

Observing Book
Direct Plates

41" Reflector

Plates 1-1110

1969 Dec. - 1980 Nov.



NATIONAL

53-108
EYE-EASE PAPER
Made in U.S.A.

BOOK 1 79¢

Observers

WvA = van Altera

BFJ = Burt Jones

NRW = Walborn

Ry = Rymer = HR

Co = Corso = GC

RJB =

BAW = RW = Richard White

TA = Tom Adams

Nachman

DGM = Dave Monet

HM = Harvey Mosely

RS = Ron Stone = RCS

KC = Kyle Cudworth

AW = Adrian Wirth

AVK = Andrew Klein

CLB = Courtlandt Bohn

CMT = Charlie Telesco

DEW = Dan Welty

RK = Richard Kron

GT = Gamet Toomey

RM = ROBERT MANABAN

EA = Elise Albert

JBK = Jocelyn B. Keene = JK

SW = STAN WHITCOMB = SEW

JU = Joe Ulowetz

BG = Bill Glaccum = WG

AJ = Andy Jankevics

ES = Ed Shayg

DH = DONALD HAMILTON

DLT = DAVID L. TALENT

PLATE	OBJECT	1950 RA/DEC	1969 UT DATE	UT/H.A.	EXP.	GUIDE STAR	PLATE HOLDER	EMUL.	FILTER	CAMERA POSITION	TEL.	SEE	TRANS.	TEMP. (°C)	FOCUS	FLASH	CONFIG.	OBS	REMARKS
1	h+x Per.	2 ^h 16 ^m 55 ^s +57° 01'	Dec 16.	3:03-3:05	2x1 ^m	?	1	103aG	—	NS	W	2"	g	-7° 1.06	—	##	WVA	Moon.	
2	h+x Per.	2 ^h 16 ^m 55 ^s +57° 01'	"	3:14-3:17	3x30 ^s	"	2	"	"	"	"	2"	g	-7° 1.06	"	##	WVA	#1 in focus, #2 camera in 1/8 turn, #3 camera out 1/8 turn.	
3	NGC 1058	2 ^h 41 ^m 32 ^s +37° 09'	"	5:04-5:08 +2:11	4 ^m	"	1	"	"	"	"	2"	g	-8° 1.06	"	##	WVA	for R.H. Miller supernova I.d.	
4	Pleiades (Alcyone)	3 ^h 45 ^m 37 ^s +24° 02'	"	5:34-5:44 +1:39	10 ^m	"	2	"	"	"	"	2"	g	-8° 1.06	"	##	BFJ	Scale = 25.0/mm from 40" plate	
5	Orion (Trapezium)	5 ^h 33 ^m 28 ^s -5° 23'	"	+0:20	~20 ^s	"	3	"	"	"	"	2"	g	-9° 1.06	"	##	WVA	Probably double exposed.	
6	Orion (Trapezium)	5 ^h 33 ^m 28 ^s -5° 23'	"	+0:40	10 ^m	"	4	"	"	"	"	2"	g	-9° 1.06	"	##	WVA		
7	NGC 2244 (Rosette)	6 ^h 30 ^m 16 ^s +5° 01'	"	+0:09	10 ^m	"	5	"	"	"	"	2"	g	-9° 1.06	"	##	WVA		
8	NGC 2264	6 ^h 39 ^m 30 ^s +9° 05'	"	+0:34	~20 ^s	"	6	"	"	"	"	2"	g	-9° 1.06	"	##	WVA	Probably double exposed.	
9	η Gem	6 ^h 16 ^m 50 ^s +22° 31.4'	Dec 20	6:12-6:13 +0:01	3x1 ^m	"	1	"	"	S	W	~4"	g	-12° 1.02	—	##	WVA	Camera-mounting plate 6 1/32, 5 1/32, 7 1/32	
10	M35	6 ^h 05 ^m 7 ^s +24° 20'	"	6:59-7:03 +0:53	3x1 ^m	"	2	"	"	"	"	~4"	"	1.02	"	##	WVA	1 in focus; 2 camera in 1/16; 3 camera in 1/8	
11	α And	0 ^h 05 ^m 47.8 ^s +28° 48.7'	Dec 20	0:44-0:48 +0:44	3x1 ^m	unguarded	3	"	"	S	W	?	p	-9° 1.02	—	o 1/2	WVA	1 in focus; 2 camera in 1/16; 3 camera in 1/8	
12	α And	"	"	1:05-1:13 +1:08	3x1 ^m	"	4	"	"	S	W	?	p	1.02	"	o 2	WVA	#1 - 6 1/32; #2 - 4 1/32; #3 - 8 1/32	
13	α And	"	"	1:20-1:22	2 ^m	"	5	"	"	S	W	?	p	1.00	"	o	WVA	6 1/32	
14	α And	"	"	1:25-1:27	2 ^m	"	6	"	"	S	W	?	vp.	1.09	"	o	WVA	6 1/32	
15	NGC 1088	"	Feb 10	1:45-1:46 +2:30	1 ^m	"	1	"	"	?	W	P.	P.	0.99	—	—	NW/WVA	6 1/32	
16	Pleiades	"	"	2:15-2:25 +2:	n x 30 ^s	"	2	"	"	?	W	P	P	0.99	"	—	"	6 1/32 - 2x 1/3 turn + (1/2 x 1/3 turn)	
17	M1 - Crab	5 ^h 32 ^m +21° 55'	"	3:40-3:45 +1:32-+1:37	5 ^m	"	3	"	"	?	W	P	P	1.02	"	—	WVA		
18	NGC 2420	7 ^h 36 ^m 6 ^s +21° 39'	"	0:00-10:10	10 ^m	?	4	"	"	?	W	P	P	0.99	"	##	WVA		
19	M67	8 ^h 49 ^m 52 ^s +11° 58'	"	4:13-4:23 4:54-5:00	6 ^m	?	5	"	"	?	W	P	vp.?	0.99	"	##	WVA	clouds	
20	Pleiades	3 ^h 45 ^m 42 ^s +24° 00'	Feb 12	2:50-3:00 +2:40-2:50	11x30 ^s	unguarded	6	"	"	S	W		g	0.99	"	—	WVA	6 1/32 - 2x 1/3 turn + (1/2 x 1/3 turn)	

A8 secondary

Scale = 25.0/mm from 40" plate

Scale from Palomar Print → 25.0/mm

Plate	Object	1950 RA/Dec	1970 UT date	U.T. / H.A.	exp.	guide star	plate holder	emul.	filter	Camera pos. angle	tel.	seeing	trans.	temp.	focus	flash	config.	observer	remarks
21	CRAB NEB	5h 32.7 +21° 59'	FEB 12	4:05-4:15 +2:05-2:15	10 ^m	Yes	21	103a6	None	S	W	5"	g	?	0.99	-	#	WVA	MOON
22	NGC 2420	7h 36.36 +21° 37'	"	4:27-4:37 +0:28-0:38	10 ^m	Yes image jumping	2	"	"	S	W	3-10	g	0.99	-	#	WVA	seeing variable + image jumping wildly	
23	M67	8h 49.325 +11° 56'	"	4:57-5:07 -0:19-0:09	10 ^m	Yes	5	"	"	S	W	3-10	g	?	0.99	-	#	WVA	seeing variable + image jumping
24	NGC 4151	12h 08.0 +39° 41'	Feb 20	8:00 0:02E	1 ^m	no	3x3"	"	"	60°	"	7-8" (Vilkkii)	g	~5°F	0.96			NRW	moon bright bad images
25	"	"	"	8:30 0:32W	15 ^s	"	"	"	"	"	"	"	g	"	"			"	"
26	NGC 4051	12h 00.6 +44° 48'	"	9:05 1:15W	2 ^m	"	"	"	"	"	"	"	g	"	"			"	"
27	NGC 1068	2h 40.1 -0° 14'	Feb 24	1:35 3:15W	2 ^m	"	"	"	"	"	"	"	f	~30°F	1.00			"	"
28	M31	0h 40.0 +41° 00'	"	2:00 5:38W	30 ^s	"	"	"	"	"	"	"	f	"	"			"	"
29	NGC 1275	3h 16.5 +41° 20'	"	2:25 3:30W	2 ^m	"	"	"	"	"	"	"	f	"	"			"	"
30	M31	"	Feb 25	1:00 4:45W	1 ^m	"	"	"	"	"	"	"	f	"	0.99			"	"
31	NGC 1275	"	"	1:27 2:34W	4 ^m	"	"	"	"	"	"	"	"	"	"			"	"
32	Ori Sword	5h 30.0 -5° 20'	"	2:00 0:50W	3 ^m	"	4	"	"	174°	"	"	f-p	"	"			"	clouds (?)
33	NGC 1068	"	Feb 26	1:00 2:48W	4 ^m	"	3x3"	"	"	"	"	"	g	15°F	0.99			"	"
34	"	"	"	1:16 3:04W	1 ^m	"	"	"	"	"	"	"	g	"	"			"	"
35	NGC 1275	"	"	2:06 3:18W	8 ^m	yes	"	"	"	"	"	3-4"	g	"	"		#	"	"
36	Ori Sword	"	"	2:30 1:26W	1 ^m	no	3	"	"	"	"	"	g	"	"			"	"
37	NGC 4051	"	"	8:00 0:29W	2 ^m	"	3x3"	"	"	"	"	"	f	"	"			"	moon
38	NGC 4151	"	"	8:31 0:53W	1 ^m	"	"	"	"	"	"	"	f	"	"			"	"
39	M51	13h 25.0 +47°	"	8:55 0:03E	1.5 ^m	"	"	"	"	"	"	"	f	"	"			"	"
40	Hyades 276	4h 20.85 +15° 38.7	March 5	0:52-1:00 +1:32	5, 2 ^m	-20/ 0.5	3x3	IIaF	"	S	W	3"	f	~0°C	0.99		#	WVA	old IIa0 plates

Plate	Object	1950 RA/Dec	1970 UT Date	UT / H.A.	Exp.	Guide Star	Plate Holder	Emul	Filter	Camera Pos. Ang	Tel	Seeing	Trans	Temp	focus	flash	Config	Observer	Remarks
41	Hyades #292	4 ^h 21 ^m 04 ^s +16° 14' 1"	March 5	1:17 - 1:25 +1:56	5 ^m , 2 ^m	+27/ 0.3	3x3	IIaD	None	S	W	1-2"	f	~0°	0.99	-	1 2	WVA	
42	Hyades #310	4 ^h 21 ^m 23 ^s +17° 53' 1"	"	1:41 - 1:45 +2:17	1 ^m , 2 ^m	-22/ 0.4	"	"	"	"	"	2"	f	"	"	-	1 2	WVA	
43	Hyades #363	4 ^h 22 ^m 54 ^s +17° 54' 0"	"	2:00 - 2:04 +2:34	1 ^m , 2 ^m	-26/ 0.8	"	"	"	"	"	2"	f	"	"	-	1 2	WVA	
44	Hyades #475	4 ^h 25 ^m 19 ^s +16° 21' 5"	"	2:25 - 2:35 +3:00	5 ^m , 2 ^m	+6/ 0.6	"	"	"	"	"	2-4"	f	"	0.99	-	1 2	WVA	Fan off during Exp 2
45	Hyades #500	4 ^h 25 ^m 59 ^s +16° 10' 6"	"	2:52 - 3:00 +3:23	5 ^m , 2 ^m	+3/ 0.0	"	"	"	"	"	3-5"	f	"	"	-	1 2	WVA	Seeing somewhat improved Fan off for both
46	Hyades #502	4 ^h 26 ^m 01 ^s +15° 52' 2"	"	3:13 - 3:21 +3:47	5 ^m , 2 ^m	-17/ 0.3	"	"	"	"	"	3"	f	"	"	-	1 2	WVA	
47	M 67		"	3:50 - 4:20 +0:10	30 ^m	-17/ 0.0	"	"	"	"	"	3"	"	"	0.99	-	1 2	WVA	
48	NGC 4151	12 ^h 08 ^m 0 +39° 41'	"	6:04 -1:08	4 ^m	none	"	103a6	"	"	"	"	"	"	0.99	-	-	NRW	
49	"		"	6:29 -0:43	2 ^m	"	"	"	"	"	"	"	"	"	"	-	-	"	
50	NGC 4303	12 ^h 19 ^m 4 +40° 45'	"	7:03 -0:21	2 ^m	"	"	"	"	"	"	"	"	"	"	-	-	"	
51	"		"	7:23 0:00	4 ^m	"	"	"	"	"	"	"	"	"	"	-	-	"	
52	NGC 4214	12 ^h 13 ^m 1 +36° 36'	"	7:58 +0:36	2 ^m	"	"	"	"	"	"	"	"	"	"	-	-	"	drive "skipped" (?)
53	NGC 4490	12 ^h 28 ^m 3 +41° 55'	"	8:20 +0:48	2 ^m	"	"	"	"	"	"	"	"	"	"	-	-	"	
54	Nova Serpentic	18 ^h 28 ^m 3 +2° 35'	"	10:03 -3:29	2 ^m	"	6	"	"	"	"	"	"	"	0.98	-	-	"	
55	"		"	10:10 -3:20	3 ^m	"	3x3	IIaD	"	"	"	"	"	"	"	-	-	"	old IIaD
56	Hyades #500	4 ^h 25 ^m 59 ^s +16° 10' 6"	March 6	0:38 - 0:46 +1:15	5 ^m , 2 ^m	-3/ 0.0	"	"	"	"	"	~3"	p	~0°	0.99	-	1 2	WVA	
57	Hyades #502	4 ^h 26 ^m 01 ^s +15° 52' 2"	"	1:01 - 1:09 +1:38	5 ^m , 2 ^m	-17/ 0.3	"	"	"	"	"	"	"	"	"	-	1 2	WVA	2 unguided
58	Hyades #548	4 ^h 26 ^m 39 ^s +16° 08' 0"	"	1:22 - 1:31 +2:00	5 ^m , 2 ^m	+15/ 0.6	"	"	"	"	"	"	"	"	"	-	1 2	WVA	
59	Hyades #560	4 ^h 27 ^m 06 ^s +16° 33' 7"	"	1:43 - 1:52 +2:19	5 ^m , 2 ^m	+11/ 0.6	"	"	"	"	"	"	VP	"	"	-	1 2	WVA	
60	Hyades #490	4 ^h 25 ^m 47 ^s +16° 51' 4"	"	2:04 - 2:25 +2:48	10 ^m , 10 ^m	-3/ 0.2	"	"	"	"	"	"	"	"	"	-	1 2	WVA	heavy haze

Plate	Object	(1950) R.A./Dec.	1970 U.T. Date	U.T. / H.A.	Exp.	Guide star	Plate Holder	Emul.	Filter	Camera P.A.	Fel	Seeing	Trans.	Temp (°C)	Focus	Flash	Config	Obs	Remarks
61	M31	0 ^h 40 ^m 0 ^s +41° 00'	Mar 11	1:00 / 5:40W	30 ^s	-	3x3	103aG	none	S	W			0.99	-	-		NRW	
62	hX Per	2 ^h 15 ^m +57°	"	1:35 / 4:36W	2 ^m	-	1	"	"	"	"			"	-	-		"	
63	Hyades #560	4 ^h 27 ^m 06 ^s +16° 33.7'	"	2:01 - 2:09 +2:56	5 ^m , 2 ^m	+11/ 0.6	3x3	DAD	None	S	W	3"	g	0.99	-	1 2	WVA		
64	NGC 2548	8 ^h 11 ^m 3 ^s -5° 39'	"	2:46 - 2:56 -0:02	10 ^m	+18/ 0.7	"	103aG	"	"	"	"	f	0.99	-		WVA	guide star faint	
65	Praesepe	8 ^h 37 ^m 5 ^s +19° 51'	"	3:18 - 3:34 +0:07	16 ^m	+3/ 0.8	2	"	"	"	"	"	"	0.99	-		WVA		
66	M67	8 ^h 48 ^m 32 ^s +12° 22'	"	3:50 - 4:00 +0:25	10 ^m	-17/ 1.0	3x3	"	"	"	"	3-4	"	"	-		WVA		
67	NGC 4151	12 ^h 08 ^m 0 ^s +39° 41'	"	5:11 / 1:35E	12 ^m	yes	"	"	"	"	"	"		0.99	-	<input checked="" type="checkbox"/>	NRW		
68	"	"	"	5:50 / 1:00E	8 ^m	"	"	"	"	"	"	"	f	"	-	"	"		
69	M82	9 ^h 50 ^m +70°	"	6:21 / 1:48W	2 ^m	no	"	"	"	"	"	"		"	-	-	"		
70	NGC 3077	9 ^h 59 ^m 4 ^s +68° 58'	"	6:42 / 2:02W	2 ^m	"	"	"	"	"	"	"		"	-	-	"		
71	NGC 3516	11 ^h 03 ^m 4 ^s +72° 50'	"	7:07 / 1:22W	1, 3 ^m	"	"	"	"	"	"	"		"	-	-	"		
72	NGC 4501	12 ^h 29 ^m 5 ^s +14° 42'	"	8:08 / 0:59W	1 ^m	"	"	"	"	"	"	"		1.00	-	-	"		
73	"	"	"	8:25 / 1:16W	3 ^m	"	"	"	"	"	"	"	f-p	"	-	-	"		
74	NGC 4594	12 ^h 37 ^m 3 ^s -11° 21'	"	8:47 / 1:30W	2 ^m	"	"	"	"	"	"	"	f	"	-	-	"	(out of focus images)	
75	NGC 4490	12 ^h 28 ^m 3 ^s +41° 55'	"	9:33 / 2:25W	6 ^m	yes	"	"	"	"	"	3.5"	f	1.00	-	<input checked="" type="checkbox"/>	"		
76	NGC 4214	12 ^h 13 ^m 1 ^s +36° 36'	"	9:58 / 3:06W	5 ^m	no	"	"	"	"	"	"		"	-	-	"	(images very elongated)	
77	Non Serpentis	18 ^h 28 ^m 3 ^s +2° 35'	"	10:37 / 2:30W	5 ^m	"	"	"	"	"	"	"	v.p.	0.99	-	-	"		
78	Hyades #587	4 ^h 27 ^m 44 ^s +15° 37.5'	Mar 12	0:41 - 0:44 +1:33	2 ^m , 2 ^m	+8/ 0.1	3x3	DAD	"	S	W	4	VP ~0.2	0.99	-	1 2	WVA	light clouds	
79	Hyades #490	4 ^h 25 ^m 47 ^s +16° 51.4'	"	0:55 - 1:05 +1:57	10 ^m	-3/ 0.2	"	"	"	"	"	"	"	"	-		WVA	"	
80	Hyades #673	4 ^h 29 ^m 30 ^s +17° 38.5'	"	1:17 - 1:27 +2:15	10 ^m	-9/ 0.4	"	"	"	"	"	"	"	"	-		WVA		

Plate #	Object	(1950) RA / DEC	1970 UT DATE	U.T. / H.A.	EXP.	Guide Star	Plate holder	Emul.	Filter	Camera P.A.	Tel.	Seeing	Trans	Temp (°C)	Focus	Flash	Config.	Obs.	Remarks
81	Hyades #638	4 ^h 28 ^m 54 ^s +15° 31.2'	Mar 12	1:43 - 1:50 +2:41	5 ^m , 2 ^m	-15/ 0.7	3x3	IIaD	None	S	W	~4"	v-p	~0°	0.99	-	1 2	WVA	light clouds #2 unguided
82	Hyades #645	4 ^h 29 ^m 02 ^s +15° 23.4'	"	2:03 - 2:10 +3:01	5 ^m , 2 ^m	-3/ 0.8	"	"	"	"	"	"	"	"	"	-	1 2	WVA	"
83	Hyades #747	4 ^h 31 ^m 41 ^s +15° 43.3'	"	2:29 - 2:36 +3:25	5 ^m , 2 ^m	+10/ 0.7	"	"	"	"	"	"	"	"	0.99	-	1 2	WVA	"
84	NGC 2244	6 ^h 30 ^m +5° 00'	"	3:25 / 2:20W	2 ^m	no	1	103aG	"	"	"	"	f-p	"	0.98	-	-	NRW	"
85	NGC 3077	9 ^h 59 ^m 4 +68° 58'	"	4:10 / 0:25E	8 ^m	-26/ 3/4	3x3	"	"	"	"	4-5"	"	"	0.99	-	☐	"	"
86	"	"	"	4:32 / 0:05E	2 ^m	"	"	"	"	"	"	"	"	"	"	-	"	"	"
87	NGC 3516	11 ^h 03 ^m 4 +72° 50'	"	6:20 / 0:40W	12 ^m	+17/ 3/4	"	"	"	"	"	"	f	"	0.99+	-	"	"	"
88	NGC 4214	12 ^h 13 ^m 1 +36° 36'	"	7:03 / 0:15W	5 ^m	+18/ 1	"	"	"	"	"	"	"	"	"	-	"	"	(out of focus images) moved ~36° through zenith
89	NGC 4472	12 ^h 27 ^m 3 +8° 16'	"	8:20 / 1:20W	7 ^m , 2 ^m	-27/ 1/2	"	"	"	"	"	4-8"	f-p	"	0.99	-	☐	"	"
90	NGC 4501	12 ^h 29 ^m 5 +14° 42'	"	9:03 / 2:00W	9 ^m	+29/ 1/2	"	"	"	"	"	?	"	"	"	-	☐!	"	guide battery shot
91	IC 1805	2 ^h 30 ^m +61°	March 13	1:08 / 4:05W	5 ^m	+7.5/ 1/2	2	"	"	"	"	2-3"	f	"	0.99	-	☐	NRW	moon; high cloud
92	NGC 2841	9 ^h 18 ^m 6 +51° 12'	"	4:40 / 0:45W	8 ^m , 2 ^m	-21/ 1/4	3x3	"	"	"	"	3-8"	f-p	"	0.99+	-	☐	"	"
93	M82	9 ^h 50 ^m +70°	"	5:17 / 0:50W	8 ^m	-15/ 1	"	"	"	"	"	3-5"	f-p	"	"	-	"	"	(focus good) moved ~20°
94	NGC 4214	"	"	7:00 / 0:13W	5 ^m	+18/ 3/4	"	"	"	"	"	"	f	"	1.00	-	"	"	"
95	NGC 4258	12 ^h 16 ^m 5 +47° 35'	"	8:00 / 1:15W	8 ^m	+24/ 1	"	"	"	"	"	2-4"	g-f	"	0.99+	-	"	"	"
96	"	"	"	8:18 / 1:30W	4 ^m , 2 ^m	"	"	"	"	"	"	"	"	"	"	-	"	"	2 ^m unguided
97	NGC 4594	12 ^h 37 ^m 3 -11° 21'	"	9:12 / 2:03W	4 ^m	-27.5/ 1	"	"	"	"	"	"	f	"	0.98	-	"	"	strongest (shows development streaks are at bottom)
98	NGC 4472	"	"	9:53 / 2:55W	30 sec	no	"	"	"	"	"	"	"	"	0.99	-	-	"	"
99	M87	12 ^h 28 ^m 3 +12° 40'	"	10:13 / 3:13W	2 ^m	no	"	"	"	"	"	"	"	"	"	-	-	"	"
100	NGC 4535	12 ^h 31 ^m 8 +8° 28'	"	10:32 / 3:29W	2 ^m	no	"	"	"	"	"	"	"	"	"	-	-	"	"
101	NGC 4321	"	"	10:47 / 4:55W	2 ^m	no	"	"	"	"	"	"	"	"	"	-	-	"	"

