.6

3.2 3.8

8.6 9.5

13	13	14	14	-	1
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6.2	6.8	-	-	2
-----	-----	---	---	---

11.4	12.1	-	-	1
------	------	---	---	---

7	12.3	7.4	12.9	-	3
---	------	-----	------	---	---

I 37450; 7, 7.5

13	12.8	14	13.8	-	1
----	------	----	------	---	---

5.5	10.7	6.5	11.8	-	1
-----	------	-----	------	---	---

10.1	10.5	11.1	11.3	-	1
------	------	------	------	---	---

7	12.3	8	13.3	-	2
---	------	---	------	---	---

11.8	12.1	12.5	13.0	-	1
------	------	------	------	---	---

3.8	4.2	-	-	2
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8.9	9.3	-	-	2
-----	-----	---	---	---

3.2	3.8	-	-	2
-----	-----	---	---	---

8.2	8.9	-	-	3
-----	-----	---	---	---

3.4	8.4	3.9	8.9	-	3
-----	-----	-----	-----	---	---

13	11.5	13	11.6	3.5	2
----	------	----	------	-----	---

6.8	12.1	7.5	12.8	-	2
-----	------	-----	------	---	---

13.5	12.8	14.0	13.4	-	2
------	------	------	------	---	---

3.4	8.4	3.6	8.6	-	2
-----	-----	-----	-----	---	---

12.0	10.8	12.5	11.4	3.5	2
------	------	------	------	-----	---

4.2	4.3	4.7	9.8	-	3
-----	-----	-----	-----	---	---

12.2	12.1	13.0	12.0	-	3
------	------	------	------	---	---

7.8	8.5	-	-	2
-----	-----	---	---	---

13.1	13.5	-	-	1
------	------	---	---	---

3.6	8.6	4.2	9.3	-	2
-----	-----	-----	-----	---	---

11.0	10.2	11.5	10.8	4	3
------	------	------	------	---	---

8	13.3	8.9	14.3	-	1
---	------	-----	------	---	---

13.0	13.2	13.5	13.9	-	1
------	------	------	------	---	---

6.5	11.8	7.3	12.4	-	2
-----	------	-----	------	---	---

10.0	10.6	11.0	11.5	-	2
------	------	------	------	---	---

1.2	2.2	3.1	-	-	4
-----	-----	-----	---	---	---

12.4	6.0	-	-	1.3	4
------	-----	---	---	-----	---

4.8	10.7	5.8	11.8	-	3
-----	------	-----	------	---	---

10.0	11.0	-	-	1
------	------	---	---	---

6.2	11.4	7.2	12.5	-	1
-----	------	-----	------	---	---

9.0	9.8	10.0	10.8	-	2
-----	-----	------	------	---	---

8.0	13.3	9.0	14.3	-	2
-----	------	-----	------	---	---

14.0	13.6	15.0	14.6	-	1
------	------	------	------	---	---

4.5	10.7	5.5	11.8	-	4
-----	------	-----	------	---	---

9.6	10.7	-	-	1
-----	------	---	---	---

2257 - at edge

bright B - 2966 poor 3029 fogged

2966 poor 3029 fogged

6.8 7.5

12.7 13.8

4.5 5.5

10.1 11.2

7.8 8.5

4 5

9.5 10.7

7 8

12.9 13.9

6 7

11.8 12.8

4 5

5 6

10.7 11.8

8 9

14.0 15.0

5 6

10.7 11.8

998*				128433	5:	6:	for	MF 8840 52		
998)	B5	5.34	-1.34	C16058	11.5	12.5	2	I 27304	4	5
910 E Per	B5	2.96	-3.71	C3072	6	7	5	I 27310	4	5
947* <i>p light & S det</i>	B3p	4.03	-2.39	C16052	3:	3:	2	I 38335	3:	3.5:
998 412830	Aop	5.32	-0.38	C16276	8.9	9.1	-	I 37589	5.5	6.5
1003	B3	4.89	-1.53		10:	10:	-	I 38335	5	6
(1093)	A0	5.70	-0.40	C16086	11:	12:	-	I 38125	3:	3.5:
1099	A0	5.68	+0.04	C16096	13.5	14	-	I 37332	7.5	8
1103	A0	5.25	-0.29	I 38888	7	7.5	-	I 38057	7.5	8.5
1204 <i>y Aur</i>	B3	3.28	-1.76	C2491	10	11	3.5		7	8
1253	B3	6.23	-0.73	C15454	10	11	4			
1274* <i>p Aur</i>	B3	5.12	-1.24	C16066	11.5	12	1.5	I 37407	5.5	7
					10:	11:	-	I 38940	6	6.5
								C16082	5	5.5
									11:	off

38335:31.5, 6.5 4.8 10.0 5.8 11.0 - 5.2
 38087:5, 6 11.8 10.6 12.8 11.2 1

5.2 6.2
 10.9 12.0

TO:

6.0 9.0 4.5 1
 3.0 3.5 - +
 3.0 3.0 2 1
 5.2 10.4 6.2 11.4 - 1
 9.2 9.7 9.8 10.6 - 2
 3.0: 3.5: - 1
 8.0 8.5 -
 7.5 12.8 2.0 13.3 - 1
 11.0 12.2 12.0 12.9 - 1
 7.5 12.8 8.5 13.8 - 1
 18.5 13.2 14.0 13.9 - 1
 7.0 7.6 13.2 - 2
 12.3 12.9

bright lines - no. 16052 poor

16276 very slanting

5.2 6.2
 10.9 12.0

16096 poor

7.5 8.0
 13.4 13.9

16096 fogged

7.5 8.5
 13.4 14.4

7.0 7.5
 12.9 13.3

10.0 11.0 3.8 2 2527 dense

5.8 11.0 6.8 12.1 0 1
 10.8 10.8 11.5 11.5 1.5 1
 4.5 9.6 5.2 10.4 - 2
 10.8 9.8 11.5 10.6 - 1

hazy

5.8 6.8

11.6 12.6

4.8 5.4

10.5 11.2

38982:4, 5 10.8 9.8 11.5 10.6 - 1 16066 very poor 16082 - at edge, wh

Pleiades

	C18568		18700		18644		18572		Mean	
14	12	13	11	12	11	12	—	—	11.3	12.3
15	7.5	8.5	10	11	9	10	10	11	9.0	10.0
17	8.5	9.5	10	11	10	11	9.5	10.5	9.5	10.5
20	7	8	9	10	9	10	9.5	10.5	8.6	9.6
21	12	13	12	13	11	12	—	—	11.7	12.7
24	12.5	13.5	12.5	13.5	—	—	—	—	12.5	13.5
25	6	7	7	8	8	9	8	9	7.2	8.2
28	14	15	13.5	14.5	13	14	—	—	13.5	14.5
31	dd	—	—	—	—	—	8	9	8	9
34	11.5	12.5	11.5	12.5	—	—	—	—	11.5	12.5
42	13	14	14	15	13	14	—	—	13.3	14.3
45	12	13	12.5	13.5	12	13	—	—	12	13

Additional Plates on γ Centauri

X 6480

63	3	4.5	1	hazy
ab	2	-	-	
99	6	7	-	
73	11	12	4	
105	4	5	-	
103	14.5	15.5	-	
69	14	15	-	
108	4	5	4	faint for scale
29	9	10	4	
30	12	13	4	
26	11.5	12.5	5	

X 13070

29	8	9	2	
30	11	12	-	
26	12	13	-	

H
f

X 10494

29	7	8	-	
30	10	11	-	
26	11	12	-	
69	14	15	-	
103	13	14	-	
94	14	15	-	
73	10	11	-	

H
f

710855

46	1	2	0
99	4	5	-
73	9	10	
103	13	14	-
94	14	15	-
4	3	3.5	-
23	10	11	
8	12	13	

Pleiades

85

MF MF
8804 9483

14	40	
15	30:	
16	48	50 ✓
17	48	
21	56	
24	64	
a	72	
b	64	
18	72	74
26	86	
27	77	
c	85	
35	85	
13	64 70	64
11	64	62 ✓
7	62:	74:
5	74	78:
3	75	74 ✓
6	62	60
12	50	48
19	66	78
22	75	78 ✓
38	58	70
43	98	77 ✓
44	78	80 ✓
50	60:	50:
54	75	62
60	65	65
52	77	78 ✓
46	85	88 ✓
51	80	75

86

M7

MF
7887

8086

8015

1	70:	50:	56
3	52	56:	36
3a	74	74	64
4	75	62	50
5	40	40:	30:
7	75	74	62
8a	64	50	60
9	82	60	66
11	65	62:	60
14	74	65:	64
17	88	74	74
18	58	45	40:
20	50:	40	30:
23	80	77	64
25	—	—	35:
26	75	74	65
27a	52	50	48
29	80	64:	68
31	60:	60:	54
33	77	74	75
35	77	74	—
36	52	50:	60
37	55	50	50
41	96:	—	62:
45	48:	—	50
48	90	70	74
51	60	56:	58
52	62:	50:	50
54	65	54	58
60	74	70	60
60a	40	36	

M6MF8015

1 77

2 50

9 78

3255

3340

9 100:

a 80

28 large

29 60

88

Pleiades

MF 8161

6	62	
13	74	
11	75:	
MF 8840	^{mm} 8840	8844
34	38	38
35	75	74
41	65	
42	70	
d	80	
46	75	78
51	74	74
45	52	65
47	65	64
52	74	74
38	60	60
43	74	77
44	74	75
48	50	50:
53	focus	
60	mm	
67	77	

Pleiades - Means of all MF Plates.

89

	MF9983	8804	8840	mean
3	66(2)	75(1)		70(3)
5	70(2)	74(1)		72(3)
11	68(2)	64(1)		66(2)
14	31(1)	40(2)		38(3)
15	<30	30(1)		-
16	44(2)	42(2)		43(4)
17	<30	38(2)		36(2)
18	68(2)	72(2)		70(4)
20	<30	40(2)		38(2)
21	38(1)	45(2)		43(3)
22	70(2)	75(1)		72(3)
23	76(1)			76(1)
24	58(1)	62(2)		61(3)
25	<30	<30		<30
26	77(1)	80(2)		79(3)
27	58(1)	71(2)		68(3)
28	50(1)	62(1)		56(2)
31	-	<30		<30
32	61(1)			61(1)
34	30(1)	44(2)	38(1)	40(4)
35	72(2)	78(2)	78(1)	75(5)
37	33(1)	-		33(1)
41	60(1)		65(1)	63(2)
42	58(1)		70(1)	66(2)
43	71(2)	78(1)	74(1)	74(4)
44	70(2)	78(1)	74(1)	74(4)
45	38(1)	60(2)	52(1)	52(4)
46	82(2)	85(1)	75(1)	81(3)
47	60(1)	66(2)	65(1)	64(4)
51	68(2)	72(2)	74(1)	71(5)

52	62(1)	72(2)	74(1)	70(4)
55	78(1)	.	74(1)	78(1)
a	71(1)	72(1)		72(2)
b	65(1)	64(1)		64(2)
c	68(1)	85(1)		80(2)
d	67(1)		80(1)	76(2)

M7 Means

	^{MF} 8086	8015	7887	12208	Mean
1	50(2)	50(2)	66(2)	40(1)	50(7)
3	48(2)	32(2)	46(2)	30(1)	40(7)
3a	76(2)	—	74(2)	74(1)	75(5)
4	61(2)	50(2)	74(2)	82(1)	65(7)
5	38(2)	30(2)	35(2)	30(1)	33(7)
6	30	—	—	—	30(1)
7	67(2)	68(2)	75(2)	74(1)	70(7)
7a	75(1)	—	—	—	75(1)
7b	62(1)	—	—	—	62(1)
8	62(1)	—	—	—	62(1)
8a	59(2)	60(1)	55(2)	30(1)	55(6)
9	61(2)	64(2)	70(2)	62(1)	65(7)
11	61(2)	65(2)	64(2)	62(1)	63(7)
13	74(1)	—	—	—	74(1)
14	56(1)	67(2)	61(2)	62(1)	62(6)
16	60(1)	—	—	—	60(1)
17	72(2)	74(2)	80(2)	77(1)	76(7)
18	44(2)	35(2)	54(2)	36(1)	44(7)
20	44(2)	30(2)	56(2)	38(1)	42(7)
21	74(1)	63(2)	78(2)	—	74(1)
22	62(1)	—	—	—	62(1)
23	76(2)	63(2)	78(2)	74(1)	75(7)
23a	62(1)	—	—	—	62(1)
24	70(1)	—	—	—	70(1)
25	—	32(2)	30(1)	30(1)	30
26	74(2)	66(2)	76(2)	70(1)	72(7)
27a	62(2)	44(2)	55(2)	60(1)	53(7)
28	76(1)	70(1)	—	—	73(2)
29	70(2)	69(2)	75(2)	62(1)	70(7)
31	48(2)	52(2)	48(2)	40(1)	48(7)

33	73(2)	75(2)	77(2)	75(1)	75(7)
34	74(1)	-	-		74(1)
35	74(2)	74(2)	84(2)	78(1)	78(7)
36	50(2)	55(2)	48(2)	35(1)	48(7)
37	34(1)	50(2)	47(2)	30(1)	43(6)
45	34(1)	45(2)	42(2)	45(1)	44(5) 42(6)
46	35(1)	-			35(1)
51	53(1)	56(2)	56(2)	50(1)	54(6)
52	40(1)	48(2)	50(2)	40(1)	46(6)
53	70(1)	-			70(1)
54	54(1)	53(2)	58(2)	48(1)	53(6)
55					-
56	75(1)				75(1)
57	70(1)				70(1)
58	70(1)				70(1)
59	77(1)				77(1)
60a	62(2)	58(2)	67(2)	62(1)	62(7)
60a	36(2)	30(1)	40(2)	30(1)	34(6)
61					-
62					-
63	60(1)	62(1)			61(2)
64	64(1)				64(1)
65	56(1)				56(1)
66	68(1)				68(1)
67	74(1)				74(1)
68	64(1)				64(1)
a	85(1)				85(1)
b	<50(1)				<50(1)
c	50(1)				50(1)
d	60(1)				60(1)
e	40(1)				40
f	40(1)				40
g	80(1)				80

38					
39					
40					
41		66(2)	76(2)	77(1)	73(5)
42					
43					
44					
47					
48	70(1)	68(2)	84(2)	80(1)	76(6)
48a		—			
48b		—			
49					
50					

Magnitudes for stars not measured
in γ Carinae by B, V, B

Yellow	B46685	mag	46539	mag	mean
3	9.0:	9.8:	84	84:	9.9:
48	9.0:	9.8:	80	79	9.55
Companion 29	55 57	6.92	53:	50:	7.28
111	88 89	9.55	79	79	9.48
Companion 59	70 72	7.91	63	61	7.99
56	71, 71 71:	7.91	64, 64	65, 65:	8.17
60	72 75	8.10	67	66	8.30
112	78 77	8.43	69	70	8.54
90	86 86	9.28	76	76	9.18
11	88		77		
12	82		73		
18	88		79		
23a	73		63		
24	86		77		
26	61		52		
23	51		46		
47	86		76		
27	83		74		
25	88		81		
44	78		67		
45	82		73		
7	70		57		
8	60		51		
37	63		56		
30	64		56		
66	51		46		
65	76		66		
71	74		66		

Blue B50974

51022

Mean

3	61	61	952
29	44	42	693
55	53	52	832
56	58	56	900
65	54	53	844
65A	56	55	879
60	56	56	884
111	60	60	938
59	56	55	879
112	55	52	844
90	55	56	879
129	60	59	931
130	60	60	939
131	59	58	918
132	60	59	931
133	56	58	884
176	58	58	912
147	59	56	884

55	56	914
42	43	700
58	52	868
56	55	914
54	53	882
57	56	928
54	54	890
57	57	934
55	55	908
49	49	810
51	51	843
56	57	928
57	58	942
55	56	914
58	57	942
55	56	914
55	55	908
53	52	867

9.3
7.0
8.5
9.1
8.6
9.0
8.9
9.4
9.1
8.3
8.6
9.3
9.4
9.2
9.4
9.0
9.1
8.7

23	40
23a	50
26	42
7	49
8	43
49	59
48	61
41	43
40	56
44	54
45	55

42
48
41
47
42
55
59
40
54
50
52

71	51
52	61
56	68
59	71
58	65

46
59
65
67
61

Sept 30, 1932 45 int. Wilson 4^m M39
 Buttrifarms Schilt up

1	11.0	11.7	27.1	0.7	16.1	0.7
2	11.0	11.9	27.5	0.8	16.4	0.8
3	11.0	12.3	27.1	1.3	16.1	1.4
4	11.0	13.5	29.1	2.5	16.5	2.6
5	11.0	15.9	29.0	4.9	16.0	5.1
6	11.1	19.6	27.5	8.5	16.4	8.7
7	11.1	22.1	27.3	11.0	16.2	11.4
8		(25.2)	27.4	(14.1)	16.3	(14.5)
9						
10						

								94	Reduced Mean
a	11.1	14.4	27.9	3.3	16.8	3.3	2.0	2.5	2.0
b	11.1	21.7	27.9	10.6	16.8	10.6	3.2	3.7	3.2
c	11.1	13.3	28.0	2.2	16.9	2.2	1.6	2.1	1.6
d	11.1	12.5	27.9	1.4	16.8	1.4	1.2	2.0	1.4
e	11.2	20.2	28.0	9.0	16.8	9.0	3.0	3.4	3.0
f	11.1	22.3	28.0	11.2	16.9	11.1	3.3	3.9	3.4
g	11.1	23.1	27.9	12.0	16.8	12.0	3.5	(4.0)	3.5
h	11.3	22.7	28.1	11.4	16.8	11.4	3.4	3.9	3.4
i	11.2	21.7	28.0	10.5	16.8	10.5	3.2		3.2
j	11.2	14.8	28.0	2.6	16.8	2.6	1.8	2.6	2.0
k	11.2	22.1	28.0	10.9	16.8	10.9	3.3	3.8	3.3
l									
m									
n	11.6	14.6	28.6	3.0	17.0	3.0	1.9		1.9
o									
p									
q									
r									
s									

t									
u	11.7	15.7	28.4	4.0	16.7	4.0	2.2		2.2
v	11.7	15.1	28.4	3.4	16.7	3.4	2.0		2.0
1	11.3	12.4	28.1	1.1	16.8	1.1	1.0	1.4	1.0
2	11.3	17.8	28.1	6.5	16.8	6.5	2.6	3.1	2.6
3	11.3	18.3	28.1	7.0	16.8	7.0	2.7	3.2	2.7
4	11.3	18.7	28.3	7.4	17.0	7.3	2.7		2.7
5									
6									
7	11.3	13.3	28.0	2.0	16.7	2.0	1.5	2.0	1.5
8	11.3	13.7	28.0	2.4	16.7	2.4	1.7	2.1	1.6
9	11.4	12.0	28.5	0.6	17.1	0.6	—	(0.7)	(0.7)
10	—	—	—	—					
11	—	—	—	—					
12	11.4	20.5	28.7	9.1	17.3	8.8	3.0	3.5	3.0
13	11.4	17.3	28.7	5.9	17.3	5.7	2.5	3.0	2.5
14	11.4	13.7	28.5	2.3	17.1	2.3	1.7	2.2	1.7
15	11.5	13.7	28.5	2.2	17.0	2.2	1.6	2.5	1.8
16	11.5	20.9	28.5	9.4	17.0	9.3	3.0		3.0
17	11.5	14.1	28.5	2.6	17.0	2.6	1.8	2.3	1.8
18	11.4	11.9	28.7	0.5	17.3	0.5	—	(0.5)	(0.5)
19	11.4	15.6	28.7	4.2	17.3	4.1	2.2	2.7	2.2
20	11.5	27.2	28.5	10.6	16.9	10.5	3.2		3.2
21	11.6	20.1	28.5	8.5	16.9	8.4	2.9		2.9
22	11.5	17.5	28.5	6.0	17.0	5.9	2.5		2.5
23	11.5	21.7	28.5	10.2	17.0	10.1	3.2		3.2
24	11.6	16.4	28.5	5.8	16.9	5.8	2.5		2.5
25	11.5	12.2	28.5	0.7	17.0	0.7	—	0.8	0.8
26									
27	11.6	16.4	28.5						

Sept 29, 1932 44 M+W 2m Out of focus

M 39

0 Def Clear

1	10.9	11.6	27.0 27.8	0.7	16.0	0.7
2	10.9	11.8	27.0	0.9	16.1	0.9
3	10.9	12.4	27.0	1.5	16.1	1.5
4	10.9	13.6	26.7	2.7	15.8	2.7
5	10.9	15.6	26.5	4.7	15.6	4.7
6	11.0	19.3	26.5	8.3	15.5	8.5
7	11.0	22.6	26.9	11.6	15.9	11.5
8	11.0	25.1	27.0	14.1	16.0	13.9
9						
10						

a	11.0	16.5	26.9	5.5	15.9	5.5	2.5
b	11.1	23.8	26.9	12.9 3.7	15.8	12.7	3.7
c	11.0	14.7	26.9	3.7	15.9	3.7	2.1
d	11.1	13.4	26.9	3.3	15.8	3.3	2.0
e	11.1	22.7	27.0	11.6	15.9	11.5	3.4
f	11.0	24.4	26.9	13.4	15.9	13.3	3.9
g	11.1	24.9	26.9	13.8	15.8	13.8	(4.0)
h	11.1	24.5	27.0 26.9	13.4	15.9	13.3	3.9
i	-	17.2	27.0				
j		17.2	27.0	6.1	15.9	6.1	2.6
k		24.1	27.0	13.0	15.9	12.9	3.8
l							
m							
n							
o							
p							
q							
r							
s							

6							
7							
8							
9	11.1	13.0	26.9	1.9	15.8	1.4	
10	11.1	20.4	26.9	9.3	15.8	3.1	
11	11.1	21.3	26.9	10.2	15.8	3.2	
12							
13							
14							
15	11.1	14.6	26.9	3.5	15.8	2.0	
16	11.1	14.8	26.9	3.7	15.8	2.1	
17	11.1	12.1	26.9	1.0	15.8	(0.7)	
18							
19							
20	11.1	23.1	26.9	12.0	15.8	3.5	
21	11.1	19.7	26.9	8.6	15.8	3.0	
22	11.1	15.1	26.9	4.0	15.8	2.2	
23	11.1	16.8	26.9	5.7	15.8	2.5	
24							
25	11.1	15.6	26.9	4.5	15.8	2.3	
26	11.1	12.0	26.9	0.9	15.8	(0.5)	
27	11.1	18.0	26.9	6.9	15.8	2.7	
28							
29							
30							
31							
32							
33							
34							
35	11.1	12.2	26.9	1.1	15.8	0.8	
36							
37							

K Crucis x 11556

x15878 MF 7915

AGC 17518	B3 6.11	2.5	3	10	10	3
504	" 5.84	3	4	12	12	3
507	B2 6.86	3	—	18	18	8
523	B3 6.91	4	5	24	24	8

O Carinae

14587	6.60	x 7346 (10/100) 13 13	x 6280 H
606	5.82	11 12	large; too faint
653	5.20	12 13	13.5 14.5
667(6)	3.03	—	7, 8
692	6.14	9 10	
702	5.09	6 7	13 14
2876	764	5.54	10 "
2878	769	5.43	10 "
2880	775	5.10	11 12

MF 788 31902

14587	45	60	62
606	—	—	—
653	25	32	—
667	—	—	—
692	25	30	—
702	20	20	—
764	30	35	—
769	25	35	—
775	20	25	—

agreement very
unsatisfactory
MF or Y or both
are or poor
all appear of fairly
poor quality