Plate	Object	(1950) RA. / Dec.	1970 U.T. date	U.T. / H.A.	exp.	guide star	plate holder	emul.	filter	Camera p.a.	tel.	seeing	trans.	temp.	focus	flash	config.	observer	remarks
101	NGC 4321	12 ^h 20 ^m 4 +16° 06'	March 13	10:47 / 4:55W	2 ^m	no	3x3	103a6	-	S	W				0.99	-	-	NRW	
102	NGC 4278	12 ^h 17 ^m 7 +29° 34'	April 8	4:36 / 0:33E	2 ^m	no	"	"	-	S	W		f	~45°	1.00	-	-	"	very windy; new mounting + guide eyepiece - trouble with illumination (reflections)
103	NGC 4486	12 ^h 28 ^m 3 +12° 40'	"	5:01 / 0:19E	"	"	"	"	-	"	"			"		-	-	"	
104	NGC 4552	12 ^h 33 ^m 1 +12° 50'	"	5:26 / 0:01W	"	"	"	"	-	"	"			"		-	-	"	
105	M3	13 ^h 45 ^m +28° 35'	"	5:56 / 0:35E	"	"	"	"	-	"	"			"		-	-	"	
106	NGC 4374	12 ^h 22 ^m 6 +13° 10'	April 9	5:16 / 0:06W	"	"	"	"	-	"	"		f	~40°	✓	-	-	"	
107	NGC 4550	12 ^h 32 ^m 9 +12° 30'	"	5:34 / 0:14W	"	"	"	"	-	"	"			"		-	-	"	2 galaxies
108	NGC 5077	13 ^h 16 ^m 9 -12° 24'	"	5:56 / 0:08E	3 ^m	"	"	"	-	"	"			"		-	-	"	several faint companions [images strange]
109	NGC 5444	14 ^h 01 ^m 2 +35° 23'	"	6:23 / 0:25E	"	"	"	"	-	"	"			"		-	-	"	
110	NGC 4278		April 10	4:05 / 0:55E	10 ^m , 1 ^m	-28/40	"	"	-	"	"	~5"	f	40°	1.00	-	☒	"	guiding very difficult; illumination changes as plate moves; 2 galaxies
111	NGC 4486		"	4:45 / 0:30E	10 ^m , 1 ^m	-24/32	"	"	-	"	"	3-4"		"		-	"	"	
112	NGC 4552		"	5:30 / 0:15W	10 ^m , 1 ^m	-28/39.5	"	"	-	"	"			"		-	"	"	
113	NGC 6166	16 ^h 26 ^m 9 +39° 40'	May 6	6:20 / 1:05E	12 ^m	-29/30	5	"	-	"	"		f-g	~35°	1.00	-	☒	"	
114	Nova Serpentis	18 ^h 28 ^m 3 +2° 35'	"	7:20 / 2:05E	10 ^m	-17/30	6	"	-	"	"			"		-	☒	"	
115	Nova Aquilae	19 ^h 22 ^m 2 +4° 9'	"	7:45 / 2:35E	8 ^m	-20/29	1	"	-	"	"	6-8"		"		-	☒	"	
116	NGC 6871	20 ^h +35°	"	8:07 / 2:52E	5 ^m	-20/29	3	"	-	"	"			"		-	☒	"	
117	NGC 6530	18 ^h -24°	"	9:04 / 0:04W	3 ^m	no	4	"	-	"	"			"		-	-	"	shy ↑
118	NGC 4406, 4374	12 ^h 23 ^m 7 +13° 13'	May 7	3:03 / 0:16E	3 ^m	no	2	"	-	"	"		f-g	~40°	✓	-	-	"	
119	NGC 4382	12 ^h 22 ^m 8 +18° 28'	"	3:13 / 0:06E	3 ^m	no	3x3"	"	-	"	"			"		-	-	"	
120	NGC 4550		"	3:36 / 0:08W	6 ^m	-23/29	"	"	-	"	"	~5"		"		-	☒	"	

Plate	object	(1950) R / S	1970 UT date	UT / HA	exp.	guide star	plate holder	emul.	filter	p.a.	tel.	seeing	trans.	temp.	focus	flash	conf.	obs.	remarks
121	NGC 4649	12 ^h 41 ^m 1 +11° 49'	May 7	3:56 / 0:20 W	3 ^m	no	3x3"	103aG	—	S	W				1.00	—	—	NRW	2 galaxies
122	NGC 5077	13 ^h 16 ^m 9 -12° 24'	"	4:22 / 0:11 W	6 ^m	-14/30	"	"	—	"	"				"	—	—	"	several fainter comp. star images soft
123	NGC 5444	14 ^h 01 ^m 2 +35° 23'	"	4:57 / 0:01 W	6 ^m	-29/29	8x10"	"	—	"	"	3" (K111)			"	—	—	"	Problem: focus at. beyond range of guide eye piece
124	Jupiter		"	5:25 / 0:40 W	~1 ^s , 4 ^s	no	"	"	—	"	"				"	—	—	"	plate pre-exposed to red light
125	MCG 1017-7	11 ^h 27.5 +58° 25'	MAY 26	2 ^h 25 ^m W	15 ^m	+24.5/35	8x10	103aD	—	S	W	3"			1.00	—	—	Ry/Co	
126	MCG 1017-7	"	"	2 ^h 47 ^m W	15 ^m	24/35	"	103aD	—	S	W	"			1.00	—	—	"	
127	MCG 1017-7	"	"	3 ^h 04 ^m W	15 ^m	24/35	"	103aE	—	S	W	"			1.00	—	—	"	
128	NGC 4214	12 ^h 14 ^m 1 +36° 29.3	"	2 ^h 48 ^m W	15 ^m	+11/34	"	103aD	—	S	W	"			1.00	—	—	"	
129	NGC 4214	"	"	3 ^h 05 ^m W	15 ^m	+11/34	"	103aD	—	S	W	"			1.00	—	—	"	
130	NGC 4214	"	"	3 ^h 22 ^m W	15 ^m	+11/34	"	103aE	—	S	W	"			1.00	—	—	"	
131	MCG 1017 #7	11 ^h 27.5 +58° 25'	MAY 27	4:30 / 2 ^h 40 ^m W	15 ^m		3x3	103aD	—	S	W				1.00				
132	NGC 4214	12 ^h 14.6 +36° 29.3	MAY 27	5:30 / 2 ^h 23 ^m W	30 ^m		3x3	103aD	23A	S	W				1.00				
133	NGC 5548	14 ^h 15 ^m 7 +25° 22'	June 6	3:45 / 0:030 W	3 ^m , 6 ^m	-23/36	1	103aE	—	"	"				1.00	—	☒	NRW	1st magnitude
134	RB 131	16 ^h 4 ^m 13 ^s +17° 49'	June 6	10 ^h 24 ^m W	1 ^h 0 ^m	-15/38	3x3	IIaD	—	S	W				1.00	—		RJB	
135	RB 164	16 ^h 4 ^m 41 ^s +18° 17'	June 6	10 ^h 41 ^m W 2 ^h 55 ^m W	1 ^h 15 ^m	-16/38	3x3	IIaD	—	S	W				1.00	—		RJB	
136	RB 170	16 ^h 5 ^m 46 ^s +17° 54.2	June 7	10 ^h 23 ^m W	1 ^h 15 ^m	+14/35	3x3	IIaD	—	S	W				1.00	—		RJB	
137	RB 95	16 ^h 4 ^m 54 ^s +16° 22.5	June 7	12 ^h 22 ^m W	1 ^h 15 ^m	+15/38	3x3	IIaD	—	S	W				1.00	—		RJB	
138	RB 131	16 ^h 4 ^m 21 ^s +17° 49.5	June 8	0 ^h 35 ^m W	1 ^h 25 ^m	+12/34	3x3	IIaD	—	S	W				1.00	—		RJB	
139	MCG 1017-7	11 ^h 27.6 +58° 18'	JUNE 24	5:50 / 4 ^h 17 ^m W	1 ^h 20 ^m	+15/34	3x3	103aD	—	S	W				1.00			Ry/Co	
140	MCG-1017-7	11 ^h 27.6 +58° 18'	JUNE 30	4:50 / 3 ^h 51 ^m W	1 ^h 55 ^m	+15/34	3x3	103aD	—	S	W				1.00			Ry/Co	


Plate	object	(1950) α/δ	UT date 1970	UT/HA	exp.	guide star	plate holder	emulsion	filter	p.a.	tel.	seeing	trans.	temp.	focus	flash cont.	conf. obs.	obs.	remarks
141	NGC 5548	14 ^h 15 ^m 7 +25° 22'	July 6	3:40 / 2:25W	18m	+6/31	3x3"	103a6	—	S	W	3-5"	g	~70°	1.00	—		NRW	
142	"		"	4:00 / 2:46W	6m	"	"	"	—	"	"	5-7"	"	"	"	—	"	"	
143	M 13	16 ^h 40 ^m +36° 36'	"	4:30 / 0:53W	7m	+14/32.5	"	"	—	"	"	"	"	"	"	—	"	"	
144	NGC 7469	23 ^h 00 ^m 7 +8° 36'	"	7:33 / 2:25E	6m	+13/37	"	"	—	"	"	"	"	(V)	"	—	"	"	
145	"		"	7:56 / 2:00E	1Pm	"	"	"	—	"	"	"	"	"	"	—	"	"	
146	"		"	8:15 / 1:44E	4m	"	"	"	—	"	"	P	"	"	"	—	"	"	
147	IC 4665	17 ^h 43 ^m 8 +5° 44'	July 27	2:55 / 0:25E	8m	+3/30.5	6	"	—	"	"	3-5"	f-p	~70°	1.00	—	"	"	
148	NGC 6514, M20	17 ^h 58 ^m 9 -23° 02'	"	3:33 / 0:04E	10m	+10/33	5	"	—	"	"	5-8"	"	0.99	"	—	"	"	
149	NGC 6523/6530 M8	18 ^h 01 ^m 6 -24° 20'	"	3:57 / 0:19W	10m	-5/31.5	3	"	—	"	"	"	"	"	"	—	"	"	
150	NGC 6611, M16	18 ^h 16 ^m 0 -13° 48'	"	4:24 / 0:31W	10m	-4/30	4	"	—	"	"	"	"	"	"	—	"	"	
151	NGC 6618, M17	18 ^h 17 ^m 9 -16° 12'	"	4:45 / 0:50W	10½m	-3.5/36	1	"	—	"	"	"	"	"	"	—	"	"	
152	Nova Serpentic	18 ^h 28 ^m 3 +2° 35'	"	5:15 / 1:09W	10m	-3/35	2	"	—	"	"	"	"	1.00	"	—	"	"	
153	M 101	14 ^h 01 ^m 4 +54° 35'	Aug 6	3:07 / 4:09W	15m	+1/40	1	"	—	"	"	~6"	P	~70°	1.00	—	"	"	supernova
154	NGC 6580	18 ^h 01 ^m 2 -24° 20'	Sept. 28	1:27 / 1:56W	4m	+7.5/33	3x3	IIa-0	—	"	"	~3-4"	"	1.00	"	—	"	RAW	
155	G 7-17	3 ^h 59 ^m 40 ^s 18° 42'	Dec 26	02:36 / 1:10E	6m	"	3x3	103aD	V1	"	W	"	g	5°	1.00	—	—	RAW	
156	"	"	"	02:50 / 0:51E	5m	"	"	103aD	B1	"	W	"	g	5°	1.00	—	—	RAW	
157	"	"	"	3:05 / 0:35E	10m	"	3x3	103aD	U1	"	W	"	g	5°	1.00	—	—	RAW	
158	G 175-34	4 ^h 25 ^m 21 ^s 58° 55'.6	Dec 26	4:35 / 0:24W	5m	"	3x3	103aD	V1	"	W	"	f	5°	1.00	—	—	RAW	
159	"	"	"	4:55 / 0:45	5m	"	3x3	103aD	B1	"	W	"	f	5°	1.00	—	—	RAW	
160	"	"	"	5:10 / 0:16W	40m	"	3x3	103aD	U1	"	W	"	g	5°	1.00	—	—	RAW	

Plate	object	(1950) d/s	UT Date	UT/HA	exp.	guide star	plate holder	emulsion	filter	p.a.	tel.	seeing	trans	temp	focus	flush	config	obs.	remarks
161	G87-8	6 ^h 45 ^m 41 ^s 37° 11.3	23/1/71	07:00 / 2:24	10	-2 1/2 34	3X3	103aD	V1	S	W	6"	f	15°	1.00	—		RW	can't see milky way. times at start of exposure
162	G87-8	"	"	07:30 / 2:55	10	"	"	103aD	B1	S	W	6"	f	"	"	—	"	"	
163	G87-8	"	"	8:00 / 3:25	25	"	"	103aD	U1	B	"	"	"	"	"	—	"	"	
164	G99-10/11	5 ^h 25 ^m 38 ^s 20° 56.2 15° 11.6	24/1/71	1:50 / 1:22	5	+3 1/2 35 1/2	"	103aD	V1	"	"	3"	g	20°	1.00			"	
165	G99-10/11	"	"	2:10 / 1:00	10	"	"	103aD	B1	"	"	"	"	"	1.00	—	"	"	
166	G99-10/11	"	"	2:40 / 0:30	25	"	"	103aD	U1	"	"	"	"	"	—	"	"	"	
167	G105-23	6 ^h 11 ^m 8 ^s +15° 11.6	"	3:50 / 0:05	10	8 3/4 36	"	103aD	B1	"	"	"	"	"	"	—	"	"	
168	G105-23	"	"	4:20 / 0:23	10	"	"	103aD	V1	"	"	"	"	"	"	—	"	"	
169	G105-23	"	"	4:40 / 0:45	25	"	"	103aD	U1	"	"	"	"	"	"	—	"	"	
170	G51-15	8 ^h 26 ^m 52 ^s 26° 57.1	11 Feb 71	5:45 / 0:05 6:11 / 0:25	10 10 1/2	-13 36	"	103aD	V1	"	"	5"	f	"	"	+	"	"	milky way not visible Plate reversed
171	"	"	"	"	"	"	"	103aD	B1	"	"	"	"	"	"	—	"	"	
172	"	"	"	6:40 / 0:50	25	"	"	103aD	V1	"	"	"	"	"	"	—	"	"	
173	NGC 2158	6 ^h 4 ^m 4 ^s 24° 6'	3/3/71	1:20 / 2:00	30 min	"	3X3	103aD	4450 Å	"	"	6"	F	12°	"	—	+	HR GC	
174	"	"	"	2:00 / 2:20	30 min	"	"	"	5007 Å	"	"	7"	F	12°	"	—	+	HR GC	
175	NGC 2419	7 ^h 36 ^m 9.6 38 57 18.9	3/31/71	2:00 / 2 ^h 21 ^m W	50 m.	"	3X3	103a-D	4450 Å	W	7"	F	25	"	"	—	#	HR	HAZE
176	NGC 5272	13 40 49 28 31 36	3/31/71	3:35 / 2 ^h 20 E	50 m	"	3X3	"	4450 Å	W	7"	F	25	"	"	—	"	HR	
177	NGC 5272	13 40 49 28 31 36	4/23/71	1:50 / 1 ^h 43 E	1.5 hr	"	3X3	103a-D	4450 Å	W	3-4	G	—	—	—	—	#	H-R/G.C	
178	NGC 5272	13 40 49 28 31 36	4/23/71	3:40 / 0 ^h 07 E	1.75 hr	"	3X3	103a-D	5007 Å	W	3-4	G	—	—	—	—	#	H-R/G.C	
179	RW Aurigae (T TAURI)	05 05 52 +30 21 54	4/25/71	1:20 / 5 ^h 15 ^m W	15 min	"	8x10 #1	103a-D	—	W	3-4	G	—	—	—	—	#	H.R	
180	h Ha 54 (T TAURI)	06 39 27 +09 29 23	4/25/71	1:40 / 4 ^h 05 W	20 min	"	" #2	"	—	W	3-4	G	—	—	—	—	#	HR	

plate	object	1950 α/δ	UT Date	UT/HA	Exp.	Guide Star	Plate Holder	Emulsion	Filter	PA	Rel.	Seeing	Trans	Tem	Focus	Flash	Config	Obs.	Remarks
201	NGC 6530	8 ^h 02 ^m 34 ^s -24°26.1	8/18/71	03 ^h 03 ^m /45 ^m W	10	+1/36	3X3	103a0	B	S	W	3-4"	F	1.0	-	###	RAW		
202	"	"	"	03 ^h 20 ^m /1 ^h 5 ^m W	35	+1/36	3X3	103a0	V	S	W	3-4"	F	1.0	-	###	RAW	Exposure cut short by 5 min. since telescope nearly at horizon	
203	WR SURVEY	21 ^h 17 ^m 34 ^s +44°20 ^m 1 ^v	10/5/71	03 ^h 50 ^m /1 ^h 45 ^m W	16.5	-6/37	3X3	TR-0	4450Å	S	W	3-4"	F	-	-	###	HR		
204	WR SURVEY	"	10/5/71	04 ^h 35 ^m /1 ^h 20 ^m W	15	"	3X3	"	4670Å	S	W	3-4"	F			###	HR		
205	WR SURVEY	"	10/5/71	05 ^h 30 ^m /2 ^h 10 ^m W	30	"	3X3	"	5007Å	S	W	3-4"	F			###	HR		
206	NGC 1023		1/7/72	~4 ^h W	3		3X3	103a0	B									P.P-EG	
207	"			~4:30W	10		"	"	B									"	
208	NGC 2281	6 ^h 45 ^m 8 ^s +41°07'	3/9/72	~2 ^h 00 ^m /0 ^h 30 ^m W	~5 ^m		8X10	103aG	-	S	W	3-4"	G	1.04	-	#	WvA	Test plates for collimation knife edge focus	
209	NGC 2281	"	3/9/72	~2 ^h 08 ^m /0 ^h 38 ^m W	~2 ^m		"	"	-	"	"	4-5"	G	"		"	"	"	
210	NGC 2281	"	"	2 ^h 18 ^m /0 ^h 48 ^m W	~2 ^m		"	"	-	"	"	"	G	1.00		unguided	"	out of focus plate. images look nice + uniform	
211	NGC 2281	"	"	2 ^h 30 ^m /0 ^h 50 ^m W	~2 ^m		"	"	-	"	"	"	G	0.96		"	"	"	
212	NGC 2281	"	"	2 ^h 30 ^m /0 ^h 59 ^m W	~2 ^m		"	"	-	"	"	"	G	1.00		sort of guided	"	"	
213	M 67	8 ^h 48 ^m 32 ^s +12°22'	"	2 ^h 58 ^m /0 ^h 40 ^m E	10 ^m		"	"	-	"	"	3"	G	1.04		guided	"	images fairly stable	
214	NGC 2281	6 ^h 45 ^m 8 ^s +41°07'	3/24/72	1 ^h 41 ^m /1 ^h 06 ^m W	1 ^m		4 u	"	-	S	W	3"	G	1.04			WvA	knife edge focus MOON	
215	NGC 2281	"	"	1 ^h 43 ^m /1 ^h 08 ^m W	1 ^m		3 u	"	-	"	"	"	"	1.00			"	out of focus ↓	
216	NGC 2281	"	"	1 ^h 45 ^m /1 ^h 10 ^m W	1 ^m		2 u	"	-	"	"	"	"	1.08			"	out of focus (other side)	
217	NGC 2281	"	"	1 ^h 50 ^m /1 ^h 15 ^m W	1 ^m		1 u	"	-	"	"	3"	"	1.03			"	eyeball focus	
218	INTERGALACTIC SUPERNOVA?	9 ^h 6 ^m 19 ^s +44°58'47"	3/31/72	3 ^h 30 ^m /1 ^h 30 ^m W	~5 ^m		8X10	103aG	-	S	W	3-4"	F	1.0	-	###	ERICKSON	OUT OF FOCUS	
219	"	"	4/8/72	4 ^h 30 ^m /2 ^h 30 ^m W	6 ^m		"	"	-	S	W	3-4"	P	1.03	-	UNGUIDED	ERICKSON		
220	"	"	4/14/72	3 ^h 00 ^m /1 ^h 30 ^m W	16 ^m		"	"	-	S	W	"	F	1.03	-		ERICKSON		

PLATE	OBJECT	1950 α, δ	UT DATE	UT / HA	EXP	GUIDE STAR	PLATE HOLDER	EMULSION	FILTER	PA	TEL	SEEING	TRANS	TEMP	FOCUS	FLASH	CONFIG	OBS	REMARKS
221	NGC 5253 SUPERNOVA	13 ^h 37 ^m .1 -31° 24'	5/19/72	4 ^h 10 ^m / 0 ^h 25 ^m W	1 ^m	-	3x4	IIaO	-	S	W		G	0.97	-	UNGUIDED	ERICKSON		
222	"	"	"	4 ^h 15 ^m / 0 ^h 30 ^m W	4 ^m	-	3x4	"	-	S	W		G	"	-	"	"		
223	"	"	"	4 ^h 20 ^m / 0 ^h 35 ^m W	10 ^m	-	3x4	"	-	S	W		G	"	-	"	"		
224	"	"	"	5 ^h 30 ^m / 1 ^h 45 ^m W	3 ^m	-	3x4	"	-	S	E		G	"	-	"	"		
225	"	"	"	5 ^h 35 ^m / 1 ^h 50 ^m W	5 ^m	-	3x4	"	-	S	E		G	"	-	"	"		
226	Palmer region G84.7-1.0	20 ^h 54 ^m 22 ^s +43° 30' 09"	7/17/72		30 ^m		3x4	IIaD	V	S								Palmer -Nachman	
227	"	"	7/17/72		90 ^m		3x4	I-N	R	S								Palmer -Nachman	Hypersensitized in cold distilled water, 4 mins
228	NGC 6633		7/14/72	10 ^h 05 ^m W	12 ^m		"	IIaD	V	S								Nachman	
229	"		"	10 ^h 20 ^m E	12 ^m		"	IIaO	B	S								Nachman	
230	"		"	11 ^h 15 ^m W	30 ^m		"	I-N	R	S								Nachman	Water hyper. Shutter not fully open
231	"		"	13 ^h W	38 ^m		"	I-N	R	S								Nachman	Water hyper.
232	Palmer region G84.7-1.0	20 ^h 54 ^m 22 ^s +43° 30' 09"	10/15/72	13 ^h W	65 ^m		"	I-N	R	S	φ~4"		G	~10°C	.98	10		Nachman	Preflash 10 flashes in 40" dome.
233	Palmer region G127.7+14.0	2 ^h 06 ^m 46 ^s +76° 02' 22"	10/17/72	10 ^h 45 ^m W	30 ^m		"	IIaD	V	S			G	~10°C	.98	-		Nachman	
234	"	"	"	12 ^h 45 ^m W	120 ^m		"	I-N	R	S			G	~10°C	.98	10		Nachman	Preflash 10 flashes
235	Palmer region G157.2-1.0 G157.4-1.0	4 ^h 28 ^m 37 ^s +46° 28' 30"	10/20/72	100 ^h 40 ^m E	120 ^m			I-N	R				G	5°C	.98	10		Nachman	Preflash 10+mins
236	"	"	"	11 ^h 35 ^m W	35 ^m			IIaO	B				G	5°C	.98			Nachman	
237	Pleiades (17 Tau)	3 ^h 41 ^m .9 +23° 57'	12/28/72	1:06 - 1:18 1:57 E	13 ^m		Vac. P.H.	Pond Palm	-	S	W	3-4	F	0°C	.97	-		WVA	Vacuum plate holder
238	Pleiades	"	"	1:42 - 1:51 1:24 E	9 ^m		"	"	-	S	W	2-3	F	0°	.98	-		WVA	" refocused
239	h + X Per.	2 ^h 15 ^m .3 +56° 43'	"	2:32 - 2:45 0:54 W	13 ^m		"	"	-	N	W	2"	F	0°	.98	-		WVA	" (same focus)
240	Palmer region G178.9-6.7	5 ^h 14 ^m 28 ^s +26° 07' 17"	1/7/73	13:51 W	30 ^m		3x4	IIaD	V		W	3"-4"	F					Nachman	Poor. Plate light leak. Also dome obscured part of exposure
241	NGC 654	1 ^h 41 ^m .3 +61° 41' (1960)	"	15 ^h 27 ^m W	20 ^m		"	I-N	1/2 R		W	2"-3"	G	~10°C		10		Nachman	Preflash 10.

Plate #	Object	1950 α, δ	UT Date	UT/HA	Exp.	Guide Star	Plate Molder	Emulsion	Filter	PA	Tel	Seeing	Trans	Temp	Focus	Flash	Contig	Obs	Remarks
242	NGC 654	1h 41.3 ^m +61° 04.1' (1960)	Dec 17, 1972	→ 12:00W	15 ^m		3x4	IIaD	B			5"							Nachman Gibbons moon (past 1st quarter). I-N plate went very faint, perhaps because night was so cold, and lack of reciprocity correction
243	"		"	→ 12:25W	15 ^m		"	IIaD	V			5"							
244	"		"	→ 14:40W	45 ^m		"	I-N	R			2-3"			10				
245	G 178-9-6.7		6 Jan '73	14:06W	30^m		"	IIaD	V	W		E	-15						Dome obscured up to 3/8 of aperture.
246	NGC 654		6 Jan '73	15:37W	20^m			I-N	"R"	W		E	-15						
245	NGC 2264	6h 39m 24s 9° 55' } 1970	30 Jan '73	11:10 W	15 ^m		3x4	IIaD	V		W	2"-3"	F	-6°C				Nachman	
246	"	"	26 Feb '73	10:45W	16 ^m		"	IIaD	B			4"-5"	G					"	
247	"	"	26 Feb '73	11:10 W	16 ^m		"	IIaD	V			4"-5"	G					"	
248	Region in Cass	12h 21m 50s ± 30s +26° 27' (1973)	7 April '73	11:21 W	16 ^m		"	IIaD	—			~6"	P					" Non-objective grating spectra.	
249	NGC 6633		7 April '73	12:00 E	20 ^m		"	IIaD	—			~8"	P					" " " " "	
250	Palmer G 4.3+35.8	15h 52m 30s -40° 31' 26" } 1975	4 May '73	10:28 W	30 ^m		"	IIaD	V			2"-3"	G	2°C				"	
251	"	"	4 May '73	13:29W	90 ^m		"	I-N	"R"			2"-3"	G	2°C	10			"	
252	NGC 6633	12h 37.7 +61° 53'	5 May '73	11:25 E	60 ^m		"	IIaD	—			2"-3"	G	7°C				Nachman } Non-objective grating spectra	
253	NGC 6633		5 May '73	10:48 W	20 ^m		"	IIaD	—			2"-3"	G	7°C				Nachman }	
254	NGC 4605	12h 37.7 +61° 53'	4 May '73	at end 3:17 / 0:30 E	10 ^m	up piece to west H5 39	" #1	IIIaD	—			4"	F-G	40°F 0.91				R.A.W. = RAW 41" #1	
255	"		4 May '73	4:02 / 0:15 W	20 ^m	H5 39	" #2	IIIaD	—			4"	F-G	40°F 0.91				R.A.W. = RAW 41" #2	
256	"		4 May '73	4:54 / 1:07 W	30 ^m	H5 39	" #3	IIIaD	—			3"	F-G	40°F 0.91				R.A.W. = RAW 41" #3	
257	"		5 May '73	4:04 / 0:24 W	30 ^m	H5 40	" #1	IIaD	V			3"	G	46°F 0.91				R.A.W. = RAW 41" #4	
258	"		5 May '73	4:29 / 0:47 W	10 ^m	H5 40	" #2	IIaD	B			3"	G	46°F 0.91				R.A.W. = RAW 41" #5	
259	"		5 May '73	4:44 / 0:01 W	10 ^m	H5 40	" #3	IIaD	V			3"	G	46°F 0.91				R.A.W. = RAW 41" #6	
260	M3-27		27 June '74		15 ^m			103a-E	RG 2										TA

* see next page for plates taken while book missing

Plate #	Object	1950 α, δ	UT Date	UT/HA	Exp	Guide Star	Plate Holder	Emulsion	Filter	P.A.	Tel	Seeing	Trans	Temp °C	Focus	Flush	Config	Obs.	Remarks
261	M3-27		27 June '74		45 ^m			103a-E	RG 2									TA	
262	3C 351	17 ^h 04.1 +68° 49'	16 Sept 74	^{mid exp} mid exp +2:45	1 ^h			IIa-0	B			1.5"						DGM	for Hobbs
263	"	"	"	^{mid exp} mid exp +3:59	1 ^h			103a-G	V			1.5"						DGM	"
264	NGC 6791	19 ^h 19.9 +37° 18'	18 Sept 74	mid exp. +1:09	2 ^h			103a-G	V			3"						DGM	"
265	"	"	"	" +2:52	1 ^h			IIa-0	B			3.5"						DGM	"
266	NGC 2264		4 Mar. 75	UT 0315	30 ^m			IIa-0	—									HM	vac. 8x10
267	M-101		"	UT 0600	20 ^m			"	—									HM	vac. 8x10
268	NGC 4151		"	UT 0815	30 ^m			"	—									HM	vac. 8x10
The following 4 plates were taken while this book was misplaced and not recorded until much later — many other unrecorded plates also taken during this period!																			
269	G 141-4	18:19.7 +6° 19'	5 Nov. '73		15 ^m			IIa-0	B									RS	
270	"	"	"		"			IIa-D	V									RS	
271	G 130-43	0:04.8 +28° 59'	21 Dec '73		40 ^m			IIa-0	B									RS	A few dozen other plates taken during this period were later found. See last page of log.
272	"	"	"		40 ^m			IIa-D	V									RS	
1975																			
273	IC 4665	17:45 +5° 45'	20 June	-0:28	1 ^m	vac	103a-0	—	S	W	5"	p	20	1.01	—			KC	8x10 flat
274	"	"	"	-0:09	1 ^m	vac	IIa-0	—	"	"	5"	p	21	1.01	—			KC	8x10 vac
275	"	"	"	+0:32	1 ^m	vac	IIa-0	—	"	"	5"	p	21	0.62	—			KC	8x10 vac f/13.5
276	"	"	"	+0:40	1 ^m	vac	103a-0	—	"	"	5"	p	21	0.62	—			KC	8x10 flat f/13.5
277	W 851	18:39 +0° 56'	"	+0:36	2x1 ^m		1	IIa-0	—	"	"	2"	p	21	1.01	—		KC	
278	IC 4665	17:45 +5° 45'	"	+1:48	2 ^m	vac	IIa-0	—	"	"	2"	p	21	1.01	—			KC	8x10 vac
279	NGC 6853	19:58.4 +22° 38'	"	end +0:04	10 ^m		3	IIa-0	—	"	"	2"	p	21	1.01	—		KC	
280	IC 4665	17:45 +5° 45'	27 June	-0:23	6x1 ^m	vac	IIa-0	—	"	"	4"	Cloud	—	var	—			KC	8x10 vac focus plate
281	"	"	28 June	-1:00	6x1 ^m	vac	103a-0	—	"	"	3-4"	—	—	var	—			KC	8x10 flat focus plate

plate no.	Object	α, δ (1950)	(UT) date 1975	UT/HA and	Exp.	Guide *	plate holder	Emulsion	Filter	P.A.	Tel.	Seeing F	Trent.	Temp.	Focus	Flash	Config.	Obs.	Remarks
282	IC 4665	17:45 +5°45'	28 June	/ -0:20 -0:20	6x1 ^m		vac	103a-0	-	5	W	3-4"			var.	-		KC	8x10 flat f/13.5 focus plate
283	"	"	29 June	/ -1:37	6x1 ^m		vac	IIa-0	-	"	"	3"			var	-		KC	8x10 vac f/13.5 focus plate
284	W 851	18:39 +0°56'	"	/ -1:00	2x4 ^m		1	"	-	"	"	3"			0.62	-		KC	f/13.5
285	"	"	"	/ -0:17	2x2 ^m		3	"	-	"	"	3"			1.01	-		KC	
286	NGC 6853	19:58 +22°38'	"	/ -0:46	30 ^m		4	"	-	"	"	3"			1.01	-		KC	
287	Comet 1975 h	13:10.5 +53°00' (75)	4 Aug.	/ +4:25	30 ^s		vac	IIa-0	-	"	"	3"	f-g		1.01	-		KC	8x10 vac / broken
288	"	"	"	/ +4:40	4 ^m		vac	"	-	"	"	3"	"		1.01	-		KC	8x10 vac
289	M 92	17 ^h 15 ^m +43°10'	"	/ +0:57	2 ^m		vac	"	-	"	"	1-2"	"		1.01	-		KC	8x10 vac
290	W 851	18:39 +0°56'	"	/ -0:10	2x2 ^m		1	"	-	"	"	2"	"		1.01	-		KC	
291	W 851	"	"	/ +0:25	2x5 ^m		3	"	-	"	"	2-3"	"		0.63	-		KC	f/13.5
292	NGC 6853	19:58 +22°38'	"	/ +0:20	30 ^m		4	"	-	"	"	2-3"	"		1.01	-		KC	
293	Comet 1975 h	12:28 +48°30'	9 Aug	/ +5:21	4 ^m		vac	"	-	"	"	5"	"		1.02	-		KC	8x10 flat
294	"	"	"	/ +5:33	4 ^m		"	103a-G	-	"	"	5"	"		1.02	-		KC	8x10 flat - old plate
295	W 851	18:39 +0°56'	"	/ +0:04	2x2 ^m		1	IIa-0	-	"	"	3"	"		1.01	-		KC	
296	AFCRL 803- 2935	21:00 +36°30'	"	/ -1:51	30 ^s , 5 ^m		3	"	-	"	"	3-5"	"		1.01	-		KC	
297	Nova Cyg 1975	21:10. +48°03'	3 Sept.	/ -2:39	1 ^m		1	"	-	"	"	2.5"	"		1.01	-		KC	m v v 5
298	"	"	"	/ -2:29	5 ^m		3	"	-	"	"	"	"		1.01	-		KC	"
299	W 851	18:39 +0°56'	6 Sept.	/ +0:15	2x5 ^m		1	"	-	"	"	5"	"		0.63	-		KC	f/13.5
300	"	"	"	/ +0:48	2x3 ^m		3	"	-	"	"	2-3"	"		1.01	-		KC	
301	"	"	7 Sept	/ +0:08	2x3 ^m		1	"	-	"	"	2"	"		1.01	-		KC	
302	"	"	"	/ +0:38	2x5 ^m		3	"	-	"	"	2"	"		0.63	-		KC	f/13.5
303	G 141-4	18:19.7 +6°19'	2 Oct.	/ +2:02	15 ^m		1	"	B	"	"	5"	g		1.02	-		KC	
304	"	"	"	/ +2:29	15 ^m		2	IIa-D	V	"	"	5"	"		1.02	-		KC	

Plate No.	Object	α, δ (1950)	Date (UT)	UT/HA end	Exp.	Guide *	plate holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans.	Temp.	Focus	Flash	Obs.	Remarks
305	G130-43	1975 0:04.8 +28°59'	20 Oct.	/-1:03	40 ^m		3	IIa-0	B	S	W	6"	g		1.01	-	KC	
306	Nova Cyg 1975	21 ^h 10 ^m +48°0'	30 Oct.	/-1:13	10 ^m		1	"	-	"	"	1-2"	g		1.01		KC	
307	NGC 6853	19:58 +22°38'	"	/+0:46	30 ^m		3	"	-	"	"	"	"		1.01		KC	
308	G130-43	0:04.8 +28°59'	"	/-1:05	40 ^m		4	IIa ^d D	V	"	"	2-3"	"		1.01		KC	
309	NGC 6853	19:58 +22°38'	40 Oct.	/+0:51	40 ^m		1	IIa-0	-	"	"	2-3"	"		"		KC	
310	M 15	21:27.6 +11°57'	"	/-0:18	10 ^m		3	"	-	"	"	2"	"		"		KC	
311	NGC 6853	19:58 +22°38'	5 Oct.	/+1:04	60 ^m		1	"	-	"	"	2"	"		"		KC	
312	M 15	21:27.6 +11°57'	"	/-0:06	7 ^m		3	"	B	"	"	2"	"		"		KC	
313	3C351	17:04.1 +60°48'29"	8 OCT	/+3:15	10 ^m		1	IIa0	B	"	"	4-5"	"		1.01		GC	
314	3C351	" " "	8 OCT	/+3:30	10 ^m		4	103aG	V	"	"	4-5"	"		1.01		GC	
315	3C351	" " "	10 OCT	/+4:25	30 ^m		1	IIa0	B	"	"	3-4"	"		"		GC	
316	3C432	21:20:25 +16°58'	" "	/+2:05	60 ^{min}		3	IIa0	B	"	"	"	"		"		G.C.	
317	PKS2344+09	22:16:16 -3°43'10"	" "	/+1:16	30 ^{min}		4	IIa0	B	"	"	"	"		"		GC	
318	3C9	0:17:48 +15°24'	" "	/+2:25	60 ^{min}		1	103a0	B	"	"	"	"		"		GC	
319	3C351	" " "	11 OCT	/+3:35	15 ^m		1	103a0	B	"	"	3-4"	"		"		GC	
320	3C351	" " "	" "	/+4:23	30 ^m		1	103aG	V	"	"	"	"		"		GC	
321	PKS2216-03	22:16:16 -3°50'41"	" "	/+1:40	45 ^m		3	103a0	B	"	"	"	"		"		GC	
322	PHL5200	22:25:51 -5°34'0"	" "	/+1:40	45 ^m		4	103a0	B	"	"	"	"		"		GC	
323	3C9	0:17:48 +15°24'	" "	/+1:48	60 ^m		1	103.0	B	"	"	"	"		"		GC	
324	3C351	17:04:01 +60°48'29"	12 OCT	/+3:25	15 ^m		4	103a0	B	"	"	"	"		"		GC	
325	3C351	" " "	" "	/+3:59	30 ^m		1	103aG	V	"	"	"	"		"		GC	
326	3C432	21:16:16 -3°43'10"	" "	/+1:49	75 ^m		3	IIa0	B	"	"	"	"		"		GC	
327	3C9	0:17:48 +15°24'	" "	/+0:10	30 ^m		1	IIa0	B	"	"	"	"		"		GC	
328	3C9	" " "	" "	/+1:25	75 ^m		3	IIa0	B	"	"	"	"		"		GC	

PLATE NO.	OBJECT	L, B (1950)	DATE (UT)	UT/HA END	EXP	GUIDE *	PLATE NUMBER	EMUL-SION	FILTER	PA	TEL	SEEING	TRAN.	TEMP	FOCUS	FLASH	OBS	REMARKS
30	329	PKS 2344+09	22:16:16 -3°43'10"	12 OCT 1975	1+3:25	30 ^m	4	103a0	B		W	2-3	g	1.01			GC	
30	330	3C351	" "	30 OCT 1975	1+4:37	15 ^m	1	103a0	B		W	3-4	g	"			GC	
30	331	3C351	" "	" "	1+5:02	30 ^m	3	103aG	V		W	3-4	g	"			GC	
30	332	3C432	" "	" "	1+2 ^h 47 ^m	60 ^m	4	IIa0	B		W	3-4	g	"			GC	
30	333	PKS 2344+09	" "	" "	1+1 ^h 59 ^m	20 ^m	1	103a0	B		W	3-4	g	"			GC	
31	334	3C9	" "	" "	1+3 ^h 15 ^m	75 ^m	3	IIa0	B		W	3-4	g	"			GC	
3	335	3C351	" "	31 OCT 1975	1+4 ^h 30 ^m	25 ^m	4	IIa0	B		W	4-6	f	"			GC	
31	336	3C351	" "	" "	1+5 ^h 5 ^m	30 ^m	2	103aG	V		W	4-6	f	"			GC	
31	337	PKS 2344+09	" "	" "	10:00	20 ^m	1	IIa0	B		W	4-6	f	"			GC	
31	338	3C351	" "	2 NOV 1975	1+4:35	25 ^m	1	IIa0	B		W	3-4	f	"			GC	
31	339	3C351	" "	" "	1+5:15	30 ^m	2	103aG	V		W	3-4	f	"			GC	
31	340	3C351	" "	5 NOV 1975	1+4:55	15 ^m	1	103a0	B		W		f	"			GC	
31	341	3C351	" "	" "	1+5:27	30 ^m	2	103aG	V		W		f	"			GC	
31	342	PKS 2344+09	" "	" "	1+0:27E	20 ^m	3	103a0	B		W		f	"			GC	
31	343	3C351	" "	6 NOV 1975	1+4:55	15 ^m	2	103a0	B		W		f	"			GC	
32	344	3C351	" "	" "	1+5:30	30 ^m	1	103aG	V		W		f	"			GC	
32	345	PKS 2344+09	" "	" "	1-0:20	30 ^m	3	103a0	B		W		f	"			GC	
32	346	3C9	" "	" "	1+1:00	75 ^m	4	IIa0	B		W		f	"			GC	
32	347	240039.5+4003	0:39:30 40°18'13"	" "	12:05	30 ^m	4	103a0	B		W		f	"			GC	
32	348	PKS 2344+09	" "	9 JAN 1976	12:15	25 ^m	1	103a0	B		W		g	"			GC	
32	349	OJ 287	8:53:23 +20°12'16"	10 JAN 1976	1-1:10	30 ^m	1	103a0	B		W		g	"			GC	
32	350	OJ 287	" "	" "	1-0:05	45 ^m	1	103a0	B		W		g	"			GC	
30	351	3C273	12:27:51 +2°11'24"	" "	1-3:05	15 ^m	1	103a0	B		W		g	"			GC	
30	352	3C273	" "	" "	1-2:30	20 ^m	1	103aG	V		W		g	"			GC	

PLATE NO.	OBJECT	α, δ (1950)	DATE UT 1976	U.T./H.A. END	EXP.	GUIDE PLATE STAR HOLD.	EMULSION	FILTER	PA	TEL.	SEEING	TRANS. TEMP	FOCUS	FLASH	OBSERVER	Notes
																Mirrors recoated March 1976
353	Pleiades	$3^h 44^m 35^s$ $+15^{\circ} 51' 7''$	Jan 25	$1^m 0^s / 0^h 15^m$ $1^m 9^s / 0^h 1^m$	$1^m 15^s$ 5m	1 1	IIa-O	B U		W	5-7	F-9 -1°C	1.01		AW	Combined U&B exposure on one plate offset 40s.
354	NGC 2506	$7^h 57^m 8^s$ $-10^{\circ} 39'$	Jan 25	$6^m 5^s / 1^h 35^m$ $6^m 12^s / 1^h 42^m$	5m 5m	3	IIa-O	B U		W	2-3	9 -3	1.01		AW	Forgot to offset offset U&B
355	NGC 2506	"	Jan 25	6 30 / 1 59 $6^m 30^s / 1^h 59^m$ $6^m 36^s / 2^h 5^m$	20m 5m	4	IIa-O	U B		W	2-3	9 -3	1.01		AW	
356	OJ 287	"	JAN 27	$1^h 40^m$	30m	1	103aU	B		W	4-5	g	1.01		GC	
357	3C 273	"	JAN 27	$1^h 15^m$	15m	3	103aD	B		W	4-5	g	1.01		GC	
358	3C 273	"	JAN 27	$1^h 45^m$	20m	4	103aG	V		W	4-5	g	1.01		GC	
359	OJ 287	"	FEB 7	$1^h 30^m$	30m	1	103aD	B		W	3-4	f	1.01		GC	
360	PKS 0922+14	"	"	$1^h 45^m$	60m	2	103aD	B		W	3-4	f	1.01		GC	
361	3C 273	"	"	$1^h 20^m$	15m	3	103aD	B		W	3-4	f	1.01		GC	
362	3C 273	"	"	$1^h 05^m$	20m	4	103aG	V		W	3-4	f	1.01		GC	
363	OJ 287	"	FEB 24	$1^h 00^m$	30m		103aU	B		W	3-4	f	1.01		GC	
364	OJ 287	"	FEB 24	$1^h 15^m$	45m		103aG	V		W	3-4	f	1.01		GC	
365	38 LYN (1976)	$9^h 17^m 21^s$ $+36^{\circ} 54' 11''$	FEB 26	$1^h 20^m$	4m		103aD	-		W	6-8	p			GC	T grating clouds/haze
366	"	"	FEB 26	$1^h 25^m$	10m		IIaO	-		W	6-8	p			GC	T grating clouds/haze
367	"	"	FEB 26	$1^h 45^m$	10m		IIaO	-		W	6-8	p			GC	T grating clouds/haze
368	CASTOR	"	FEB 28	$1^h 30^m$	30m		IIIaJ	-		W	6-8	p			GC	T grating clouds/haze
369	3C 273	"	FEB 28	$1^h 00^m$	15m		IIIaJ	-		W	6-8	p			GC	T grating clouds/haze
370	HD 19098	"	FEB 29	$1^h 00^m$	4m		IIIaJ	-		W	4-5	p			GC	T grating WR stars - haze clouds Mirrors re-aluminized
371	M82	$9^h 51^m 9^s$ $+69^{\circ} 56'$	19 May 76	14:50 - 16:02 UT	1h 10m		103aE	RG-1							CMT.	looks toward NW of large H.A. ; seeing dista suddenly increased in size by x5 ; may have been due to looking over rooftop air conditioner.
372	M82	"	20 May 76	14:42 - 16:32 UT	1h 50m		103aE	RG-1							CMT.	
373	A0	$13^h 41^m 20^s$ $+54^{\circ} 02' 29''$	MAY 20, 76		15m	1	103aD	B		W	2	f			GC	
374	NGC 5548	$14^h 16^m 8^s$ $+25^{\circ} 15'$	MAY 21, 76		10m		103aD	B		W	2	f			GC	

PLATE NO.	OBJECT	α, δ (1950)	DATE VT	V.T./HA END	EXP.	GUIDE STAR	PLATE HOLD	EMUL	FILTER	PA	TEL	SEEING	TRAN TRANS	TEMP	FOCUS FLASH	OBSERVER	NOTES
375	AD	$13^{\circ}41' - 26^{\circ}$ $+54^{\circ}0'29''$	5/25/76		2 min B 13 min UV			103a0	B UV		W	3"	g	1.04		G.C.	
376	NGC 4151		5/25/76					103a0	B UV		W	3"	g	1.04		G.C.	
377	NGC 4151		5/25/76		5 min			103a0	B		W	3"	g	1.04		G.C.	
378	3C 351		5/25/76		15 min			103a0	B		W		g	1.04		G.C.	
379	3C 351		5/25/76		14 min			103a0	V		W		g	1.04		G.C.	
380	3C 351		5/25/76		15 min			103a0	UV		W		g	1.04		G.C.	
381	OJ 287		5/26/76		20 min			103a0	B		W		g	1.04		G.C.	
382	3C 273		5/26/76		15 min			103a0	V		W		g	1.04		G.C.	
383	3C 273		5/26/76		10 min			103a0	B		W		g	1.04		G.C.	
384	3C 273		5/26/76		15 min			103a0	UV		W		g	1.04		G.C.	
385	3C 351		5/26/76		15 min			103a0	V		W		g	1.04		G.C.	double image
386	3C 351		5/26/76		15 min			103a0	B		W		g	1.04		G.C.	double image
387	3C 351		5/26/76		20 min			103a0	UV		W		g	1.04		G.C.	double image
388	C 2	$12^{\circ}10'20''$ $+40^{\circ}50'$	6/3/76		20 min			103a0	B		W		g	1.04		G.C.	
389	NGC 5899		6/3/76		10 min			103a0	B		W		g	1.04		G.C.	
390	3C 351		6/3/76		14 min			103a0	B		W		g	1.04		G.C.	
391	3C 351		6/3/76		20 min			103a0	V		W		g	1.04		G.C.	
392	3C 351		6/3/76		20 min			103a0	B		W		g	1.04		G.C.	
393	3C 273		6/4/76		12 min			103a0	B		W		g	1.04		G.C.	
394	3C 273		6/4/76		15 min			103a0	V		W		g	1.04		G.C.	
395	3C 273		6/4/76		20 min			103a0	B UV		W		g	1.04		G.C.	
396	C 3	$12^{\circ}18'20''$ $+40^{\circ}10'$	6/4/76		15 min			103a0	B		W		g	1.04		G.C.	
397	NGC 5893		6/4/76		15 min B 80 min UV			103a0	B UV		W		g	1.04		G.C.	