X15895 del @ Carnival105
Weighted
Mean

		X3958	5563	6487(8)	
54 54	14587	large	—	—	13:
36 36	606	9 10	—	12 13	11.1
30:	653	8 9	12 13	12 13.5	11.7
—	667	2 3	5 5.5	7 8	5.4
—	692	10 —	—	11 12	10.5
—	702	10 11	13 14	12 13	11.8
30:	764	10 11	13 14	13 13	11.7 ¹⁹³² 12.6
35:	769	10 11	—	11.5 13	11.4 12.8
25:	775	8 9	12 13	11 12	11.2 11.8

Wilson - Taurus Cluster and group

126	5	3.8	9° 42'	5.4				
126	4	40.5	+11° 31'	5.43	A0	1.7		C 3544
126	0	44.7	+44 27	6.12	A0	M ₀ 0.9	M _c 0.6	-
18	1	42.3	-54 1	5.14	A0	1.2	1.0	X 11403, 12190 ✓
26	2	42.9	+24 46	5.87	A0	0.9	0.6	C 2324, 6022, 6054
35	3	21.7	+49 30	5.64	B5	-0.1	-0.5	
49	5	12.4	+33 38	5.39	A0p	0.2	0.2	C 16327 ✓
51	5	30.5	-5 29	5.17	B1	-0.9	-0.3	
54	5	38.7	-34 43	5.31	B9	0.1	-0.2	-
58	5	49.5	-33 49	4.89	B5	-0.3	-1.2	
61	6	6.1	+19 49	5.70	B9	-0.1	-0.4	
65	6	23.0	+20 17	4.06	B5	-0.4	-1.2	
67	6	40.7	-30 58	5.16	B3p	-1.3	-2.4	
70	6	51.7	-16 55	4.39	B5	-2.1	-2.6	
79	7	40.8	+11 1	5.30	A0	+0.3	-0.5	C 15338 ✓
80	7	46.5	+2 1	5.11	B8	-0.1	-1.0	17241, 17242 ✓
85	8	32.7	+9 55	6.48	A0	1.0	1.0	-
94	9	30.4	+14 50	6.21	A0	1.0	0.1	-
100	10	10.6	+29 48	5.35	A0	0.6	0.1	C 15670 ✓
106	10	38.0	+23 43	5.05	A0	1.2	0.6	15176 ✓ A2?
118	12	44.4	+28 6	5.83	A0	0.8	0.8	
120	12	51.4	+38 52	2.90	A0p	-0.1	0.0	17722, 18744 ✓
147	15	42.6	+14 25	5.72	A0	1.3	0.7	
155	16	57.0	+15 5	6.16	A0p	0.4	0.0	
168?	18	22.1	-17 52	6.03	B8	-0.5	..	X 7451 ✓
169	18	25.6	-18 28	5.17	A0	0.6	1.2	C 16613, X 7451 ✓
186	19	49.2	+23 49	4.50	A0	-0.1	-0.3	C 16033 ✓
191	20	10.8	+36 30	4.78	A0	0.9	0.6	C 15822, 878, 879 ✓
212	22	50.7	+8 17	4.95	A0	0.4	-0.5	C 14915, 16172, 16217 ✓

M_A

13.5	14	11403	±
13	14	12190	+1.1

12	12	16327	+0.4
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13	14	15338	+1.1
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10	11	17241	-0.3
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13	13.5	15670	+0.9
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13.5	14	15176	+1.1
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12	13	19548	
12.5	13	18744	+0.4

14	14	17451	+1.2
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13.5	14.5	16613	+1.2
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14	14	16033	+1.2
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12	12	15878	
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13	14	15879	+0.7
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14	15	16172	
14.5	15.5	14915	+1.5
14	15	16217	

Comparison of Scales

					Wms		Total	
					wms		wms	
10*	2.15	A0p	54	-0.3	19250 [✓]	19298 [✓]	58	3
11.5 + 36.1	6.95	A0	(91)	+1.2	16148 [✓]			
258 + 43.4	6.64	B8	(86)	+0.1	15324 [✓]			
27.1 + 43.0	6.43	A0	(108)	(+2.3)	15324 [✓]			
141	4.85	B3	18	-2.2	16202 [✓]	15142 [✓]		
149	5.55	B3	54	-0.8	16004 [✓]			
154	5.47	A0	92	+1.3	16021 [✓]			
172	5.03	B9	34	-1.2	15196 [✓]	15969 [✓]		
224	5.46	B9	84	0.0	16219 [✓]	16205 [✓]		
258	5.34	A0	81	+0.6	15136 [✓]			
369	4.90	B8	38	-1.1	15092 [✓]	16166 [✓]		
412	5.49	B3	21	-1.9	15125 [✓]	15133 [✓]		
425	5.03	B8	43	-1.0	15104 [✓]	16206 [✓]		
440	5.18	A0	85	+0.8	15197 [✓]			
457	5.62	C B5	(17)	-2.3	15197 [✓]			
459	4.99	B8	34	-1.2	15253 [✓]			
2 ^h 13.8 + 53.4	6.84	C B9	(18)	-3.9	16683 [✓]			
544	6.24	B2	7	-3.8	16683 [✓]			
560	4.34	A0	38	-0.9	15036 [✓]			
641	5.30	B5	41	-1.2	15965 [✓]	16685 [✓]		
643*	3.68	B8	54	-0.7	19253 [✓]	19266 [✓]	56	4 ¹ / ₂
679	4.69	B5	46	-1.0	15001 [✓]			
730	4.95	A0	58	-0.2	15254 [✓]			
761	5.17	B3	57	-0.6	16212 [✓]			
774	5.64	A0	80	+0.6	16119 [✓]	16120 [✓]		
777	5.92	B9	87	+0.2	16212 [✓]			
781*	4.42	C B9	11	-5.6	19795 [✓]	19815 [✓]	14	-1
786*	4.76	C A0	10	-5.8	19796 [✓]	19103 [✓]	14	-1
839	5.04	B2	12	-3.0	15277 [✓]			
886	5.73	B3	17	-2.3	16016 [✓]			

13	14	19250
10	12	19298

13	14	15324
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15	16	15324
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9	16	16202
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6	7	15142
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11	12	16004
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14	15	16021
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8	9	15969
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10	11	15196
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14	15	16219
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15	16	16205
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12	13	15136
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9	10	15092
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12	13	16166
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8	9	
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10	11	15104
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12	13	16206
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14	15	15197
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5	6	15197
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11	12	15253
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4	5	
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5	4	16683
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4	5	16683
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13	14	15036
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9	10	15965
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9	9	16683
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12	13	19253
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12	12	19266
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12	12	15001
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13	14	15254
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8	10	16212
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14	15	16119
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14	15	16120
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14	16	16212
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5	6	19815
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5	6	19295
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5	5.5	19796
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4	5.5	19803
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5	5.5	15277
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4	5	16016
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896	4.87	B9	52	-0.7	^C 16057 ✓	
898	5.34	B5	27	-1.6	*16058 ✓	
904	5.48	B3	20	-2.0	16016 ^{out}	
926	5.25	B5	54	-0.8	16129, 16136 ✓	
934 40 Tam	5.33	B3	40	-1.2	19138, 19117 ✓	
938	4.33	A0	49	-0.4	15111 ✓	
969	5.64	B8	54	-0.7	16750 ✓	
975	5.15	B8	37	-1.1		
981	4.32	B3	21	-1.9		
992	5.54	B3	15	-2.6	17198 ✓	
1039	5.41	B5	45	-1.0	16080 ✓	
1084 ✓	5.32	B5	62	(-0.5)	15322 ✓	
1123	4.18	B5	20	-2.0	15334 ✓	
1139	4.38	B0	4	-4.2	15171 ✓	
1165	5.74	B8	44	-0.9	16040 ✓	
.. 4.53.4 +14.4	5.98	B8	28	-1.5	16040 ✓	
1231	4.34	B2	10	-3.3	15161 ✓	
1250	0.34	B8	10	-5.8?		
1260	5.39	A0p	28	-1.5	16327 ^{out} , 16214 ✓	
1262 ✓	3.68	B5	26	-1.6	^{20ms} 19462, 19458 ✓	40 3
... 5 14.0 +37.3	6.71	Oe5	12	-3.1	18342 ✓	
1277 ✓	4.29	B1	15	-2.6	14394 ✓	
1283	5.65	B3	44	-1.0	16184 ✓	
1297 ✓	5.17	B3	13	-2.9	15222 ✓	
1304 ✓	1.78	B8	32	-1.3	^{20ms} 19333, 19272 ✓	4.3 2 1/2
1314	4.66	B2	16	-2.6	15527, 16332 ✓	
1318 ✓	5.51	A0	44	-0.6	16093 ✓	
1340 ✓	4.64	B3	14	-2.7	17283 ✓	
1343 ✓	5.30	B2	14	-2.8	15344 ^{41.1} ✓	
1849 ✓	5.37	B2	20	-2.0	15344 ^{41.1} ✓	

11	12	16057
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10.5	11.5	16058
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11	12	16129
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11	12	16130
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9	"	19117
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8.9	9.10	19138
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12	13	15111
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10	11	16750
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41	51	1719866
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8	9	16060
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12	13	15322
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6	7	15334
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2	3	15171
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11	12	16040
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10.5	11.5	16040
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3	4	15161
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9	10	16214
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9	10	19462
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10	11	19458
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3	4	18342
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4	5.5	16394
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4	5	15222
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10	10	19272
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9	10	19333
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4	5	15527
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5	6	16332
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12	13	16093
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3	4	1728366
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5	6	15341
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4	5	15341
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1353	4.53	B0	13	-2.9	18015 ^v		
1357	3.66	Oe 5	7	-3.8	18015 ^v		
1389	3.78	B0	13	-2.9	18240 ^v		
1457	4.54	A0	56	-0.3	15553 ^v		
1475	4.90	B2	18	-2.2	16320 ^v		
1554	5.09	B3	30	-1.5	16407 ^v		
1578	6.26	B2	10	-3.4	18353 ^v		
1597	5.66	B5	19	-2.1	17240 ^v		
1594	5.31	B3 F8	18	-2.2	17240 ^v		
1657	4.50	cA0	18	-3.9	19474 ^v , 19466 ^v		
1793	4.33 5.8	B5	20	-2.0	16401 ^v		
2138	5.11	A0	75	+0.4	15538 ^v		
2694	3.58	cA0	19	-3.4	19308 ^v , 19278 ^v , 19246 ^v	96	0
2697	4.50	A0	60	-0.2	15564 ^v		
2754	4.92	A0	55	-0.3	15599 ^v		
2909	4.51	A0	71	+0.2	15624 ^v		
2930	2.44	A0	68	0.0	19615 ^v , 19306 ^v	90	4
3321	2.80	A0p	50	-0.4	19548 ^v , 19319 ^{out}	50	2
4115	4.70	B3	54	-0.8	16906 ^v		
4548	3.92	cB5	13	-2.9	19696 ^v , 19689 ^v	90	0
4783	5.04	B5	27	-1.6	15865 ^v		
4917	5.40	B0	22	-1.9	16193 ^v		
5003	5.04	B0	14	-2.7	16032 ^v , 17117 ^v		
5070	5.62	B2	14	-2.7	19160 ^v , 19159 ^v		
5170							
5361	4.89	B2	14	-2.8	16928 ^v , 16958 ^v		
5469	4.28	cA0	15	-4.8	19694 ^v , 19703 ^v	52	-1/2
5512	5.84	B0	8	-3.6	15165 ^v		
5563 6179	4.62	A0	40	-0.8	16125 ^v		
5719	5.19	Oe	9	-3.5	15071 ^v		
5913	5.54	B3	28	-1.6	16157 ^v		

3	4	18015
3	4	18015
4	5	18240
13	14	15553
3	4	16320
6	8	16407
3	4	18353
8	9	17240
8	9	17240
10	10	19466
9	10	19474
5	6	16401
13	14	15538
9	10.5	19278
7	9	19308
8	9	19246
13	18	15564
12	13	15599
13	14	15624
13.5	14	19306
14	15	19615
12	13	19518
9	10	16906 h
4.5	5	19689
5.5	6	19696
8	10	15865
4	4	16193 h
4	5	16032
3	4	17117 h
too faint		
3	3	16928
3	4	16958
5.5	6.5	19694
6	8	19703
3	4	15765
13	13.5	16425
3.5	4.5	15071
5.5	6.5	16157

Dec. 1, 1932

115

Examination of MC Spectra + Magnitude Plates

	MC		
Principles			
N/C 248	26218	not very faint, wide, but probably good enough	Wallerquist - measured + identified
2244	18411 26219 18388	"	B 55695, -843 Measured + identified
Mal 15	26217	narrow, as good as can be expected	- measured + ident.
2353	26220	Cluster too faint, not much too wide, second photo may not improve short x plate could help	B 55724 do not measure
1039	26226	Excellent	- measured + ident.
1912	26227	Not too good - faint of cluster, not plate. Don't repeat, but measure	Plot by Vogt - not sufficient Wallerquist
2548	26221	Hazy, probably measurable -	measured + ident.
h + 7	MC 7901, etc. 26224	should perhaps check X Plates	measured + ident. possibly
663	26288 26223	Some stars measurable not very good sl. wide, hazy, + somewhat faint. Could be improved.	- measured + ident. I Plates measured + ident.
457	26222	" " "	- measured + ident.
2423	26228	Not very good. Good of 2422,	- 2422
2437		2423 too wide + ft.	2637 measured; measured + ident.
2437	26229	too wide + faint.	2422
		2422 pretty good	measured + ident.
7243	16271	Good	± Plates Measured + ident.
2323	16525	"	56652 56642 B 55705, 55845, 56675, -663
2301	26240	too faint x plate wide, too much	B 55725, 56691 do not measure
2548	26241	A star, good x plate wide, but measurable	measured + ident.
2539	26242	only sl. wide, but much too faint	do not repeat B 56677 do not measure

116

2437

26316

fainter than 26229, but not very good

2301

26315

narrow, not very good

NGC 3114

marked on X 15685

Concluded
Will say up

H.D.

MF 790

7821

7921

X 15685

Feb. 16

Mean MF

117

CPD.												
-60	1595	1 ^c	10.9	Ann	-	53.1	-	-	60	70	62	50:
			10.7									
			9.6									
	1608	2 ^c	9.4	Ann, Ao	Ao	7100	80	90	82	90	90	90
			9.0									
	1610	3 ^c	8.9	A2sn, Ao	Ao	80	80	78	66	70:	70:	80
			10.2									
-59	1540	4 ^c	10.0	B8s	Ao	75	-	-	46	66	66	75
			9.3									
	1545	5 ^c	9.1	B8s	B9	70	75	77	45	55	55	74
			9.0									
	1551	6 ^c	8.9	A2sn	B9	62	74	70	38:	55:		72
			10.6									
	1556	7 ^c	10.4	A0s		H	-	-	52	60	60	
			9.9									
	1557	8 ^c	9.7	B5	B8	40	30	-	36	35	40	35
			10.0									
	1559	9 ^c	9.8	B	B8	small	small	-	<30	20?		
			10.4									
	1560	10 ^c	10.2	A0n	A	large	large	-	110	100	100	
			11.1									
	1563	11 ^c	10.9	A5		-	large	-	>110	>110		
			10.0									
	1564	12 ^c	9.8	A0n		100	100	90	74	86	86	93
			8.4									
	1565	13 ^c	8.3	B8s	B9	60	64	62	30:	dd		62
			11.4									
	1569	14 ^c	11.2	An:		H	-	-	100			
			9.6									
	1572	15 ^c	9.4	A0s	A2	60	74	54	52	56	56	63
			11.1									
	1578	16 ^c	10.9	An		H	-	-	82			
			11.1									
	1580	17 ^c	10.9	An		H	-	-	78			
			10.8									
	1583	18 ^c	10.6	An		H	large					
			9.8									
	1584	19 ^c	9.6	B8s	A0	70	60	74		50	50	68
			10.0									
	1596	20 ^c	9.8	A2s	B9	A2	66					
			9.8									
	1600	21 ^c	9.6	B8s	B9	65	70	56	50	36	38	65
			10.7									
	1603	22 ^c	10.5	An		H	-	-		100	100	
			11.0									
	1606	23 ^c	10.8	A0sn		H	-	-		110	>125	
			10.7									
	1608	24 ^c	10.5	An:		H	-	-				
			9.9									
	1609	25 ^c	8.8	B8s	B9	54	60	42	45:	dd		52
			10.5									
	1610	26 ^c	10.3	-	-	-	-	-				
			8.6									
	1614	27 ^c	8.5	A0s	B9	00	-	-		60:	70	
			9.4									
	1615	28 ^c	9.2	B8s	-	00	-	-		60:	60:	
			8.8									
	1616	29 ^c	8.7	B5	B8	503	603	-		25:		
			11.0									
	1619	30 ^c	10.8	An:	-	-	-	-				

1623	31	11.2 11.0	An	-	-	-	-	-	-
1625	32	10.6 10.4	Aos	large	-	-	85	80	-
1629	33	11.0 10.8	Aom	-	-	-	70	66	-
1630	34	10.0 9.8	B8s	40	65	-	50	56	52
1631	35	10.1 9.9	B5	00	-	-	58	70	-
1633	36	8.8 8.7	B8s B9	00	60	-	50	dd	-
1634	37	10.2 10.1	Aom	-	-	-	66	66	-
1636	38	11.0 8.6	Fo	00	-	-	-	-	-
1638	39	8.5 10.4	B8s B9	50	70	-	40	dd	-
1639	40	10.2 10.8	B8s	40	-	-	45	2?	40
1640	41	8.6 8.6	Aom	large	-	-	80	95	-
1643	42	8.5 11.0	B8s A0	small	-	-	50	dd	-
1644	43	10.8 10.9	An	large	-	-	-	-	-
1649	44	10.7 11.0	Aom	-	-	56	80	75	56
1651	45	10.8 9.4	An	-	-	-	-	-	-
1653	46	9.2 11.5	B8s A0	-	75	-	52	60	75
1656	47	11.3 10.7	An	-	-	-	-	-	-
1657	48	10.5 10.3	-	-	-	-	-	-	-
1659	49	10.1 11.0	B8s	-	-	56	66	66	-
1660	50	10.8 11.2	An	-	-	-	-	-	-
1662	51	9.6 9.4	An	-	-	-	-	-	-
1663	52	9.4 10.3	B8s B9	56	64	-	50	50	60
1665	53	10.3 11.1	As	-	-	-	-	-	-
1666	54	10.9 9.7	An	-	-	-	-	-	-
1667	55	9.5 8.6	Aos A0	74	78	75	66	66	76
1671	56	8.5 8.0	B8s B9	60	48	58	35	dd	55
1672	57	7.9 9.8	B8s B9	dd	dd	52	dd	-	52
1673	58	9.6 10.5	B8s A0	54	74	70	50	56	66
1674	59	10.3 10.5	-	-	-	-	-	-	-
1675	60	10.3	-	-	-	-	-	-	-

1677	61	10.1 9.9	B8s	-	-	1	66	70	
1678	62	10.8 10.6	A5	-	-				
1680	63	10.9 10.7	A0s	-	-	-	58	70	
1683	64	8.2 8.1	B8s B9	45	50	42	40:	dd	46
1685	65	10.3 10.1	A0n	-	-		70	78	
1686	66	9.2 9.1	A0s	-	-		50	60	
1688	67	10.6 10.4	A2s	-	-				
1689	68	10.9 10.7	-	-	-				
1691	69	8.9 8.8	B8s	-	-		50	50	
1693	70	10.0 9.8	B8s	45:	60:		56	60	56
1694	71	10.3 10.1	-	-	-				
double of 1699 may	72	10.5 10.3	A0n	-	-		100	110	
1704	73	10.8 10.6	A0n(A5)	-	-				
1705	74	9.7 9.5	B8s A0	70	70	52	50	50	64
1710	75	10.4 9.9	A0s	00	60:		66	70	60 ↑
1713	76	11.1 10.9	A0n:	-	-				
1714	77	9.2 9.1	B5	-	-		55	55	
1717	78	10.0 9.8	B	-	-		45:	50:	
1718	79	9.1 9.0	B8s	-	-		52	52	
1720	80	10.8 10.6	A0n	-	-		77	85	
1723	81	11.3 11.1	A0n	-	-				
1724	82	8.8 8.7	B8s B9	72	75	70	80:	80:	72
1725	83	10.3 10.1	A0sn	100	-		56	60	
1727	84	9.7 9.5	B8s A0	60	66	62	50	54	63
1731	85	9.8 9.6	B8s	50	62	-	50	60	56
1734	86	11.3 11.1	A0n:	-	-				
1735	87	10.8 10.6	A0sn	-	-		80	75	
1736	88	11.1 10.9	-	-	-				
1737	89	10.2 10.0	A0s A0	-	-		00		
1738	90	10.6 10.4	A0n	-	7100	-	95	85	7100

1739	91	^a 10.5 10.3	-	-	55	-	-	-	-	-
1740	92	^{ad} 8.6 8.5	B8s	A0	60	74	66	dd	50	67
1741	93	^a 9.1 9.0	B8s	B9	^{aa} 55	-	60	66	dd	58
1744	94	^a 10.2 10.0	A0 _{sn}	-	64	80	-	75	75	72
1748	95	^{aa} 10.6 10.4	A0 _m	-	-	-	-	00	-	-
1750	96	^{aa} 10.2 10.0	B8s	-	-	-	-	70	66	-
1751	97	^a 9.6 9.4	-	-	-	-	-	-	-	-
1754	98	^{aa} 11.0 10.8	A0 _m	-	-	-	-	85	-	-
1755	99	^{aa} 10.3 10.1	A0s	-	-	-	-	68	68	-
1756	100	^a 7.8 7.8	B8s	A0	dd 54	dd 60	54	dd	-	56
1757	101	^a 11.1 10.9	A _n	-	-	-	-	-	-	-
1759	2	^b 11.0 10.8	A _n	-	-	-	-	-	-	-
1760	3	^b 10.4 10.2	A0s	-	75	74	-	100	100	74
1762	4	^a 10.5 10.3	B8s	-	-	-	-	66	66	-
1766	5	^a 10.2 10.0	A0s	-	76	77	-	70	66	76
1768	6	^b 9.4 9.2	B8s	B9	70	74	58	60	60	66
1770	7	^{aa} 9.9 9.7	B5	-	50	50	-	40	40	50
1772	8	^a 10.3 10.1	A0s	-	64	70	-	66	66	67
1776	9	^c 10.5 10.3	A0 _{sn}	-	-	-	-	80	82	-
1777	10	^{aa} 9.9 9.7	B8s	-	55	74	-	60	66	64
1779	11	^a 11.0 10.8	A _n	-	-	-	-	-	-	-
1780	12	^a 11.0 10.8	A0 _m	-	-	-	-	120	120	-
1781	13	^a 11.2 11.0	A _n	-	-	-	-	-	-	-
1784	14	^a 8.5 8.4	B8s	A0	62	62	62	60	dd	62
1785	15	^{ad} 11.1 10.9	A0 _m	-	-	-	-	95	90	-
1790	16	^a 11.4 11.2	A _n	-	-	-	-	-	-	-
1794	17	^b 10.8 10.6	B8s	-	-	-	-	66	70	-
1798	18	^a 10.8 10.6	A0 _m	-	-	-	-	80	80	-
1799	19	^a 10.3 10.1	B8s	-	-	-	-	66	66	-
1800	20	^a 9.5 9.3	B5	B9	30	30	-	40	dd	25