PLATE NO	SUBJECT	L S (1950)	DATE UT 1976	U.T./H.A. END	EXP	GUIDE STAR	PLATE HOLDER	EMUL	FILTER	PA	TEL	SEEING	TRANS	TEMP	FOCUS	FLASH	OBSERVER	NOTES
398	3C351		6/5/76		20 min.			103a0	B			2"					GC	
399	3C351		6/5/76		30 min.			103aG	V			2"					GC	
400	3C351		6/5/76		30 min.			103a0	VV			2"					GC	
401	3C273		6/26/76		15 min.			103a0	B			2"					GC	
402	3C273		6/26/76		20 min.			103aG	V			2"					GC	
403	3C351		6/26/76		20 min.			103a0	B			2"					GC	double image
404	3C351		6/26/76		30 min.			103aG	V			2"					GC	double image
405	M92	17 ^h 16 ^m 43 ^s	29 June	05:01 UT, 0 ^h 20 ^m	10 min			103aG	V	S	W	~2"		1.04		AVK CLB	double image	
406	M92	17 ^h 16 ^m 43 ^s	3 July	05:40 UT, 1 ^h 17 ^m	15 min			IIa-0	B	S	W			1.07		CLB AVK		
407	M92	"	"	06:10 UT, 1 ^h 45 ^m	15 min			IIa-0	B	S	W			1.07		CLB AVK		
408	NGC 381	1 ^h 5 ^m 2 ^s +61°19'	4 July	08:32 UT, 3 ^h 54 ^m	15 min			IIa-0	B	S	W			1.07		CLB AVK		
409	"	"	"	08:48 UT, 3 ^h 24 ^m	10 min			IIa-0	B	S	W			1.07		CLB AVK		
410	3C351	"	7/7/76		25 min.			103a0	B	S	W	3"		1.07			GC	
411	3C351	"	7/7/76		30 min.			103aG	V			3"		1.07			GC	
412	M92		7/9/76		10 min.			103a0	B			5"		1.08			GC	
413	3C351	"	7/9/76		22 min.			103aG	V			W		1.08			GC	
414																	HM	
415																	HM	
416																	HM	
417																	HM	
418																	HM	
419	NGC 381	1 ^h 5 ^m 2 ^s +61°19'	25 July	07:22 UT, -3 ^h 26 ^m	15 min		3	103a-G	V	S	W			1.06		CLB+ AVK	images slightly elliptical	
420	NGC 381	"	"	-3 ^h 06 ^m	15 min		4	103a-G	V	S	W			1.06		CLB/AVK	(plates 419-22 affected by guiding errors)	

PLATE NO.	OBJECT	α, δ [1950]	DATE (UT) 1976	U.T., H.A. end	EXPOSURE	GUIDE STAR	PLATE HOLDER	EMULSION	FILTER	PA	TEL	seeing	TRANS.	TEMP	FOCUS	FLASH	OBSERVERS	Comments
421	NGC 381	$1^h 5^m 2$ $+61^{\circ} 19'$	25 July	08:05UT, $-2^h 44^m$	15 min		1	IIa-O	B	S	W				1.06		CLB/AVK	images slightly elliptical
422	NGC 381	"	"	08:25UT, $-2^h 24^m$	15 min		2	IIa-O	B	S	W				1.06		CLB/AVK	" " "
423	NGC 381	"	26 July	06:03UT, $-4^h 42^m$	15 min		1	IIa-O	B	S	W				1.07		CLB/AVK	images seem OK
424	NGC 381	"	"	07:36, $-3^h 09^m$	15 min		1	IIa-O	B	S	W				1.07		CLB/AVK	
425	NGC 381	"	"	08:09, $-2^h 37^m$	25 min		4	103a-G	V	S	W				1.07		CLB/AVK	
426	NGC 381	"	"	08:41, $-2^h 04^m$	25 min		2	103a-G	V	S	W				1.07		CLB/AVK	
427	NGC 381	"	27 July	07:42, $-3^h 00^m$	15 min		2	IIa-O	B	S	W				1.08		CLB/AVK	
428	NGC 381	"	"	08:04, $-2^h 37^m$	15 min		1	IIa-O	B	S	W				1.08		CLB/AVK	
429	NGC 381	"	"	08:21, $-2^h 20^m$	15 min		3	IIa-O	B	S	W				1.08		CLB/AVK	
430	NGC 381	"	"	08:52, $-1^h 50^m$	25 min		4	103a-G	V	S	W				1.08		CLB/AVK	
431	NGC 381	"	1 AUGUST	07:22, $-3^h 01^m$	25 min		1	103a-G	V	S	W				1.07		CLB/AVK	
432	NGC 381	"	"	07:51, $-2^h 31^m$	25 min		2	103a-G	V	S	W				1.07		CLB/AVK	
433	NGC 381	"	"	08:24, $-2^h 02^m$	25 min		3	103a-G	V	S	W				1.07		CLB/AVK	
434	NGC 381	"	"	08:55 $-1^h 25^m$	25 min		4	103a-G	V	S	W				1.07		CLB/AVK	
435	NGC 7078 (M15)	$21^h 29^m 1$ $12^{\circ} 05'$	Aug 2	04:47 $-1^h 40^m$	15 min	$\frac{-45}{+25}$	1	IIa-O	U	S	W	$\sim 2''$		180	1.07		AW	
436	"	"	"	05:05 $-1^h 22$	8 min		2	IIa-O	B	S	W	$\sim 2''$		180	1.07		AW	
437	NGC 381	$1^h 5^m 2$ $+61^{\circ} 19'$	AUG 7	05:45 $-3^h 58^m$	25 min		1	103a-G	V	S	W				1.07		CLB	
438	"	"	"	06:17 $-3^h 36^m$	25 min		2	"	"	"	"				"		"	
439	"	"	"	06:48 $-3^h 8^m$	25 min		3	"	"	"	"				"		"	
440	"	"	"	07:20 $-2^h 38^m$	25 min		4	"	"	"	"				"		"	
441	NGC 7078 (M15)	$21^h 29^m 1$ $12^{\circ} 05'$	Sept 4	04:00 $-0^h 30^m$	2 min		4	IIa-O	B	S	W			150	1.07		AW	
442	"	"	"	04:10 $-0^h 20^m$	1 min		3	IIa-O	B	S	W				"		"	
443	"	"	"	04:20 $-0^h 10^m$	7 min		2	IIa-O	U	S	W				"		"	

PLATE No.	OBJECT	α, δ	DATE 1976-77	UT, HA end	exp	Grade ster	Plate holder	Emul.	Filter	PA	TEL	Seeing	trans	temp °C	Focus	FLASH	OBS.	Comments
444	π 7078 (M15)	$21^{\circ} 29'.1$ $12^{\circ} 05'$	Sept 4	04:40 $0^{\text{h}} 10^{\text{m}}$	2 min		1	IIa-O	V	S	W	Poor	Good	15°	1.07		AW	
445	"	"	"	05:00 $0^{\text{h}} 30^{\text{m}}$	1.5 min		4	103a-G	V	S	W	"	"	"	"		AW	
446	"	"	"	05:25 $0^{\text{h}} 55^{\text{m}}$	7 min		3	103a-G	5007 $\Delta\lambda = 75\text{\AA}$	S	W	"	"	"	"		AW	
447	"	"	"	05:40 $1^{\text{h}} 15^{\text{m}}$	15 min		2	103a-G	"	S	W	"	"	"	"		AW	
448	"	"	"	06:00 $1^{\text{h}} 30^{\text{m}}$	3 min		1	103a-G	V	S	W	"	"	"	"		AW	
449	M42= NGC 1976	$5^{\text{h}} 34.7$ $-5^{\circ} 24'$	Feb. 22 1977	0140	1 ^m		1	IIa-O	B	S	W	2-5"	f	0°	1.06	-	KC	
450	"	"	"	0145	2 ^m		2	"	B	S	W	"	f	"	"	-	KC	
451	"	"	"	0150	5 ^m		3	"	B	S	W	"	f	"	"	-	KC	
452	"	"	"	0200 $+0:45$	10 ^m		4	"	B	S	W	"	f	"	"	-	KC	
453	M67= NGC 2682	$8^{\text{h}} 49.7$ $+11^{\circ} 54'$	"	0330	2 ^m		1	"	B	S	W	"	f	"	"	-	KC	
454	"	"	"	0335	2 ^m		2	"	V	S	W	"	f	"	"	-	KC	
455	"	"	"	0345 $-0:45$	8 ^m		3	"	V	S	W	"	f	"	"	-	KC	
466	Orion Nebula M42	$5^{\text{h}} 32.8$ $-5^{\circ} 24'$	Mar 8 1977	0200	20 ^m		1	IIa-D	V	S	W	2-3"	f	20°	1.05	-	RS	
467	"	"	"	0220	20 ^m		2	IIa-O	B	S	W	2-4"	f-p	"	"	-	RS	
468	"	"	Mar 9	0130	20 ^m		2	IIa-D	V	S	W	1-2"	f	21°	1.07	-	RS	
469	"	"	"	0155	15 ^m		3	IIa-O	B	S	W	"	f	"	1.07	-	RS	
470	"	"	"	0205	18 ^m		4	IIa-D	V	S	W	"	f	"	1.07	-	RS	
471	NGC 6246A	$16^{\text{h}} 49^{\text{m}}$ $+55^{\circ} 28'$	JUNE 23 1977		25 ^m		1	IIa-O	B	S	W	~4"	P				GC	
472	" "	" "	" "		30 ^m		2	IIa-O	NF	S	W	"	P				GC	
473	" "	" "	" "		30 ^m		3	IIa-O	NF	S	W	"	P				GC	
474	HM Sge	$19^{\text{h}} 40.9$ $+16^{\circ} 41.3$	8/9/77		10 min.		3	103a-G	V		W	~3"	f				DEW	plate 1/2 exposed
475	HM Sge	"	"		20 min.		4	103a-G	V		W	~3"	f				DEW	plate 1/2 exposed
476	M 92	$17:15.6$ $+42^{\circ} 12'$	Sept. 6	$17:05$	5 ^m		1	IIa-O	B	S	W	2-3"	f	19	1.08	-	KC	

Plate No.	OBJECT	α, δ (1950)	Date UT 1977-	UT / HA end	exp	Guide star	Plate holder	exposure	Filter	PA	Tel	seeing	trans	temp °C	Focus	Flash	OBS.	Remarks
477	M 92	17:15.6 +43°12'	Sept 6	/+2:20	10 ^m	2	IIa-O	B	S W	2-3"	g	+19	1.08	-	KC			
478	M 92	"	"	/+2:40	10 ^m	4	103a-G	V	S W	"	"	"	"	-	KC			
479	M 15	21:27.6 +11°57'	"	/+0:27	10 ^m	3	IIa-O	B	S W	2" ±	"	+18	1.07	-	KC			
480	"	"	"	/+1:05	10 ^m	1	103a-G	V	S W	2" ±	"	+18	1.07	-	KC			
481	M 92	17:15.6 +43°12'	Sept. 7	/+1:59	10 ^m	1	IIa-O	B	S W	1-2"	f	+22	1.08	-	KC			
482	"	"	"	/+2:10	10 ^m	2	IIa-O	B	S W	"	"	"	"	-	KC			
483	"	"	"	/+2:18	5 ^m	3	103a-G	V	S W	"	"	"	"	-	KC			
484	"	"	"	/+2:29	5 ^m	4	103a-G	V	S W	"	"	"	"	-	KC			
485	M 15	21:27.6 +11°57'	"	/-0:07	10 ^m	1	IIa-O	B	S W	"	"	+21	1.07	-	KC			
486	"	"	"	/+0:02	5 ^m	2	103a-G	V	"	"	"	"	"	-	KC			
487	"	"	"	/+0:09	5 ^m	3	103a-G	V	"	"	"	"	"	-	KC			
488	M 92	17:15.6 +43°12'	Sept. 9	/+1:52	10 ^m	1	O	B	S W	2-5"	g	+22	1.08	-	KC			
489	M 92	"	"	/+2:02	6 ^m	2	G	V	"	"	"	"	"	-	KC			
490	M 92	"	"	/+2:10	6 ^m	3	G	V	"	"	"	"	"	-	KC			
491	☉ Kohler 1977m	16:33.4 +18:03	Oct. 4	/+3:14	5 ^m	1	IIa-O	B	S W	1"	g	+14	1.07	-	KC			
492	M 92	17:15.6 +43°12'	"	/+2:53	8 ^m	2	O	B	"	"	"	"	"	-	KC			
493	"	"	"	/+3:00	4 ^m	3	G	V	"	"	"	"	"	-	KC			
494	"	"	"	/+3:06	4 ^m	4	G	V	"	"	"	"	"	-	KC			
495	M 15	21:27.6 +11°57'	"	/-0:19	8 ^m	1	O	B	"	"	"	"	"	-	KC			
496	"	"	"	/-0:12	4 ^m	2	G	V	"	"	"	"	"	-	KC			
497	"	"	"	/-0:06	4 ^m	3	G	V	"	"	"	"	"	-	KC			
498	M 15	"	"		5 ^m	2	IIaD	-	"	"	"	"	"	.92	-	GC	I ²	
499	" "	"	"		2 ^m	2	IIIaJ	-	"	"	"	"	"	.92	-	GC	I ²	
500	"	"	"		2 ^m	1	IIaD	-	"	"	"	"	"	.92	-	GC	I ²	

PLATE #	OBJECT	1977 DATE U.T.	UT / H.A. and	EXP.	GUIDE STAR	PLATE HOLDER	EMULSION	FILTER	P.A.	TEL	SEEING	TRANS	TEMP °C	FOCUS	FLASH	OBS	REMARKS
501	MRK 1	2, 8 (1950)		1 min		2	Rad	—	S	W	1"	g	+14	.92	—	GC	I ²
502	MRK 358	13.4 ^m +32° 50'		1 min		1	Rad	—	"	W	1"	g	+14	.92	—	GC	I ²
503	M 92	17:15.6 +43:12	Oct. 6	10 ^m		1	O	B	S	W	2-3"	g	+12	1.07	—	KC	
504	"	"	"	5 ^m		3	G	V	"	"	"	"	"	"		"	
505	"	"	"	5 ^m		4	G	V	"	"	"	"	"	"		"	
506	M 15	21:27.6 +11:57	"	10 ^m		2	O	B	"	"	"	"	"	"		"	
507	"	"	"	10 ^m		1	O	B	"	"	"	"	"	"		"	
508	"	"	"	5 ^m		2	G	V	"	"	"	"	"	"		"	
509	"	"	"	5 ^m		3	G	V	"	"	"	"	"	"		KC	
510	M 92	17:15.6 +43:12	Oct. 7	5 ^m		1	G	V	S	W	3"	g	+12	1.07	—	KC	
511	"	"	"	5 ^m		2	G	V	"	"	"	"	"	"		"	
512	M 15	21:28.6 +11:57	"	5 ^m		3	G	V	"	"	"	"	+11	"		"	
513	"	"	"	5 ^m		4	G	V	"	"	"	"	"	"		KC	
514	M 15	"	"	5 ^m		1	Rad	5200 _v	"	"	"	"	"	.92	—	GC	I ² good plate
515	"	"	"	5 ^m		2	Rad	4450 _B	"	"	"	"	"	"	—	GC	I ² works well in B
516	"	"	"	5 ^m		3	Rad	3500 _v	"	"	"	"	"	"	—	GC	I ² down by about 2 mag.
517	MRK 543	"	"	1 ^m		1	Rad	—	"	"	"	"	"	.92	—	GC	I ²
518	MRK 348	"	"	1 ^m		2	Rad	—	"	"	"	"	"	"	—	GC	I ²
519	MRK 335	"	"	1 ^m		3	Rad	—	"	"	"	"	"	"	—	GC	I ²
520	M 33	"	"	1 ^m		1	Rad	—	"	"	"	"	"	"	—	GC	I ²
521	MRK 331	"	OCT 18	1 ^m		1	Rad	—	"	"	3-4	g-f	"	.94	—	GC	I ²
522	MRK 565	"	"	1 ^m		2	Rad	—	"	"	"	"	"	"	—	GC	I ²
523	MRK 551	"	"	1 ^m		3	Rad	—	"	"	"	g-f	"	"	—	GC	I ²
524	MRK 343	"	"	1 ^m		1	Rad	—	"	"	"	g-f	"	"	—	GC	I ²

plate no.	OBJECT	α, δ (1950)	UT Date 1977	UT/HA end	EXP.	Guide star	plate holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans.	Temp °C	Focus	Flash	OBS.	REMARKS
525	M 15	21 ^h 27.3 ^m +11°57'	3 Dec	23:44/1:13	5 ^m		1	G	V	S	W	3"	f	-7	1.07	-	KC	
526	"	"	"	23:51/1:20	5 ^m		2	G	V	S	W	3"	f	-7	1.07	-	KC	
527	"	"	"	23:57/1:26	5 ^m		3	G	V	S	W	3"	f	-7	1.07	-	KC	
528	M 3	13 ^h 40 ^m +28°38'	1978 5 Apr.	05:03/-1:39	10 ^m	+4 32	1	O	B	S	W	2"	f	+8	1.07	-	KC	
529	"	"	"	05:17/-1:25	10 ^m	"	2	O	B	"	"	"	"	"	"	-	"	
530	"	"	"	05:41/-1:01	20 ^m	"	3	G	V	"	"	"	"	"	"	-	"	
531	"	"	"	06:04/-0:37	20 ^m	"	4	G	V	"	"	1-2"	"	"	"	-	"	
532	M 5	15 ^h 16 ^m +2°16'	"	07:13/-1:05	12 ^m	+28 30	4	G	V	"	"	1-2"	"	+8	"	-	"	Guide * w. ft.
533	"	"	"	07:28/-0:50	12 ^m	"	3	G	V	"	"	1-2"	"	"	"	-	"	"
534	"	"	"	07:39/-0:39	7 ^m	"	2	O	B	"	"	"	"	"	"	-	"	"
535	"	"	"	07:49/-0:29	7 ^m	"	1	O	B	"	"	"	"	"	"	-	"	"
536	M 13	16 ^h 40 ^m +36°33'	"	08:32/-1:10	7 ^m	+7 32	1	O	B	"	"	1-2"	"	"	"	-	"	
537	"	"	"	08:42/-0:59	7 ^m	"	2	O	B	"	"	"	"	"	"	-	"	
538	"	"	"	08:58/-0:43	12 ^m	"	3	G	V	"	"	"	"	"	"	-	"	
539	"	"	"	09:13/-0:28	12 ^m	"	4	G	V	"	"	"	"	"	"	-	KC	
540	M 3	13 ^h 40 ^m +28°38'	9 June	03:20/+0:54	15 ^m	+2 32	1	Da-0	B	S	W	2"	g	+19	1.08	-	KC	First use of van rate drive 3.07 looks good
541	"	"	"	03:40/+1:14	"	"	2	"	B	"	"	"	"	"	"	-	"	(3.07 a bit slow?)
542	M 5	15 ^h 16 ^m +2°16'	"	04:33/+0:31	12 ^m	+19 30	3	"	B	"	"	"	"	+18	1.08	-	"	checked focus - little change (3.075 on drive better)
543	"	"	"	04:50/+0:48	"	"	4	"	B	"	"	"	"	"	"	-	"	
544	M 13	16 ^h 40 ^m +36°33'	"	05:29/+0:04	3 ^m	+3 32	1	"	B	"	"	2-3"	"	+17	"	-	"	(3.08 on drive)
545	"	"	"	05:36/+0:11	3 ^m	"	2	"	B	"	"	2"	"	"	"	-	"	
546	"	"	"	05:45/+0:20	5 ^m	"	3	"	B	"	"	2"	"	"	"	-	"	
547	"	"	"	05:54/+0:29	5 ^m	"	4	"	B	"	"	2-3"	"	"	"	-	"	

Plate no.	OBJECT	α, δ (1950)	UT Date 1978	UT/HA end	Exp.	Guide +	Plate Holder	Emulsion	Filter	PA	Tel	Seeing	Trans	Temp °C	Focus	Flash	OBS.	REMARKS
548	M13	16 ^h 40 ^m +36° 33'	9 June	06:30/+1:05	12 ^m	+3 32	1	IIa-0	B	S	W	2-3"	g	17°	1.08	-	KC	
549	"	"	"	06:46/+1:21	"	"	2	"	B	"	"	"	"	"	"	-	"	
550	M92	17 ^h 15.6 ^m +43° 12'	"	07:00/+0:59	3 ^m	-13 30	3	"	B	"	"	"	"	"	"	-	"	← compare emulsions
551	"	"	"	07:06/+1:05	3 ^m	"	4	103a-0	B	"	"	"	"	"	"	-	KC	←
552	M5	15 ^h 16 ^m +2° 16'	11 June	03:21/-0:33	15 ^m	+19 30	2	103a-G	V	S	W	2-3"	f-p	+23	1.08	-	KC	circus, wind, airplane?
553	"	"	"	03:42/-0:12	"	"	1	103a-0	B	"	"	"	"	"	"	-	KC	" "
554	M5	"	16 June	03:05/-0:30	5 ^m	"	1	"	B	S	W	1-2"	f	+22	1.07	-	KC	clouds around; moon
555	M13	16 ^h 40 ^m +36° 33'	"	03:22/-1:36	1 ^m	+3 32	2	"	B	"	"	"	f	"	"	-	KC +RK	" "
556	M13	"	"	03:26/-1:32	1 ^m	"	3	"	B	"	"	"	f	"	"	-	KC +RK	" "
557	M92	17 ^h 16 ^m +43° 12'	"	03:38/-1:56	1 ^m	-13 30	4	"	B	"	"	"	f	"	"	-	KC+ RK	" "
558	"	"	23 July	04:58/+1:53	2 ^m	"	1	"	B	"	W	2"	f	+22°	1.07	-	GT+ RM	
559	"	"	"	05:13/+2:08	2 ^m	"	2	"	B	"	"	"	f	"	1.07	-	GT+ RM	
560	NGC 6517	17 ^h 59.2 ^m -8° 58'	"	06:26/+2:38	5 ^m	-22 33	3	"	B	"	"	"	"	"	"	-	GT+ RM	
561	M15	21 ^h 27.3 ^m 11° 57'	"	07:24/+0:08	2 ^m	-4 28	4	"	B	"	"	"	"	"	"	-	GT+ RM	
562	M15	"	"	07:50/+0:34	2 ^m	"	1A	"	B	"	"	"	"	"	"	-	GT+ RM	
563	NGC 6229	16 ^h 45.7 ^m 47° 37'	1 Aug	05:00/+2:59	8 ^m	-4 32	1	"	B	"	"	1-2"	"	+24°	1.07	-	GT+ RM	
564	"	"	"	05:15/+3:14	10 ^m	"	2	"	"	"	"	"	"	"	"	-	GT+ RM	
565	NGC 7006	25 ^h 59.1 ^m 16° 00'	"	06:01/0:17	8 ^m	-3 39	3	"	"	"	"	"	"	"	"	-	GT+ RM	clouds around
566	"	"	"	06:17/0:01	10 ^m	"	4	"	"	"	"	"	"	"	"	-	GT+ RM	" "
567	M15	21 ^h 27.3 ^m 11° 57'	"	07:16/0:32	5 ^m	-4 28	1A	"	"	"	"	"	"	"	1.07	-	GT+ RM	
568	"	"	"	07:28/0:44	"	"	2A	"	"	"	"	"	"	"	"	-	GT+ RM	
569	M92	17 ^h 16 ^m +43° 12'	10 Aug	03:26/1:27	5 ^m	-13 30	1	"	B	S	W	2"-3"	f	+22°	1.08	-	GT+ RM	
570	"	"	"	03:37/1:38	5 ^m	"	2	"	B	"	"	"	"	"	"	-	GT+ RM	

M13 5/13 + 9/38
M92 5/13 + 29/32

Plate no.	OBJECT	α, δ (1950)	UT Date 1978	UT / HA (end)	Exp	Guide *	Plate holder	emulsion	Filter	PA	Tel	seeing	Trans.	Temp. °C	Focus	Flash	OBS.	REMARKS
571	NGC 7006	20 ^h 59 ^m 16 ^s 00'	10 Aug	04:45 / -1 ^h 01 ^m	30 ^m	-3/39	3	103a-D	B	S	W	2"	f	22°	1.08	-	GT+ RM	
572	M 15	21 ^h 27 ^m 3 +11 ^o 57'	10 Aug	05:21 / -0 ^h 50 ^m	5 ^m	-4/28	4	"	"	"	"	"	"	21°	"	-	GT+ RM	
573	"	"	"	05:30 / -0 ^h 41 ^m	"	"	1A	"	"	"	"	"	"	"	"	-	GT+ RM	
574	NGC 6333 =M9	17 ^h 16 ^m 2 -18 ^o 28'	17 Aug	02:27 / +0 ^h 57 ^m	20 ^m	11/36	1	"	B	"	"	2"	"	22°	1.08	-	GT+ RM	Near full moon: bright sky
575	NGC 6356	17 ^h 20 ^m 7 -19 ^o 43'	"	03:04 / +1 ^h 25 ^m	20 ^m	16/40	2	"	"	"	"	"	"	"	"	-	GT+ RM	"
576	M 92	17 ^h 16 ^m +43 ^o 12'	"	03:30 / +2 ^h 00 ^m	5 ^m	-18/32	3	"	"	"	"	"	"	"	"	-	GT+ RM	"
577	"	"	"	03:38 / +2 ^h 08 ^m	"	"	4	"	"	"	"	"	"	"	"	-	GT+ RM	"
578	M 15	21 ^h 27 ^m 3 +11 ^o 57'	"	04:09 / -1 ^h 33 ^m +11 ^o 17 ^m	"	-4/28	1A	"	"	"	"	"	"	21°	"	-	GT+ RM	"
579	"	"	"	04:25 / -1 ^h 17 ^m	"	"	2A	"	"	"	"	"	"	"	"	-	GT+ RM	"
580	M 92	17 ^h 16 ^m +43 ^o 12'	20 Aug	02:39 / +1 ^h 21 ^m	"	-10/32	1	"	"	"	"	2"	f	23°	1.08	-	GT	Full moon: low in sky
581	"	"	"	03:01 / +1 ^h 43 ^m	"	"	2	"	"	"	"	"	"	"	"	-	GT	"
582	M 15	21 ^h 27 ^m 3 +11 ^o 57'	"	03:46 / -1 ^h 43 ^m	"	-4/28	3	"	"	"	"	"	"	"	"	-	GT	"
583	M 15	"	"	03:58 / -1 ^h 34 ^m	"	"	4	"	"	"	"	"	"	"	"	-	GT	"
584	M 92	17 ^h 16 ^m +43 ^o 12'	"	04:43 / +3 ^h 25 ^m	"	-10/32	1A	"	"	"	"	1"	g	"	"	-	GT	Seeing very good
585	"	"	"	04:57 / +3 ^h 33 ^m	"	"	2A	"	"	"	"	"	"	"	"	-	GT	"
586	M 15	21 ^h 27 ^m 3 +11 ^o 57'	"	05:11 / -0 ^h 18 ^m	"	-4/28	3A	"	"	"	"	"	"	"	"	-	GT	"
587	M 15	"	"	05:16 / -0 ^h 13 ^m	"	"	4A	"	"	"	"	"	"	"	"	-	GT	"
588	M 9	17 ^h 16 ^m 2 -18 ^o 30'	21 Aug	2:46 / +1 ^h 31 ^m	30 ^m	10/36	1	"	"	"	"	1"	f	21°	"	-	RM	
589	M 75	20 ^h 03 ^m 2 -22 ^o 04'	"	3:47 / -0 ^h 16 ^m	15 ^m	"	3	"	"	"	"	"	"	"	"	-	GT+RM	
590	M 92	17 ^h 16 ^m +43 ^o 12'	"	4:27 / +3 ^h 13 ^m	5 ^m	-10/32	4	"	"	"	"	"	"	"	"	-	GT	
591	"	"	"	5:01 / +3 ^h 46 ^m	"	"	2A	"	"	"	"	"	"	"	"	-	GT	
592	M 15	21 ^h 27 ^m 3 +11 ^o 57'	"	5:23 / -0 ^h 3 ^m	"	-4/28	3A	"	"	"	"	2"	f+p	"	"	-	GT	
593	"	"	"	5:32 / +0 ^h 6 ^m	"	"	4A	"	"	"	"	"	p	"	"	-	GT	Clouds avoid in same part of sky

Plate No.	OBJECT	α, δ (1950)	UT DATE 1978	UT/H A (End)	EXP.	Guide *	Plate Holder	Emulsion	Filter	PA	Tel.	Seeing	Trans.	Temp. (°C)	Focus	Flash	OBS.	REMARKS
594	M 13	16 ^h 39. ^m 9 +36° 33'	5 Sept.	01:39/+2:00	2 ^m	+3/32	1	103a-0	B	S	W	2"	g	+25	1.08	-	KC	focus Vega
595	"	"	"	01:44/+2:05	"	"	2	"	"	"	"	"	"	"	"	-	KC	
596	M 92	17 ^h 15. ^m 6 +43° 12'	"	01:58/+1:43	2 ^m	-13/30	3	"	"	"	"	"	"	"	"	-	KC	
597	M 92	"	"	02:02/+1:47	"	"	4	"	"	"	"	"	"	"	"	-	KC	
598	M 71	19 ^h 51. ^m +18° 40'	"	02:39/-0:11	5 ^m	-9/29	1	"	"	"	"	1-2"	"	"	"	-	KC	refocus Altair - shifted
599	M 71	"	"	02:49/-0:01	5 ^m	"	2	"	"	"	"	"	"	"	"	-	KC	
600	M 15	21 ^h 27. ^m 6 +11° 57'	"	03:07/-1:20	2 ^m	-4/32	3	"	"	"	"	"	"	"	"	-	KC	
601	M 15	"	"	03:07/-1:15	~2 ^m	"	4	"	"	"	"	"	"	"	"	-	KC	exp. time only approximate
602	M 2	21 ^h 31. ^m -1° 03'	"	03:49/-0:41	12 ^m	-6/33	1	"	"	"	"	2"	"	+24	"	-	KC	
603	M 2	"	"	04:05/-0:25	12 ^m	"	2	"	"	"	"	2"	"	"	"	-	KC	
604	M 15	21 ^h 27. ^m 6 +12° 05'	"	04:52/+0:26	2 ^m	-	3	"	"	"	"	"	"	"	0.74	-	KC	f/13.5 unguided
605	M 15	"	"	04:55/+0:29	2 ^m	-	4	"	"	"	"	"	"	"	"	-	KC	" "
606	M 92	17 ^h 15. ^m 6 +43° 12'	6 Sept	02:41/+2:30	2 ^m	-13/30	1	103a-0	B	S	W	1-2"	f-p	+26	1.08	-	KC	clouds around
607	"	"	"	02:47/+2:36	"	"	2	"	"	"	"	"	f	"	"	-	KC	"
608	M 15	21 ^h 27. ^m 6 +11° 57'	"	03:10/-1:14	2 ^m	-4/32	3	"	"	"	"	2"	p	"	"	-	KC	thin clouds
609	"	"	"	03:19/-1:05	2 1/2 ^m	"	4	"	"	"	"	"	"	"	"	-	KC	"
610	M 2	21 ^h 31. ^m -1° 03'	"	04:06/-0:19	15 ^m	-6/33	1	"	"	"	"	2"	f	+25	"	-	KC	
611	"	"	"	04:28/+0:02	15 ^m	"	3	103a-G	V	"	"	2-3"	f	"	"	-	KC	wind shaking telescope
612	"	"	"	04:49/+0:23	15 ^m	"	4	"	V	"	"	"	f	+24	"	-	KC	"
613	"	"	"	05:12/+0:45	15 ^m	"	2	103a-0	B	"	"	2-4"	f	"	"	-	KC	"
614	M 13	16 ^h 39. ^m 9 +36° 33'	7 Sept.	01:53/+2:22	2 ^m	+3/32	1	103a-0	B	S	W	1-2"	f-g	+26	1.08	-	KC	
615	"	"	"	01:59/+2:28	"	"	2	"	"	"	"	"	"	"	"	-	KC	
616	M 92	17 ^h 15. ^m 6 +43° 12'	"	02:10/+2:03	"	-13/30	3	"	"	"	"	"	"	"	"	-	KC	

Plate No.	OBJECT	α, δ (1950)	UT DATE 1978	UT / HA (end)	Exp.	Guide * #	Plate Holder	Emulsion	Filter	PA	TEL	Seeing	Trans.	Temp (°C)	FOCUS	Flash	OBS.	REMARKS
617	M 92	17 ^h 15 ^m 6 +43° 12'	7 Sept.	02:16 / +2:10	2 ^m	13/30	4	103a-0	B	S	W	1-2"	f-g	+26	1.08	-	KC	
618	M 15	21 ^h 27 ^m 6 +11° 57'	"	03:18 / -1:03	3 ^m	4/32	1	"	"	"	"	2-3"	"	+26	"	-	KC	wind
619	"	"	"	03:22 / -0:59	3 ^m 20 ^s	"	2	IIa-0	"	"	"	"	"	"	"	-	KC	"
620	M 13	16 ^h 39 ^m 9 +36° 33'	8 Sept.	01:35 / +2:07	3 ^m		1	"	B	S	W	1-2"	f	+29	1.08	-	KC	
621	M 13	"	"	01:39 / +2:11	3 ^m		2	"	"	"	"	"	"	"	"	-	KC	
622	M 92	17 ^h 15 ^m 6 +43° 12'	"	01:52 / +1:49	2 ^m		3	"	"	"	"	"	"	"	"	-	KC	
623	"	"	"	01:55 / +1:52	"		4	"	"	"	"	"	"	"	"	-	KC	
624	M 15	21 ^h 27 ^m 6 +11° 57'	"	02:39 / -1:36	3 ^m		1	"	"	"	"	2-3"	"	"	"	-	KC	wind
625	"	"	"	02:44 / -1:31	"		2	"	"	"	"	"	"	"	"	-	KC	"
626	M 2	21 ^h 30 ^m 9 -1° 03'	"	03:07 / -1:12	12 ^m		3	"	"	"	"	"	"	"	"	-	KC	"
627	M 2	"	"	03:20 / -0:59	"		4	"	"	"	"	"	"	"	"	-	KC	"
628	M 13	16 ^h 39 ^m 9 +36° 33'	26 Sept.	00:58 / +2:41	5 ^m		1	"	"	"	"	2-3"	g	+17°	1.08	-	KC	
629	M 13	"	"	01:04 / +2:47	5 ^m		2	"	"	"	"	"	"	"	"	-	KC	
630	M 92	17 ^h 15 ^m 6 +43° 12'	"	01:17 / +2:25	3 ^m	11/35	3	"	"	"	"	"	"	"	"	-	KC	
631	M 92	"	"	01:21 / +2:29	3 1/2 ^m	"	4	"	"	"	"	"	"	"	"	-	KC	
632	M 15	21 ^h 27 ^m 6 +11° 57'	"	02:04 / -1:00	5 ^m		1	"	"	"	"	"	"	+16	"	-	KC	
633	M 15	"	"	02:10 / -0:54	5 ^m		2	"	"	"	"	"	"	"	"	-	KC	
634	M 13	16 ^h 39 ^m 9 +36° 33'	28 Sept.	00:58 / +2:50	5 ^m		1	"	"	"	"	2"	g	+16	1.08	-	KC	
635	M 13	"	"	01:04 / +2:56	5 ^m		2	"	"	"	"	"	"	"	"	-	KC	
636	M 92	17 ^h 15 ^m 6 +43° 12'	"	01:20 / +2:36	3 ^m		3	"	"	"	"	"	"	"	"	-	KC	
637	M 92	"	"	01:24 / +2:40	3 ^m		4	"	"	"	"	"	"	"	"	-	KC	
638	M 15	21 ^h 27 ^m 6 +11° 57'	"	02:15 / -0:41	5 ^m		1	"	"	"	"	2-3"	"	+15	"	-	KC	
639	M 15	"	"	02:21 / -0:35	5 ^m		2	"	"	"	"	2-3"	"	"	"	-	KC	

Plate No.	OBJECT	α, δ (1950)	UT DATE	UT/HA (end)	Exp.	Guide *	Plate Holder	Emulsion	Filter	PA	Tel	Seeing	Trans.	Temp.	Focus	Flash	OBS.	REMARKS
640	M 15	21 ^h 27. ^m 6 + 11° 57'	1978 Nov. 3	00:32 / -0:03	3 ^m		1	IIa-0	B	S	W	1"	f	+17	1.07	-	KC	
641	"	"	"	00:44 / +0:09	3 ^m		2	"	"	"	"	"	"	"	.94		"	
642	MRK 997	1 ^h 27 ^m 49 ^s (1975) → +11° 0' 45"	"	"	1 ^m		1	IIaD	-	K	K	K	K	"	.94		GC	
643	MRK 997	"	"	"	1 ^m		2	"	B	K	K	"	K	"	.94		GC	
644	MRK 1040	2 ^h 26 ^m 47 ^s +31° 11' 43"	"	"	1 ^m		3	"	-	K	K	"	"	"	.94		GC	
645	MRK 1040	"	"	"	5 ^m		1	"	B	K	K	"	"	"	.94		GC	
646	M 13	16 ^h 39. ^m 9 + 36° 33'	Nov. 7	23:53 / +4:26	5 ^m		1	IIa-0	B	S	W	2"	f	+9	1.07	-	KC	
647	"	"	" 7/8	00:01 / +4:34	5 ^m		2	"	"	"	"	"	"	"	"	-	KC	
648	M 92	17 ^h 15. ^m 6 + 43° 12'	Nov. 8	00:13 / +4:10	3 ^m		3	"	"	"	"	"	"	"	"	-	KC	
649	M 92	"	"	00:19 / +4:16	"		4	"	"	"	"	"	"	"	"	-	KC	
650	M 15	21 ^h 27. ^m 6 + 11° 57'	"	00:49 / +0:34	"		1	"	"	"	"	"	"	+8	"	-	KC	moon nearby (1/4)
651	"	"	"	00:56 / +0:41	"		2	"	"	"	"	"	"	"	"	-	KC	"
652	M 13	16 ^h 39. ^m 9 + 36° 33'	Nov. 9	23:47 / +4:28	5 ^m	+3/32	1	IIa-0	B	S	W	1-2"	f	+14	1.07	-	KC	twilight
653	"	"	"	23:53 / +4:34	"		2	"	"	"	"	2"	"	"	"	-	KC	"
654	M 92	17 ^h 15. ^m 6 + 43° 12'	Nov. 10	00:13 / +4:18	3 ^m	-10/34	3	"	"	"	"	2"	"	"	"	-	KC	
655	"	"	"	00:17 / +4:22	"		4	"	"	"	"	2"	"	"	"	-	KC	
656	M 15	21 ^h 27. ^m 6 + 11° 57'	"	00:50 / +0:42	"	-4/32	1	"	"	"	"	1-2"	"	"	1.08	-	KC	moon nearby
657	"	"	"	00:54 / +0:46	"		2	"	"	"	"	"	"	"	"	-	KC	"
658	M 2	21 ^h 30. ^m 9 - 1° 03'	"	01:07 / +0:56	"	-6/33	3	"	"	"	"	"	"	"	"	-	KC	"
659	"	"	"	01:12 / +1:01	"	-6/33	4	" (new)	"	"	"	"	"	"	"	-	KC	" cirrus
660	M 13	16 ^h 39. ^m 9 + 36° 33'	Nov. 18	23:40 / +4:56	5 ^m	+5/33	1	IIa-0	B	S	W	2-4"	f	+7	1.07	-	KC	
661	"	"	"	23:46 / +5:02	"		2	"	"	"	"	"	"	"	"	-	KC	
662	M 92	17 ^h 15. ^m 6 + 43° 12'	"	23:57 / +4:38	3 ^m	-10/34	3	"	"	"	"	2-3"	"	"	"	-	KC	
663	"	"	Nov. 18/19	00:01 / +4:42	"		4	"	"	"	"	"	"	"	"	-	KC	

Plate No.	Object	α, δ (1950)	DATE (UT)	UT / HA (end)	Exp.	Guide *	Plate Holder	Emulsion	Filter	PA	Tel.	Seeing	Trans	Temp.	Focus	Flash	Obs.	REMARKS
664	M3	13:39.9 +28°38'	1979 April 13	04:54/-1:57	10 ^m	+1/32	1	IIa-O	B	S	W	3"	f	+1°C	1.08	-	KC	
665	"	"	"	05:06/-1:45	"	"	2	"	"	"	"	3"	f	"	"	-	KC	
666	M5	15 ^h 16.0 +2°16'	"	06:07/-2:20	8 ^m	+19/30	3	"	"	"	"	3"	f	"	1.07	-	KC	
667	"	"	"	06:17/-2:10	"	"	4	"	"	"	"	3"	f	"	"	-	KC	
668	M3	13:39.9 +28°38'	April 7	05:11/-1:25	10 ^m	"	1	"	"	"	"	1-2"	g	-1°C	1.08	-	KC	
669	"	"	"	05:23/-1:13	"	"	2	"	"	"	"	"	"	"	"	-	KC	
670	M5	15:16.0 +2°16'	"	06:26/-1:46	8 ^m	+2/34	3	"	"	E	W	"	"	"	1.07	-	KC	
671	"	"	"	06:35/-1:37	"	"	4	"	"	E	W	"	"	"	"	-	KC	
672	A 1367	11 41.9 +20 07	16 May		5 ^m	+10/40	1	103a-6	V	S	W	2"	f			-	EA	
673	A 1367	"	"		10 ^m	"	2	"	"	"	"	"	"			-	EA	
674	A 1367	"	"		15 ^m	"	3	"	"	"	"	"	"			-	EA	
675	A 1367	"	"		30 ^m	"	4	"	"	"	"	"	"			-	EA	
676	A 1367	"	17 May		15 ^m	+10/40	1	"	"	"	"	3"	fp			-	EA	
677	A 1367	"	"		30 ^m	"	2	"	"	"	"	"	p			-	EA	
678	"	"	May 18	03:10/+1:15	15 ^m	+16/29	1	"	"	S	W	2-3"	f	+22	1.08	-	KC	wind increasing and shaking telescope by ± 5"
679	"	"	"	03:26/+1:31	"	"	2	IIa-D	"	"	"	2-4"	f	+22	"	-	KC	
680	M3	13:39.9 +28:38	May 25	04:02/+0:36	10 ^m	+1/32	1	IIa-O	B	S	W	2-4"	g	+12	1.07	-	KC	
681	"	"	"	04:14/+0:48	10 ^m	"	2	IIa-O	B	S	W	"	g	"	"	-	KC	
682	A 1367	11:41.9 +20°07'	May 26	03:58/+2:33	15 ^m	+14/29	1	IIa-D	V	S	W	2"	g	+14°	1.07	5X	KC	old plate
683	"	"	"	04:14/+2:50	15 ^m	"	2	IIa-D	V	S	W	2"	g	"	1.07	5X	KC	new plate
684	"	"	"	04:41/+3:17	10 ^m	"	3	IIa-O	B	S	W	1-2"	g	"	"	3X	KC	
685	M5	15 ^h 16.0 +2°16'	"	05:31/+0:33	10 ^m	+2/34	4	"	"	E	W	1-2"	g	+13	"	3X	KC	
686	M5	"	"	05:43/+0:45	10 ^m	"	3	"	"	E	W	1-2"	g	+13	"	-	KC	
687	M51	13 ^h 27.8 +47°27'	June 3	03:21/+0:42	30 ^m	26/35	1	IIa-D	V	S	W	1-2"	g	+22	1.08	-	KC	

Plate No.	OBJECT	α, δ (1950)	DATE (UT)	UT/HA (END)	EXP.	Guide X	Plate Holder	EMULSION	FILTER	PA	Tel.	Seeing	Trans.	Temp.	Focus	Flash	OBS.	REMARKS
688	M5	15 ^h 16.0 +2°16'	1979 June 3	04:02/-0:24	15 ^m	+2/ 29	1	IIa-0	B	S	W	2"	g	+22	1.07	-	KC	
689	"	"	"	04:18/-0:08	"	"	2	"	B	S	W	2"	g	+22	"	-	KC	
690	M13	16 ^h 39.9 +36°33'	"	04:57/-0:54	5 ^m	+3/22	1	"	B	S	W	3"	g	+21	1.07	-	KC	
691	"	"	"	05:03/-0:48	5 ^m	"	2	"	B	"	"	2-3"	g	"	"	-	KC	
692	"	"	"	05:07/-0:44	2 ^m	"	3	"	U	"	"	2"	g	"	"	-	KC	(plate shows 7 *'s only!)
693	"	"	"	05:18/-0:33	10 ^m	"	4	"	U	"	"	2"	g	"	"	-	KC	
694	M3	13:39.9 +28°38'	June 4	03:27/+0:41	10 ^m	4/32	1	IIa-0	B	S	W	1-2"	g	+24	1.08	-	KC	
695	M3	"	"	03:38/+0:52	10 ^m	"	2	"	B	"	"	"	g	"	"	-	KC	
696	M5	15:16.0 +2°16'	"	04:15/-0:08	20 ^m	21/29	3	"	B	"	"	1-2"	g	"	"	-	KC	
697	M13	16:39.9 +36°33'	"	04:55/-0:51	20 ^m	3/32	4	"	U	"	"	2"	g	+23	"	-	KC	
698	"	"	"	05:14/-0:32	5 ^m	"	1	"	B	"	"	"	"	"	"	-	KC	
699	"	"	"	05:20/-0:26	5 ^m	"	2	"	B	"	"	"	"	"	"	-	KC	
700	M92	17:15.6 +43°12'	"	05:32/-0:49	5 ^m	-10/34	3	"	B	"	"	2"	g	"	"	-	KC	
701	M92	"	"	05:38/-0:43	5 ^m	"	4	"	B	"	"	"	f	"	"	-	KC	
702	M51	13:27.8 +47°27'	21 June	04:18/+8:08	20 ^m	+2/ 30	1	IIIa-J	Ha	"	"	"	g	+24	0.94	-	EA	IT
703	B335	19:34:34 7°27'	21 JUNE	07:36/-1:58	15 ^m	"	1	"	RG8	"	"	"	g	"	0.95	-	JBK	IT
704	"	"	"	8:18/-0:17	30 ^m	"	2	"	"	"	"	"	g	"	"	-	JBK	IT
705	"	"	"	8:48/+0:10	10 ^m	"	3	"	NONE	"	"	"	g	"	"	-	SEW	IT
706	"	"	"	8:58 +0:20	5 ^m	"	1	"	"	"	"	"	g	"	"	-	JK	IT
707	NGC 7023	21 ^h 0.2 +68°04'	"	9:45 -0:26	10 ^m	"	2	"	"	"	"	"	g	"	"	-	SW	IT
708	"	"	"	9:55 -0:16	5 ^m	"	3	"	"	"	"	"	g	"	"	-	SW	IT
709	"	"	"	10:07 +0:07	15 ^m	"	1	"	RG8	"	"	"	g	"	"	-	SW	"
710	M3	13 ^h 39.9 +28°30'	June 22	+1:38/03:14	5 ^m	"	1	IIa-0	B	S	W	2"	g	+24	1.08	-	KC	
711	"	"	"	+1:48/03:24	5 ^m	"	2	"	B	S	W	2"	g	"	"	-	KC	

Plate No.	OBJECT	α, δ (1950)	DATE (UT)	UT / HA (end)	EXP.	Guide #	Plate Holder	EMULSION	FILTER	PA	TEL	Seeing	Trans	Temp.	FOCUS	Flash	OBS.	REMARKS
712	M13	16 ^h 39.9 +36° 33'	1979 June 22	03:46 / -0:49	5 ^m	3/32	3	IIa-0	B	S	W	2"	g	+24	1.08	-	KC	
713	M13	"	"	03:52 / -0:43	5 ^m		4	"	B	S	W	2"	g	"	"	-	KC	
714	M13	"	"	04:20 / -0:16	2 ^m		2	Royal Pan	-	S	W	2-3"	g	"	1.07	-	KC	
715	M13	"	"	04:27 / -0:09	6 ^m		3	"	-	S	W	"	g	"	"	-	KC	
716	NGC 6543	17:58.9 +66° 38'	"	-	3 ^m		4	"	-	S	W	"	g	"	"	-	KC	
717	"	"	"	-	2, +3 ^m		1	103a-0	-	S	W	"	g	"	"	-	KC	3 ^m exp. trailed in S at end
718	M51	13 22.8 47 27	"	06:00 / 04:39	20 ^m	-13/35	1	IIa-D	H α	W	W	"	g	"	.97	-	EA	IT
719	B335	19 35 50 +7° 31'	"	06:48 / 00:43	15 ^m		3	IIa-D	RG8	S	W	4"	g	"	.94	-	JBK	IT
720	"	"	"	07:26 / 00:04	30 ^m		1	"	"	"	"	2"	g	"	"	-	SW	IT
721	"	"	"	07:35 / 00:13	5 ^m		3	"	NONE	"	"	2"	g	"	"	-	JBK	IT
722	"	"	"	08:05 / 00:43	10 ^m		1	"	"	"	"	-	g	"	"	-	JBK	IT
723	NGC 7023	"	"	9:00 / 00:00	30 ^m		3	"	RG8	"	"	"	g	"	"	-	SW	"
724	M51	13 ^h 27.8 +47° 27'	June 26	03:30 / +2:22	15 ^m		1	103a-0	-	W	W	3"	g	+20	1.07	-	KC	
725	M57	"	June 28	09:07 / ?	30 ^m		2	103a-0	none	S	W	"	g	"	"	-	JU	personal
726	M3	13 ^h 39.9 +28° 38'	June 30	02:57 / +1:52	4 ^m		1	103a-G	V	S	W	1-2"	f	+20	1.07	-	KC	
727	M3	"	"	03:03 / +1:58	4 ^m		3	103a-0	B	S	W	1-2"	f	"	"	-	KC	
728	M3	"	"	03:08 / +2:03	4 ^m		4	103a-0	B	S	W	1-2"	f	"	"	-	KC	
729	M3	"	"	/	5 ^m		1	IIa-D	H α	S	W	2"	f	"	0.96	-	WG	IT
730	M3	"	"	05:18 / +4:14	30 ^m		2	"	"	"	"	2-3"	"	"	"	-	WG	IT
731	M13	16 ^h 39.9 +36° 33'	"	05:49 / +1:46	5 ^m		1	103a-0	B	"	"	1-2"	f	+19 +20	1.07	-	KC	
732	M13	"	"	06:00 / +1:57	5 ^m		2	"	"	"	"	"	"	"	"	-	KC	
733	M92	17 ^h 15.6 +43° 12'	"	06:41 / +2:02	5 ^m		3	"	"	"	"	2"	"	"	"	-	KC	
734	M92	"	"	06:47 / +2:08	5 ^m		4	"	"	"	"	2"	"	"	"	-	KC	
735	M17	"	"	07:37 / +2:02	10 ^m	-62/31	1	"	none	"	"	2"	"	+18	1.06	-	JU	personal
736	M27	"	"	08:02 / +2:02	5^m	-7/32	2	"	"	"	"	2"	"	+18	1.07	-	JU	personal