Mean MF

1801	21	^{9.2} 9.1	B8s	A2	65	74	68	⁶⁶ 66	66	69
1803	22	^{11.0} 10.8	B5:	-	-	-	-	66	66	
1806	23	^{9.8} 9.6	B8s	A	-	-	-	66	66	
1809	24	^{9.4} 9.2	B8s	A0	⁶⁰ 403	-	-	50	60	
1810	25	^{10.8} 10.6	-	-	-	-	-	-	-	
1815	26	^{10.7} 10.5	-	-	-	-	-	-	-	
1816	27	^{9.8} 9.6	B8s	B9	⁵⁰³ 00	-	45	50	-	45
1817	28	^{10.7} 10.5	An	large	-	-	-	-	-	
1822	29	^{10.1} 9.9	A0m	-	-	-	-	90	70	
1823	30	^{10.8} 10.6	-	-	-	-	-	-	-	
1824	31	^{10.9} 10.7	An	-	-	-	-	-	-	
1825	32	^{9.8} 9.6	B8s	A0	58	66	62	50	60	61
1828	33	^{10.4} 10.2	A0s	-	90	90	80	80	80	87
1829	34	^{10.7} 10.5	B:	-	-	-	-	F	-	
1837	35	^{11.3} 11.1	An:	-	-	-	-	-	-	
1840	36	^{10.1} 9.9	A0s	A0	58	74	68	66	66	66
1842	37	^{9.4} 9.2	A2s	A0	62	72	⁶⁸ 74	68	66	67
1843	38	^{9.8} 9.6	A0s	A0	50	70	⁶⁶ 70	66	50	62
1845	39	^{11.2} 11.0	An	-	-	-	-	-	-	
h 1850	40	^{9.0} 8.9	B8s	B9	40	30	30	30	del	33
1853	41	^{9.4} 9.2	B8s	A0	⁷⁸ 80	74	60	66	66	71
1855	42	^{9.0} 8.9	A0s	B9	74	64	64	66	66	67
1856	43	^{10.2} 10.0	A0m	-	60	-	60	75	70	60
1858	44	^{11.0} 10.8	An:	-	-	-	-	-	-	
1861	45	^{9.8} 9.6	A0m	A0	50	62	60	64	64	57
1870	46	^{9.7} 9.5	B5	-	50	45	30	50	55	44
1873	47	^{10.5} 10.3	An	large	-	-	-	-	-	
1878	48	^{10.2} 10.0	B8s	-	50	78	-	62	62	64
1890	49	^{10.5} 10.3	An	-	-	-	-	-	-	
1903	50	^{10.6} 10.4	An	-	50	-	-	-	-	

Mean MF

1904	51 ^c	10.2	A		75	A5				
1905	52 ^c	10.0	A _s	AD	90:	78	68	90	80	75
1907	53 ^c	10.2	B5		-	small		54	45	
1909	54 ^c	9.8	A _s	AD	55	62	45	60:	60:	54
-58 1978	55 ^c	9.6	B8 _s	B9	62	74	56	70	70	64
1794	56 ^c	10.6	AD _n		100:	70:		70	66	85:
1808	57 ^c	10.0	AD _{sn}		70	50:		20	20	60
1810	58 ^c	10.5	A _n							
1831	59 ^c	9.4	A _s	A2	large	A2				
1838	60 ^c	9.2	B8 _s	A2	62	66		75:	Ad	64
1856	61 ^c	10.3	12 _s	B9	40:	50:		50	60	45:
1860	62 ^c	8.3	B5	B5	75:	60		75:	dd	68:
1899	63 ^c	8.9	B5		30	20		dd		25
1919	64 ^c	8.7	B5		~50:	✓		54:	-	
		10.2	A _n							
		10.6								
		10.4								

Measurement of MC Plates - Class F 123

Pleiades

45° Correlation with $\mu\phi$ measures.
Use " "

	Number Sed. value	Dec. 6 MC26215	18385	19114 mod.
5.7	16	62	70	65
6.3	24	80	85	
	1	75		
	2	110		
6.7	3	100	100	
7.1	5	110	110	
	7	75		
x 7.7	11	90	100	
	13	100		
5.3	14	52	52	
3.6	15	dd	dd	40
4.2	16	dd	35	40
7.3	18	78	80	
3.8	20	dd	dd	40
5.7	21	70	62	
6.9	22	710	100	
8.3	23	entry	110	
6.3	24	-		
4.2	25	dd	-	42
7.4	26	110	96	
6.7	27	78	90	
6.3	28	82	-	
2.8	31	dd	-	36
x 8.5	32	H		
5.4	34	52	66	
7.0	35	77	82	
-	37	36		
6.5	42	90	90	
7.9	43	large	96	

x 6.9 44	80	100
6.0 45	52	74
7.5 46	very large	110
6.8 47	80	90
6.0 48	60	66
50	70	
7.5 51	82	88
7.0 52	101	90
54	80	
7.9 55	> 110	
59	-	
64	82	
7.1 67	> 110	

Remotes

NGC 2244 Dec-1932

Center

Zug Sp.

26219
ML ~~18388~~

MC18388

18388

Mean

F	At					
1264	A0	1	110	100	100	103
5						
1249	B9	2	80	75	62	72
4	A0					
1268	A0	3	110	100	110	107
		4	late	-	-	-
		5	"	-	-	-
4 1274	A0A0	6	100	90	80	92
4 1276	B8A8	7	66	62	62	63
5 1258	A2					
+5 1259	A0A0	8	ff	96	96	87
4 1276	B8	9	ff	90	90	90
	F0	10	-	-	-	-
	F0	11	-	-	-	-
4 1273	B9 A0	12	ff	90	90	90
+4 1279	A2	13	ff	100	100	100
4 1282	B3	14	35	40	30	35
	A2	15	-	-	-	-
+4 1283	B0	16	ff	30	-	30
5 1267	B3	17	30	20	20	20
5 1271	A0	18	-	-	-	-
+5 1269	A2A0	19	ff	100	110	100
+5 1271	A0A0	20	80	68	78	75
+5 1268	A2A0	21	110	100	105	105
+4 1285	A0A0	22	ff	110	95	100
4 1286	A0	23	80	77	70	76
14 1290	A0A0	24	78	66	70	71
+4 1291	B0	25	15	10	2	12
	F0	26	-	-	-	-
+5 1274	A2A0	27	ff	-	25	25
+5 1280	A0A0	28	80	100	95	92
14 1296	A0A0	29	80	100	100	93
+4 1293	B8	30	60	60	72	64

—	130 B	(31)	50	25	—	22
+5 1278	A3	(32)				
+5 1279	B1 B3 B8	(33)	35	30	20	28
+5 1281 B	B	(34)	40	40	10	30
+5 1283	B2	(35)	15	15	15	15
+5 1282	B2	(36)	20	20	30	23
+4 1299	B2	(37)	15	25	15	20
+4 1288	B	(38)	H	—	—	
+4 1302	B2	(39)	20	10	8	13
+5 1285	A0 A0	(40)	85	96	110	97
+5 1286	B2 B2	(41)	30	30	20	27
+4 1301	A0 A0	(42)	50	100	80	90
+4 1298	A2	(43)	H	85	110	98
+4 1303	B9 A0	(44)	H	80	—	80
+4 1311	A2 A2	(45)	100	110	110	107
	A0	(46)	50	75	80	68
+4 1314	A0	(47)	50	40	60	50
+4 1310	A2	(48)	H	—	—	
+5 1293	B3 B	(49)	20	—	10	15
+5 1292	B8 B	(50)	50	35	65	50
+5 1291	B	(51)	40	25	—	
+5 1291	B	(52)	emission	2	2	2
+5 1300	B8 A8	(53)	36	30	25	30
+5 1297	B9 A0	(54)	60	60	50	56
+5 1302	A5	(55)			—	
+4 1319	B8	(56)	10		5	8
+4 1318	B2 B2	(57)	15		5	10
	A0	(58)	H		—	
	A0	(59)	H		—	
+5 1305	A2	(60)	50	—	—	40

Emission line stars in direction of 2244

127

	No.	B.D.	H.D.	Sp.	ptm	plates	Verified by	RV
Perhaps Oes. Cont 85	1 [✓]	+2 1262	45901	B	8.8	Mc 26219 26314 18411	JSAR	
Dark lines very fr.	2 [✓]	+2 1302	46847	B	8.9	18411 26314		
	3 [✓]	+5 1286	46202	B2	8.16	26313 26219 26314 18411 18388		
JSP06	4 [✓]	+5 1283	46150	B2	6.80	26313 26219 18411 18388		center +36
MW 154 narrow lines	5 [✓]	+5 1291	259440	B0	9.6	26313 26219 18411 18388		
	6 [✓]	+4 1318	46485 46868	8.3 9.6	B2 B2	26313 26219 18411 18388		
	7	+5 1317	18			26219 18388		
	8	+5 1319	416967	8.5	A0	26313 26219 18411 18388		
JSP08	9 [✓]	+6 1303	48966	7.3	B2	18388 26219 18411 18388		+42
	10 [✓]	+4 1360	47360	8.3	B5	26313 26219 18411 18388		
	11 [✓]	+4 1361	47382	7.9	B5	26313 26219 18411 18388		
"Cont." may be Oes	12 [✓]	+5 1340	47359	8.81	B	26314 18411 26219		
	13	+5 1336	261092	9.8	A2	26219		
JSP02h	14	+7 1386	47417	7.4	B2	26313 26219 18411 18388		+37
JSP07h	15	+6 1351	48099	6.20	B2	26219		+31
	16	+3 1282	259176	10.1	G0	18411		
	17	+2 1275	-			18411		
	18 [✓]	+2 1292	46559	8.5	B5	18411		
	19 [✓]	+2 1295	46573	8.1	B2	18411 26314		
	20	+1 1473	-			18411 26314		
	21	+1 1528	-			18411		
	22 [✓]	+2 1379	48914	7.5	B5	B 20708 18411 26314		
	23	+3 1322	260831 26083	10.3	F2	18411		
visident	24	+3 1371	48348	6.80	A0	18411		
	25	+4 1408	262538	9.5	B3	18411		
	26	+4 1364	261235	9.7	B3	18411		
	27 [✓]	+4 1363	47378	8.35	B2	26313 18411		
	29	+4 1348	47089	9.6	B9	18411		
	30	+4 1312	259532	9.8	A0			
JSP08e	31	+4 1291	46056	7.96	B0	18411 26314 18388		cluster +45
				08				

JSP082	32	+5	1282	46149	7.66	B2	18388 18411
	33	+4	1299	259135	8.9	B2	26314 18411 18388 18411
JSP082	34	+4	1302	46223	7.19	B2	26314 18411
	35	+5	1329	47107	7.7	A0	26314 MC18411
	36	+5	1214	40586	8.3	B9	MC18388
misprint	37	+5	1243	45431	6.68	F0	"
	38	+5	1235				
	39	+5	1234	257159	10.0	A5	26313
	40	+5	1259	258334	9.9	A0	
	41	+4	1295	259012	9.0	B3	26313
	42	+5	1293	259481	9.6	B3	B20708
	43	+4	1319	46484	7.65	B8	
	44	+5	1300	46469	8.5	B8	
	45	+5	1315	46867	8.3	B5	
	46	+5	1267	45910	6.70	B3	B20657 18388
	47	+5	1274	458890	9.9	A2	
	48	+6	1275	258982	9.6	B	
	49	+6	1309	47129	6.06	B0p	B20657
	50	+6	1288	46557	7.7	A2	
	51	+7	1340	46387	8.9	A0	
	52	+7	1300	257868	10.0	B5	
	53	+7	1298	257779	9.2	B8	
	54	+7	1815	256433	10.6	A0	
	55	+7	1430	255442	10.8	A0	
	56	+7	1240	255228	10.5	A2	
	57	+7	1234	254992	10.9	A7	
	58	+8	1298	44514	8.7	A0	
	59	+8	1314	256577	9.8	B0	26313
	60	+8	1322	256892	10.1	B8	
	61	+8	1329	45123	9.1	A5	

cluster
39
+40cluster
+42

MW 33

cluster
...JSP082k
H β slightly brightnearby
+24

6 18.1 17 31

6 14.9 17 32

	62	+8	1332	45166	9.6	02	26313
	63	+8	1351	257865	10.5	138	
	64	+9	1251	258106	9.8	A0	26313
perhaps B8	65	+8	1366	45828	8.7	A	26313
MW155	66	+8	1388	259597	8.8	025	26313
	67	+7	1357	46642	6.42	A0	
	68	+8	1403	259991	9.0	B8	
	69	+7	1370	260574	9.6	B9	
	70	+8	1402	259986	var	A0	
6 30.9 +8.48	71	+8	13035	260480	10.7	B8	
	72	+8	1432	261490	8.6	B3	
6 16.6 1636	73	+6	1640	255968	10.8	B8	
	74	+4	1414	484314	5.78	B0	I 38168
	75	+4	134607	47073	8.20	A2	I 38168
	76	+4	1282	45911	7.9	B3	B20657
JSPBIA	77	+5	1334	47240	6.16	B1	B 20657
	78						B20928
	78						M 26314
	79						26313
							26314
(dark lines, very faint)	82		1299	46711	8.9	B	
lines narrow	84		1323	259865	10.0	B5	
	80						26313
	81						26314
	82						26313
	83			44214			
	84	+5	1279	46106			
	85						
	86						
	87			43286			26321
	89		1334	47777			
	90		135 Mon	47839			
	91		1414	48431			

Alm
BPHD
B0

+42
cluster
+27

+43
+38

+33
+34

130

NGC 2244 - magnitude

H.R.
Field0ⁿ 52 3 Corr. to
0 45 field - 0.04
neglect?Rich
pg

		B5 ⁸⁴³⁰ 2430	B5 ⁸⁴⁵ 2450	mean
	1	5.7	9.8	5.47 9.3 9.6
	2	3.3	7.1	3.8 7.2 7.2
	3	5.5	9.5	5.6 9.2 9.4
	6	3.5	7.3	3.8 7.2 7.2
	7	5.3	9.3	5.8 9.4 9.4
	8	5.6	9.7	6.1 9.7 9.7
	9	6.1	10.3	6.3 9.9 10.1
	12	6.5	10.7	6.7 10.3 10.5
	13	5.4	9.4	5.9 9.5 9.4
	14	3.1	6.9:	3.2 6.5 6.6
	16	6.2	10.4	6.5 10.0 10.2
	17	3.1	6.9:	3.5 6.8 6.8
	19	6.6	10.4	6.6 10.2 10.3
	20	4.3	8.2	4.8 8.3 8.2
	22	5.8	9.9	6.2 9.8 9.8
	23	4.9	8.8	5.2 8.8 8.8
	24	4.4	8.2	5.1 8.6 8.4
8.2	25	3.9	7.7	4.4 7.8 7.8
	27	6.0	10.1	6.4 9.9 10.0
	28	<3	<7	3.2 6.5 6.5
	29	4.4	8.3	4.9 8.4 8.4
	30	5.5	9.5	5.9 9.5 9.5
	31	4.9	8.8	5.5 9.1 9.0
7.7	33	3.7	7.5	4.3 7.7 7.6
	34	5.5	9.5	6.0 9.6 9.6
6.9	35	<3	<7	<3 <6.5 <6.5
7.6	36	3.3	7.1	3.9 7.3 7.2
	37	4.0	7.8	4.8 8.3 8.0
7.2	39	3.1	6.9:	3.5 6.8 6.8
8.7	40	4.3	8.2	5.0 8.5 8.4

8.1	41	41	7.9	48	8.3	8.1
	42	58	9.9	63	9.9	9.9
	43	59	10.0	66	10.1	10.0
	44	63	10.5	67	10.2	10.4
	45	52	9.2	54	9.0	9.1
	46	55	9.5	60	9.6	9.6
	47	48	8.7	55	9.1	8.9
	49	54	9.4	59	9.5	9.4
	50	52	9.2	56	9.2	9.2
	52	56	9.7	60	9.6	9.6
	53	43	8.2	50	8.5	8.4
Close comp.	54	56	9.7	63	9.9	9.8
	56	37	7.5	39	7.3	7.4
	57	40	7.8	46	8.0	7.9
	60	55	9.5	62	9.8	9.6

9h +15

	32	32	32
1	38	38	38
2	40	40	40
3	44	44	44
4	46	46	46
4	48	48	48
4	47	47	47
5	50	50	50
6	55	55	55
7	53	53	53
7	52	52	52
8	53	53	53
8	57	57	57
9	63	63	63
10	62	62	62
11	68	68	68
12	67	67	67
13	66	66	66
14	68	68	68

1	32	32
2	38	38
3	40	40
4	41	41
5	43	43
6	45	45
7	45	46
8	45	46
9	55	55
10	49	50
11	53	54
12	60	59
13	61	61
14	65	65
15	69	69

NGC 2323

Area selected for measurement
is too large - dense, taken for radius
also for 7243M 16525
16374

Mean

Red density

4. mean

Identified on

Bailey's chart.

-8 1662 B8, A0

-8 1664 B8

-F 166P A3

-8 1669 A0

-8 1670 B8, A0

-8 1672 B8, A0

-7 1687 A0

-10 1804 B8

-8 1678

-8 1683 35

-8 1693 A0

-8 1697 B9

-8 1734 A

1	85	85	x 15671	
2	50	50		
4	78	70	74	
24	>110	>110		
42	>110	>110		
5	18	18		
9	56			
9	96	90	93	
10	100	100		
11	78	60	69	70 70
12	55	62	58	dd
13	48	68	58	dd
14	96	100	98	
15	80			
16	100		95 95	
17	90			
18	85			
19	55	60	58	
21	110	100	105	
22	84			
24	82		80 80	
25	82		56 56	
26	100		100 100	
27	80		66 66	
28	80		70 70	
29	74		66 66	
30	90	80	85	60 60
31	80			80 80
32	80	80	80	60 60
33	90			66 66

Final

mean

66	85	10.6	10.1
67	80	10.8	
68	70 70	11.0	8.4
69	80 80	11.1	10.5
70	100 100	11.6	10.5
71	90	11.6	
72	90	11.5	
73	115 115	11.2	9.5
74	66 66	10.5	10.4
75	65 75	11.1	9.1
76	80 80	11.4	8.1
77	80 80	11.1	7.7
78	155	9.0	8.3
79	14	11.2	9.6
80	75 75	10.2	10.4
81	110 110	10.5	9.9
82	100	10.2	10.2
83	95 95	11.2	8.0
84	110 110	12.0	9.5
85	80 80	11.9	10.1
86	90 90	11.2	10.4
87	80 80	11.1	9.9
88	60 60	9.7	10.3
89	90 90	11.3	10.2
90	100 100	11.7	10.6
91	80 70	10.9	10.0
92	66 66	10.7	9.2
93	60 60	10.9	9.7
94	60 60	10.5	9.6
95	F	11.9	9.4
96	60 60	9.7	

	11	39 ^a	65	40	52	50	50
-7 1704 B8	35	68	65	66	50	50	50
8	36 ^a	00			50	50	
-8 1706 B9	37	66	50	58	del		
-8 1711 A2	38 ^b	66			50	50	
-8 1714 A0	39 ^b	110+	100	110	90	90	
-8 1722 A0	40 ^c	77	80	78	70	70	
	26	41 ^c	100		(edge)		
	27	42 ^c	100		66	66	
		43	110				
		44	90				
-8 1729 B2	45	102?	5	8			
-8 1705 A0	46	78					
A506	47	20					
-7 1701 A0	48	75					
	49	110					
-7 1712 B8	50	66					
-8 1732 B9	51	25					
100 on v	52	5	20	12			
-8 1734 B?	53	80					
	55	60					
	56				1K		
	57				80	80	
	58				80	80	
	59				60	60	
	60				1K5		
	61				110	110	
	62				A2:		
	63				90	90	
	64				100	100	
	65				M		
	66				80	80	

	97	75	75	11.1	8.9		
	98	80	80	12.0	8.8		
	99	M		12.4	9.0		
	100	80	80	11.1	7.8		
	1	80	80	11.1	9.5		
	2	90	90	10.8	9.0		
	3	80	80	10.6	9.6		
	4	105		11.9	9.7		
	5	100	100	11.8	10.1		
	6	80	100	12.0	9.9		
	7	100	70	11.7	10.1		
	8	105		11.8	8.4		
	9	70	00	11.3	9.4		
	10	104	60	10.7	9.4		
	11	100	100	12.0	9.2		
	12	90	90	12.0	10.2		
	13	60	66	10.2	8.8		
	14	75	75	11.1	9.3		
	15	F5		11.2	7.7		
	16	A2:		11.2	9.9		
	17	A5		11.7	10.2		
	18	A5		11.0	11.3		
	19	F		12.0	11.2		
	20	M		12.1	11.0		
	21	60	60	11.3	9.9		
	22	G5		11.2	9.6		
	23	K		11.4	11.2		
	24	K5		11.3	11.1		
	25	G		10.8	11.8		
	26	106	70	11.5	12.3		
	27	48	78	11.1			
	28	90	90	10.9	11.5		
	29			10.8			

2323

B55845-Sub 7
55705-"A"mean 55845-20 all. Can
be measured by method
B5642 - images along
Final
mean

1	5.6	60	10.4	10.0	10.2	55	55	100	10.1
2	443	3.2	47	47	47	43	-	-	
4	3.8	49	8.5	8.3	8.4	37	43	85	84
24	57	63	10.5	10.5	10.5	57	106	58 104	105
42	61	62	10.8	10.3	10.6	59	57	103	105
5	00	58.1	-	-	-	-	-	-	-
7	48	52	9.6	9.4	9.5	44 465	50	94	95
10	56	62	10.4	10.3	10.4	57	106	57 103	104
11	45	54	9.3	9.0	9.2	45	96	47 90	9.1
12	33	50	7.8	8.1	8.0	33	81	41 82	81
13	32	45	7.7	7.6	7.6	32	-	38 78	77
14	37	50	8.3	8.4	8.4	36	40	81	83
15	49	55	9.7	9.2	9.4	47	54	99	96
16	58	62	10.5	10.3	10.4	58	107	58 104	104
17	55	57	10.3	9.5	9.9	53	55	100	99
18	55	61	10.3	10.1	10.2	56	105	56 102	102
19	34	46	7.9	7.8	7.8	35	83	40 81	80
21	56	55	9.8	9.2	9.5	50	100	50 94	95
22	52	59	10.4	9.8	10.1	55	55	100	101
24	57	61	10.4	10.2	10.3	60	109	58 104	104
25	53	58	10.1	9.7	9.9	52	54	99	99
26	57	60	10.4	10.0	10.2	57	106	58 104	103
27	55	60	10.3	10.0	10.2	55	105	57 103	102
28			-	-	-				-
29	55	59	10.3	9.9	10.1	54	55	100	100
30	46	54	9.4	9.1	9.2	42	92	48 91	92
31	53	57	10.1	9.5	9.8	52	52	96	9.1
32	53	55	10.1	9.2	9.6	50	50	94	9.6
33	48	54	9.6	9.1	9.4	47	52	96	9.4
34	42	52	9.0	8.8	8.9	39	88	46 89	8.9

Mean						5642	Final Mean
35	40	52	8.7	8.8	8.8	38 87	45 88 8.8
36	45	53	9.3	8.9	9.1	41 91	46 89 9.0
37	32	46	7.7	7.8	7.8	31 78	39 80 7.8
38	48	55	9.6	9.2	9.4	46	52 96 9.5
39	40	54	8.7	9.1	8.9	40 89	49 93 9.0
40	49	55	9.7	9.2	9.4	47	54 99 9.6
41	54	57	10.2	9.5	9.8	54 104	50 94 9.7
42	56	59	10.4	9.8	10.1	54	56 102 10.1
43	54	58	10.2	9.7	10.0	52	57 99 9.9
44	55	58	10.3	9.7	10.0	53	56 102 10.1
45	38	50	8.5	8.4	8.4	37	42 84 8.4
46	47	55	9.5	9.2	9.4	47 97	49 93 9.4
47	48	54	9.6	9.1	9.4	48 98	49 93 9.4
48	44	55	9.2	9.2	9.2	42	49 93 9.2
49	55	59	10.3	9.8	10.0	56 105	58 104 10.2
50	44	50	9.2	8.4	8.8	40 89	44 86 8.8
51	46	54	9.4	9.1	9.2	45	50 94 9.3
52	33	45	7.8	7.6	7.7	30	37 77 7.7
53	52	57	10.0	9.5	9.8	50	56 102 9.9
55	57	58	10.4	9.7	10.0	55	59 105 10.2

Standard Areas

1	30	29	1	42	42
2	33	33	2	43	43
3	35	35	3	45	45
4	36	37	4	52	52
49	38	40	5	47	45
5	43	44	6	53	53
6	45	46	7	56	55
7	40	40	8	54	53
8	49	49	9	57	57
9	50	51	9a	62	61
10	57	58	9b	62	60
11	57	57	9c	55	53

136

NGC 7243 - See note to 2323 a, b, c as
usually listed
are in red.M616271
Jan. 10 Jan. 11 mean

		1 ^c	66	77	72
		2 ^c	66	66	66
	A0	3 ^c	70	65	68
+49 3821	A0	4 ^c	90:	95:	92:
		5 ^c	ff	—	—
		6 ^c	late	—	—
		7 ^c	100	100	100
		8 ^c	ff	—	—
		9 ^c	late	—	—
		10 ^c	80	80	80
		11 ^c	100	100	100
		12 ^c	—	—	—
		13 ^b	40	40	42
		14 ^b	66	66	66
	late?	15 ^b	100	ff	—
		16 ^b	ff	—	—
		17 ^b	90	50	90:
+50 3648	A2	18 ^b	100	100:	100:
	type?	19 ^b	90	82	86
		20 ^b	90:	100:	89:
		21 ^b	60	77	68
+49 3801	A0	22 ^b	60	—	—
		23 ^b	ff	—	—
		24 ^b	late	—	—
		25 ^a	60	65	62
		26 ^a	60	54	57
		27 ^a	90	100	95
		28 ^a	110	90	100
+48 3659	A0	29 ^a	62	50:	56
		30 ^b	66	65	66

t48 3658 A0

31 ^c	80	80	80
-----------------	----	----	----

32 ^c	64	66	65
-----------------	----	----	----

t48 3655 A0

33 ^c	80;	80;	80;
-----------------	-----	-----	-----

34 ^c	70	66	68
-----------------	----	----	----

35 ^b	60	65	67
-----------------	----	----	----

36 ^b	78	78	78
-----------------	----	----	----

37 ^a	68	68	68
-----------------	----	----	----

38	50	50	-
----	----	----	---

39	H	-	-
----	---	---	---

40	50;	70;	-
----	-----	-----	---

41 ^a	68	62	65
-----------------	----	----	----

42 ^a	64	64	64
-----------------	----	----	----

43 ^a	110	110	110
-----------------	-----	-----	-----

44	H	-	-
----	---	---	---

45 ^a	52	60	56
-----------------	----	----	----

46 ^a	64	66	65
-----------------	----	----	----

47 ^a	H	-	-
-----------------	---	---	---

48 ^a	70	80	75
-----------------	----	----	----

49 ^a	64	64	64
-----------------	----	----	----

50	H	-	-
----	---	---	---

t49 3790 A0

51 ^a	10	80	70
-----------------	----	----	----

52 ^a	60;	64	62
-----------------	-----	----	----

t49 3784 A0

53 ^a	58;	66	58
-----------------	-----	----	----

t49 3782 A0

54 ^b	66	66	66
-----------------	----	----	----

55 ^b	65	60	62
-----------------	----	----	----

56 ^b	100	100	100
-----------------	-----	-----	-----

57 ^b	64	70	67
-----------------	----	----	----

58 ^c	52	60	56
-----------------	----	----	----

59 ^c	110	110	110
-----------------	-----	-----	-----

60 ^c	56	64	60
-----------------	----	----	----

61 ^c	75	80	78
62 ^c	50	40	45
63 ^c	80	82	81
64 ^h	75	75	75
65 ^c	63	66	64
66 ^h	80	77	78
67 ^{late}	"	"	?
68 ^h	70	66	68
69 ^h	90	80	85
70 ^{late?}	51	"	?
71 ^c	late	—	—
72 ^c	80	80	80
73 ^c	110	100	105
74 ^c	late?	90	90
75	88	—	—
76	late	—	—

7243 magnitudes

zero correction = 0.018 (mean)
neglect.

139

	ISO ³⁰³ Scale 2		ISO ²⁰⁹ Scale 2		ISO ²⁵¹ Scale 2		Mean
1	52	9.8	50	9.5	46	9.2	9.5
2	42	9.0	44	9.0	40	8.5	8.8
3	46	9.4	47	9.4	43	8.8	9.2
4	40	8.8	40	8.6	38	8.2	8.5
7	56	10.3	54	10.0	50	9.7	10.0
10	50	9.8	51	9.8	50	9.7	9.8
11	44	9.2	45	9.1	44	8.9	9.1
13	41	8.9	41	8.7	44	8.9	8.8
14	48	9.6	52	9.8	50	9.7	9.7
15	60	10.6	63	10.9	59	10.6	10.7
17	61	10.7	61	10.7	58	10.5	10.6
18	38	8.6	39	8.4	40	8.5	8.5
19	51	9.8	54	10.0	49	9.5	9.8
20	60	10.6	60 60	10.6	57	10.4	10.5
21	55	10.2	53	10.0	56	10.3	10.2
25	45	9.3	46	9.2	46	9.2	9.2
26	42	9.0	46	9.2	47	9.3	9.2
27	63	10.9	63	10.9	61	10.9	10.9
28	56	10.3	56	10.2	54	10.1	10.2
29	39	8.7	40	8.6	45	9.0	8.8
30	50	9.8	57	9.8	49	9.5	9.7
31	41	8.9	44	9.0	44	8.9	8.9
32	44	9.2	46	9.2	46	9.2	9.2
33	34	8.1	36	8.0	36	8.0	8.0
34	45	9.3	50	9.6	50	9.6	9.5
35	55	10.2	58	10.2	54	10.1	10.2
36	61	10.7	61	10.7	59	10.6	10.7
37	49	9.7	50	9.7	50	9.6	9.7
38	65	11.1	64	11.0	63	11.1	11.1
40	64	11.0	65	11.1	62	11.0	11.0

Mean

41	55	10.2	56	10.2	56	10.3	10.2
42	47	9.5	47	9.4	49	9.5	9.5
43	48	9.3	46	9.2	46	9.2	9.2
45	45	9.3	44	9.0	45	9.0	9.1
46	57	10.4	56	10.2	54	10.1	10.2
48	59	10.5	62	10.8	58	10.5	10.6
49	52	9.9	55	10.1	50	9.7	9.9
51	48	9.6	46	9.2	48	9.4	9.4
52	38	8.6	40	8.6	43	8.8	8.7
53	36	8.4	40	8.6	41	8.6	8.5
54	59	10.5	57	10.3	55	10.2	10.3
55	56	10.3	57	10.3	53	10.0	10.2
56	62	10.8	59	10.5	57	10.4	10.6
57	64	11.0	62	10.8	59	10.6	10.8
58	46	9.4	48	9.4	46	9.2	9.3
59	56	10.3	56	10.2	50	9.7	10.1
60	52	9.9	55	10.1	49	9.5	9.8
61	62	10.8	63	10.9	57	10.4	10.7
62	50	9.8	53	9.9	50	9.7	9.8
63	55	10.2	55	10.1	52	9.8	10.0
64	58	10.4	57	10.3	55	10.2	10.3
65	56	10.3	55	10.1	53	10.0	10.1
66	59	10.5	58	10.4	57	10.4	10.4
67	63	10.9	60	10.6	59	10.6	10.7
68	65	11.1	63	10.9	59	10.6	10.9
69	65	11.1	65	11.1	60	10.8	11.0
70	64	11.0	59	10.5	58	10.5	10.8
72	43	9.1	43	8.9	46	9.2	9.1
73	52	10.8	54	10.0	53	10.0	9.9
74	54	10.5	64	11.0	59	10.6	10.7

B9 Standard Reg.

141

I 50303 50709

1						
2						
3						
4						
5	30	31	—	34	³⁴ 35	36
6	33	33	36	36	35	36
7	32	33	35	35	35	36
8	38	38	42	42	40	40
9	36	37	38	37	40	40
10	37?	40	41	42	45	45
elong? 11	42:	42:	44	45	40:	42:
12	40	42	40	41	45	45
13	48 ⁴⁸	48 ⁴⁸	48	48	47	48
14	45	46	49	49	48	49
15	52	52	55	55	55	55
16	55	55	56	56	58	56
17	57	57	57	59	53:	55
18	59	60	59	59	59	59
19	60	61	57	57	55	55
20	64	65	65	63	63	62
21						
22	66	66	65	67	65	63
23	69	70	70	70	67	68

NGC 2168
Wall # M26218 - Jan 11
Jan, 12

1933 Phas.	Wing #	Wing	Wall #	M226	June	Y15829	H5	H5	Measure
605C	8.3	(201)	50	60		54	54	54	54
615 meas	8.6	(233)	>110	7110		90	90	90	85
570 ^{should be} meas	10.5	290	100						
701 meas	9.2	284	100	90		70	70	72	72
745 ^{should be} meas	9.0	281	70	70		60	60	60	60
692 ^{not meas}	9.6	183	100	100		90	90	85	85
644C	8.7	8.4	78	640	60	52	52	50	50
678 meas	8.6	183	110	110		96	96	95	95
704C	9.2-9.4	188	50	50	638	45	45	60	60
691C	9.6	84	66	60		40	40	45	50
723C	10.2	222	80	80		80	80	90	95
753C	10.4	274	35	80		70		80	80
631C	9.1	9.5	157	60	60	54	54	55	55
640C	9.6	9.5	26	74					
1253C ^{meas}	9.9	312	>110			96	96	84	
1287 meas	10.1	347	68	78					
1311 ^{should be} meas	10.1	348	88	85					
Not in	9.4	351	72	90		70	70	70	80
1185 meas	9.5	346	100	85		82	82	75	80
1179 ^{should be} meas	9.9	345	80	78		45	45	70	70
514C	9.9	214	75	66		70	60	75	60
527C	10.8	215	80	70		50	50	45	50
545C	8.1	7.7	48	45	50	63	45	50	52
492C	9.5	10.8	96	62	66	69	65	70	60
477C	9.8	150	66	70		66	70	70	70
432C	9.9	296	100	100		86	86	85	80
405C	10.4	329	80						
364C	10.2	333	74	74		70	70	58	58
385C	9.5	302	90	80		80	80	80	80
422C	10.1	251	70	70		64	64	64	64
504C	10.5	237	85						
758C	10.7	187						95	95

NGC 1912

143

		Potsdam		Wollenspiegel		MC 26227		MF10034	
		mag		CI		poor			
Cluster Region	—	264	11.36	+0.23	40	45			
	28	286	10.87	+0.27	40	40	small		
	—	288	10.65	+0.10	50	45	50	56	
	B9	317	11.37	+0.08	—	—			
	B8	324	10.44	+0.14	20	25	15	25	?
	B9	334	10.70	+0.02	35	40	50	40	
	A1	368	11.46	+0.14	—	—			
	B9	378	10.84	+0.14	50	50			
	A1	384	10.81	+0.11	—	—			
		387	10.49	+0.19	—	—			
	A2	389	10.45	+0.29	—	—			
	A2	401	11.40	+0.22	—	—			
	B5	403	9.74	-0.01	40	45			
	A0	439	10.98	+0.28	50	60			
	B6	448	10.57	+0.07	35	35	40	40	
	B9	452	10.93	+0.23	62	55			
	A0	(458)	11.63	-0.08	80				
	A1	469	10.89	+0.25	66	60			
	A0	473	11.40	+0.03	80	64			
	B5	475	9.54	+0.26	30	30	25	25	
	B8	488	11.12	+0.25	60	60			
	B8	495	11.51	-0.27	80	—			
	A4	498	11.37	+0.30	70	65			
						64	62	70	
External Region		183	10.80	+0.31	50	50	70	78	
		196	10.17	+0.12	35	40	40	42	
		218	11.12	+0.34	40	48	—		
Gale?		521	10.98	+0.09	10	—			
		529	10.70	+0.04	60	66			
		543	11.59	-0.14	—	—			

	572	11.26	+0.12	45	45		
	578	11.15	+0.04	40 35	40		
	606	10.20	+0.33:	60	60	70	70
	617	10.77	+0.26	45	50	60:	50
	620	11.26	+0.11	60	66		
	635	11.05	+0.29	62	50		
	647	9.02:	^{HQ BR} +0.38	25	20	30	25
	681	10.52:	+0.12	66	65	74	60
1146					50:	74	60
AO	274	11.06	+0.41	50:		50:	
B6	373	10.75:	+0.42	45:		30:	
AO	456	10.55:	+0.43	54:		30	
AO	477	11.13	+0.39	80:			

The MC plate is of very poor quality - probably readings are much too small, especially for bright stars. The WF plate is fair.

abc

NGC 663

M 26223

460°	339 ^a	30	15
43 ^a	38	15	
31 ^a	25	15	
35 ^a	20	8	
30 ^c	80		
18	110	10	
12	N 10	—	
8	N 90	—	
5	95	95	
17	74	68	
13	70	68	
16	15	15	
11	96	80	
19	75	70	
20 ^c	110	90	
22	15	10	
23 ^c	100	100	
25 ^b	15	10	
24 ^b	80	80	
28	35		
29	—		
30	—		
36 ^c	30	15	
37	ff		
45 ^c	15	10	
43	—		
47 ^b	38	35	
50 ^c	ff		
51 ^b	25	25	
52	80	80	

L. Missen

56	90	100
57	100	100
58	35	15
53	ff	
66	20	
62	> 110	
60	ff	
62	25	10

"A"	55	80	
	61	20	
			148899 M. 100 Scotter
"B"	83	80	
	1	80	
	2	15	
	3	110	5.7 10.0
	4	25	5.5 9.8
	5	> 110	
	6	15	
	7	> 110	5.5 9.8
	8	66	5.0 9.2
	9	100	5.7 10.0
	10	80	5.7 10.0

146

Mel 15-
 MC 26217 - Jan 14
 Jan 17
 Meun

type? 1 30 30: 30:

2 5 5 5

3 H - -

4 20 20 20

5 35: 25: 30:

6 H - -

7 88 90 89

8 15 10 12

9 10 10 10

10 5 5 5

11 35 35 35

12 85 80 82

13 10 5 8

14 50: 35 -

15 8 5 6

16 late - -

17 100 90 95

18 late - -

19 60 - -

20 NF5 - -

21 G - -

22 K5 - -

23 ~~G~~ - -

24 ~~G~~ - -

25 ~~G~~ - -

26 ~~G~~ - -

27 ~~G~~ - -

28 ~~G~~ - -

29 ~~G~~ - -

30 ~~G~~ - -

31 ~~G~~ - -

32 ~~G~~ - -

33 ~~G~~ - -

34 ~~G~~ - -

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242 ~~G~~ - -

243 ~~G~~ - -

244 ~~G~~ - -

245 ~~G~~ - -

246 ~~G~~ - -

247 ~~G~~ - -

248 ~~G~~ - -

249 ~~G~~ - -</

NGC 2422

147

MC 26228
26229

a	54	50
b	95	71/10
d	62	66
c	110	80
		82
j'	90:	70
k	80	75
m	62	66
n	62	40:
2	110	90
3	90	85
4	66	75
5	80:	110:
7	80	80
11	78	70
12	58	60
13	25:	dd
14	110	71/10
15	110	100
20	78	66
23	68:	70
21	78	80
22	65	64
24	80:	80:
25	80	80
26	40	40:
27	70	80
28	66	80
29	90	110
30	90	110
31	66	74:
32	35	dd
34	40	40

35	>>110		
36	>110	100	
37	52	50	
38	110	-	
43	90	100	
44	66	66	
45	44	40	
47		80	
48	K	15	90
49	G	16	75
50	A	17	80
51	K	18	90
52	G	19	90
53	K	20	A3
54	K	OBV 1	100
55	G	2	G
56	G	3	K
1 A''	1	4	H
2	K	5	F
3	G	6	K
4	H	7	H
5	100	8	F
6	K	9	66
7	K	10	K
8	H	11	H
9	G	12	K
10	H	13	F
11	H	14	G
12	F5	15	G
13	50	16	92
14	25	17	150
		18	100
		19	
		20	

(NBC 2548)

MC 26241
26221 mean

ATB are two areas 1.5° from
center of cluster and equal
in area to second ring

149

mpg

		100	100	100	100	100			
-4 2245 A2	1c	100	100	100	100	100	100		9.9
-5 2396 A2	2c	82	80	81	70	70		70	9.5
-5 2401 A2	3c	H	-	-	-	-			10.4
-5 2402 A0	4c	92	110	108	90	90	75	75	9.6
	5c	H	-	-	-	-			10.0
-5 2411 A0	6c	100	80	90	80	80	60	60	9.6
-5 2412 A0	7c	100	100	100	80	80	66	66	9.3
-5 2413 A2	8c	90	100	95	80	80		80	8.7
-5 2414 A2	9c	90	100	95	70	70		70	7.9
	10c	H	-	-	-	-			9.8
	11c	H	-	-	-	-			10.1
	12c	H	-	-	-	-			9.6
-5 2419 A0	13c	90	78	84	70	70	66	66	9.9
-5 2420 A0	14c	95	70	82	70	70	60	60	10.0
	15c	88	100	99	80	80	75	75	9.5
	16c	100	110	105	90	80	70	70	10.2
	17c	92	100	96	80	80	66	66	10.0
-5 2425 B9	18c	110	90	100	90	90	66	66	10.4
-4 2256 A0	19c	100	100	100	80	80	62	62	10.3
-5 2467 A0	20c	100	95	98	80	80	66	66	9.3
-4 2257 A2	21c	H	-	-	-	-			9.0
-4 2260 A	22c	85	100	92	70	80	66	70	9.1
-4 2264 A3	23c	92	110	105	A3	A3			9.6
	24c	80	-	80	75	75	72	72	10.4
	25c	80	100	90	75	75	80	80	10.2
-5 2432 A	26c	70	90	-	80	80	70	70	10.6
	27c	90	100	-	70	80			10.1
-5 2436 A2	28c	95	82	88	70	70			9.3
	29c	H	-	-	-	-			10.0
-5 2438 A2	30c	110	95	102	70	70			9.9

	AD	31 ^a	>110	100	110	80	80	66	70	74
	AD	32 ^a	85	100	-	95	95	70	70	82
		33 ^a	H	-	-	100	100	78	78	89
		34 ^a	H	-	-	-	-	-	-	-
-5 2445	AD	35 ^a	>110	>110	>110	95	95	13	13	-
-5 2446	AZ	36 ^a	100	92	96	75	75	-	-	75
-5 2455	AZ	37 ^a	H	-	-	-	-	-	-	-
-5 2444	F5	38 ^a	30	35	32	-	-	-	-	-
		39 ^a	100	100	100	80	80	80	80	80
		40 ^a	H	-	-	-	-	-	-	-
		41 ^a	80	-	-	75	75	-	-	75
-5 2462	AZ	42 ^a	92	80	86	75	75	-	-	-
-5 2463	AZ	43 ^a	78	60	69	A5	-	-	-	-
		44 ^a	H	-	-	-	-	-	-	-
		45 ^a	30	-	-	-	-	-	-	-
-5 2392	F5	46 ^a	K	-	-	-	-	-	-	-
-5 2395	G0	47 ^a	G	-	-	-	-	-	-	-
-5 2399	K0	48 ^a	K	-	-	-	-	-	-	-
-5 2392	G0	49 ^a	G	-	-	-	-	-	-	-
		50 ^a	-	-	-	-	-	-	-	-
-4 2251	F8	51 ^a	A	-	-	-	-	-	-	-
-5 2404	K0	52 ^a	K	-	-	-	-	-	-	-
-5 2447	K0	53 ^a	K	-	-	-	-	-	-	-
-5 2459	F5	54 ^a	K	-	-	-	-	-	-	-
-6 2525	F2	55 ^a	G	-	-	-	-	-	-	-
-6 2528	F5	56 ^a	K	-	-	-	-	-	-	-
-5 2467	G0	57 ^a	H	-	-	-	-	-	-	-
-5 2463	K0	58 ^a	H	-	-	-	-	-	-	-
-5 2465	A5	59 ^a	F	-	-	-	-	-	-	-
-5 2470	K2	60 ^a	K	-	-	-	-	-	-	-

~~Do not~~ plot separate sheet

-5 2362 ^H A ¹¹	1	110:
-5 2363 F0	2	K
-5 2364 F5	3	H
-5 2368 F5	4	R
-5 2370 A2	5	75:
-5 2371 K0	6	K
-5 2375 A0	7	100
-5 2378 G5	8	K
-5 2486 ^H B ¹¹	1	K ₁₅
-4 2294 K0	2	20:
	3	R
-5 2487 F2	4	90:
—	5	H
	6	K
-5 2502 K2	7	K
-5 2505 F0	8	74

152


 to
 double
 diff.

NGC 457

MC 26222

Jan. 19

Jan 20

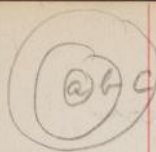
A+B are

 two areas $1\frac{1}{2}^\circ$ distant from
 cluster in R.A. and $\approx 3\times$
 diam. of cluster.

157 240 B	"C"	1	H	
157 240 B	k? e?	2	25	25
	k?	3	15	15
		4	30	35 ^h
		5	15	15
		6	—	
		7	60	large
		8	00	—
157 257 B		9	5	5
B5 H ₂ Bright?		10	K	—
157 260 F5	A Set?	11	75	80
		12	—	—
	A	13	80	66

"A"	1	~G5
	2	~50
	3	~90

"B"	1	G
	2	80
	3	K
	4	H
	5	G
	6	F5
	7	H
	8	110



NGC 1039

M 26 226

Jan. 19

Jan. 20

Mean

MF 10006
(Mach 3)
Jan 20

+41 507 A0, A0	c1	80	80	80	50
42 572 A A0	2	70	60	65	50
	3	G			-
	4	110	110	110	ff
42 578 A0, A	5	70	66	68	74
	6	100	110	105	ff
	7	90	100	95	80f
	8	110	100	105	80f
+41 514 B9, A	9	100	95	98	-
42 584 A0	10	70	80	75	54
	11	100	85	98	-
42 586 A	12	F!	80		-
42 586 A0, A	13	66	66	66	45
	14	K	-		-
42 588 A0	15	60	50	55	40
42 589 A0	16	60	50	55	30
	17	ff 90	-		-
	18	78	85	84	77
	19	90	78	84	-
42 591 A0	20	50	50	50	42
	21	90	-	90	-
42 598 B9?	22	80	80		50
	23	50	60		-
	24	50	50	50	50
	25	70	70	70	50
	26	66	68	67	50
	27	40	-		-
	28	G	-		-
	29	90	95	92	-
	30	90	95	92	-

154

2 607 139 A0	26a	G5			
	231	45	40	42	40
	232	90	100	95	-
	233	400	100	100	-
	234	82	80	81	80
+42 615 A2 "A"	235	K			-
	236	80	80	80	-
	237	80	80	80	70
	238	66	66	66	56
	1	82			
"B"	2	K			
	3	G			
	4	-			
	5	G5			
	6	F			
	7	G5			
	8	K5			
	9	K			
	10	K			
	1	K			
	2	52			
	3	K			
	4	K?			
	5	K?			
	6	K			
	7	K			
	8	60			
	9	66			
	10	F			
	11	F			
	12	G			
	13	K			
	14	F?			