Plate No.	OBJECT	α, δ (1950)	DATE (UT) 1977	UT / HA (end)	EXP.	Guide *	Plate Holder	EMULSION	FILTER	PA	TEL	Seeing	Trans.	Temp.	Focus	Flash	OBS.	REMARKS
736	M27	June 30	June 30	08:04 / +0:12	5 ^m	-7/30	2	103a-0	none	S	W	2"	f	+18	1.07	-	JU	personal
737	M101		July 1	8:19 / +5:01	20 ^m	-7/30	1	103a-E	none	S	W	2"	f	+19	1.06	-	JU	personal
738	M17		"	7:02 / +1:24	15 ^m	+9/33	2	"	"	"	"	"	"	+18	1.05	-	JU	personal
739	M27		"	7:42 / +0:27	10 ^m	-7/31	3	"	"	"	"	"	"	+18	1.05	-	JU	personal
740	Cygnus loop M79: 20 ^h 44 ^m 3 ^s +38°38'		"	8:24 / +0:23	20 ^m	+29/37	4	"	"	"	"	"	"	"	1.06	-	JU	personal
741	M3	13 ^h 39 ^m .9 +28°38'	July 2	0302 / +2:06	5 ^m	4/30	1	103a-G	V	S	W	4"	f	+21	1.07	-	KC	
742	M3	"	"	0308 / +2:12	5 ^m	"	2	"	V	"	"	3"	f	"	"	-	KC	
743	M3	"	"	0315 / +2:19	5 ^m	"	3	103a-0	B	"	"	3"	f	"	"	-	KC	
744	M3	"	"	0321 / +2:25	5 ^m	"	4	"	B	"	"	3"	f	"	"	-	KC	
745	M13	16 ^h 39 ^m .9 +36°33'	"	0526 / +1:30	5 ^m	4/32	1	"	B	"	"	3-5"	f	+19	1.07	-	KC	
746	M13	"	"	0532 / +1:36	5 ^m	"	2	"	B	"	"	3-5"	f	"	"	-	KC	
747	M92	17:15.6 +43°12'	"	0546 / +1:15	5 ^m	-10/32	3	"	B	"	"	3-5"	f	"	"	-	KC	
748	M92	17 ^h 15 ^m .6 +43°12'	"	0552 / +1:21	5 ^m	"	4	"	B	"	"	3-5"	f	"	"	-	KC	
749	M27		"	07:59 / +0:48	60 ^m	-18/34	1	103a-E	none	"	"	"	"	+19	1.08	-	JU	personal
750	M3	13 ^h 39 ^m .9 +28°38'	July 3	0308 / +2:15	5 ^m	"	1	103a-0	B	S	W	2"	g	+22	1.06	-	KC	
751	M3	"	"	0314 / +2:21	5 ^m	"	2	"	B	"	"	2"	g	"	"	-	KC	
752	M13	16 ^h 39 ^m .9 +36°30'	"	0332 / -0:20	5 ^m	"	3	"	B	"	"	2"	g	"	1.07	-	KC	
753	M13	"	"	03:38 / -0:14	5 ^m	"	4	"	B	"	"	2"	g	"	"	-	KC	
754	M92	17 ^h 15 ^m .6 +43°12'	"	0358 / -0:29	5 ^m	"	1	"	B	"	"	2-3"	g	+21	"	-	KC	
755	M92	"	"	0404 / -0:23	5 ^m	"	2	"	B	"	"	2-3"	g	+21	"	-	KC	
756	M13	16 ^h 39 ^m .9 +36°30'	July 15	04:09 / +1:05	4 ^m	"	1	"	B	S	W	1-2"	f	+25	1.07	-	KC	
757	M13	"	"	04:14 / +1:09	4 ^m	"	2	"	B	"	"	"	f	"	"	-	KC	
758	M92	17 ^h 15 ^m .6 +43°12'	"	0443 / +1:03	4 ^m	"	3	"	B	"	"	"	f	"	"	-	KC	
759	M92	"	"	0448 / +1:08	4 ^m	"	4	"	B	"	"	"	f	"	"	-	KC	

Plate No.	OBJECT	α, δ (1950)	Date (UT)	UT/HA (end)	Exp.	Guide * Holder	Emulsion	Filter	PA	Tel	Seeing	Trans.	Temp.	Focus	Flash	OBS	REMARKS	
760	M11		7/15/79	7:00/1:48	10 ^m	-9/35	1	103aE	none	S	W	3"	f	+24	1.06	no	JU	1980: 18°50.0, -6°18'
761	M3	13 ^h 39 ^m .9 +28°38'	July 16	0304/+3:02	5 ^m		1	103a-0	B	S	W	1-2"	g	+28	1.07	-	KC	
762	M3	"	"	0310/+3:08	5 ^m		2	"	B	S	W	1-2"	g	"	"	-	KC	
763	M5	15 ^h 16 ^m .0 +2°16'	"	0348/+2:11	25 ^m		3	"	B	S	W	2"	g-p	"	"	-	KC	some clouds early in exposure ~20 ^m effective exposure
764	M13	16 ^h 39 ^m .9 +36°33'	"	0439/+1:38	~30 ^m		1	"	U	S	W	1-3"	g-p	+26	1.07	-	KC	killed by clouds + poor seeing
765	"	"	"	0545/+2:42	10 ^m		1	Hyper-I-N	RG8	S	W	2"-3"	g	"	"	-	AJ	.001M AgNO ₃ ; 4 min in 275 ml.
766	"	"	"	06:00/+2:57	10 ^m		2	I-N	RG8	S	W	"	"	"	"	-	AJ	untreated I-N
767	M3	13 ^h 39 ^m .9 +28°38'	July 18	0254/+3:01	5 ^m		1	103a-0	B	S	W	2"	g	+20	1.06	-	KC	
768	M3	"	"	0300/+3:07	5 ^m		2	"	B	S	W	2"	"	"	"	-	KC	
769	M13	16 ^h 39 ^m .9 +36°30'	"	0319/+0:26	5 ^m		3	"	B	S	W	2"	"	"	1.08	-	KC	
770	"	"	"	0325/+0:32	5 ^m		4	"	B	"	"	2"	"	"	"	-	KC	
771	M92	17 ^h 15 ^m .6 +43°12'	"	0344/+0:15	5 ^m		1	"	B	"	"	2"	"	"	"	-	KC	
772	"	"	"	0350/+0:21	5 ^m		2	" <i>near top</i>	B	"	"	2"	"	"	"	-	KC	
773	"	"	"	0425/+0:56	10 ^m		1	Hyper-I-N	RG8	"	"	"	"	+19	"	-	AJ	.002 M AgNO ₃ ; 4 min in 275 ml.
774	"	"	"	0440/+1:11	10 ^m		2	I-N	RG8	"	"	"	"	"	"	-	AJ	untreated I-N
775	M3	13 ^h 39 ^m .9 +28°38'	July 21	0259/+3:18	5 ^m		1	103a-0	B	S	W	1-2"	f	+25	1.06	-	KC	
776	M3	"	"	0305/+3:24	5 ^m		2	"	B	"	"	"	"	"	"	-	KC	
777	M13	16 ^h 39 ^m .9 +36°33'	"	0329/+0:48	5 ^m		3	"	B	"	"	"	"	"	1.07	-	KC	
778	"	"	"	0335/+0:54	5 ^m		4	"	B	"	"	"	"	"	"	-	KC	
779	"	"	"	0418/+1:37	30 ^m		1	"	U	"	"	"	"	"	"	-	KC	
780	M92	17 ^h 15 ^m .6 +43°12'	"	0434/+1:17	5 ^m		2	"	B	"	"	"	"	"	"	-	KC	
781	"	"	"	0440/+1:23	5 ^m		3	"	B	"	"	"	"	"	"	-	KC	
782	M71	19 ^h 50 ^m +18°39'	"	0506/-0:47	10 ^m		4	"	B	"	"	"	"	+24	1.07	-	KC	
783	"	"	"	0528/-0:25	10 ^m		1	"	B	"	"	"	"	"	"	-	KC	

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784	NGC 7027	21 ^h 06 ^m .1 +42° 08'	July 21	05 45 / -1:21	~20 ^s		2	103a-D	—	S	W		f	+23	1.07	—	KC	1975 coord.
785	"	"	"	05 47 / -1:19	1 ^m		3	"	—	"	"		"	"	"	—	KC	"
786	"	"	"	05 53 / -1:13	5 ^m		4	"	—	"	"		"	"	"	—	KC	"
787	~IC 5146	21 ^h 50 ^m .0 +47° 30'	"	07 15 / -0:34	20 ^m		1	Hyper I-N	RG 8	"	"		"	"	"	—	AJ	.002m AgNO ₃
788	"	"	"	08 05 / +0:16	40 ^m		3	Hyper I-N	RG 8	"	"		"	"	"	—	AJ	.002m AgNO ₃
789	M51	13 ^h 29 ^m .0 +47° 18'	July 23	05 05 / +5:45	60 ^m	+27/30	2	103a-E	—	W	W	2"	poor	+23	1.06	—	JU	1980 coord. personal
790	NGC 6764	19 ^h 07 ^m .0 +50° 50'	"	07 35 / +2:34	35 ^m	+4/30	1	IIa-D	—	W	W	"	"	"	0.93	—	BG	IT
791	NGC 6764	"	"	07:56 / +2:55	10 ^m	+4/30	2	"	—	"	"	3"	"	"	"	—	BG	IT
792	NGC 5383	13 ^h 55 ^m .0 +42° 05'	July 27	05:00 /	10 ^m	+10/34	1	IIa-D	6600Å	W	W	2.5"	f	+24	.92	—	BG	IT out of focus (.92)
793	NGC 5383	13 ^h 55 ^m .0 +42° 05'	"	05:30 /	11 ^m	+10/34	2	"	6600Å	"	"	"	"	+24	.92	—	BG	IT plate stuck to phosphor!
794	NGC 6764	19 ^h 07 ^m .0 +50° 50'	"	07:10 / 2:16	10 ^m	+1/38	3	"	—	"	"	"	"	+24	.92	—	BG	IT
795	NGC 7331 and Stephen's Quintet	22 ^h 35 ^m .3 +34° 10'	"	09:08 / 0:58	60 ^m	+11/34	1	103a-E	—	"	"	3"	f	+23	1.07	—	JU	1979 coord. personal
796	NGC 6764	19 ^h 07 ^m .0 +50° 50'	July 29	08:19 / 3:43	20 ^m	+1/32	3	IIa-D	—	W	W	2"	f	+23	.93	—	BG	IT
797	NGC 5383	13 ^h 55 ^m .1 +41° 56 ^m	Aug 4	4:45 / 5:38	1 ^h	+20/34	1	IIa-D	6600Å	W	W	2"	f	+26	.94	—	BG	IT (H ₂) - Gibbous moon 1979.5 coords
798	NGC 6764	19 ^h 06 ^m .9 50° 51'	Aug 4	7:00 / 2:45	1 ^h	+2/34	1	IIa-D	6675Å	W	W	"	"	+25	.94	—	BG	IT " moon set near end of exposure
799	"	"	"	8:35 / 4:18	1 ^h	+2/34	1	"	6563Å	W	W	"	"	+24	.94	—	BG	IT (H ₂)
800	M57	18 ^h 51 ^m .7 +32° 58'	Aug 6	7:25 / 3:34	10 ^m	+13/33	3	IIa-D	—	W	W	3-4"	p		.94	—	BG	IT gibbous moon
801	NGC 5383	13 ^h 55 ^m .0 +42° 5'	Aug 12	03:20 / 4:47	20 ^m	+20/34	1	IIa-D	—	W	W	2"	f	+20	.94	—	BG	IT
802	"	"	"	04:35 / 6:02	60 ^m	+20/34	1	IIa-D	6675Å	W	W	2"	f	+20	.94	—	BG	IT moon
803	M57	18 ^h 51 ^m .7 +32° 58'	"	06:50 / 3:21	5x10 ^m	—	1	103a-G	6563Å	W	W	2"	f	+19	.94	test	BG	IT moon 2, 7, 17, 22, 24 x 1/10 sec flashes
804	"	"	Aug 15	05:35 / 2:22	12 ^m	+4/33	1	IIa-D	"	"	"	"	f	+15	.94	—	BG	IT clouds at end
805	"	"	"	06:43 / 3:30	15 ^m	"	1	103a-E	"	"	"	"	"	"	"	—	BG	IT moon exposed to room
806	"	"	"	07:05 / 4:53	12 ^m	"	1	IIa-D	"	"	"	"	"	"	"	—	BG	IT moon clouds
807	B335	19 ^h 35 ^m .0 +70° 30'	Aug 16	4:05 / 0:16	15 ^m		1	103a-G	RG 8	W	W		f	+16	.94		JK	IT

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808	B335	19 36 +70 30	Aug 16	4:45 / 0:48	15 ^m		3	103a-G	RG8	W	W	5"	f	16C	.94	-	JK	IT
809	B133	19 05 -60 57	"	5:25 / 2:02	15 ^m		1	"	"	"	"	"	"	"	"		JK	"
810	B134	19 06 -60 17	"	5:50 / 2:24	15 ^m		3	"	"	"	"	"	"	"	"		JK	"
811	B163	21 41 +56 38	"	7:16 / 1:04	15 ^m		1	"	"	"	"	"	"	"	"		JK	"
812	Ceph A	21 55 +61 55'	"	7:45 / 0:32	15 ^m		3	"	"	"	"	"	"	"	"		JK	"
813	NGC 7023	21 01 ^m +68 05'	"	8:10 / 2:52	1 ^m		1	"	-	"	"	"	"	"	.92		JK	"
814	"	"	"	8:15 / 2:57	2 ^m		3	"	-	"	"	"	"	"	"		JK	"
815	"	"	"	8:36 / 3:15	5 ^m		1	"	-	"	"	"	"	"	"		JK	"
816	NGC 6764	19 07.0 +50 50'	Aug 26	5:23 / 2:32	1 ^h 16 ^m	-11/35	1	103a-G	G563	"	"	2-3"	P	21	.94	2x10 ³	BG	clouds at end IT
817	M33	01 31 ^m +30 24'	"	9:35 / 0:26	15 ^m		1	103a-G	-	"	E	"	P	20	.92	"	BG	IT
818	NGC 6940	20-33.1 +28-07	Oct 21	1603 / 3:28	8 ^m		1	103a-G	GG14	S	W	2"	f	22	.81	-	RS	
819	"	"	"	1612 / 3:39	5 ^m		3	103a-O	GG13	"	"	"	"	"	"	-	RS	
820	"	"	"	1720 / 4:45	30 ^m		4	"	UG2	"	"	"	"	"	"	-	RS	
821	IC 1805	2-25.2 +61-60	"	0531 / 0:17	13 ^m		1	103a-G	GG14	"	"	"	f-p	"	"	-	RS	clouds
822	"	"	Oct 22	0545 / 0:41	10 ^m		3	IIa-O	GG13	"	"	2-3"	"	"	.80	-	RS	
823	"	"	"	0635 / 0:31	45 ^m		4	"	UG2	"	"	"	"	"	"	-	RS	clouds
824	"	"	Oct 24	0715 / 1:00	10 ^m		3	"	GG13	"	"	3"	"	12	.80	-	RS	
825	"	"	"	0820 / 2:08	60 ^m		4	"	UG2	"	"	2-3"	"	"	"	-	RS	
826	"	"	"	0850 / 2:34	15 ^m		2	"	GG14	"	"	"	"	"	"	-	RS	clouds
827	NGC 1664	4-47.5 +43-36	"	10:10 / 2:10	10 ^m		2	"	"	"	"	"	"	"	"	-	RS	"
828	M71	19 51.5 ^m +18 39'	Oct. 25	0:32 / +0:56	20 ^m		1	IIa-O	B	S	W	1-2"	g	+8	.80	-	KC	
829	"	"	"	1:06 / +1:32	30 ^m		2	"	"	S	W	1"	g	"	"	-	KC	
830	M 15	21 27.6 ^m +11 57'	"	1:36 / +0:25	3 ^m		1	103a-O	"	"	"	1"	g	"	"	-	KC	unguided
831	"	"	"	1:41 / +0:30	3 ^m		2	"	"	"	"	1"	g	"	"	-	KC	"

Primary +
f/8 realuminized
Sept.-Oct. 1979

Plate No.	OBJECT	d, s (1950)	Date (UT) 1929	UT/HA end	Exp	Guide #	Plate Holder	Emulsion	Filter	PA	Tel	Seeing	Trans	Temp	Focus	Flash	Obs	Remarks
832	M 2	21 ^h 30.9 - 01° 03'	Oct. 25	02:09 / +0:54	15 ^m		3	IIa-0	B	S	W	1-2"	g	+7	0.80	1X	KC	1/25 flash
833	M 2	"	"	02:25 / +1:10	15 ^m		4	"	B	S	W	1-2"	g	"	"	2X	KC	"
834	NGC 7654	23-22.7 +61-23	"	03:40 / 0:45	8 ^m	4/31 1/4	1	103a-G	V	S	W	"	g	+6	"	-	RS	
835	"	"	"	04:01 / 0:56	5 ^m	"	2	IIa-0	B	S	W	"	g	"	"	-	RS	
836	"	"	"	04:37 / 1:31	30 ^m	"	3	"	U	S	W	"	g	"	"	-	RS	
837	"	"	"	05:10 / 2:06	30 ^m	"	4	"	U	S	W	"	g	"	"	-	RS	clouded out
838	M 15	21 ^h 27.6 +11° 57'	Oct. 28	23:53 / -1:02	2 ^m	-4/31	1	103a-0	B	S	W	1"	g	+15	0.80	-	KC	1st quarter moon tonight
839	"	"	Oct 28	23:56 / -0:59	2 ^m	"	2	"	B	S	W	1"	g	"	"	-	KC	
840	M 71	19 ^h 51.5 +18° 39'	Oct. 29	0:25 / +1:05	10 ^m		3	IIa-0	B	S	W	1"	g	"	"	-	KC	
841	"	"	"	0:36 / +1:16	10 ^m		4	"	B	S	W	1"	g	"	"	-	KC	
842	"	"	"	0:54 / +1:35	5 ^m		1	"	B	S	W	1"	g	"	"	-	KC	
843	"	"	"	1:00 / +1:41	5 ^m		2	"	B	S	W	1-2"	g	"	"	-	KC	
844	M 2	21 ^h 30.9 - 1° 03'	"	1:19 / +0:20	5 ^m	-5/33	3	"	B	S	W	1-2"	g	"	"	-	KC	
845	M 2	"	"	1:25 / +0:26	5 ^m	-5/33	4	"	B	S	W	2"	g	"	"	-	KC	
846	M 39	21 ^h 30.4 +48° 13'	"	1:54 / +0:57	1 ^m		1	103a-0	-	S	W	1"	g	"	"	-	KC	
847	"	"	"	2:22 / +1:25	1 ^m		2	"	-	S	W	1"	g	+14	0.80	-	KC	f/13.5 - lousy knife edge pattern: (A) or (B)
848	"	"	Nov. 2	23:48 / -0:50	1 ^m	-	1	"	-	S	W	"	f-p	+8	0.76	-	KC	f/13.5 test
849	M 15	21 ^h 27.6 +11° 57'	Nov. 3	0:21 / -0:14	4 ^m		2	"	B	S	W	2-3"	f-p	"	0.80	-	KC	
850	"	"	"	0:26 / -0:09	4 ^m		3	"	B	S	W	"	f-p	"	"	-	KC	
851	"	"	Nov. 4	0:47 / +0:14	2 ^m		1	"	B	S	W	1-2"	g	+4	0.80	-	KC	
852	"	"	"	0:50 / +0:17	2 ^m		2	"	B	S	W	"	g	"	"	-	KC	
853	M 71	19 ^h 51.5 +18° 39'	"	1:09 / +2:13	2 ^m		1	IIa-0	B	S	W	"	g	"	"	-	KC	
854	M 71	"	"	1:13 / +2:17	2 ^m		2	"	B	S	W	"	g	"	"	-	KC	
855	M 2	21 ^h 30.9 - 1° 03'	"	1:30 / +0:56	3 ^m		3	"	B	S	W	"	g	"	0.80	-	KC	

Plate No.	OBJECT	d, s (1950)	Date (UT) 1975	UT/HA end	Exp	Guide #	Plate Holder	Emulsion	Filter	P.A.	Tel	Secing	Trans	Temp	Focus	Flash	Obs.	Remarks
856	M 2	21 ^h 30 ^m 9 -10°03'	Nov. 4	1:34/+1:00	3 ^m	-5/35	4	IIa-0	B	S	W	1-2"	g	+4°C	0.80	-	KC	
857	M 15	21 ^h 27 ^m .6 +11°57'	Nov. 8	23:50/-0:22	3 ^m	-4/31	1	103a-0	B	S	W	2-3"	f	+4°	0.80	-	KC	
858	"	"	"	23:54/-0:18	"	"	2	"	B	S	W	"	f	"	"	-	KC	
859	"	"	Nov. 14	00:46/+0:54	3 ^m	"	1	"	B	S	W	2-3"	g	0°	0.80	-	KC	
860	"	"	"	00:50/+0:58	3 ^m	"	2	"	B	S	W	"	g	0°	"	-	KC	
861	M 15	21 ^h 27 ^m .6 +11°57'	Nov. 17	23:51/+0:15	4 ^m	"	1	IIa-0	B	S	W	2-3"	g	+15°	0.80	-	KC	
862	"	"	"	23:56/+0:20	4 ^m	"	2	"	B	S	W	2-3"	g	"	"	-	KC	
863	"	"	Nov. 18	00:57/+1:21	"	"	3	"	B	S	W	3-5"	g	+15	"	-	KC	
864	"	"	"	01:02/+1:26	"	"	4	"	B	S	W	"	g	"	"	-	KC	
865	"	"	"	01:50/+2:14	"	"	1	"	B	S	W	2-3"	g	+14	0.80	-	KC	
866	"	"	"	01:55/+2:19	"	"	2	"	B	S	W	2-3"	g	"	"	-	KC	
867	"	"	"	02:43/+3:07	"	"	3	"	B	S	W	3-5"	g	+14	0.80	-	KC	
868	"	"	"	02:48/+3:12	"	"	4	"	B	S	W	3-5"	g	"	"	-	KC	
869	1979 VA (asteroid)	1 ^h 50 ^m .9 +24°48'	"	03:12, 03:28 -0:30	2x1 ^m	"	1	103a-0	-	S	W	3-5"	g	"	0.80	-	KC	
870	M 15	21 ^h 27 ^m .6 +11°57'	Nov. 20	01:49 /+2:21	4 ^m	"	1	IIa-0	B	S	W	2-3"	g	+12°	0.80	-	KC	
871	"	"	"	01:54/+2:26	4 ^m	"	2	"	B	S	W	"	g	"	"	-	KC	
872	-	1 ^h 50 ^m .9 +24°48'	"	02:06/-1:46	1 ^m	"	3	"	-	S	W	"	g	"	0.79	-	KC	(former 79 VA field for comparison)
873	M 15	21 ^h 27 ^m .6 +11°57'	Nov. 26	23:27/+0:26	3 ^m	"	1	"	B	S	W	2"	p	+5	0.80	-	KC	} Moon + clouds
874	"	"	"	23:31/+0:30	3 ^m	"	2	"	B	S	W	"	p	"	"	-	KC	
875	M 15	"	Dec. 1	23:42/+1:02	3 ^m	"	1	IIa-0	B	S	W	1-2"	g	-4°	0.80	-	KC	
876	"	"	"	23:46/+1:05	"	"	2	"	B	S	W	"	g	"	"	-	KC	
877	M 71	19 ^h 51 ^m .5 +18°39'	Dec 1/2	00:03/+2:58	5 ^m	24/32	3	"	B	S	W	2"	g	"	0.80	-	KC	
878	"	"	Dec 2	01:33/+4:28	5 ^m	"	4	"	B	S	W	3"	g	"	0.79	-	KC	
879	M 15	21 ^h 27 ^m .6 +11°57'	"	01:58/+3:17	3 ^m	-4/31	1	"	B	S	W	2"	g	"	0.79	-	KC	