Area adjacent to 2244
MC26219

155

	1	70 ²⁰	31	G
+4 1341 B5	2	7	32	F
	3	A5	A2 33	110
+4 1348 A0	4	68	A0 34	80
	5	50	35	A5
	6	K	36	F
	7	G	A0 37	68
	8	10	A2 38	68
A0	9	100	39	G
G	10	A	40	F ₂
K	11	K	B 41	101
B	12	25 ^e		
B	13	15 ^e		
B	14	15 ^e		
B	15	12 ^e		
	16	00		
B8	17	75		
M	18	M		
A0	19	66		
A2	20	110		
K	21	K		
A1	22	110		
	23	A2		
	24	A2		
	25	H		
A0	26	80		
G	27	G		
-	28	A5-		
-	29	A5		
-	30	A2		

Area adjacent to 2168

MC26218

type?

1	H	31	30
2	F?	32	30
3	G	33	G
4	110	34	60
5	K	35	15
6	70	36	H
7	100	37	25
8	G	38	G
9	H	39	H
10	5	40	80
11	G	41	110
12	A3	42	K
13	70		
14	F5		
15	G		
16	H		
17	F		
18	K		
19	F		
20	G		
21	K5		
22	15		
23	K		
24	H		
25	100		
26	H		
27	15		
28	G		
29	H		
30	G		

Areas E and W of 1912

157

"A"	1	56
just	2	G
above	3	50
1960	4	78
	5	K
	6	G
	7	G
	8	50
	9	F
	10	G
	11	G
	12	G
	13	90
	14	5:

"B"

1	75
2	K
3	G
4	70
5	40
10	K

1/2 Area
rest
focus is
to form

158

Praesepe

MC 4899
8254 (note)
10656 ~~classified~~
MCP253

MF10041

classified on									
	300	6.33	A2	85	8				
I 37167, Visible between	265	6.46	A0	95	82	90	A2	52	A0-A1
I 37167, completely overlapping	224	7.34	A0	54	77	65	A3	52	A2
	229	7.50	A0	77	66	70	A1	40	A0-A1
I 37167, <u>oo</u>	276	7.54	A0	65	80	80	A3	50	A2 FO
	279	7.72	A0	64	76	70	A2	60	A2 FO
I 37167, H	286	7.81	A0	68	84	77	A3	58	A1-2 A0-A1
I 37617 - ^{faint} fairly strong	40	8.02	A0	66	77	75	A3	60	A1-2
I 37617, H. S. Camera	552	8.22	A0	80	80	80	A0	64	A0-A1 FO
I 37617 - <u>very faint</u>	154	8.36	A0	75	-		FO	50	A5
	370	9.00							
I 37617, <u>very faint</u>	538	9.14	A0	75	70	58	A0	40	A2

The stars appear to be classified too early, judging from the MC and MF plates and also from the Rich Cat of RV. Therefore my mean reduction curve is not applicable.

UGC 2437 Faint & too crowded — Poor
 quantity — measured on Bailey chart.
 M 26229 26228 26316 of 26394
 18967 } H.D.
 12673

159

Sp	mp			
Av:	10.3	1	100	80:
Av:		2	100	60:
Av:	9.9	3	80	100
Av:	10.1	4	92	105
B5	9.9	5	54	66
B8	9.2	6	40	50
AD	8.6	7	40	50
—	10.4	8	65	—
	10.5	9	65	—
	10.5	10	50	—
AD	9.1	11	62	70
	10.4	12	65	100
	10.1	13	75	90
	10.5	14	80	80
	10.6	15	75	80
#1 of 13, 2422		16	90	100
#4 of "type"		17	30	60
#AD	9.1	18	66	AB
#7	10.1	19	100	80

160

h + x Persei

member
acc. to
line intensity1420224
June 25, 1933
June 27

7195

mean

MC 26889
June 1934

29

to be corrected
by -0.2

mem	-372	0	dd	18	9	dd	56.5	k
mem	-363	2	8	25	15	dd	6.8	k
not mem	+954	58	60	66	60	40:	9.0	A?
mem	-355	65	80	70	71	large	9.2	
not mem	57 521 KO	K	-	-	-	-	9.5	
mem	-448	25	25	30	28	dd 10:	9.0	k
mem	-3910	5	10:	20	14	dd	8.1	emission?
mem	-4811	10	18	30	22	20:	8.2	k
not mem	-917	80	75	62	70	50:	7.8	A3
mem	-4427	5	10	25	16	-	7.2	k, e?
not mem	-1531	dd	-	20	20	-	6.85, k, e, e	
not mem	-1236	70	80	90	82	50:	8.0	A3
56 446 GO	1508	1	G	G	-	GO	9.2	
56 448	1503	2	G	G	-	F8	10.4	
not mem	1509	3	G	G	-	GO	7.6	
		4	20:	H	-	40:	Q? B?	
+56 451 AO	1476	not	100	H	105	90	10.6	A1 GO?
+56 452 AO	1477	not	66	80:	70	75	9.4	B8
56 453	1437	mem.	30	H	34	35	10.4	B B5
56 454	1433	mem	25	H	32	42	10.4	B8
		9	80	H	-	95	AO	
56 455	1417	not	70	H	73	90	10.7	AO
56 457 B8	1415, 70	11	40	H	45	00	turn	GO
56 462 B9	1413	mem	10	14	14	15:	9.7	B8, e
		13	F	-	-	A3	10.2	
56 456 A2	1408	14	FX	-	-	A8	9.8	
	1407	15	K	-	-	K	10.4	
56 +58 G5	40.2	16	K	-	-	120	11.1	
56 461 KO	1359	17	G	-	-	G5	9.7	
56 461 FO	1353	mem	15	20	20	19	del	8.58.7

57 527 88	1292	new	19	15	25	25	22	20	9.4	BS, k
56 466 FO	1295	20	K	—	—	—	—	FO	10.0	60
	1301	21	10:	30:	H	20:	45:		10.2	5?
		22	20:		H		54			limbation
55 1275 1275		new	23	15	35	38	32	40	10.1	l? BS
	1229	new	24	15	30	H	22	40	10.5	type? BS
56 469 B0	1252	new	25	—	20	20	19	dd	8.486	
56 475 B2	1264	new	26	8	8	12	10	dd	7.484	Pins narrow
56 478 88	1202	new	27	18	20	25	22	10:	8.990	e
	1253	new	28	20	20	H	20	30	10.3	8
	1184	new	29	20:		—		30:	10.2	60
56 470 B5	1247	new	30	5	15	15	12	dd	7.680	A
56 471 B2	1248	new	31	2	5	10	7	dd	6.677	A?
	1164	new	32	15	20	30:	24:	20:	9.4	B, A?
56 480 A0	1154	not	33	86	100	95	94	70	8.284	
	1061	new	34	20	25	—	22	35	10.2	h?
56 486 K0	1057	new	35	G	—	9	—	late	6.67.1	
57 536 F8	1049	new	36	G	—	9	—	G	8.88.9	
57 535 K2	1042	new	37	G	—	G	—	F8	9.6	
56 487 A0	12920	new	38	100	100	H	100	A2	9.7	A3?
56 499 A0	918	not	39	105	110	H	108	90	10.3	
56 606	768	new	40	20:	40:	H	30:	30:	10.7	h
	929	new	41	25	40	H	32	30	10.4	B
	775	new	42	M	—	H	—	M	10.9	
	778	new	43	15	20	15	16	20	9.6	e?
56 520 B5	259	new	44	5	10	20:	12	dd	8.4	60?
	955	new	45	20	20	20:	20	26	B2 9.8	Double?
	1066	new	46	10:	15	15	15	15	9.8	l? B narrow
	1082	new	47	30	25	6R	28	35	10.4	
56 485 B2	1079	new	48	12	12	25	18	20	9.3	k narrow

[illegible]

55 579 756	not: 79	60	70	ff	65	40	105	h
55 587 B2 656	mem 80	12	18	12	14	15	88 8.9	
56 545 B3 630	mem 81	25	18	12	17	12	9.2	e, s
56 547 Ma 43.6	not 82	M	—	M	—	M	10.2	h
612	83	100	90	H	95	110	10.5	
56 548 561	mem 84	20	20	H	18	30	10.0	B
553	85	15	12	H	14	30	10.1	e?
601	86	80	F	H	—	100	9.4	type?
57 542 90	87	G	—	G	—	F5	9.3	
57 545 42	88	100	95	85	92	A3	9.1	
57 544 43 547	89	F	—	F	—	A5	10.0	
1855 AS 545	90	M	—	M	—	M	10.3	
2 11 +5713 A3 457	91	15	20	915	20	30	10.2	B
57 550 K5 38.5	92	2	2	e	2	e	9.6	e?
56 560 468	93	75	G	H	—	A5	—	type? blue
347	94	10	18	H	14	15	10.1	
56 565 Bp 347	95	10	15	H	12	15	10.7	bl
476	96	(10)	e	H	8	00	10.0	e
482	97	25	25	H	25	35	10.2	B
490	98	10	10	e?	10	20	9.7	e? B5
56 557 501	99	M	—	M	—	M	10.1	h
56 563 568	100	15	10	20	16	15	9.6	
56 551 K5 40.7	101	30	30	25	28	25	9.4	
56 567 B2 20.1	102	15	20	20	19	15	85 8.7	line narrow
55 597 Ma 36.0	103	M	—	M	—	M	9.5	
55 596 A0 446	104	100	100	100	102	100	9.5	
55 597 442	105	25	20	50	30	30	10.1	h
2 11.7 +55 46 A0 447	106	100	100	100	100	120	9.9	A0
2 12.0 55 45 A0 448	107	110	110	10	110	110	10.4	A0
55 601 120 330	108	K	—	K	—	K0	9.4	

55 600 140	327 38.6	9b	14	—	—	—	140	9.3	
	323	10b	9	—	—	—	40	10.6	
55 605 B	252	mem					50		
55 607 A0	38.8	11b	15	15	5.1	12	15	9.5	nearly cont; H ₅ +H ₆
	175	net	c						
55 609 A3	47.6	12	110	110	6b	110	110	9.5	
	39	13c	A3	—	A3	—	A3	8.8	
mem -46	35	14b	dd	—	10	10	dd	6.8	
56 600 G0	245	15b	9	—	9	—	F8	10.0	
56 598 A0	247	not	16	80	70	72	dd	8.8	
56 592	318	17a	8.1	8.1	15.1	12.1	20.1	10.0	195
56 598 B9	308	mem	18a	10	15	15	15	9.3	
56 586	310	mem	19a	25	20	18	22	20	10.2
	408								
56 583 Ma	41.7	20a	M	—	M	—	M	10.7	
56 578	400	mem	21a	18	20	25	22	25	9.5
	388								
+56 570 B	30	22a	14	12	12	12	small	8.6	
+56 568 A0	35	23a	dd	—	20	20	dd	7.2	lines narrow
56 577	353	mem	24a	12	15	25	20	20	9.3
56 582	351	mem	25a	18	8.1	13	20	10.2	hh
			26a	10			30		
mem Asp -51	281	mem	27a	8	6	15	11	dd	8.2
	273								
mem -51	35	mem	28a	6	6	14	10	dd	7.7
56 589	260	mem	29b	20	20	11	20	25	9.6
	261	not	30b	80	100	16	90	100	10.6
56 579	341	mem	31b	70	F	11	—	60	10.4
56 594	189	mem	32a	20	25	11	22	15	9.9
	188		33a	hh	—	11	—	cont	10.3
			34a	20	30	11	25	20	10.8
56 599	215	mem	35a	15	15	16	20	20	10.5
+56 597 K5	217	mem	36a	M	—	M	—	M	10.6
56 596	220		37a	20	25	20	30	30	9.8
56 595	218		38a	M	—	M	—	30	10.1

[illegible]

-39 38		new	70	3	5	8	6	dd	73 7.7	lines ^{pro} narrow
			71	M?	—	—	—	K	10.6	2? 1A
56 630	B5	not	72	50	45	50	49	dd	78 8.1	
56 631	B8		73	F	—	F	—	F5	9.4	
	A3		74	H	—	H	—	F5	—	
			75	H	—	H	—	A5	—	
56 627	A	not	76	36	60	70	64	50	9.4	
	A0		77	M?	—	—	—	K	10.9	
58 397			50	45	62	55	A2	8.1	A2	
57 519			8:	15	25	1820	dd	6.9	K	
57 522			50	50	66:	58	dd	8.2		
57 576	A2		20	25	50		dd	7.7	28	perhaps like 28
57 582			8	10	15	12	dd	7.2	e?	
57 594			45:	45	70	60	dd	7.4		
54 539			66::	55::	90		dd	7.5	dd, forms	
56 642	B0/p	1007195	78	12:		12e	any?	8.7	H _β bright	
56 635	B3 B3	5	79	20		20e	?	8.7	H _β bright?	

continued Book VI, p 165

MC25267 is next best plate.

Calibration of long MC for ~~shorter~~ smaller
scale values 167

1 15^h

2 25

3 60

4 88

5 62

6 30

7 12^h

8 36

9 82

10 110

11 60

12 25

13 110

14 60

15 88

16 40^h

17 30

10

20

30

40

40

30

15

25

60

80

56

15

65

50

-

30

20

168

NGC 2244

MFP309

1	68	40	64
2	60	41	25
3	72	42	75
6	75 ^{del}	43	80
7	40	45	75
8	64	46	42
9	70	47	42
12	60	49	25
13	100	50	30
14	25:	52	0
16	15 ^{del}	53	25
17	5	54	00
19	62	56	2
20	44	57	2
21	60	60	38
22	75		
23	62		
24	70		
25	2		
27	45 ^{del}		
28	62:		
29	7100		
30	40		
31	20		
33	10		
34	25		
35	✓		
36	15		
37	12		
39	2		

170

Examination of Short X Spectra

NGC

X

Magnitudes

			Hertzsprung
1647	15649	^{measured} Fair - cannot see R. Density	
	15650	^{measured} " " " "	^{measured}
1746	15675	Good density good	
1893	15668	Off center, ^{top not measurable} pretty poor, hazy	
2244	15672	Bright stars dd, faint measurable	can I B 55695, 55843
2301	15676	^{measured} Dry stars dd, others good	B 55725, 56691
2353	15669	Fair, measurable	B 55724, B 56738
2323	15671	" " " "	
2423	15688	Very hazy, gross faint, but doubtful	I plates of 2422
2539	15705	^{try to measure} Pretty hazy, but rich + faint cluster	B 56677
2547	15673	Most stars dd - OK; MF 7815?	B 55707-848, 56146
2548	15681	Excellent	^{2B} plates 56723, 732
	15699	Fair	I 50228, 247, 265
2567	15684	Cluster off plate	
2571	15667	Very hazy, probably too poor	
I 2395		MF 7815 v.g.; B plate	
2670	15724	Too poor of 2670; + 2395 possibly meas	B 55849, 56147
IC 2488	15689	Just barely measurable; very dd	B 56148, B -
2925	15678	Few stars only, but these are good	B 55850
3114	15685	^{measured} Exc; brightest dd; marked	^{measured} Wallenquist
3228	15682	MF 7942 O.K. Very few stars, dd. Not meas.	
3293	15677	dd - repeat. Not meas.	
H 4	15716	H 4 - prob. meas.	
Mel 101	15721	Too faint	
IC 2602	15732	Cluster not on, if Car is	
IC 2714	15680	Very ft + narrow; very different	
3766	15734	B stars can see line. ^{density of short wave} Good - too	X 15759
IC 2948	15722	^{B stars} Stars are too weak hazy the plate is poor	
4349	15711	Very narrow + faint, hazy	
	15717	" " " "	
H 5	15710	Much too poor. Lines all doublets	X 15751

4755	15728 475	Some ft. stars measurable, bright ones did	
4852	15691	Very narrow; fair-good	X15745
	15733	Very hazy, poss. 1/2 doz. stars	
5316	15718	5316 half off, poor	B56155
5460	15692	Good, somewhat dense	B56522, 56531
5662	15696	Fair	X15761
	15702	Good	
5749	15735	Very difficult - doubtful if meas.	
5822, 23	15727	5823 H+H; 5822 H+ but barely possible - ^{MF8558} bad	B56542, -551
6025	15693	Too dense, ft. stars measurable?	X15742, -762
	15734	" " " " " " " "	
6087	15903	Cluster off MF plate	B56562, 56617
H16	15714	Very poor, very doubtful MF plate	B56525, -534
6231	15719	Bright stars much too dense & diff. MF plate	B56545, 554, 564
H16	15737	Too poor	B56588, 56599
6475	X15704	Much too dense + pretty hazy anywhere	Wallengren about pl. 2 V15654 B55595
6633	15646	Excellent, very wide	
14725	15651	Excellent, wide - otherwise would have	B5 plate X15653, B55596, -99
6709	15647	Wide, good	MF + B plate B55594, 56571, 615
	15662	Fair, H+	
6755	15738	Very poor cluster, too weak to show	B55598, 56633
6940	15739	Too poor	

Exposures with ^{focus} K in focus needed for
 2301, 2353, ~~2423~~ ²⁴²³ 2539, ~~2547~~ ²⁵⁴⁷ H4, ²⁷¹⁴ 3766, 4349, 4852,
 5460, 5662, 6025, ~~6025~~

i.e. 60 minute exposures, H and K in sharp focus,
 of NGC 2301, 2353, ~~2423~~, I 2488, 2539, ~~2547~~ 2925,
 H4, I 2714, 3766, 4349, ~~I 2925~~ 4852, 5460,
 5662, 5749, and 6025.

20 min exp. in normal focus and another
 for H + K of NGC 2547

20 min. exp. in normal focus of 5460, 5662.

10 min. exp in normal focus and another for
 H + K of NGC 3293, 4755, 6025, 6231,
 6475, and the several

5 min. exp. in normal focus of IC 2602
 The plate of the Pleiades in normal focus,
 not H and K.

Finish magnitudes ^{preferably on 8-inch} for NGC ²⁹²⁵ 3228, 3293,
 H4, I ²⁶⁰² 2714, 3766, 4349, 4755, 4852, 5662,
 5749, H12.

measures of Bright line star					#62	(+1332)
AC 29953	28988	26524 (i)	29881	Mean		
1 6.7 9.0	7.8 9.3	73 9.1	755 9.5	9.2		
2 6.9 9.2	7.6 9.3	75 9.5	76 9.6	9.4		
3 7.1 9.4	7.65 9.4	74 9.3	76 9.6	9.4		
4 7.3 9.7	7.75 9.6	76 9.7	77 9.7	9.7		
5 7.5 9.9	7.8 9.7	77 9.9	79 10.0	9.9		
6 7.9 10.3	8.0 10.0	77 9.9	80 10.1	10.1		
7 7.3 9.7	7.8 9.7	75 9.5	775 9.8	9.7		
HS 12						
4 5.5	6.5	6.4	64			
6 6.2	7.2	69.5	67			
8 6.9	7.5	75	75			
11 7.8	7.8	77	80			
7 6.7	7.5	71	70			
9 7.1	7.75	76	765			
9a 7.3	7.7	77	77			
10 7.8	8.1	78	79			
13 7.7	8.3	79	83			
AC 29903 9.6	2426752.680					
4865 9.8	2416601.550					
4828 9.7	16584.537					
4514 9.8	16490.737					
28957 9.7	26357.665					
17212 9.8	20877.644					
18111 9.8	21173.871					
18180 9.8	21184.774					
19396 9.9	21537.835					
21237 9.7	22022.537					
22315 9.6	22352.626					
22895 9.7	22589.842					
23048 9.6	22637.823					

174

C 29878	9.8	2426744.581
29896	9.9	26751.579
28975	9.6	26363.
23254	9.7	22699.786
29019	9.7	2426378.
29026	9.5	2426379
23371	9.4	2278.707
24418	9.7	
29946	9.9	
30905	9.8	2427093.619
30896	9.7	2427092.662
30566	9.8	2426993.899
30818	9.8	27057.724
prob. single line 24587	9.6	23071.609
single line 24617	9.8	

The ^{line}variability is small, but possibly real. The bright and faint ~~estimates~~ estimates were confirmed by HHS.

2 bright lines	MC 26320	9.8
2 "	23313	9.8
1 1/2 "	18418	9.8-
1 "	18388	9.8

Observations of Suspected Bright Lines
 #62 MC18388 Excellent One prominent bright line, with possibly a 4th bright line to violet. Possibly other bright lines around H δ

β very poor, possibly emission; ϵ ~~strong~~ ^{dark} and hazy
 β 2.0 ^{strong} 2.30 ^{for} 2.36 ^{H. bright} 3.60 ^{dark bright (2nd)} 3.72 ^{3.95}
 4680 4640 4090 4050

MC18418 - at edge, strong bright line with possible faint companion close - sep \approx 0.4
 β 2.30 2.34 2.95 3.70 3.90
 4680 4650 4050 3980
 measures different

MC26313 - two strong bright lines, β emission & em?, δ sharp absorption, ϵ and γ bright line around 4059
 2.0 2.28 2.37 2.95 3.30 3.70 3.95
 4690 4640 4200 4050
 Possibly em, just to violet of ϵ at 4.0, δ

MC26320 - two strong bright lines, violet stronger. Other details different, but ϵ and γ apparently dark
 β 2.27 2.34 2.90 3.32 3.52 3.70 3.95
 4690 4650 4190 4120 4050
 NIII SiIV NIV

@38411 - faint and four sl. doubtful, so that we can't be sure there is one line, δ appears bright, γ and ϵ dark.

B12670 - too faint, probably absorption to violet

B15126 - Faint, Probably single. Bright line just to red of $\delta = 4200$

B53435 - Very near edge, and forms very poor line strong + prob. single. β bright -

The strong bright lines measured seem clearly to be 4686 and 4640, the latter being the variable. The nitrogen line around 4059 was measured on all four plates, but the one at 4200 on only two - those with 4640 strong. ^{and possibly on B15126} Does this mean decreased ionization? Hydrogen is very difficult, and only the later members of the series (ϵ on) appear clearly as absorption. β and γ appear to be in emission, especially on 26313 and on B53435.

#1 18411 - marked. β possibly bright but not very good,
 γ not clearly seen; δ and ϵ hazy

26314 - marked. β + δ not clearly seen, possibly bright
 δ ~~not~~ ϵ , 4026 seen.

26321 - possibly β and 4686 and others bright.

26219 - marked. ^{new edel} 4686 and γ app. br. Also br, around ϵ ?

I 38168 - β may be bright. Image very faint

I 23975 - 4686 may be bright

B20708 - γ br?, δ , ϵ dark

MF8313 - γ clearly bright

#2 MF8313 - γ bright + double. γ br? 4686 br?

B20708 - β "

26219 - marked; β bright? γ and δ not seen, but
 there seem to be bright lines at 4500 and 4260.

also possibly 4059. ϵ abs. Spectrum at edge of plate

26321 β not seen - γ may be abs; maybe emission
 to red of δ

18411 - marked. Lines very poor - difficult

26314 - marked. 4640 br? β scarcely seen, doubtful.

γ not seen, δ , ϵ , 4026 abs.

#3 26314 - marked, Not suff. evidence

18411 - marked. β maybe bright

26321 - marked. β and 4059 may be bright.

26219 - marked. β appears bright, but it is more
 likely to be an abs. line at 4830

MF8309 - abs.

25374 - δ may be bright - also line around 4600

B20708 - β + δ appear bright

18388 - abs.

26313 - marked, β + δ may be em.

#4 18411 - marked, β br, δ , γ abs.

18388 - marked. Em. edges to β + δ ?

B20657 - δ , γ abs.

B20708 - abs.

25374 - prob. em.

I38168 - β pos. fine central em, δ , γ abs.

26219 - marked. β bright or else two abs. lines

26314 - β + δ not seen

#5 known

#6 18411, marked + verified by ATC, β pos, δ bright

26314, marked, β bright, δ not seen, either one bright or two abs around 4760

26321, marked, may be em, but very difficult

26219, marked. β , 2.28, 2.38, 2.59, 2.80, 2.90.

MF1337, marked. δ em. - possibly also 4686?

B20708 abs.

B20657, abs.

18388, marked. δ may be em. Lines very poor at edge

26313, marked. Difficult, but looks like em.

#7 26219, marked. absorption

#8 26219, marked. Very strong obs & red off β .
 Found a companion which is responsible.
 26313, β looks bright, but not above.
 26320, looks like real one.
²⁰⁷⁰⁸
 B20657 - abs
¹²⁶⁷⁰

9 26219, marked. Lines narrow - may have some edges.
 18388 - looks like at 4210.
²⁰⁷⁰⁸
 B20657 abs
¹²⁶⁷⁰
 ? I 38168, β not seen.

10, 11 26314, 12 marked. Lines poor, 11 doubtful, others ok.
 12, 27 26219, 10 marked. 4640 appears bright
 11 marked, lines poor
 12 marked, β & γ not seen
 26321 10 marked, prob. abs.
 11 marked
 M F 8309 10 show br. γ 12 abs.
 I 38168, 11, β exc. line.
 B20708, 10 & 11 possibly br β
 18388, 10 marked β not seen
 18411, 10 marked, 27 marked - abs.
 12 H β bright
 26313, 27 H β good bright
 10 marked, but >

13, 14, 26219 - all marked, but ?
 15 18388, 14 marked
 B20657 14 marked - br edge γ & ?
 I 38168, abs.

17, 18, 19 MC18411, marked 17 type? 18, 19?
26314, 19", H β bright, 18 abs.
26321, 18, 19 marked, H β bright
I38168, 19, H β bright
 B20708, abs.
 B20657, β possibly em.
 MF8950, 19 looks br.
 MF8313, 19, δ em.

20, 21, 22 18411, marked, 20 sp. very difficult to make out,
 gap around δ . $\beta + \gamma$ not seen.
 22, β looks like good em, other lines sharp.
 MF8950, 20 may be em. - another star underneath,
 21 abs, 22 looks like C A2
 B20657, 22 A2 but might be em. edge to violet.
 20 has a close comp.
 B20708, 22 marked β bright.
 26314, 22 marked, β very weak.
 20 marked - might be em.

24, 25, 26, 27 18411, marked 24 prob abs.
 25 br β and 4686?
 26 prob abs 29 prob abs.
 26219, abs?
 26314, ²⁴ β weak, 25 strong ^{abs} line to red of γ , 26+29 abs
 26321, 24 marked, β possibly br.

31, 32, 33, 34 18411, marked 31, ³²³³doubtful 34 lines very weak,
 strong abs. around 4080. γ
 26313, 31 may be em.

18388, marked. lines all very poor, may be common but not certain

B20657, ²⁴₁₁ β not seen, δ weak

B20708, 31 β + γ not seen, others abs.

138168 - no evidence.

26321, 31 looks messy, 34 may have br. β

26314, 33 bright lines. 34 β may be br., also 4080.

31, may be bright.

26219 - look like abs

41, 42, 43, 44

45

18388, marked. 43, lines not clear, others very doubtful

26219, ditto

26314, 43, β + γ may be seen.

B20708, 43 marked - may be br. δ . 43 double?

48, 52, 53 18388, marked, 48, β very weak but seen,

52 β weak but dim, 53 β bright.

26313, abs, 48 seen at 4740?

26320, 48 marked. seen. at 4740? 52 abs 53?

B38411, 53 looks like seen at 4686.

B12670, 48?, 53 abs.

MF8309 abs.

26219 doubtful

59, 63, 65 18388 marked. 59, 63 too diff. 65 β may be bright.

B12670 65 abs.

26320 65 β not seen, δ ?

26313, 59? 63 abs 65 abs, β weak.

68, 69, 72 18388 marked 68 β e or double. 69 too poor 72 abs.
26313, 68 abs, lines around β , 69 abs 72 abs.
26320, 18+69 abs 72 prob abs.

82, 83, 49a 26320, 49a marked Bright β ?, 82^{+P3} marked but?
11582" 18388 abs.
20657, 49a + 82 abs.
I 38168, 49a β very weak, 82 abs, 83 marked, too diff.
26219, 82 + 49a abs.

78, 80 26314⁷⁸ marked 80 vv + late? 78⁺⁹⁶ β weak.
96 18411 78 β e?
26321⁷⁸, 96 marked both?

90, 91, 94 26321, marked 91 abs 94 del 95 abs?
94, 95 26321 26314, 91 β weak, 94 del, 95 abs.
74 20708 91 - 4686 18 em?
I 38168 94 = 74, marked. prob. em.
18411 94 β may be bright.

87, 88, 89 26321, marked 87 abs 88 + 89?
18388, 87 abs. 89 prob abs.
26219, all abs.
26313, 88 - looks like em at E, β ? 87 + 89 abs.
20708 87 + 89 abs
26314 88?, 87 + 89 abs



UGC 2301

Feb 14, 1933

x15833

x15833
x15833 - April 1934
mean183
mean

2063 KO	1 ^c	late	K5	—	32 ^a	90	100	A2	100	110	98	
2061 F	2 ^c	60	70	F:	—	33 ^a	66	70	A0	76	76	72 2050 A0
	3 ^c	late?	ff	ff	—	34 ^a	00	—	—	—	—	
2058 AD	4 ^b	80	70	A0:	70 70	35 ^b	80	80	—	A0:	80	2048 A
	5 ^b	K	M	—	—	36 ^c	late	—	—	—	—	
	6 ^b	96	100	A	80 80	37 ^a	late	—	—	—	—	
2060 A3	7 ^b	90	100	A	80 80	38 ^a	80	80	dd	A1	66	70 74 2050 A
	8 ^b	late	K	late	—	39 ^c	del	K5	—	—	—	
	9 ^b	late?	—	G:	—	40 ^c	late	—	—	—	—	
2059 B9	10 ^b	66	60	A0	78 78	41 ^b	ff type?	—	—	—	—	
late	11 ^b	late?	—	?	—	42 ^b	95	90	—	100 100	96	2055 A7
	12 ^b	70	90	A0	00	43 ^b	70	—	—	—	—	
	13 ^b	66	90	—	75 80	44 ^b	70	—	—	—	—	
	14 ^b	66	90	—	75 80	45 ^a	54	54	A1	50	50	52 B8
	15 ^b	66	60	—	50 50	46 ^a	80	80	A0	70	70	75
?	17 ^b	late	K	—	—	47 ^a	dd	A0	—	—	—	
	18 ^b	90	110	—	100 100	48 ^a	dd	A0	—	—	—	
1468 F2	19 ^a	40	40	F	—	49 ^a	70	70	A0	74	74	72 A0
	20 ^a	80	—	—	95	50	70	80	A0	70	70	72 A0
	21 ^a	70	70	A0:	66 70	51 ^a	00	—	—	—	—	
	22 ^a	66	66	—	68 68	52 ^a	60	60	—	60	60	62
	23 ^a	50	60	—	00	53 ^a	64	64	A5	—	—	64
	24 ^a	late	ff	—	late	54 ^a	dd	B8	dd	—	—	A0
	25 ^a	60	66	AS:	66 66	55 ^a	dd	A0	50	50	50	A0
	26 ^a	90	100	—	80 80	56 ^a	50	66	A1	50	66	53 A0
2079 A2	27 ^a	60	60	A2	66 70	57 ^a	66	66	A2	66	66	66
2052 A	28 ^b	75	80	A	80 90	58 ^a	96	80	—	80	80	84
2051 AD	29 ^b	90	90	A	80 85	59 ^a	dd	A0	dd	—	—	A0
	30 ^a	100	100	—	100 100	60 ^a	late	—	—	—	—	
	31 ^a	00	—	—	—	61 ^a	70	80	—	70	70	72 A0

mean

B	62 ^h	dd	B	—		
1466 A0	63 ^c	80 90	A2:	75 80	82	
2033 A	64 ^a	125 125	A5	120 130	126	
2034 A3	65 ^b	95 100	—	—	98	
2035 A2	66 ^b	95 95	—	95 95	95	
—	67 ^h	type?	—	S:	—	
—	68 ^b	fl	—	—	—	
2032 A	69 ^b	late	G:	—	—	
2031 A0	70 ^b	77 77	A2	80 90	82	
2030 F8	71 ^b	late	—	—	—	
2029 K2	72 ^b	late	K	—	—	
—	73 ^c	30%; late?	—	G:	—	
1458 F0	74 ^c	late?	F	—	—	
1457 A0	75 ^c	100 100	—	84 84	92	
2037 A7	76 ^c	80 76	—	90 90	84	
2036 B8	77 ^c	54 54	A0:	60 60	57	
2028 F5	78 ^c	late	F:	—	—	
—	79 ^c	late	—	—	—	
2027 A5	80 ^c	50 56	A5	—	5	
2026 A0	81 ^c	dd 66; 66;	A0	dd 80;	73;	
2025 B0	82 ^c	10?? small	B	cont	10;	

X15646

Permeas June 1934

10-12	1 ^c	110	110	100/100
	2	66	66	—
	3	110	110	—
AI	4	110	110	—
	5	105	105	—
	6	96	125	—
	7	100	110	—
AO	8 ^c	120	120	90 100
AO	9 ^a	120	120	110 110
AO	11 ^a	110	115	95 95
	12	90	90	—
	13	100	120	—
	14	95	100	—
	16	90	95	—
	17	120	100	—
AO	18 ^a	125	125	90 90
	19	110	—	—
	20	80	80	—
AO	21 ^c	110	110	80 80
B9	22 ^a	50	60	40 50
AO	23 ^a	96	96	80 90
	24	100	100	—
	25	90	100	—
AO	26 ^c	100	100	95 95
AO	27 ^a	110	110	100 100
AO	28 ^a	125	115	110 110
	29	110	110	—
	30	100	120	—
	31	80	70	—
	32	95	90	—
	32a	100	120	—
	33	100	100	—

AO	34 ^b	120	125	95 95
AO	35 ^c	90	100	85 85
	36	125	125	—
	37	120	110	—
	38	90	80	—
AO	39 ^c	120	100	95 95
	15	70	75	60 60

186

All are members 1647 - area measured is slightly less than diameter of cluster

	Hertzsprung #	X 15650 #8	15650 #8	15649	Mean mag		
B8	175	52	52	54 54	53 53	9.3	
	172	100	100	80 100	90 100	11.1	
B9 mag?	163	80	80	90 100	85 90	11.9	
A0	198	95	95	90 100	92 98	11.5	
B9	151	66	85	66 80	66 82	10.8	
A0	144	100	110	90 90	95 110	11.3	
B9	137	56	80	64 70	60 75	10.5	
B8	133	56	60	56 60	56 60	9.9	
B9	122	66	72	70 70	68 71	10.5	
A0	106	72	66	75 85	74 76	10.3	
B9	100	66	66	66 66	66 66	10.0	
B8	94	45	40	40 50	42 45	9.2	
A0	97	35	35	40 50	38 42	9.4	
-	89	80		80 90	80 90	11.1	
A	90	64	66	58 60	61 63	9.8	-
A	75	90	90	70 75	80 82	10.4	-
B9	63	60	60	56 62	58 61	10.3	
A2	60	66	70	64 64	65 67	10.3	
B8	81	56	60	50 50	53 55	9.6	
B5	66(4)	45	45	44 44	40 43	9.1	
A0	48	70	70	70 70	70 70	10.7	
B8	39	70	66	60 70	65 68	10.4	
B5	45(4)	66	60	64 66	65 63	10.4	
F0	42	64	78	70 75	67 76	10.7	
B8	9	70	70	66 70	68 70	10.6	
A0	22	90	90	80 80	85 85	11.2	
B9	14	70	80	75 85	72 82	10.8	
A0	19(w)	70	70	70 70	70 70	10.5	
B8	8	66	66	70 70	68 68	10.2	

Examination of X Spectra, Continued

187

6242	15782 ^{meas} 15793	very hazy, but dens good. Possibly ^{good} meas	MF 7976 ^{possibly} measured	X 15822
H12	15790	Good	MF 8059, 7976, 7976, 8059 measured	Four 13
6231	15784	Good - Best possible probably	MF Plates	B 56545, -554, 58
I 4756	15783 15758	Fair; hazy	MF Plates	I measured
6416	15779	Good - two clusters	MF Plates (6405)	B 5655, 528, 53
6618	15777	Very hazy. Bright N. Star	Do not meas.	
6530	15776 ⁸¹⁶	Stars too poor, but neb. int	MF 8091	
6192	15775	Cluster very faint, but plate good	15752, -763	
Take 6613	15774	Fair - several clusters?	56566	
66193	15773	Not so good, but try it	MF	56575, 608, 621
6531	15771	Good	MF 8091	X 15764, -823
Take - 6154	15770	Fair		56544, -553
H18	15768	Pretty poor, but try	MF (M)	56547, 556
Take - 6124	15767	"	No MF	56149, -563
H17	15766	Fair; try	MF 8077	15753
-56171?	15765	F. poor of 5617, another ch. meas?	MF plates ^{meas}	56541, 550
4755	15756	Pretty hazy		
6281	15797	Very hazy, but try. Density good	MF 7976	15820
6322	15819	A few stars meas. B.	MF 7976 ^{meas}	56151, -527, -536
6805	15758 15779	See 6416	MF Plates	Wallingford

188



IC 4725

 13 39 34 6 56 1
 15 39 34 6 56 1

Weaver

1 ^b	40	43	41	80	85	82	9.2
2 ^b	B3	15	15	15	15		10.2
3 ^b	40:	95	100	100	100	99	10.6
4 ^b	40:	100	90	80	85	88	10.3
5 ^b	40:	H		—			10.3
6 ^b	G	—		—			9.4
7 ^b	A	late?		—			10.8
8 ^b	42	—		—			9.4
9 ^b	—	type?	70	90	90	80	17.2
10 ^b	late	late		—			10.1
11 ^b	—	H		—			9.0
12 ^b	40:	H		—			10.6
13 ^b	K	K		—			9.7
14 ^b	40	60	80	66	70	69	10.7
15 ^b	40	50	54	54	54	53	10.4
16 ^b	40	54	66	66	66	63	10.7
17 ^b	40	55	66	70	70	65	10.4
18 ^a	A	late?		—			10.4
19 ^a	A	66	70	60	66	66	10.5
20 ^a	A	type?	80	80	80	82	10.8
21 ^a	A	H		—			7.7
22 ^a	42	—		—			10.7
23 ^b	40:	100	100	86	86	93	8.0
24 ^b	late	H		—			9.7
25 ^a	40	64	66	66	70	66	10.8
26 ^a	40:	80	80	80	80	80	10.0
27 ^b	A	H		—			10.8
28 ^a	A	H		—			8.1
29 ^a	K	K		—			10.0
30 ^a	A	H		—			9.4

mean

31	A	78	80	66	80	76
32	B5	40	40	40	40	40
33	A	60	60	60	60	60
34	M	M		—		
35	A	60	66	60	70	64
36	—	H		—		
37	—	H		—		
38	—	H		—		
39	A	58	78	ff		
40		H		—		
41	A0	40	50	40	40	42
42	A	H		—		
43	—	66	75	70	70	70
44	A3:	A3		—		
45 ^a	A0:	75	75	60	60	68
46 ^b	A	66	66	68	68	67
47 ^a	A	96	96	80	80	88
48	—	H	plate	—		
49	A0	70	70	70	70	70
50	A0	50	60	45	50	52
51	—	H		—		
52	—	50	55	45	50	50
53	A	50	56	56	60	56
54	—	H		—		
55	A5:	80	75	60	70	72
56	—	H		—		
57	F5	F5		—		
58	K	K		—		
59	A	95	90	90	90	91
60	A0	50	60	45	45	50
61 ^b	—	H		—		

						Mean
62 ^h	A	edge hr slope?	edge	-	-	-
63 ^h	A	H	-	-	-	-
64 ^a	A:	56 66	60 60	61	-	-
65	K	K	-	-	-	-
66	-	100 100	90 90	95	-	-
67	-	80 80	70 70	75	-	-
68	-	70 70	66 66	68	-	-
69	A:	50 60	50 50	52	-	-
70	-	H	-	-	-	-
71	K	K	-	-	-	-
72	A	H	-	-	-	-
73	-	40 55	52 52	50	-	-
74	B	40 50	42 42	44	-	-
75	Bs:	50 60	50 50	52	-	-
76	M	M	-	-	-	-
77	A	80 90	85 85	85	-	-
78 ^a	A	late	-	-	-	-
79 ^h	G	G	-	-	-	-
80 ^h	K	K	-	-	-	-
81 ^h	A	H	-	-	-	-
82 ^a	A:	70 70	70 70	70	-	-
83 ^h	A	H	-	-	-	-
84 ^h	A	H	-	-	-	-
85 ^h	A:	70: edge	edge	-	-	-
86	A:	H	-	-	-	-
87	A	H	-	-	-	-
88	-	H	-	-	-	-
89	A:	80 75	75 75	76	-	-
90	G	G	-	-	-	-
91	A:	H	-	-	-	-
92	A:	H	-	-	-	-

IC 4725 mag.

B55596

B55599

B55596

B55599

B55596

B55599

191₂₁₄

1	42	45	9.0	9.3	9.2
2	51	54	10.2	10.3	10.2
3	54	58	10.5	10.7	10.6
4	51	55	10.2	10.4	10.3
6	51	55	10.2	10.4	10.3
8	43	46	9.2	9.5	9.4
9	57	58	10.8	10.7	10.8
10	46	45	9.5	9.4	9.4
13	43	43	9.2	9.7	9.2
14	49	54	9.9	10.3	10.1
15	41	42	8.9	9.0	9.0
16	55	56	10.6	10.5	10.6
17	46	50	9.5	9.9	9.7
18	56	58	10.7	10.7	10.7
19	53	52	10.4	10.5	10.4
20	55	59	10.6	10.8	10.7
22	53	55	10.4	10.4	10.4
23	52	55	10.3	10.4	10.4
25	52	58	10.3	10.7	10.5
26	57	59	10.8	10.8	10.8
29	33	30	7.7	7.7	7.7
31	56	58	10.7	10.7	10.7
32	35	34	8.0	8.1	8.0
33	47	48	9.7	9.7	9.7
34	525	59	10.9	10.8	10.8
35	50	52	10.0	10.1	10.0
39	57	60	10.8	10.9	10.8
41	36	34	8.1	8.1	8.1
43	50	50	10.0	9.9	10.0
44	46	45	9.5	9.3	9.4
45	49	54	9.9	10.3	10.1
46	45	47	9.4	9.6	9.5

1	55596	55599
1	43	43
2	3	3
3	32	33
4	34	35
5	38	38
6	40	40
7	41	41
8	42	43
9	45	46
10	46	47
11	49	49
12	49	49
13	50	50
14	52	53
15	56	58
16	57	58

47	55	58	10.6	10.7	12.6 ^{mean}
49	53	54	10.4	10.3	10.4
50	46	45	9.5	9.4	9.4
52	done	—	—	—	—
53	49	52	9.9	10.1	10.0
55	50	53	10.0	10.2	10.1
57	42	46	9.0	9.5	9.2
58	32	30	7.5	7.7	7.6
59	56	56	10.7	10.5	10.6
60	43	44	9.2	9.2	9.2
64	50	51	10.0	10.0	10.0
65	35	33	8.0	8.0	8.0
66	55	57	10.6	10.6	10.6
67	57	58	10.8	10.7	10.8
68	49	49	9.9	9.8	9.8
69	53	57	10.4	10.6	10.5
71	40	38	8.7	8.6	8.6
73	55	57	10.6	10.6	10.6
74	44	40	9.3	8.8	9.0
75	44	43	9.3	9.2	9.2
76	58	50	10.9	—	10.9
77	56	56	10.7	10.5	10.6
78	56	58	10.7	10.7	10.7
79	56	56	10.7	10.5	10.6
80	44	40	9.3	8.8	9.0
82	49	49	9.9	9.8	9.8
85	51	55	10.2	10.4	10.3
89	47	47	9.7	9.6	9.6
90	49	51	9.9	10.0	10.0

2301 - magnitudes

B55725, Scale 9

B56691, Scale 7

56915, Scale 7

alt, corr. = 0.0

193

Mean

1	6.9	11.0	68	11.0	60	111	11.0
2	7.5	11.8	74	11.7	65	115	11.7
4	6.4	10.3	63	104	50	103	10.3
5	7.7	12.1	77	120	67	117	11.9
6	6.9	11.0	70	113	64	114	11.2
7	7.2	11.4	72	115	65	115	11.5
8	7.5	11.8	77	120	66	116	11.8
9	7.5	11.8	77	120	66	116	11.8
10	6.5	10.4	67	109	57	109	10.7
11	6.9	11.0	73	116	65	115	11.4
12	00	—	—	—	—	—	—
13	7.0	11.2	70	113	60	111	11.2
16	7.6	12.0	77	120	67	117	11.9
17	6.0	9.7	55	95	40	93	9.5
18	7.6	12.0	79	122	68	118	12.0
19	6.5	10.4	65	106	55	107	10.6
20	7.0	11.2	75	118	65	115	11.5
21	6.7	10.7	66	108	55	107	10.7
22	6.6	10.6	68	110	59	111	10.9
23	00	—	—	—	—	—	—
25	6.7	10.7	67	109	60	111	10.9
26	6.8	10.9	70	113	60	111	11.1
27	6.5	10.4	65	106	54	106	10.5
28	7.0	11.2	74	117	65	115	11.5
29	6.8	10.9	69	111	60	111	11.0
30	7.5	11.8	77	120	66	116	11.8
31	00	—	—	—	—	—	—
32	7.0	11.2	71	114	62	113	11.3
33	6.4	10.3	66	108	53	105	10.5
35	7.1	11.3	73	116	65	115	11.5

36	76	12.0	76	119	65	115	11.8
37	76	12.0	77	120	69	119	12.0
38	60	9.7	60	101	49	102	10.0
39	69	11.0	72	115	61	112	11.2
40	53	8.4	54	93	35	86	8.8
42	75	11.8	77	120	68	118	11.9
43	74	11.7	76	119	66	116	11.7
44	70	11.2	70	113	64	114	11.3
45	61	9.8	59	100	46	100	9.9
46	61	9.8	61	102	49	102	10.1
47	60	-	-	-	-	-	
48	65	8.8	50	88	36	88	8.8
49	64	10.3	66	108	56	108	10.6
50	63	10.1	66	108	53	105	10.5
52	62	10.0	63	104	50	103	10.2
53	66	10.6	67	109	57	109	10.8
54	48	7.6	44	79	30	78	7.8
55	54	8.6	51	89	37	89	8.8
56	60	9.7	64	105	50	103	10.2
57	68	10.9	-	-	59	111	11.0
58	70	11.2	68	110	62	113	11.2
59	52	8.3	45	81	34	84	8.3
60	75	11.8	77	120	63	114	11.7
61	70	11.2	74	117	67	117	11.5
62	52	8.3	47	84	36	88	8.5
63	67	10.7	66	108	56	108	10.8
64	76	12.0	76	119	67	117	11.9
65	73	11.5	75	118	67	117	11.7
66	74	11.7	76	119	65	115	11.7
67	76	12.0	76	119	68	118	11.9

Mean

1356815

1	9 ^h +15	23
2	31	31
3		
4	34	34
5	37	37
6	39	39
7	38	38
8	45	44
9	45	45
10	48	48
11	47	47
12		
13	55	56
14	56	56
15	64	64
16	66	65
17	70	70
18		
19		
20a	76	76
21		
22		