Plate No.	OBJECT	α, δ (1950)	Date (UT)	UT / HA (2nd)	Exp.	Guide * Plate Holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans	Temp	Focus	Flash	Obs.	Remarks
880	M 15	21 ^h 27. ^m 6 +11 ^o 57'	1979 Dec. 2	23:02 / +3:21	3 ^m	-4/31 2	IIa-O	B	S	W	2"	g	-4°C	0.79	-	KC	
881	"	"	Dec. 2	23:27 / +0:50	3 ^m	" 1	IIa-O	B	S	W	2"	g	-4	0.80	-	KC	
882	"	"	"	23:31 / +0:54	3 ^m	" 2	"	B	S	W	2"	g	-4	"	-	KC	
883	"	"	Dec. 6	23:43 / +1:21	3 ^m	" 1	"	B	S	W	1-2"	g	+3	0.80	-	KC	
884	"	"	"	23:47 / +1:25	3 ^m	" 2	"	B	S	W	1-2"	g	+3	"	-	KC	
885	NGC 7027	21 ^h 06. ^m 1 +42 ^o 08'	Dec. 14	00:04 / +2:33	5 ^m	1	"	-	S	W	2-3"	g	-2	0.80	-	KC	(1975 coord.)
886	"	"	"	00:06 / +2:35	1 ^m	2	"	-	S	W	2-3"	g	"	"	-	KC	
887	M 15	21:27.6 +11:57	"	00:20 / +2:26	3 ^m	3	"	B	S	W	2"	g	"	0.80	-	KC	
888	"	"	"	00:24 / +2:30	3 ^m	4	"	B	S	W	2"	g	"	"	-	KC	
889	"	"	Dec. 17	23:34 / +1:55	3 ^m	1	"	B	S	W	2-3"	f	-8	0.80	-	KC	
890	"	"	"	23:40 / +2:01	4 ^m	2	"	B	S	W	2-5"	f	"	"	-	KC	
891	"	"	Dec. 18	23:34 / +2:00	4 ^m	1	"	B	S	W	3"	f	-2	0.80	-	KC	
892	"	"	"	23:39 / +2:05	4 ^m	2	"	B	S	W	3"	f	"	"	-	KC	
893	NGC 7023	21:00.2 +68 04	Dec 19	0:40 / +3:35	2 ^m	+14/32 1	103 a G	B	S	W	Var.	f	"	"	-	SW	
894	"	"	"	0:50 / +3:45	4 ^m	" 2	"	B	S	W	"	f	"	"	-	SW	
895	M 31	04:4 +41 08	"	3:00 / +3:20	25 ^m	Vac	103 a G	-	S	W	3"-5"	g	-1	.8	-	AJ	
896	M 33	1 32.5 30 32	"	4:30 / +2:55	30 ^m	Vac	103 a G	-	S	W	3"-5"	g	-1	.8	-	AJ	
897	400241	243.07 62 17	"	13:01	20 ^m	1	II a P	V	S	W	75"	g	-1	.8	-	ES	
898	Præsepe	8 37.4 +20 10	"	8:20 / -0:35	30 ^m	Vac	103 a-G	-	S	W	>5"	g	-1	.8	-	AJ	
899	NGC 7023	21:00.2 +68 04	DEC 20	0:15 / 13:15	4 ^m	+28/35 1	103 a-G	NONE	S	W	1"-2"	g	+1	.79	-	SW	
900	"	"	"	0:21 / 13:21	1 ^m	2	II a O	"	S	W	"	g	+1	"	-	SW	
901	"	"	"	0:24 / 13:24	2 ^m	3	"	"	S	W	"	g	+1	"	-	SW	
902	"	"	"	0:30 / +3:30	4 ^m	4	"	"	S	W	"	g	+1	"	-	SW	
903	M 752 (focus)	1 54.8 +37 26	"	3:00 / +1:05	2 ^m 2 ^m 2 ^m	Vac	103 a-O	-	S	W	"	f	+1	.79-80	-	AJ	3 tyrovan. focus exposures last interrupted by clouds

Plate No.	OBJECT	α, δ (1950)	Date 1980	UT/HA (end)	EXP.	Guide *	Plate Holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans	Temp.	Focus	Flash	Obs.	REMARKS
904	N2595	08:24:47 21°38'47"	15 MAR 80	02:10 / 00:20 W	1 MIN		1 It	IIa-D	NO	S	W	~2"	f-g	-6°C	.71	-	RAS	
905	N2595	"	15 MAR 80	02:17 / 00:27 W	3 MIN		2 It	IIa-D	NO	S	W	~2"	f-g	-6°C	.71	-	RAS	
906	N2595	"	15 MAR 80	02:23 / 00:33 W	5 MIN		3 It	IIa-D	NO	S	W	~2"	f-g	-6°C	.71	-	RAS	
907	UGC 4324	08:16:06.7 21 20 47	15 Mar 80	03:08 / 01:18 W	30 MIN		1 It	IIa-D	6675/75	S	W	~2"	f-g	-6°C	.71	-	RAS	
908	UGC 4324 N 3861	11:42:28.5 20°15'05"	15 MAR 80	03:42 / 00:40 E	3 MIN		It 1	IIa-D	NO	S	W	~2"	f-g	-6°C	.71	-	RAS	
909	NGC 3861	11:42:28.5 20°15'05"	15 MAR 80	04:35 / 00:07 E	30 MIN		It 3	IIa-D	6675/75	S	W	2"	f-g	-6°C	.70	-	RAS	
910	N 3861	"	15 MAR 80	05:20 / 01:39 W	35 MIN		It 2	IIa-D	6675/75	S	W	~2"	f-g	-6°C	.70	-	RAS	
911	N2595	08:24:47 21°38'47"	19 MAR 80	02:54 / 00:10 W	25 MIN		3	IIa-D	B	S	W	2-3"	g	-4°C	.80	-	RAS	DIRECT PLATE windy
912	NGC 4324	08:16:06.7 +21°20'47"	19 MAR 80	04:30 / 01:20 W	45 MIN			IIa-D	6675/75	S	W	2-3"	g	-4°C	.71	-	RAS	DRIVE STOPPED AT END OF EXP SHUT DOWN FOR NIGHT
913	PRAESEPE	08:38:16 +19 35 00	3 MAY 80	03:36 / 02:50 W	5 MIN		2	IIa-D	B	S	W	1-2"	g	+19C	.80	-	RAS	WEDGE PLATE
914	PRAESEPE	08:38:16 +19 35	"	03:48 / 03:00 W	2 MIN		1	IIa-D	B	S	W	1-2"	g	+19C	.8	-	RAS	WEDGE PLATE
915	M3	13:39.9 +28°38'	3 May	03:31 / -1:19	3 ^m	+4/31	1	IIa-D	B	S	W	1-2"	g	+19	0.80	-	KC	"
916	M3	"	"	03:38 / -1:12	3 ^m		2	"	B	S	W	1"	g	+19	0.80	-	KC	"
917	UMi Dwarf Galaxy	15 ^h 08 ^m .2 +67°18'	"	04:57 / -1:21	20 ^m	+6/30	1	"	-	S	W	1"	f	+18	0.80	-	KC	" MOON
918	M3	13 ^h 39 ^m .9 +28°38'	5 May	03:29 / -1:13	3 ^m		1	"	B	S	W	2"	g	+22	0.80	-	KC	
919	"	"	"	03:33 / -1:09	3 ^m		2	"	B	S	W	2-3"	g	+22	"	-	KC	
920	UMi Dwarf Galaxy	15 ^h 08 ^m .2 +67°18'	"	04:27 / -1:43	30 ^m		1	103a-G	-	S	W	2-4"	g	+22	"	-	KC	
921	M3	13 ^h 39 ^m .9 +28°38'	May 10	02:52 / -1:30	3 ^m		1	IIa-D	B	S	W	1"	f	+16	0.80	-	KC	
922	M3	"	"	02:56 / -1:26	3 ^m		2	"	B	S	W	1"	f	"	"	-	KC	
923	UMi Dwarf Gal.	15 ^h 08 ^m .2 +67°18'	"	04:00 / -1:50	40 ^m		1	103a-G	-	S	W	1-2"	f	+16	0.80	-	KC	circus around
924	MARK 231	12 ^h 55 ^m .1 +57°0'	21 May	03:00 / 45 ^m W	35 ^m		1	IIa-D	B	S	W	1-2"	f	+20°	0.80	-	DH	
925	MARK 42	11 ^h 52 ^m +46°22'	"	04:30 / 2 ^h 45 ^m W	30 ^m		2	"	"	"	"	"	"	"	"	-	DH	slightly trailed
926	MARK 42	11 ^h 52 ^m , 46°20'	22 May	03:30 / 1 ^h 55 ^m W	30 ^m		2	"	"	"	"	"	"	"	"	-	DH	
927	MARK 231	12 ^h 55 ^m , +57°0'	23 May	03:00 / 1 ^h 32 ^m W	20 ^m		1	"	"	"	"	"	p	"	"	-	DH	Thin Cirrus at exposure end. Sky very bright, moon $\approx \frac{1}{2}$.

Plate No.	OBJECT	α, δ (1950)	Date (UT)	UT / HA (2nd)	Exp.	Guide * Plate Holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans.	Temp.	Focus	Flash	Obs.	REMARKS
928	M3	13 ^h 39 ^m .9 +28° 38'	1980 May 29	0335 / 40:31	3 ^m	+4/32 1	IIa-0	B	S	W	2"	f	+24	0.80	-	KC	full moon
929	M3	"	May 29	0339 / 40:35	3 ^m	" 2	"	B	S	W	2"	f	"	0.80	-	KC	
930	M13	16 ^h 39 ^m .9 +36° 33'	"	0405 / 1:59	3 ^m	+5/32 3	"	B	S	W	2-3"	f	+23	0.80	-	KC	
931	"	"	"	0409 / 1:55	3 ^m	" 4	"	B	S	W	2-3"	f	"	"	-	KC	
932	M92	17 ^h 15 ^m .6 +43° 12'	"	0429 / 2:10	3 ^m	+23/30 1	"	B	S	W	2"	f	"	0.80	-	KC	
933	"	"	"	0433 / 2:06	3 ^m	" 2	"	B	S	W	2-3"	f	"	"	-	KC	
934	Pl. neb. 61+41°1	16 ^h 38 ^m .6 +38° 48'	"	0506 / 0:56	30 ^s 1 ^m 2 ^m 5 ^m	-10/31 3	"	B	S	W	2"	f	"	0.80	-	KC	✓
935	A1795	13 46.7 +26 50	JUNE 4	06:12 / 02:23W	40 ^m	+24/31 1	IIa-0	B	S	W	2-3"	f	+19	0.80	-	RAS	cluster of galaxies
936	A1795	"	"	06:38 / 02:48W	20	" 2	"	"	S	W	2-3"	f	+19	0.80	-	RAS	
937	M3	13 ^h 39 ^m .9 +28° 38'	June 9	03:25 / +1:02	4 ^m	" 1	IIa-0	B	S	W	2-3"	g	+17	0.80	-	KC	
938	M5	15 ^h 16 ^m .0 +2° 10'	"	03:41 / -0:19	4 ^m	22/30 2	"	"	S	W	2-3"	g	"	0.80	-	KC	
939	"	"	"	03:46 / -0:14	4 ^m	" 3	"	"	S	W	2-3"	g	"	0.80	-	KC	
940	M13	16 ^h 39 ^m .9 +36° 33'	"	04:02 / -1:22	4 ^m	" 4	"	"	S	W	2-3"	g	"	0.80	-	KC	
941	"	"	"	04:19 / -1:04	4 ^m	" 1	"	"	S	W	2-3"	g	"	"	-	KC	
942	M92	17 ^h 15 ^m .6 +43° 12'	"	04:32 / -1:27	4 ^m	" 2	"	"	S	W	2-3"	g	"	"	-	KC	
943	"	"	"	04:37 / -1:22	4 ^m	" 3	"	"	S	W	2-3"	g	"	"	-	KC	
944	M3	13 ^h 39 ^m .9 +28° 38'	"	04:56 / +2:32	4 ^m	" 4	"	"	S	W	2-3"	g	"	0.80	-	KC	
945	JUPITER	18 ^h 45 ^m +8°	14 June	3:15W	2 ^m	" 2	IIaD	H α	S	W	1-2"	f	+22°	0.40	-	DH	IT, test of focus plate
946	MARK 231	12 ^h 56 ^m +57°	19 June	3:46W	2 ^m	" 2	"	B	S	W	1-2"	g	+16°	0.40	-	DH	Slightly trailed images
947	"	"	"	3:50W	3 ^m	" 2	"	B	S	W	1-2"	g	"	"	-	DH	
948	"	"	"	3:58W	5 ^m	" 3	"	H α	S	W	1-2"	g	"	0.42	-	DH	Redshifted H α filter
949	NGC 7023	21 ^h 01 ^m , +68°	"	2:10E	4 ^m	" 1	"	B	S	W	1-2"	g	"	0.40	-	DH	
950	"	"	"	2:16E	4 ^m	" 2	"	B	S	W	1-2"	g	"	"	-	DH	
951	"	"	"	2:19E	2 ^m	" 3	"	B	S	W	1-2"	g	"	"	-	DH	

Plate No.	Object	α, δ (1950)	Date (UT)	UT / HA (and)	Exp.	Guide * Pl. Holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans.	Temp.	Focus	Flash	Obs.	REMARKS
952	M3	13 ^h 39.9 +28° 38'	1980 June 26	0309 / +1:52	4 ^m	1	IIa-O	B	S	W	1"	f	+28	0.80	-	KC	br. moon
953	M13	16 ^h 39.9 +36° 33'	"	0322 / -0:54	3 ^m	2	"	"	"	"	1"	f	+28	0.80	-	KC	"
954	M13	"	"	0326 / -0:50	3 ^m	3	"	"	"	"	1"	f	"	"	-	KC	"
955	M13	"	"	0342 / -0:34	15 ^m	4	"	"	"	"	1"	f	"	"	-	KC	"
956	M92	17 ^h 15.6 +43° 12'	"	0406 / -0:46	3 ^m	-1/32 1	"	"	"	"	1"	f	+28	"	-	KC	"
957	"	"	"	0410 / -0:42	3 ^m	" 2	"	"	"	"	1"	f	"	"	-	KC	"
958	pl. neb. 61+41	16 ^h 38.6 +38° 48'	"	0437 / +0:22	2 ^m , 4 ^m , 8 ^m	-6/32 3	"	"	"	"	1"	f	"	"	-	KC	"
959	M3	13 ^h 39.9 +28° 38'	"	0452 / +3:35	5 ^m	4	"	"	"	"	1-2"	f	"	0.80	-	KC	"
960	M71	19 ^h 51.5 +18° 39'	"	0519 / -2:09	5 ^m	1	"	"	"	"	2"	f	+27	0.80	-	KC	"
961	Q0957+561	10 ^h , 56°	28 JUNE	0330 / 5 ^h 45 ^m W	20 ^m	-2/29 1	IIa0	B	N	E	1-2"	f	+26°	0.80	-	DH	"
962	Q0957+561	10 ^h , 56°	"	0400 / 6 ^h 05 ^m W	15 ^m	" "	"	"	"	"	"	"	"	"	-	DH	"
963	MARK 231	12 ^h 55 ^m , 57°	"	0445 / 4 ^h 05 ^m W	2 ^m	1	"	B	"	"	1-2"	f	+25°	0.39	-	DH	MIT used to 972
964	MARK 231	"	"	0500 / 4 ^h 15 ^m W	5 ^m	2	"	"	"	"	"	"	"	"	-	DH	Full Moon
965	MARK 231	"	"	0600 / 5 ^h 15 ^m W	10 ^m	3	"	H _a	"	"	"	f	"	"	-	DH	needed to 12000 m/sec
966	NGC 7023	21 ^h 02 ^m , 68°	"	0800 / 1 ^h 45 ^m E	2 ^m	1	"	B	E	W	"	"	"	"	-	DH	"
967	NGC 7023	"	"	0815 / 1 ^h 30 ^m E	2 ^m	2	"	"	E	W	"	"	"	"	-	DH	"
968	"	"	"	0835 / 1 ^h 10 ^m E	4 ^m	2	"	B	"	"	"	"	"	"	-	DH	"
969	"	"	"	0840 / 1 ^h 5 ^m E	4 ^m	3	"	B	"	"	"	"	"	"	-	DH	"
970	"	"	"	09:05 / 40 ^m E	15 ^m	1	"	RG8	"	"	"	"	"	"	-	DH	"
971	"	"	"	09:15 / 30 ^m E	15 ^m	2	"	RG8	"	"	"	"	"	"	-	DH	"
972	"	"	"	09:45 / 0 ^h	10 ^m	3	"	RG8	"	"	"	"	"	"	-	DH	2-0.
973	M3	13 ^h 39.9 +28° 38'	June 30	0305 / +2:04	5 ^m	1	IIa-O	B	S	W	2-3"	g	+20°	0.80	-	KC	"
974	M13	16 ^h 39.9 +36° 33'	"	0322 / -0:38	5 ^m	2	"	"	"	"	3-5"	g	"	0.80	-	KC	"
975	M92	17 ^h 15.6 +43° 12'	"	0334 / -1:02	5 ^m	3	"	"	"	"	3-5"	g	"	"	-	KC	"

Plate No.	Object	α, δ (1950)	Date (UT)	UT / HA (end)	Exp.	Guide *	Pl. Holder	Emulsion	Filter	P.A.	Tel.	Seeing	Treat.	Temp.	Focus	Flash	Obs.	REMARKS
976	M3	13 ^h 39. ^m 9 +28° 38'	1980 June 30	0400 / +2:59	7 ^m	+1/32	4	IIa-O	B	S	W	2-4"	g	+20°	0.80	-	KC	
977	"	"	July 5	0304 / +2:22	4 ^m		1	IIa-O	B	S	W	1-2"	f	+28	0.80	-	KC	
978	M5	15 ^h 16. ^m 0 +2° 16'	"	0320 / +1:02	4 ^m	2/30	2	IIa-O	B	S	W	1-2"	f	+28	0.80	-	KC	
979	M13	16 ^h 39. ^m 9 +36° 33'	"	0337 / -0:04	~2 ^m		3	"	"	S	W	1-2"	p	+28	0.80	-	KC	killed by clouds
980	M92	17 ^h 15. ^m 6 +43° 12'	"	0352 / -0:25	3 ^m		4	"	"	"	"	"	f	"	"	-	KC	
981	M22	18 ^h 33. ^m 3 -23° 58'	"	0546 / +0:11	5 ^m		1	"	"	"	"	3-5"	f	+26	0.79	-	KC	wind shaking telescope
982	"	"	"	0553 / +0:18	5 ^m		2	"	"	"	"	3"	f	"	"	-	KC	
983	"	"	"	0614 / +0:39	15 ^m		3	"	"	"	"	3-4"	f	"	"	-	KC	
984	"	"	"	0631 / +0:56	15 ^m		4	"	"	"	"	3-4"	f	"	"	-	KC	
985	M3	13 ^h 39. ^m 9 +28° 38'	July 7	0302 / +2:28	8 ^m		1	IIa-O	B	S	W	3-5"	f	+22	0.80	-	KC	
986	M13	16 ^h 39. ^m 9 +36° 33'	"	0349 / +0:16	5 ^m		1	103a-G	V	S	W	5"	f	"	0.80	-	KC	wedge old plate
987	"	"	"	0359 / +0:26	5 ^m		2	IIa-O	B	S	W	5"	"	"	"	-	KC	"
988	IC 4665	17 ^h 43. ^m +5° 45'	"	0425 / -0:12	10 ^m	23/31	3	"	"	S	W	"	"	"	0.80	-	KC	"
989	M92	17 ^h 15. ^m 6 +43° 12'	July 9	0312 / -0:49	5 ^m	-1/32	1	103a-G	V	S	W	3"	f	+25	0.80	-	KC	wedge new plate
990	IC 4665	17 ^h 43. ^m +5° 45'	July 10	0412 / -0:14	10 ^m		1	103a-G	V	S	W	1-2"	f-p	+24	0.80	-	KC	wedge old plate
991	"	"	"	0424 / -0:02	10 ^m		2	103a-G	V	S	W	"	"	"	"	-	KC	" old plate
992	"	"	"	0431 / +0:05	5 ^m		3	IIa-O	B	S	W	"	"	"	"	-	KC	"
993	"	"	"	0438 / +0:12	5 ^m		4	"	B	S	W	"	"	"	"	-	KC	"
994	M3	13 ^h 39. ^m 9 +28° 38'	July 11	0318 / +3:00	4 ^m		1	IIa-O	B	S	W	1-2"	f	+28°	0.80	-	KC	
995	M5	15 ^h 16. ^m 0 +2° 16'	"	0333 / +1:38	4 ^m		2	"	"	"	"	"	"	"	0.80	-	KC	
996	M13	16 ^h 39. ^m 9 +36° 33'	"	0348 / +0:31	3 ^m		3	"	"	"	"	1"	"	"	0.80	-	KC	
997	"	"	"	0404 / +0:47	15 ^m		4	"	"	"	"	1"	"	"	"	-	KC	
998	M92	17 ^h 15. ^m 6 +43° 12'	"	0421 / +0:28	3 ^m		1	"	"	"	"	"	"	"	"	-	KC	
999	M22	18 ^h 33. ^m 3 -23° 58'	"	0501 / -0:11	25 ^m	-3/31	2	"	"	"	"	2-3"	"	+27	0.78	-	KC	