Mean

69	74	11.7	76 65	119	115	11.7		
70	69	11.0	68 61	110	112	11.1		
71	—	—	75 67	118	117	11.8		
72	74	11.7	71 65	114	115	11.5		
73	75	11.8	73 65	116	115	11.6		
74	64	10.3	62 51	103	104	10.3		
75	68	10.9	68 61	110	112	11.0		
76	67	10.7	68 64	110	114	11.0		
77	66	10.6	70 64	113	114	11.1		
78	70	11.2	70 65	113	115	11.3		
79	75	11.8	73 67	116	117	11.7		
80	64	10.3	66 55	108	107	10.6		
81	60	9.7	60 47	101	101	10.0		
82	62	10.0	59 51	100	104	10.1		
1	38	40	^{56 69 1} 35 35	19	6.7	6.7	69	69
2	—	—	—	20	70	70	70	71
3	—	—	—	21	—	—	—	—
4	47	48	41 41	22	74	74	70	71
5	50	50	44 45	23	76	76	78	78
6	50	50	45 46	25	77	76	78	78
7	52	52	46 46					
8	52	53	44 44					
9	(50	50)	53 53					
10	⁵⁵ 57	⁵⁶ 57	48 50					
11	⁵⁵ 56	⁵⁵ 56	51 50					
12	(53	53)	55 55					
13	56	57	56 57					
14	59	59	60 59					
15	60	60	62 62					
16	⁶⁴ 66	⁶⁸ 66	66 66					
17	67	67	66 66					
18	68	68	67 68					

196

I4756

X15783

1.04

1 ^c	-		78 ^a	72	72
5 ^c	-		84 ^a	90	100
6 ^c	-		85 ^a	54	54
9 ^c	-		85 ^a	80	80
10 ^c	-		85 ^a	65	60
12 ^c	-		91 ^c	-	-
13 ^c	-		92 ^c	hh	-
17 ^c	off		95 ^c	80	80
18 ^c	-		98 ^c	80	80
19 ^c	off		99 ^a	160	66
20 ^c	off		106 ^a	100	115
23 ^c	80	80	111 ^c	hh	-
28 ^a	50	50	112 ^c	-	-
29 ^c	A2		15 ^c	-	-
A2 34 ^c	66	80	15 ^c	-	-
A2 37 ^c	80	80	16 ^c	74	74
39 ^c	-		25 ^c	hh	-
40 ^c	-		26 ^c	hh	-
43 ^c	-		27 ^c	90	90
44 ^c	-		29 ^c	60	60
47 ^c	60	66	30 ^c	-	-
48 ^c	90	100	30 ^c	95	95
49 ^c	115	115	31 ^c	-	-
50 ^c	90	90	32 ^c	-	-
57 ^a	60	60	33 ^c	-	-
61 ^a	66	66	35 ^c	-	-
62 ^a	100	100	36 ^c	-	-
64 ^a	60	66	38 ^c	-	-
72 ^c	off		41 ^c	-	-
74 ^c	95	100	42 ^c	-	-
			43 ^c	-	-
			44 ^c	-	-
			45 ^c	off	-

very strong
4481

Mag. corrected
To 9.92. must
be further say to 7
corrected by to 7
(see H10)

Mars 7 All stars earlier than 10 (incl.) and brighter than 10.0 in area 45" radius

197

Feb 1934
15794

marked on 15704
15794
mean

bl #	CPO	mag.	posn	out	15704	15794	mean	54	50	55
15883	7145	9.6	Asn	out						
-34	7148	9.1	Asn	1 ^c	50	60	50	60	54	50 55
8a	7149	9.9	Asn	out						
-	7150	8.1	Asn	out						
9	7151	8.0	Asn	out						
-	7152	8.4	Asn	out						
-	7153	8.3	Asn	out						
-	7154	9.5	Asn	out						
-	7155	9.6	Asn	out						
-	7160	9.0	Asn	2 ^c	80	80	80	80	82	84 84
-	7166	8.9	Asn	3 ^c	60	60	60	60	55	50 50
-	7180	9.4	Asn	4 ^c	66	70	82	82	74	76 71 66 66
18	7181	8.8	Asn	5 ^c	50	50	50	55	50	52 50 50
90 80	7185	8.8	Asn	6 ^c	66	66	74	80	70	73 76 80 80
-	7193	9.1	Asn	7 ^c	60	66	60	66	62	60 60
60 60	7200	7.6	Asn	8 ^c	55	55	50	50	52	52 56 56 56
-	7201	9.8	Asn	9 ^c	60	70	85	-	72	78 76 90 -
90 80	7208	8.8	Asn	10 ^c	50	60	70	70	60	65 68 66 70
50 70	7211	8.2	Asn	11 ^c	50	50	60	60	55	55 63 70 70
30 30	7216	6.0	Asn	12 ^c	dd	dd	-	-	30	-
66 66	7220	7.8	Asn	13 ^c	80	80	60	60	70	70 69 62 62
80 80	7221	8.6	Asn	14 ^c	80	80	88	88	84	84 82 86 82
82 82	7231	8.2	Asn	15 ^c	66	66	75	75	70	70 72 60 66
66 66	7234	8.0	Asn	16 ^c	50	50	60	65	55	58 59 62 62
e	7237	9.9	Asn	17 ^c	66	66	66	70	66	68 65 60 60
-	7240	9.1	Asn	18 ^c	66	66	90	100	78	83 85 90 100
50 55	7244	6.6	Asn	19 ^c	dd	dd	50	50	52	50
75 75	7246	8.5	Asn	20 ^c	50	50	70	80	60	65 70 74 74
80	7254	8.7	Asn	21 ^c	70	70	85	85	65	65 70 62 66
70 90	7257	8.8	Asn	22 ^c	80	80	66	70	73	75 82 80 90
-	7259	9.9	Asn	23 ^c	66	70	85	80	76	75 76 82 80
45 50	7263	7.0	Asn	24 ^c	dd	dd	45	45	45	45 47 45 45
26 36	7266	6.2	Asn	25 ^c	dd	dd	35	35	36	36 -

1932 phase	58, 83		new	7.0	B9	a	dd	45	45	45	50	45	56
50	45	-	new	7.0	B8s	26	dd	45	45	45	50	45	56
60	60	39	new	7.3	40	27	dd	54	54	54	50	50	
96	96	-	new	8.8	40s	28	66	80	80	79	66	80	
		-	new	9.0	40s	29	oo	oo					
60	56	-	new	7.1	40	30	dd	55	60	58	56	60	60
60	60	41	new	8.0	42	31	50	70	70	60	60	66	
60	60	-	new	7.1	40	32	dd	52	52	56	52	52	
			new	8.7									
40	40	-	new	6.5	40	33	dd	40	40	40	45	45	
66	66	-	new	7.5	40	34	dd	66	66	66	70	70	
38	40	45	new	6.3	B9	35	dd	40	40	35	40	36	30
32	32	46	new	6.4	40	36	dd	30	30	30	30	32	32
80	70	-	new	8.7	B8s	37	dd	82	82	79	75	85	
		-	not	9.4	40	38	dd	66	66	58			
60	62	48a	new	8.6	40	39	74	82	80	81	90	90	
50	50	-	new	7.3	40	40	dd	60	60	60			
50	50	-	new	6.9	40	41	dd	45	45	48			
		51	new	6.9	40	42	dd	40	40	40	40	45	
		-	new	8.8	40	43	60	70	70	68			
		-	new	9.1	40	44	60	70	80	74			
40	40	52	new	6.3	40	45	dd	35	35	35	35	38	
		-	new	8.7	40	46	66	70	75	80		73	
		-	new	8.9	40	47	66	70	90	90		80	
50	60	54	new	7.0	40	48	66	70	50	50	60	50	52
		-	not	10.0	40	49	66	75	100	100		87	90
		-	new	9.0	40	50	66	70	80	80		74	
75	75	55	new	8.1	40	51	dd	70	70	70	70	72	
		-	not	10.0	40	52	60	60	50	50		55	
		-	new	9.1	40	53	70	70	80	80		75	

60	mem	7.4	40	54 ^C	old	50	50	50	50	53
	7363	7.4	B8s							
60a	not	8.7	B8s	55 ^C	40 40	40	40	40	40	40
	7365	8.6	B8s							
-	not?	10.0		56 ^C	66 66	100	100			83
	7370	9.8	40s							
-	not?	9.8		57 ^C	66 66	90	-			78
	7374	9.6	40s							
60 60	mem	7.6	B8s	58 ^C	dd	80	80	80	80	70
	7385	7.6	B8s							
-	not?	9.6	40s	59 ^C	F					-
	7389	9.4	40s							
66	mem	8.2	40s	60 ^C	50 50	80	80	65	65	65
	7396	8.1	40s							
-	mem	8.7	40s	61 ^C	80 80	80	80	80	80	80
	7397	8.6	40s							
-	not?	8.9	B8s	off						
	7398	8.8	B8s							
-	not?	8.9	B8s	off						
	7400	8.8	B8s							
-	mem	9.8	40s	62 ^C	66 66	90	90			78
	7407	9.6	40s							
68	mem	8.2	40s	63 ^C	66 66	70	70	68	68	68
	7408	8.1	40s							
-35	not?	8.4	B8s	off						
	7313	8.3	B8s							
-	mem	7.5	B8s	off						
	7314	7.5	B8s							
14	mem	7.4	B8s	64 ^C	50 50	55	55	52	52	52
	7321	7.4	B8s							
-	mem	6.9	B8s	65 ^C	dd	45	50			48
	7323	6.9	B8s							
-	mem	8.4	B8s	66 ^C	60 60	66	70			64
	7325	8.3	B8s							
-	mem	9.0	B8s	67 ^C	70 75	90	90			81
	7351	8.9	B8s							
-	mem	7.1	B8s	68 ^C	dd	60	60			60
	7352	7.1	B8s							
20	not	8.3	B8s	69 ^C	35 40	60	60	32	35	34
	7355	8.2	B8s							
-	not?	9.8	40s	off						
	7361	9.6	40s							
-	mem	9.7	B8s	70 ^C	late	40				-
	7378	9.5	B8s							
-	not	8.4	B8s	71 ^C	40 40	45	50			44
	7384	8.3	B8s							
-	mem	8.5	40s	72 ^C	70 70	66	70			69
	7389	8.4	40s							
-	not	10.0	40s	73 ^C	60 66	66	70			66
	7409	9.8	40s							
-	mem	9.4	40s	74 ^C	70 80	76	80			76
	7418	9.2	40s							
-	mem	9.6	40s	75 ^C	80 80	80	-			80
	7420	9.5	40s							
-	not	9.9	40s	76 ^C	66 66	late?				66
	7427	9.7	40s							
-	not	10.0	40s	off						
	7439	9.8	40s							
-	mem	10.0	B5:	77 ^C	late					-
	7444	9.8								

-	mem	8.1	40	780	2								
66	66	7452	8.0	Aug	70	70	66	66					68
53	mem	7.6	B9										
	7462	7.6	B8	790	dd		54	54	54	54			60
-	7464	8.9	As	off	-								
-	7465	9.4	40										
	7465	9.2	Aug	off	-								
64	mem	8.2	40										
	7466	8.1	Aug	80	66	66	66	66	66	66			66
-	7481	7.8	As	810	dd		60	60	60	60			60
65	7483	10.7	B5										
65	mem	6.7	B9										
	7489	6.7	B8	820	dd		40	40	40	40			40
-	7514	9.6											
	7514	9.4	B5	830	40	40	40	40					40
-	7528	7.2	B9										
	7528	7.2	B8	840	dd		45	50					48

H / 8

-35	7491	10.2	Aug										
	7492	9.5	As										
	7514	9.4	B5										
	7516	10.1	B8	85									
	7520	10.1	B8	86									
	7523	7.2	B8	84									
	7531	10.1	Am	87									
	7534	10.1	Am	88									
	7535	9.8	Aug	89									
	7538	10.5	FO	90									
	7548	10.6	Am	91									
	7550	10.1	Aug	92									
	7559	9.9	As										
	7563	6.6	B8										

M6 see fol. page

201

	X15779	
1	66	66
2	50	50
3	60	60
4	50	50
5	53	60
a	75	75
b	80	90
c	125	125
d	66	70
e	85	90
f	60	66
g	60	60
h	75	75
i	64	64
j	35	35
k	35	35
l	125	125
m	75	75
n	66	66
o	75	75
p	60	60
q	50	50
r	110	110
s	60	60
t	125	125
u	50	50
v	125	125
w	100	100
x	40	45
y	60	66
z	60	66

25	40	45
i	100	100
26	60	66
27	80	90
28	70	70
29	50	65
30	100	100
31	100	100
32	50	50

33	way outside
34	
35	
36	
40	
41	
37	
38	

202

M6 cont'd

unless otherwise indicated

corrected mag.

Data copied from p 201.

Add 59, 60, 53, 54 of 6416

Discard all fainter than 10.4

1 ^a	4874	9.1	B9	9	
2 ^b	4883	9.0	B8s	75	75
3 ^b	4884	9.6	A0		
4 ^a	4886	9.4	A0sn	70	70
5 ^b	4890	9.4	A0in	70	74
6 ^b	4893	9.6	B9		
7	4666	9.4	B8s	62	66
8 ^b	4675	10.6	A0m	100	100
9 ^a	4677	10.4	A0m	100	100
10 ^a	4681	10.3	A0	100	100
11 ^a	4683	9.2	B8s	outside	
12 ^a	4686	9.6	A2	a	
13 ^a	4690	9.4	A0s	75	75
14 ^a	4692	10.8	A0s	d	
15 ^a	4695	10.6	A0s	125	125
16 ^a	4696	9.1	A0	2	
17 ^a	4697	9.0	B8s	66	70
18 ^a	4698	8.9	A0	1	
19 ^a	4700	8.8	B8s	66	66
20	4702	7.0	B5s	2	
21 ^a	4703	7.0	B5	50	50
22	4704	9.1	A0s	3	
23	4706	9.0	A0s	60	60
24	4707	9.7	A0m	85	90
25	4708	9.4	A0s	54	54
26	4709	9.6	A0s	80	80
27 ^a	4710	8.2	B9	4	
28	4711	8.1	B8s	50	50
29	4712	8.6	A0	7	
30	4714	8.5	A0s	60	66
31	4715	7.7	B9s	55	60
		7.7	B8s	55	60
		10.1	A0sn	90	90
12 21	4703	8.9	A0sn	10	
		8.8	B8s	64	64
		6.7	B8	11	
22	4704	6.7	B5	35	35
23	4706	8.6	B8s	50	50
24	4707	9.7	A0m	66	66
25	4708	9.5	A0s	78	78
26	4709	9.9	A0m	80	80
27 ^a	4710	10.0	A0m	125	125
28	4711	9.7	A0m	70	70
29	4712	8.2	B9		
30	4714	8.1	B8s	45	45
31	4715	8.6	B8s	55	60
		7.1	B8	12	
		7.1	B5	35	35

not member? A

32	4717	9.5 9.3	Atom	16 66 66
33	4718	9.8 9.4	Atom	
4 34	4719	9.2	Atom	14 75 75
35	4721	9.3 9.1	BPs	60 60
36	4723	10.6 10.4	Atom	125 125
37	4724	10.5 10.3	Atom	125 125
38	4725	9.5 9.3	Atom	70 70
39	4726	8.3 8.1	BPs	18 60 60
40	4727	9.1 9.0	Atom	60 60
41	4728	8.2 8.1	BPs	19 50 50
42	4731	9.7 9.5	Atom	9 100 100
43	4737	8.7 8.6	BPs	21 60 60
not member? 44	4738	9.8 9.6	Atom	22 125 125
45	4740	8.5 8.4	BPs	23 50 50
46	4741	10.3 10.1	Atom	100 100
47	4744	9.9 9.7	Atom	80 80
48	4745	7.1 7.1	BPs	25 40 45
49	4746	8.8 8.7	BPs	60 60
50	4747	9.9 9.7	Atom	82 82
51	4748	9.5 9.5	Atom	70 80
52	4750	8.5 8.4	BPs	26 60 66
53	4751	9.8 9.8	Atom	80 80
54	4753	9.7 9.5	Atom	75 75
55	4754	9.0 8.9	BPs	28 70 70
B856	4755	9.4 9.2	Atom	66 66
57	4757	10.3 10.1	Atom	90 100
58	4758	8.5 8.4	BPs	29 50 65
A259	4763	10.7 10.5	Atom	66 66
B960	4771	9.9 9.7	Atom	31 100 100
61	4775	7.8 7.8	BPs	32 50 50
A 62	4776	10.4 10.2	Atom	110 110
B 63	4779	9.3 9.1	BPs	60 60

204

~~NGC 6416~~ NGC 6416

(H.D.) MF8086 X15779

			1 ^c	late G
			2 ^c	H
			3 ^c	late G
4852	10.1	Ko	4 ^c	late K
4847	10.3	As	5 ^b	80 85
4843	10.7	As	6 ^b	120 120
4841	10.0	As	7 ^c	80 80
			8 ^b	M
4835	10.5	As	9 ^b	85 85
			10 ^a	K5
4840	10.2	As	11 ^a	100 110
			12 ^a	K
			13 ^a	G
4831	10.2	As	14 ^a	80 80
4829	10.1	As	15 ^a	—
4830	9.5	As	16 ^a	66 66
			17 ^a	F7
			18 ^a	70 80
4827	10.5	As	19 ^a	80 80
			20 ^b	Q
			21 ^c	H
			22 ^c	66 66
4817	10.2	As	23 ^a	100 100
			24 ^a	late
4823	10.2	As	25 ^a	80 80
4821	9.5	As	26 ^b	—
4818	10.5	As	27 ^a	K
4820	10.1	As	28 ^a	100 100
4819	10.2	As	29 ^a	70 80
4812	8.0	As	30 ^c	50 50

MF8086	Permeas	MF8015	mean
—	—	—	—
62	—	—	—
—	—	—	—
—	—	—	—
72	62	75	72
75	66	80	75
62	62	70	66
—	—	—	—
70	75	72	72
—	—	—	—
60	56	50	54
—	—	—	—
—	—	—	—
68	60	70	67
75	56	70	68
75	56	80	73
—	—	—	—
66	late	—	—
50	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—
80	75	78	78
—	—	—	—
75	75	large	75
—	—	—	—
—	—	—	—
50	—	—	—
50	—	—	—
50	50	54	52

206



H18 Marked on X15768

M7 W 22

M7086 X15709 X15704

	1 ^c	H	A	60	60	60	11.2
	2 ^c	H	K	—	—	—	11.0
	3 ^c	H G5	G5	—	—	—	11.1
	4 ^c	H	F	—	—	—	9.4
	5 ^c	A3	A3	—	—	—	10.8
	6 ^c	G	K	—	—	—	10.4
	7 ^c	G	K	—	—	—	10.8
	8 ^c	F	G	—	—	—	11.3
	9 ^c	F	A	—	—	—	10.6 10.7
92 Am	10 ^c	F	A	—	—	—	11.2
	11 ^c	H	F	—	—	—	11.2
	12 ^c	G	G	—	—	—	10.8
	13 ^c	G5	G	—	—	—	11.5
	14 ^c	—	K	—	—	—	11.0
	15 ^c	—	A	78	78	85 75	11.2
91 kn	16 ^c	A3	F	—	—	—	11.2
	17 ^c	G5	A5	—	—	—	11.1 10.7 10.8
	18 ^c	—	M	—	—	—	10.1 10.2
88 Am	19 ^c	G	A	66	66	64 60	11.8 9.8
90 FO	20 ^c	A0	F	—	—	—	11.2
	21 ^c	G	G	—	—	—	7.6 7.7
	22 ^c	A3 A5	A	—	—	—	10.5 10.6 11.2
	23 ^c	G?	G5	—	—	—	11.2
84 B89	24 ^a	B9	—	45	45	50	11.2
86 B85	24 ^a	B8	A	40	40	45	10.6
?	25 ^a	B5	A	60	60	80	11.3
	26 ^a	—	A	50	50	55	11.5
87 Am	27 ^a	A0	A	70	70	70	11.0 11.3 10.2
	28 ^a	—	A	90	90	90 100	10.8
	29 ^a	—	A	70	70	80	11.2
	30 ^c	—	K	—	—	—	11.2
	31 ^c	—	K	—	—	—	

85	83:	3 ^b	A3	A5	—		
		3 ^c		G	—		
		3 ^d		F	—		
		3 ^e		K	—		
		3 ^a		F	—		
		3 ^a	A	F	—		
		3 ^a	A3	A5	—		
83	85:	3 ^a	B3	B5	40 40	40	
		4 ^a		w	—		
		4 ^a		A	90 100	95	
		4 ^a		A	75 75	70 70	
		4 ^a		A	75 75		
		4 ^c	F0	A	—		
		4 ^c	A7	F	—		
		4 ^c		A	60 60	60 60	
82		4 ^c	A0	dd	—		
		4 ^c		B	—		
		4 ^c		G:	—		
81		5 ^c	A0	A0	60 60	60	
		5 ^c	F0	F	—		
		5 ^c		M	—		
		5 ^c	G	G:	—		
		5 ^a		G	—		
		5 ^a		G:	—		
		5 ^a	A2	A	—		
		5 ^c		K	—		
		5 ^c	A0	A	70 70	70	
		5 ^c		K	—		
		5 ^c		G	—		
		6 ^c	A0	A-F	—		
		6 ^c		H	Ph		
		6 ^a	F?	A?	50 50	50	
		6 ^a	B8	dd	—		
		6 ^a	A	A	70 70	60 70	
		6 ^a	A3	A2	—		
		6 ^c	A7	M	—		
		6 ^c	A7	A5	—		
		6 ^c		M	—		

208

6322

MF7976 8059 X10819

MF7976 8059

10.8	Not member	A	A2	A2	66	70	74	66	7.8
10.6		2	—	^{8 not} _{2.5 B?}	20	—	20	20	10.6
8.2		3	B	B	8	8	5	5	8.2
9.9	member?	4	F?		40	50	5	—	9.9
9.6		5	B	B	12	—	—	—	9.6
9.6		6	+		—	—	—	—	9.6
9.6		7 ^a	B	B	10	15	20	15	11.0
11.0		8 ^b	—	oo	late	—	—	—	8.2
8.2		9 ^a	B	B	F	8	10	5	11.2
11.2		10 ^b	K	K	—	—	—	—	10.8
10.8		11 ^b	K	K	—	—	—	—	11.4
11.4		12 ^c	—	—	—	—	—	—	10.8
16.8	not member	13 ^c	A0	F	100	125	110	90	11.0
11.0		14 ^c	K	—	—	—	—	—	11.0
11.0		15 ^c	—	F?	—	—	—	—	



H12

MF805-9

X15790

Re-measured

MF805-9
7976

209

—	1 st	A3	60	70	—	—	—	11.3
—	2	G	—	—	—	—	—	8.5
—	3	B5	40	45	50	50	30	9.6
—	4	A0	66	66	66	66	50	10.2
—	5	G5	—	—	—	—	—	9.8
—	6	ff	ff	ff	—	—	—	—
B9	7	del	del	del	30%	del	del	6.5
—	8	A0	80	80	80	80	80	8.6
3070	9	F0	—	—	—	—	—	11.1
71	10	A2	—	—	—	—	—	10.7
73	11	B8	70	70	70	70	58	10.6
72	12	F0	—	—	—	—	—	11.4
74	13	K2	—	—	—	—	—	10.3
75	14	A7	—	—	—	—	—	11.7
76	15	A0	78	78	74	74	80	11.4
77	16	F2	—	—	—	—	—	11.4
—	17	M	—	—	—	—	—	11.3
2777	18	A3	—	—	—	—	—	10.9
2778	19	B5	40	40	35	35	40	10.1
—	20	—	—	—	—	—	—	10.9
2781	21	B8	85	80	72	72	72	10.3
2782	22	A5	—	—	—	—	—	10.9
2780	23	A2	—	—	—	—	—	11.1
—	24	F?	—	—	—	—	—	10.7
2783	25	B8	70	70	56	56	45	10.7
2784	26	B3	50	60	45	50	30	10.2
3078	27	A5	—	—	—	—	—	11.3
3079	28	B8	50	ff	64	—	—	11.3
3080	29	K7	—	—	—	—	—	10.4
3081	30	G0	—	—	—	—	—	11.1

			live	live	Re-measured			
3082	31	B3	70	70	60	66	35	11.1
3084	32	A2	—	—	—	—	—	11.1
—	33	B8	30	30	30	35	35	9.1
3090	34	B8	7125	125	110	110	95 large	11.2
—	35	—	—	—	—	—	—	—
3088	36	A0	60	60	60	66	56 56	10.5
—	37 ^a	B53	8	8	75	12	30	8.4
2786	38 ^b	A2	—	—	—	—	—	10.9
2787	39 ^b	F0	—	—	—	—	—	11.3
2785	40 ^b	B0	55	55	50	50	20 ²⁰ 30	10.6
B3	41 ^b	B	5	5	4	10	15	7.2 8.2
—	42 ^b	B5	30	30	20	20	20	8.7
2788	43 ^b	A0	78	78	90	90	75 80	10.2
2789	44 ^b	B8	40	40	—	20	F	10.8
—	45 ^b	B5	25	25	18	20	25	8.3
—	46 ^b	B5	30	30	15	25	25	8.8
3120	47 ^a	B8	45	45	40	40	30 40	9.8
3119	48 ^a	F2	50	50	54	—	—	11.1
—	49 ^a	—	40	45	50	60	—	11.0
—	50	—	—	—	—	—	—	11.2
3118	51	—	—	—	—	—	—	—
—	52	—	—	—	—	—	—	—
3118	53	B0	5	5	5	8	15	8.7
3121	54	B8	40	40	50	50	40 30	9.3
—	55	K	—	—	—	—	—	10.9
3122	56	B9	66	66	66	66	56	10.0
3123	57	B9	90	100	95	95	—	10.8
3127	58 ^a	B5	60	60	60	60	44	11.4
3126	59 ^b	A0	125	125	100	125	—	10.7
3124	60 ^b	B8	50	50	45	—	—	11.4
—	61	—	—	—	—	—	—	9.8

11.1	3125	61 ^h	A0	100	100	86	86	—	—	10.9
11.1	—	62 ^h	F7	—	—	—	—	—	—	—
9.1	—	63 ^h	A	ff	—	—	—	—	—	—
12	3097	64 ^h	K7	—	—	—	—	—	—	11.1
—	B3	65 ^a	B	10:10:10	5:	5:	8	—	—	7.1 8.0
0.5	—	66 ^a	K	—	—	—	—	—	—	9.8
8.4	3113	67 ^a	B5	50	50	35	35	30	30	9.8
10.9	—	68	—	40	40	late 7	50	—	—	10.2
11.3	—	69	—	60	60	55 60	—	—	—	11.4
10.6	—	70	—	—	—	—	—	—	—	—
9.2	—	71	—	55	60	50	54	—	—	10.5
8.7	3117	72	B9	80	80	85	85	56	70	9.9
0.2	—	73	—	45	45	60	60	—	—	11.4
0.8	—	74	B8	35	35	30	30	20	30	8.9
0.3	—	75	B8	40	40	42	42	—	—	9.8
0.8	3116	76	B9	45	45	40	45	30	30	9.8
7.8	3115	77	B8	30	30	40	40	30	20	9.8
11.1	3114	78	B8	45	45	50	50	35	35	9.8
11.0	3112	79	B9	50	50	45	50	—	—	10.5
11.2	3111	80	B5	40	40	42	42	30	30	9.9
—	3110	81	B3	35	35	40	40	40	30	10.0
8.7	3130	82	K0	—	—	—	—	—	—	10.3
7.3	3128	83	B5	K	—	—	—	—	—	11.6
0.9	3129	84 ^a	B8	55	50	50	50	30	ff	10.8
10.0	3133	85 ^h	B8	35	35	30	36	—	—	10.0
0.8	—	86 ^h	A3	66	66	—	—	—	—	9.2
4	—	87	—	ff	—	—	—	—	—	—
0.7	—	88	B:	dd	—	—	dd	dd	—	5.6 < 7
1.4	3132	89	B9	ff	—	—	—	—	—	—
9.8	—	90	—	—	—	—	—	—	—	—

3134	91	A	30 ^h 30 ⁱ	late	H	—	—
3131	92	B3	15 ^e 20	25 35	20	H	11.0
3130	93	A3	—	—	—	—	10.3
—	94 ^a	A0	40 ^{strong lines} 50 ^{weak}	45 45	30 35	—	10.5
—	95 ^a	A0	40 50 ^h	50 50	35	—	10.5
✓	96 ^a	A2	—	—	—	—	8.3
3138	97 ^a	K5	—	—	—	—	11.1
—	98 ^a	—	Q	—	—	—	11.7
3139	99 ^a	B3	50 50	50 50	30 25	—	9.9
—	100 ^a	—	H	—	—	—	—
—	101 ^a	—	45 50	H	—	—	11.4
—	102 ^a	A5	—	—	—	—	10.2
—	103 ^a	—	B: 50 50	60 60	—	—	11.1
3109	104 ^a	M0	Q	—	—	—	10.9
—	105 ^a	—	H	—	—	—	—
—	106 ^a	—	50 50	50:	—	—	11.2
—	107 ^a	—	40 50	50:	—	—	11.4
—	108 ^a	B5	35 35	44 44	40 45	—	9.2
—	109 ^a	A3 ⁱ	H	—	—	—	—
3107	110 ^a	F0	—	—	—	—	11.1
3102	111 ^a	B9	66 66	66 66	52 50	—	10.6
3103	112 ^a	A2	—	—	40 50	—	10.3
3104	113 ^a	K5	—	—	—	—	10.7
3105	114 ^a	A2	—	—	—	—	11.2
3106	115 ^a	A2	—	—	—	—	11.3
3108	116 ^a	B9	40 50	50:	40	—	11.4
3140	117 ^a	B8	F	—	—	—	11.2
—	118 ^a	K	—	—	—	—	11.0
3141	119 ^a	A5	—	—	—	—	11.0
—	120 ^a	B5	15 10	15:	20 18	—	8.8

	3181	21	B	40	110	110	125	125	90	ff	11.3
11.0	3180	22	B	F0	—	—	—	—	—	—	10.8
10.3	—	23	B	B1	50	50	50	20	30	—	11.1
10.5	3179	24	B	B8	50	50	50	50	40	30	11.0
10.5	—	25	B	B1	—	—	—	—	—	—	—
8.3	—	26	B	B5	8	70	10	20	15	20	8.4
11.1	—	27	B	—	—	—	—	—	—	—	—
1.7	3148	28	B	B3	40	40	42	50	40	30	10.3
9.9	3149	29	B	B5	30	30	25	20	25	30	9.6
—	B3	29	B	B5	10	10	25	—	—	—	7.1
11.4	3150	30	B	B3	45	45	45	—	—	—	10.5
10.2	—	31	B	—	15	15	30	—	—	—	9.9
11.1	—	32	A	late	—	—	—	—	—	—	11.4
10.9	—	33	B	—	35	40	66	70	—	—	11.3
—	—	34	B	—	40	45	55	55	—	—	11.1
11.2	—	35	B	G1	—	—	—	—	—	—	10.6
1.4	B3	36	B	dd	—	—	—	8	dd	—	6.8
9.2	—	37	B	—	60	60	60	60	—	—	11.3
—	3147	38	B	B3	15	15	10	—	—	—	9.0
1.1	3145	39	B	B5	50	80	54	54	30	40	10.8
10.6	—	40	B	B3	10	10	15	—	20	35	8.9
10.3	3142	41	B	B5	90	90	95	95	—	—	10.5
10.2	—	42	B	—	40	40	40	40	—	—	11.2
10.2	3146	43	B	K5	—	—	—	—	—	—	11.0
11.2	—	44	B	—	30	30	40	40	—	—	10.0
11.3	3144	45	B	B5	40	40	42	42	40	25	9.6
11.4	3143	46	B	B8	56	56	60	60	50	40	10.6
11.2	—	47	B	B5	20	20	10	15	25	20	8.7
11.0	3158	48	B	—	—	—	—	—	—	—	—
11.0	3158	49	B	B8	35	35	40	—	40	ff	10.8
8.8	—	50	B	B3	15	10	20	15	15	30	8.6

3157	51	Go	—	—	—	—	10.5
3152	52	100	—	—	—	—	10.3
55	53	B8	45-45	50	55	30 H	10.4
53	54	FS	—	—	—	—	9.9
54	55	AS	—	—	—	—	10.1
B5	56	B	5: dd	5: 10	10	20	7.3 7.9
56	57	FS	—	—	—	—	10.6
3151	58 ^{ad}	AO	60	66	66	66	50 70
B0	59	B	—	—	—	dd	dd
—	60	00	55	55	50	50	—
—	61	00	66	70	66	70	—
—	62	—	—	—	—	—	—
—	63	A	—	—	—	—	—
—	64	—	—	—	—	—	—
B5	65	AO	50	50	50	50	40 50
—	66	A	40	35	40	40	—
3161	67	AO	80	80	50	60	60 —
3164	68	A	70	70	66	66	—
3165	69	AS	—	—	—	—	—
3163	70	A3	—	—	—	—	—
3173	71	A2	—	—	—	—	—
3174	72	FO	—	—	—	—	—
3175	73	B3	40	40	54	54	30 40
—	74	G:	—	—	—	—	—
3176	75	B8	65	50	55	45	30 B
—	76	—	—	—	—	—	—
—	77	—	—	—	—	—	—
3177	78	A7	—	—	—	—	—
—	79	—	—	—	—	—	—
3178	80	Go	—	—	—	—	—

10.1	3202	81	F0	—	—	—	—	11.4		
10.3	—	82	B5	40	40	40	40	9.5		
10.4	3203	83	B3	25	25	35	15	10.2		
9.9	3205	84	B8	30	35	30	30	25	9.9	
10.1	3204	85	F0	—	—	—	—	10.9		
7.9	3206	86	A0	60	60	55	65	50	50	9.9
10.6	3207	87	F2	—	—	—	—	9.9		
11.2	—	88	K	—	—	—	—	9.5		
10.7	3213	99	B5	40	50	—	30	50	10.6	
10.6	—	90	K	—	—	—	—	11.0		
10.8	—	91	A0	50	50	50	50	50	9.9	
—	3212	92	F8	—	—	—	—	11.4		
—	3208	93	M0	—	—	—	—	11.7		
—	3172	94	G5	—	—	—	—	10.6		
8.3	3209	95	A	—	—	—	—	10.9		
10.7	3214	96	A0	—	—	—	—	—		
11.4	3220	97	A5	—	—	—	—	10.9		
11.2	3171	98	K0	—	—	—	—	11.2		
11.2	—	99	A	—	—	—	—	—		
11.5	3167	200	G0	—	—	—	—	10.6		
11.4	3166	201	B9	—	—	—	—	—		
11.0	—	2	—	—	—	—	—	8.4		
10.7	3148	3	B8	45	45	40	44	40	50	
10.9	4	—	—	—	—	—	—	—		
10.7	5	—	—	—	—	—	—	—		
—	6	—	—	—	—	—	—	—		
10.9	7	—	—	—	—	—	—	—		
9.8	8	—	—	—	—	—	—	—		
11.3	9	—	—	—	—	—	—	—		
10.3	10	—	—	—	—	—	—	—		

216

6231 (on MF 8059, most of x seem to have strong K)

corrected
Calc 17

MF 8059		March 9		x 15-86 3		MF 8059		MF 8076	
not member	151932	152003	152042	2036	2037	152147	2042	2043	2044
151932 oc	1 ^c	2 ^c	3 ^c A2	4 ^c	5 ^c	6 ^c A	7 ^c B3	8 ^h MO	9 ^h B
152003 B0	10 ^h 4060	11 ^h 4060	12 ^h B3	13 ^h A0	14 ^h A0	15 ^h B0	16 ^h B0	17 ^h B8	18 ^h B5
not member 2036	2036	2037	2038	2039	2040	2041	2042	2043	2044
2036	1 ^c	2 ^c	3 ^c A2	4 ^c	5 ^c	6 ^c A	7 ^c B3	8 ^h MO	9 ^h B
2037	10 ^h 4060	11 ^h 4060	12 ^h B3	13 ^h A0	14 ^h A0	15 ^h B0	16 ^h B0	17 ^h B8	18 ^h B5
2038	1 ^c	2 ^c	3 ^c A2	4 ^c	5 ^c	6 ^c A	7 ^c B3	8 ^h MO	9 ^h B
2039	10 ^h 4060	11 ^h 4060	12 ^h B3	13 ^h A0	14 ^h A0	15 ^h B0	16 ^h B0	17 ^h B8	18 ^h B5
2040	1 ^c	2 ^c	3 ^c A2	4 ^c	5 ^c	6 ^c A	7 ^c B3	8 ^h MO	9 ^h B
2041	10 ^h 4060	11 ^h 4060	12 ^h B3	13 ^h A0	14 ^h A0	15 ^h B0	16 ^h B0	17 ^h B8	18 ^h B5
2042	1 ^c	2 ^c	3 ^c A2	4 ^c	5 ^c	6 ^c A	7 ^c B3	8 ^h MO	9 ^h B
2043	10 ^h 4060	11 ^h 4060	12 ^h B3	13 ^h A0	14 ^h A0	15 ^h B0	16 ^h B0	17 ^h B8	18 ^h B5
2044	1 ^c	2 ^c	3 ^c A2	4 ^c	5 ^c	6 ^c A	7 ^c B3	8 ^h MO	9 ^h B
not member 2792	2792	2793	2794	2795	2796	2797	2798	2799	2800
2792	1 ^c	2 ^c	3 ^c A2	4 ^c	5 ^c	6 ^c A	7 ^c B3	8 ^h MO	9 ^h B
2793	10 ^h 4060	11 ^h 4060	12 ^h B3	13 ^h A0	14 ^h A0	15 ^h B0	16 ^h B0	17 ^h B8	18 ^h B5
2794	1 ^c	2 ^c	3 ^c A2	4 ^c	5 ^c	6 ^c A	7 ^c B3	8 ^h MO	9 ^h B
2795	10 ^h 4060	11 ^h 4060	12 ^h B3	13 ^h A0	14 ^h A0	15 ^h B0	16 ^h B0	17 ^h B8	18 ^h B5
2796	1 ^c	2 ^c	3 ^c A2	4 ^c	5 ^c	6 ^c A	7 ^c B3	8 ^h MO	9 ^h B
2797	10 ^h 4060	11 ^h 4060	12 ^h B3	13 ^h A0	14 ^h A0	15 ^h B0	16 ^h B0	17 ^h B8	18 ^h B5
2798	1 ^c	2 ^c	3 ^c A2	4 ^c	5 ^c	6 ^c A	7 ^c B3	8 ^h MO	9 ^h B
2799	10 ^h 4060	11 ^h 4060	12 ^h B3	13 ^h A0	14 ^h A0	15 ^h B0	16 ^h B0	17 ^h B8	18 ^h B5
2800	1 ^c	2 ^c	3 ^c A2	4 ^c	5 ^c	6 ^c A	7 ^c B3	8 ^h MO	9 ^h B

emission at 4300
abs at 4300?Bem?
abs at 4300 strong

4500, 4530 do

4450, 4600 ab

diff.
4160

					Remarks	MF	
2791	32 ^c	B0	10	10	B3	10 18	10 20
2790	33 ^c	B5	12	15	B5	30 30	20 30
	A2 34 ^b		30	30	B5	12	—
	B1 35 ^b		15	25	B5	20	—
	✓ B 36 ^{ab}		15	—	—	10	5
	— 37 ^a		15	15	—	—	—
	— 38 ^a		20	B:25	B3	30	—
	✓ B0 39 ^a		14	20	B5	15 25	—
	40 ^a		2	2	—	2	—
	— 41 ^a		10	10	—	8	—
	— 42 ^a		20	20	B5	F0	—
	— 43 ^a		60	—	—	—	—
2805	44 ^{ab}	B5	60	—	—	—	—
	— 45 ^a		20	20	F0	—	20
	✓ B 46 ^a		5	5	—	—	—
	✓ B0 47 ^a		5	5	—	5	—
mem?	— 48 ^a		10	10	B5	8	—
	— 49 ^a		50	50	B35	55	—
	✓ B2 50 ^b		22	22	B35	30	—
not member	51 ^a		12	12	—	10	5 8
2812	52 ^c	B3	40	40	B8	40 44	40 60
2813	53 ^c	A7	50	50	B5	45	30 40
2814	54 ^a	F0	40	40	B5	40 45	—
2810	55 ^a	B3	—	—	—	—	—
not member	56 ^b	A0	25	30	B5	20 25	20
	✓ B 57 ^a		100	125	A0	20 100	60
	B 58 ^a		10	10	—	12	10 20
	02 59 ^a		8	8	—	8	10 15
	— 60 ^a		—	—	—	—	—
	— 61 ^a		20	30	—	—	—
	— 62 ^a		25	30	B5	30 35	—

							15784	rems	
-	63 ^a	35	35	B5	-	-	3035	10.1	
-	64 ^a	35 ^B	35	B5	-	-	25	10.2	4380
-	65 ^a	ff	-	-	-	-	-	10.4	4026
-	66 ^a	15 ^B	30	-	F?	-	-	10.6	different
2806	67 ^a B3	30	35	B5, k?	-	-	4045	10.4	4140, 4420
2151	68 ^c A	ff	q	-	Gr0	-	-	-	
2807	69 ^a	ff	-	-	-	-	-	-	
not member	70 ^a A0	75	75	A8	-	-	-	10.5	
-	71 ^a	ff	-	-	-	-	-	10.5	
-	72 ^a	ff	-	-	-	-	-	-	
-	73 ^a	15 ^B	25	B3	-	-	20 30	10.3	
B:	74 ^a	18	18	A5:	20	20	15 20	10.3	
4026, K:	75 ^a	30 ^B	30	B3	20	-	30 35	10.5	
2809	76 ^a B5	20	20	B5, k	20	25	20 20	10.1	4210, 4240
2815	77 ^a B2	25	25	A5?	15	25	25 30	10.2	4660, 4600
q	78 ^c	ff	-	-	-	-	-	10.0	
2816	79 ^b A2	ff	q:	-	40:	-	-	10.1	
2817	80 ^b B3	35	40	?	20	40:	40	10.8	
A3:	81 ^b	ff	-	-	-	-	-	-	
-	82 ^b	ff	-	-	-	-	-	-	
2808	83 ^b B5	15 ^B	20	B5:	30	20	20:	9.8	
-	84 ^b	ff	-	-	-	-	-	9.9	
152424	85 ^c B0	2	2	-	del	del	5:	6.4	
2826	86 ^c A	ff	-	-	-	-	-	7.2	
not member	87 ^c A0	90	90	A0	76	74	84 84	9.4	
2823	88 ^c A0	ff	-	-	-	-	-	9.6	
2824	89 ^c B3	ff	-	-	-	-	-	-	
2822	90 ^c F0	ff	-	-	-	-	-	-	
2821	91 ^c K0	-	-	K	-	-	-	10.6	
2819	92 ^c A5	-	-	-	-	-	-	10.6	
not member	93 ^c	50	50	B sk	45	50	45 50	11.2	
152459	B9	50	50	B sk	45	50	45 50	8.6	
								8.9	

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(bary)
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not member? B8

1 C 30 35

3570 2^b B8 60 603573 3^b A3 —3571 4^b B8 30 403572 5^b B9 60 80

not member B98

6^c A0 70 803099 7^b 70^A —3099 8^b B3 35 303576 9^a A GA0 10^a ff3575 11^a A 60 603574 12^b K2 —V B3 13^b 35 35

not member A1

14^b 80 80B5 15^b late3577 16^b B9 55^{late} 553578 17^a B 30 30— 18^a —— 19^a 60 60— 20^a 60 60B: 21^a 40 40V B8 22^a 30 30— 23^a late?— 24^b ffB5 25^a 44 44— 26^a 45 45— 27^a —K5 28^a —

not member

29^a 70 803100 29^c B5 54 54— 30^c ff

98.7

11.4

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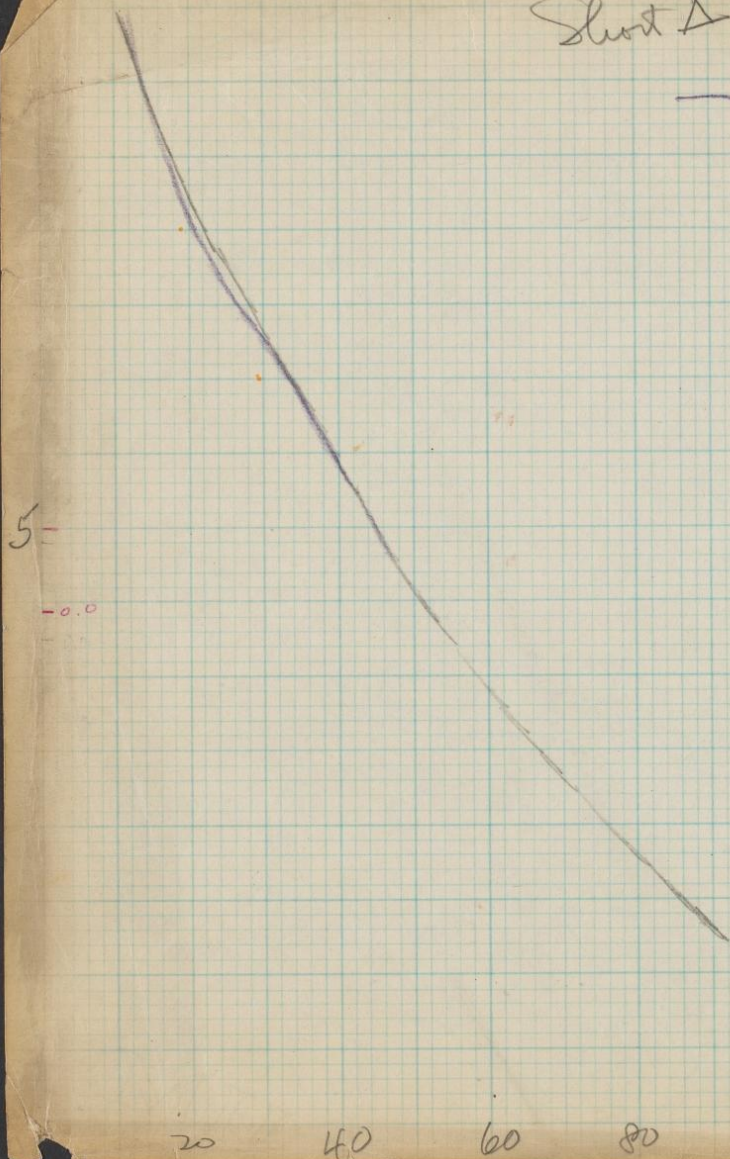
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220

—	31 ^c		G	—	—	11.4
3188	32 ^c	Q5	—	—	—	11.4
3190	33 ^c	K0	—	—	—	11.3
—	34 ^a		40: 60:	—	—	10.3
—	35 ^a		00	—	—	10.3
—	36 ^a		late?	—	—	11.2
—	37 ^a		late?	—	—	11.2
3579	38 ^b	B5	40 50	30	40	—
3580	39 ^b	Q5	—	—	—	11.0
3581	40 ^b	B3	50 50	35	40	11.9
3582	41 ^b	B8	fr	—	—	11.7
3583	42 ^c	B8	66 50	60	40	10.7
3584	43 ^c	A2	—	—	—	10.7
—	44 ^c	A2	—	—	—	11.0
F0	45 ^c	—	K	—	—	11.0
			—	—	—	11.0
				—	—	11.2
				—	—	11.2
				—	—	9.9
				—	—	10.0

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Shot Δ Mean Curve
— Revised



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