Pl. No.	Object	α, δ (1950)	Date (UT)	UT / HA end	Exp.	Guide *	Pl. Holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans.	Temp.	Focus	Flash	OBS.	REMARKS
1000	M 22	18 ^h 33. ^m 3 - 23 ^o 58'	1980 July 11	0527 / +0:15	25 ^m	-3/31	3	IIa-O	B	S	W	3"	f	+27	0.78	-	KC	
1001	NGC 7142	21-44.1 +65-35	July 13	0800 / 0830 [?]	30 ^m	19/37	1	IIa-O	B	S	W	2"	f	+25	0.80	IX	RCS	HA 0025W
1002	M 3	13 ^h 39. ^m 9 + 28 ^o 38'	July 14	0300 / +2:53	6 ^m		2	IIa-O	B	S	W	2-3"	f	+28	0.80	-	KC	
1003	M 92	17 ^h 15. ^m 6 + 43 ^o 12'	"	0317 / -0:25	5 ^m		3	"	"	"	"	"	"	"	0.80	-	KC	
1004	M 13	16 ^h 39. ^m 9 + 36 ^o 33'	"	0329 / +0:23	5 ^m		4	"	"	"	"	"	"	"	"	-	KC	
1005	NGC 5921	15 ^h 0 ^m 27. ^s 6 + 50 ^o 14' 54"	"	/ 3:00 W	15 ^m		1	"	"	"	"	"	"	"	"	-	DH	
1006	NGC 5846	15 ^h 3 ^m 56. ^s + 10 ^o 42'	"	/ 3:25 W	10 ^m		2	"	"	"	"	"	"	"	"	-	DH	
1007	M 13	16 ^h 39. ^m 9 + 36 ^o 33'	July 18	03:11 / +0:21	3 ^m		1	IIa-O	B	S	W	3-5"	f	+26	0.80	-	KC	
1008	M 13	"	"	03:15 / +0:25	3 ^m		2	IIa-O	B	S	W	3-5"	f	"	"	3X	KC	
1009	M 13	"	"	0320 / +0:30	3 ^m		3	103a-G new	V	S	W	3-5"	f	"	"	-	KC	
1010	M 13	"	"	0324 / +0:34	3 ^m		4	103a-G new	V	S	W	3-5"	f-p	"	"	5X	KC	cirrus during last 1 minute
1011	M 13	"	July 25	0316 / +0:54	3 ^m		1	IIa-O	B	S	W	1-2"	g	+24	0.80	-	KC	
1012	M 92	17 ^h 15. ^m 6 + 43 ^o 12'	"	0327 / +0:29	4 ^m		2	"	"	"	"	2"	g	"	"	-	KC	
1013	M 71	19 ^h 51. ^m 5 + 18 ^o 39'	"	0349 / -1:45	7 ^m	24/32	3	"	"	"	"	2"	g	"	0.80	-	KC	
1014	M 15	21 ^h 27. ^m 8 + 11 ^o 57'	"	0409 / -3:02	5 ^m	5/29	4	"	"	"	"	1-3"	g	+23	0.79	-	KC	
1015	M 13	16 ^h 39. ^m 9 + 36 ^o 33'	Aug 2	0335 / +1:44	3 ^m		1	"	"	"	"	1"	g	+28	0.80	-	KC	
1016	M 92	17 ^h 15. ^m 6 + 43 ^o 12'	"	0349 / +1:22	4 ^m		2	"	"	"	"	1"	f-p	"	"	-	KC	clouds, effective exp ~ 3 ^m
1017	M 13	16 ^h 39. ^m 9 + 36 ^o 33'	Aug. 19	0309 / +2:25	3 ^m		1	IIa-O	B	S	W	1"	f-g	+26	0.80	-	KC	
1018	M 92	17 ^h 15. ^m 6 + 43 ^o 12'	"	0319 / +1:59	3 ^m		2	"	"	"	"	1"	"	"	"	-	KC	
1019	M 71	19 ^h 51. ^m 5 + 18 ^o 39'	"	0335 / -0:20	5 ^m		3	"	"	"	"	1"	f-g	"	0.80	-	KC	
1020	M 15	21 ^h 27. ^m 6 + 11 ^o 57'	"	0352 / -1:40	3 ^m		4	"	"	"	"	1"	"	"	0.80	-	KC	
1021	M 71	19 ^h 51. ^m 5 + 18 ^o 39'	Aug. 23	0333 / -0:08	5 ^m		1	"	"	"	"	2"	g	+24	0.80	-	KC	
1022	M 15	21 ^h 27. ^m 6 + 11 ^o 57'	"	0355 / -1:21	4 ^m		2	"	"	"	"	2"	"	"	0.80	-	KC	
1023	"	"	"	0400 / -1:16	4 ^m		3	"	"	"	"	2"	"	"	"	-	KC	

Pl. No.	Object	α, δ (1950)	Date (UT)	UT/HA end	Exp.	Guide #	Pl. No.	Emulsion	Filter	P.A. Tel.	Seeing	Trans.	Temp.	Focus	Flesh	OBS.	REMARKS
1024	M 2	21 ^h 30 ^m .9 -10° 03'	1950 Aug. 23	0425/-0:54	5 ^m	-5/32	4	IIa-0	B	S W	2"	g	23	0.80	-	KC	
1025	M 13	16 ^h 39 ^m .9 +36° 33'	Aug. 27	0228/+2:15	1 ^m		1	IIa-0	B	S W	1-2"	f	28	0.80	-	KC	W. br. moon
1026	M 71	19 ^h 51 ^m .5 +18° 39'	"	0243/-0:41	4 ^m		2	"	"	" "	2"	f	"	0.80	-	KC	
1027	M 15	21 ^h 27 ^m .6 +11° 57'	"	0257/-2:03	3 ^m		3	"	"	" "	"	"	"	0.80	-	KC	
1028	"	"	"	0301/-1:59	"		4	"	"	" "	"	"	"	"	-	KC	↓
1029	M 13	16 ^h 39 ^m .9 +36° 33'	Sept. 19	0136/+2:54	1 ^m		1	IIa-0	B	S W	1-2"	g	+19	0.80	-	KC	
1030	M 92	17 ^h 15 ^m .6 +43° 12'	"	0143/+2:26	1 ^m		2	"	"	" "	"	"	"	"	-	KC	
1031	M 15	21 ^h 27 ^m .6 +11° 57'	"	0159/-1:23	3 ^m		3	"	"	" "	"	"	"	0.80	-	KC	
1032	"	"	"	0203/-1:27	3 ^m		4	"	"	" "	"	"	"	"	-	KC	
1033	M 71	19 ^h 51 ^m .5 +18° 39'	"	0235/+0:41	5 ^m		1	"	"	" "	1-2"	"	"	0.80	-	KC	
1034	M 15	21 ^h 27 ^m .6 +11° 57'	"	0246/-0:34	3 ^m		2	"	"	" "	"	"	+18°	0.80	-	KC	
1035	M 15	"	"	0251/-0:39	3 ^m		3	"	"	" "	"	"	"	"	-	KC	
1036	"	"	"	0302/-0:28	1 ^m		4	"	"	" "	1"	"	"	"	-	KC	
1037	"	"	"	0316/-0:14	3 ^m		1	"	"	" "	1-2"	"	"	"	-	KC	
1038	"	"	"	0320/-0:10	3 ^m		2	"	"	" "	1-2"	"	"	"	-	KC	
1039	M 2	21 ^h 30 ^m .9 -01° 03'	"	0350/+0:17	5 ^m		3	"	"	" "	2"	"	"	"	-	KC	
1040	M 15	21 ^h 27 ^m .6 +11° 57'	"	0410/+0:39	5 ^m		1	"	"	" "	3"	"	+17°	"	-	KC	
1041	"	"	"	0416/+0:45	5 ^m		4	"	"	" "	3"	"	"	"	-	KC	
1042	NGC 6823	19 ^h 38 ^m .9 +23° 15'	Sept 21	0237/+0:30	6 ^m		1	"	B	S W	3-4"	f	+20°	0.80	-	RS	
1043	M 13	16 ^h 39 ^m .9 +36° 33'	Sept. 27	0048/+2:27	30 ^s		1	IIa-0	B	S W	1"	f	+14°	0.80	-	KC	
1044	"	"	"	0049/+2:38	45 ^s		2	"	B	S W	1"	f-p	"	"	-	KC	
1045	"	"	Sept. 28	0121/+3:	30 ^s		1	"	B	S W	1"	f	+17	0.80	-	KC	
1046	"	"	"	0122/+3:	30 ^s		2	"	B	S W	1"	f	"	"	-	KC	
1047	M 92	17 ^h 15 ^m .6 +43° 12'	"	0135/+2:53	30 ^s		3	"	B	S W	1"	f	"	"	-	KC	

Pl. No.	Object	α, δ (1950)	Date (UT)	UT/HA (end)	Exp.	Guide *	Pl. Holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans.	Temp.	Focus	Flash	Obs.	Remarks
1048	M92	17 ^h 15 ^m .6 +43° 12'	1980 Sept, 28	0136/+2:54	30 ^s		4	IIa-O	B	S	W	1"	f	+17	0.80	-	KC	
1049	M71	19 ^h 51 ^m .5 +18° 39'	"	0205/+0:47	5 ^m		1	"	"	"	"	1"	f	"	0.80	-	KC	
1050	M2	21 ^h 30 ^m .9 -01° 03'	"	0231/-0:26	5 ^m		2	"	"	"	"	1"	f	+17	0.80	-	KC	
1051	M15	21 ^h 27 ^m .6 +11° 57'	"	0242/-0:12	30 ^s		3	"	"	"	"	1"	f	"	0.80	-	KC	
1052	"	"	"	0243/-0:11	30 ^s		4	"	"	"	"	1"	f	"	"	-	KC	
1053	"	"	"	0319/+0:26	3 ^m		1	"	"	"	"	2"	f	+16	"	-	KC	
1054	"	"	"	0324/+0:30	3 ^m		2	"	"	"	"	2"	f	"	"	-	KC	
1055	NGC 7654	23 ^h 22 ^m .7 +61° 23'	Oct 4	0115/0300	10 ^m		1	IIa-O	"	"	"	3"	f	+6	"	-	RS	Rain wedge
1056	"	"	"	0132/0250	15 ^m		2	"	"	"	"	3"	f	"	"	-	RS	
1057	NGC 6823	19 ^h 38 ^m .9 +23° 04'	"	0238/0232	30 ^m		1	"	"	"	"	2"	f	"	"	-	RS	
1058	"	"	"	0311/0253	30 ^m		2	"	"	"	"	"	f	"	"	-	RS	
1059	"	"	"	0345/327	8 ^m		3	103a-G	V	"	"	"	f	"	"	-	RS	
1060	"	"	"	0355/337	8 ^m		4	"	"	"	"	"	f	"	"	-	RS	
1061	"	"	"	0424/356	5 ^m		1	IIa-O	B	"	"	"	f	"	"	-	RS	
1062	"	"	"	0430/400	8 ^m		2	"	"	"	"	"	f	"	"	-	RS	
1063	NGC 559	1 ^h 26 ^m .1	"	0545/090	30 ^m		1	"	"	"	"	1-2"	f	+5	"	-	RS	
1064	"	"	"	0623/000	30 ^m		2	"	"	"	"	"	f	"	"	-	RS	
1065	"	"	"	0703/036	30 ^m		3	103a-G	V	"	"	"	f	"	"	-	RS	
1066	"	"	"	0738/112	30 ^m		4	"	"	"	"	"	f	"	"	-	RS	
1067	IC 1311	20 ^h 08 ^m .6 +41° 04'	Oct 5	0128/023	30 ^m		1	IIa-O	B	"	"	1"	f	+9	0.80	-	RS	
1068	"	"	"	0203/102	30 ^m		2	"	B	"	"	"	f	"	"	-	RS	
1069	"	"	"	0245/144	30 ^m		3	103a-G	V	"	"	1-2"	f	"	"	5X	RS	
1070	"	"	"	0320/214	30 ^m		4	"	"	"	"	"	f	"	"	5X	RS	
1071	NGC 7654	23 ^h 22 ^m .7 61° 23'	"	0457/038	15 ^m		1	"	"	"	"	2"	f	7	"	5X	RS	

Pl. No.	Object	α, δ (1950)	Date (UT)	UT / HA (end)	Exp.	Guide *	Pl. Holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans.	Temp.	Focus	Flash	OBS.	REMARKS
1072	NGC 559	1 ^h 26 ^m 1 63° 03'	Oct 5	0540 / 020	30 ^m		2	103a-G	V	S	W	2"	f	7°	0.80	5X	RS	Racine wedge
1073	"	"	"	0615 / 000	45 ^m		3	"	"	"	"	"	f	"	"	"	RS	"
1074	Hamilton #161	4 ^h 30 ^m -8°	8 Oct.	07 ^m W	30 ^m		1	IIaO	U	"	"	2-3	Ex	12°C	"	-	DLT	Periods of excellent seeing.
1075	"	"	"	50 ^m W	30 ^m		2	"	B	"	"	"	"	"	"	-	DLT	"
1076	"	"	"	10 ^h 30 ^m / 15 ^m W	15 ^m		3	103a-G	V	"	"	"	"	"	"	-	DLT	"
1077	NGC 7741	23 ^h 43 ^m +25° 56'	10 Oct '80	12:35 pm / 1 ^h 13 ^m W	15 ^m		1	IIaD	V	S	W	~2"	B	12°C	0.40	-	DLT	MAG. Focus, ITUSRO,
1078	"	"	"	1:10 am / 1 ^h 50 ^m W	30 ^m		2	"	V	S	W	"	"	"	"	-	DLT	" " " "
1079	"	"	"	2:03 am / 2 ^h 44 ^m W	33 ^m		3	"	V	S	W	"	"	"	"	-	DLT	" " " "
1080	M 31 (nuc.)	00 ^h 42 ^m +41° 10'	"	3:35 / 3 ^h 17 ^m W	10 ^m		1	"	V	S	W	"	f	"	"	-	DLT	" " " " {Elt. clouds}
1081	NGC 1976	05 ^h 34 ^m -05° 25'	"	3:56 / 1 ^h 15 ^m E	30 ^s		2	"	V	S	W	~5"	f-p	"	"	-	DLT	" " " " { " }
1082	NGC 7044	21 ^h 11 ^m 1 42° 17'	Oct 12	0135 / 000	30 ^m		2	IIaO	B	S	W	1"	f	+9	0.80	-	RS	Racine wedge
1083	"	"	"	0205 / 030 W	30 ^m	-15/33	1	"	B	S	W	"	"	"	"	-	RS	"
1084	"	"	"	0300 / 117 W	30 ^m		3	103a-G	V	S	W	"	"	"	"	5X	RS	"
1085	"	"	"	0332 / 0151 W	30 ^m		4	"	V	S	W	"	"	8	"	5X	RS	"
1086	M 15	21 ^h 27 ^m 6 +11° 57'	Oct 27	0123 / +0:23	3 ^m		1	IIaO	B	S	W	2"	f	+3	0.80	-	KC	
1087	"	"	"	0127 / +0:27	"		2	"	B	S	W	2"	"	"	"	-	KC	
1088	"	"	"	0159 / +0:59	2 ^m		3	"	B	S	W	2"	"	"	"	-	KC	
1089	"	"	"	0202 / +1:02	"		4	"	B	S	W	2"	"	"	"	-	KC	
1090	"	"	"	0222 / +1:22	30 ^s		1	"	B	S	W	1"	"	"	0.80	-	KC	
1091	"	"	"	0223 / +1:23	30 ^s		2	"	B	S	W	1"	"	"	"	-	KC	
1092	"	"	"	0230 / +1:30	2 ^m		3	"	B	S	W	1"	"	"	"	-	KC	
1093	"	"	"	0233 / +1:33	2 ^m		4	"	B	S	W	1"	"	"	"	-	KC	
1094	"	"	"	0306 / +2:06	3 ^m		1	"	B	S	W	1-2"	f-p	+2	0.80	-	KC	
1095	"	"	"	0310 / +2:10	3 ^m		2	"	B	S	W	1-2"	f-p	"	0.11	-	KC	

Pl. No.	Object	α, δ (1950)	Date (UT)	UT/HA (end)	Exp.	Guide *	Pl. Holder	Emulsion	Filter	P.A.	Tel.	Seeing	Trans.	Temp.	Focus	Flash	Obs.	REMARKS
1096	NGC 6946	20 ^h 34 ^m +60°	1980 Oct. 31	00 49 / +0:59	10 ^m	1/29	1	IIa-0	B	S	W	~5"	f	+8	0.80	-	KC	SN!
1097	"	"	"	01 00 / +1:10	8 ^m	"	2	103a-G	V	S	W	~5"	f	"	"	5X	KC	"
1098	M 15	21 ^h 27 ^m .6 +11°57'	"	01 28 / +0:43	5 ^m	"	3	IIa-0	B	S	W	~5"	f	"	0.80	-	KC	
1099	"	"	"	01 34 / +0:49	5 ^m	"	4	"	B	S	W	~5"	f	"	"	-	KC	
1100	NGC 6946	20 ^h 34 ^m +60°	Nov. 1	01 33 / +1:42	20 ^m	"	1	IIa-0	B	S	W	2"	f	+10	0.80	3X	KC	SN! (simultaneous with refractor plate)
1101	M 15	21 ^h 27 ^m .6 +11°57'	"	02 40 / +2:00	3 ^m	"	2	"	"	"	"	2-3"	f	+10	0.80	-	KC	
1102	"	"	"	02 44 / +2:04	3 ^m	"	3	"	"	"	"	"	f	"	"	-	KC	
1103	NGC 6543	17 ^h 58 ^m .6 +66°38'	Nov. 6	00 29 / +3:38	1 ^m , 2 ^m	"	1	103a-G	GG14 =V	S	W	2"	f	+7	0.80	2X	KC	
1104	"	"	"	00 41 / +3:50	2 ^m , 5 ^m	"	2	"	OG1	"	"	"	"	"	"	2X	KC	
1105	NGC 6720	18 ^h 52 ^m .7 +32°58'	"	01 06 / +3:21	2 ^m , 5 ^m	"	3	"	GG14 (V)	"	"	"	"	"	"	2X	KC	
1106	NGC 7009	21 ^h 01 ^m .5 -11°34'	"	01 22 / +1:27	1 ^m , 2 ^m	"	4	"	"	"	"	"	"	"	"	2X	KC	
1107	M 15	21 ^h 27 ^m .6 +11°57'	"	01 46 / +1:25	2 ^m	"	1	IIa-0	B	"	"	1-2"	"	+7	0.80	-	KC	
1108	"	"	"	01 49 / +1:28	2 ^m	"	2	"	B	"	"	"	"	"	"	-	KC	
1109	NGC 6946	20 ^h 34 ^m +60°	"	02 31 / +3:05	20 ^m	"	1	"	-	"	"	1-2"	"	+7	0.80	3X	KC	SN
1110	NGC 7662	23 ^h 23 ^m .5 +42°16'	"	02 58 / +0:41	1 ^m , 2 ^m	"	1	103a-G	GG14 (V)	"	"	"	"	"	0.80	2X	KC	

To BOOK 2

Plate	Object	d. S	Date (UT)	UT/HA	Exp.	Emulsion	Filter	P.A. Tel	Seeing	Trans	Temp	Focus	Obs	Remarks
		(1975) (1950)	1974											
261a	II Zw 136	21:30 +09°56'	June 27		45 ^m	103a-E	RG 2						DM	Labeled -01 F/2
261b	M13	16 42 +36'	"		15	108a-E	RG 2						DM	Labeled -2 F/8
261c	M13	"	"		5	103a-E	RG 2						DM	Labeled -3 F/8
261d	Test spots	—	July 13		1 ^s , 3 ^s								DM	Labeled 1
261e	3C 351	17:04:03 +60°48'3"	"		30 ^m	III a-J	Wratten No 4						DM	Labeled 2 F/8 Baked
261f	3C 351	"	"		90 ^m	III a-J	"						DM	Labeled 3 F/8 Baked
261g	Mark. 506 [?]	17 20.7 +30°56'	"		30 ^m	III a-J	Wratten No 4						DM	Labeled 4 F/8 Baked
261h	Test spots	—	July 14		3 ^m , 10 ^m	III a-J							DM	Labeled 5
261i	"	—	"		1 ^m , 3 ^m	III a-J							DM	Labeled 6
261j	3C 351	17:04 +60 48	July 16		120 ^m	III a-J	Wratten No 4						DM	Labeled 7
261k	Test spots	—	July 21		1 ^m , 3 ^m	III a-J							DM	Labeled 8 Moonlight
261l	3C 390.3	18:46.6 +79°43'	Aug 9		30 ^m	III a-J							DM	Labeled 9
261m	II Zw 2130+09	21:31.2 +10 02	Aug 18		40 ^m	III a-J							DM	Labeled 10
261n	Test spots	—	"		1 ^m , 3 ^m	III a-J							DM	Labeled 11
261o	II Zw 2130+09	21:31.2 +10°02.5	"		160 ^m	III a-J							DM	Labeled 12
261p	3C 390.3	18 43.9 +79 45	Aug 19		150	III a-J							DM	Labeled 13
261q	Mark 304 = II Zw 175	22:16 +14°07'	"		180	III a-J							DM	Labeled 14
261r	Markarian 315	23 01.6 +22°21'	Sept 14		120	III a-J							DM	Labeled 15
261s	"	"	"		150	III a-J							DM	Labeled 16
261t	NGC 1068	02:41.4 -00 08	"		115	III a-J							DM	Labeled 17
261u	Markarian 304	21:14.7 +13° 59'	Sept 15		150	III a-J	Wratten No 4						DM	Labeled 18

Plate	Object	λ, δ	Date	UT/HA	Exp	Guid. X	Emulsion	Filter	PA	Tel	Seeing	Tran	Temp	Focus	Obs	Remarks
261V	NGC 7469	23:03 +08°44'	1974 Sept 15		150		IIIa-J	Wratten No 4							DM	Labeled 19
																Labeled 20
262	3C 351		Sept 16	See regular log page											DM	Labeled 21
263	"		"	"											DM	Labeled 22
263a	NGC 7603	23:17.7 +00°07'	"		180		IIIa-J	Wratten No 4							DM	Labeled 23
263b	NGC 2024	5:39.4 -01°57'	Sept 17	3:30 AM 5:23 AM	113		103a-G	RG 2							DM?	Labeled 24
264	NGC 6791		Sept 18	See regular log page											DM	Labeled 24
265	NGC 6791		"	"											DM	Labeled 25
265a	Markarian 1	01:14.2 +32°56'	"		45		IIIc-O	B							DM	Labeled 26
1973																
888a	Praesepe	8:37.2 +20°16'	Dec 15		20		103a-G	B			5-10				J	
888b	"	"	"		20		IIa-D	V			5-10				J	
259a	NGC 4605	12 ^h 37.7 +61° 53'	1973-05- 30/31		20		IIa0	none							RAW	labeled #7
259b	NGC 4605	12 ^h 37.7 +61° 53'	1973-05- 30/31		20		IIa0	none							RAW	labeled #8
259c	NGC 3640	11 ^h 25.7 +58° 50'	1973-05- 30/31		45		IIa0	none							RAW	labeled #9
259d	NGC 3949	11 ^h 51.1 +48° 08'	1973-06- 1/2		25		IIa0	none							RAW	labeled #10
259e	NGC 4258	12 ^h 16.5 +47° 35'	1973-06- 1/2		15		IIa0	none							RAW	labeled #11
259f	NGC 3738	11 ^h 33 +54° 41'	1973-06- 24/25		45		IIa0	none							RAW	labeled #12

For additional plates when log book was missing; see start of book 2

RA	DEC		
18 32 32	30 52	18 00 54	-23 00
18 39 27	38 20		
19 45 43	25 04		
17 04 03	60 49		
23 24 36	42 24		

19 32 50	38 44		
19 45 43	+25 04		
19 57 12	35 08		
2 41 24	-00 14		

condi focus

Visual $22^m \rightarrow 10^5 \text{ m}^2 \text{ sec}^{-1} (1000 \text{ \AA})$
 $12^m \rightarrow 10^6 \text{ m}^2 \text{ sec}^{-1} (1000 \text{ \AA})$
 $\rightarrow 10^2 \text{ m}^2 \text{ sec}^{-1} \text{ \AA}^{-1}$
 $7^m \rightarrow 10^4 \text{ m}^2 \text{ sec}^{-1} \text{ \AA}^{-1}$
 $8^m \rightarrow 4000 \text{ m}^2 \text{ sec}^{-1} \text{ \AA}^{-1}$
 22 counts sec^{-1}
 3.7 counts $\text{m}^2 \text{ sec}^{-1} \text{ \AA}^{-1}$

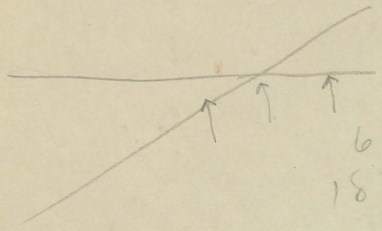
2238
 2453
 13

2000

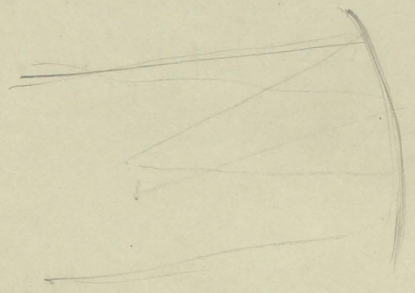
240

114110

43 82
 356



612
 1835
 20
 1224



2/3 90
 269
 180
 1148

