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CI - Color Index Series – page 50 transf to page 10 –
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L - L. Larmore's Plates – pages 160 – 1938

List of Interesting Red Stars page 150 (Larmore)

Omicron Persei Curtis Cramer + Hamm
15 Muscae.
12 "

LA - L. Larmore's Plates - page 140

HJ Harold Johnson's Plates, pages 16- 1948

S - R. D. SCHALDACH'S PLATES, PAGES 20 – 1949-1951

O - C. L. Osterberg's Plates, Page 28 1950-1951

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Kent DeGroff. 4 plates of ℰ 1965f Ikeya-Seki, page 24 165

	Negative Number	Region: Guide Star	R.A.	Dec.	Date 1930	H.A. at end of Exposure	Exposure time	Telescope or operating	Emulsion of Plate	Developer: Kind	Developer: Time	Developer: Temp	Seeing: Transp.	Seeing: Stead.	Position of Telescope ie: E or W of axis.	Position of writing on plate	Observer	Remarks: —
	N-1	Polaris	1h54	+89°15	11-11	2h47E	7:05-8:05=1hr	13 inch	Imperial 8x10	D-28	4m	68°	good	3	W	N	K.A.N.	developer stained.
	N-2	Polaris	1h54	+89°15'	11-11	1h15E	8:37-9:37=1hr	13 inch	Imperial 8x10	D-28	4m	68°	good	3	W	N	K.A.N.	Rotation of field
	N-3	Perseus Cluster	2h15m	+56°45'	11-11	13mW	10:15-10:40=25m	13 inch	Iso Medium 8x10	D-28	4m	65°	good	3	W	N	Curt	Very good.
	N-4	Polaris	1h45	+89°15'	11-12	2h40E	7:00-8:00=1hr	13 inch	Imperial 8x10	D-28	4m	65°	good	4	W	N	Curt	good-field rotation.
	N-5	Perseus Cluster	2h15m	+56°45'	11-12	20mW	10:30-11:30=1hr	13 inch	Iso Instant 8x10	D-28	4m	65°	good	4	W	N	K.A.N.	Very good.
15"x15"	N-6	Comet Region	9h	-16°	11-25	4hW	6h55-7:25=30m	13 inch	Eastman 40 8x10	D-28	4m	65°	good	3	W	N	K.A.N.	12x16 plate. cracked-out of focus [illegible]
	N-7	Comet Region	9h	-16°	11-25	4hW	6:55-7:25=30m	Coggeshall 5 inch	Iso Instant 8x10	D-28	4m	65°	good	3	W	N	K.A.N.	dark-fair.
	N-8	Guide for Eros	9h0m	+45°0'	11-26	2h50E	13:16-14:16=1hr	13 in	Iso Instant 8x10	D-28	4m	65°	good	3	W	N	K.A.N.	good plate - Eros shown in 5 images.
	N-9	γ Cygni	20h20m	+40°	11-30	3:15W	7:00-7:25=25m	13 inch	Iso Instant 8x10	D-28	4m	65°	good	2	W	N	K.A.N.	good plate
	N-10	γ Cassiopeia	50m	+60°40'	11-30	25mE	8:00-8:20=20m	13 inch	Iso Instant 8x10	D-28	4m	65°	good	1	W	N	K.A.N.	good plate
	N-11	Andromeda	3h30m	+41°	11-30	1:23W	9:30-9:55=25m	13 inch	Iso Instant 8x10	D-28	4m	65°	good	1	W	N	K.A.N.	good plate.
	N-12	Pleiades	3h10m	+24°	11-30	10mE	10:55-11:25=30m	13 inch	Iso Instant 8x10	D-28	4m	65°	good	1	W	N	K.A.N.	good plate. two exp. 25m and 4 min.
14"x17"	N-13	γ Cygni	20h20m	+40°	12-2?	4h45W	8:30-9:00=30m	13 inch	Iso Instant 14"x17"	D-28	2m	65°	fair	1	W	N	K.A.N.	mottled and fogged.
	N-14	γ cygni	20h20m	+40°	12-2?	4h45W	18:30-9:00=30m	Coggeshall 5 inch	Iso Instant 8x10	D-28	2m	65°	fair	1	W	N	K.A.N.	fogged + mottled.
14"x17"	N-15	ζ Orionis	5h35	-2°0'	12-2?	1hE	11:30-11:45=15m	13 inch	Iso Instant 14"x17"	D-28	3m	65°	fair	1	W	N	K.A.N.	fogged but good.
	N-16	Perseus Cluster	5h15m	+56°45'	12-9	1h45E	9:05-9:25=20m	13 inch	Iso Presto 8"x10"	D-28	4m	68°	fair	1	W	N	K.A.N.	good - blistered.
	N-17	Perseus Cluster	2h15m	+57°15'	12-9	0h	10:42-11:10=28m	13 inch	Iso Instant 8x10	D-28	4m	68°	fair	2	W	N	K.A.N.	good plate. exposure too close.
	N-18	? Orionis	5h30m	+5°05'	12-10	1:30E	10:55-11:17=22m	13 inch	Iso Medium 8x10	D-28	4m	68°	fair	2	W	N	K.A.N.	good - 3 exposures.
	N-19	Uranus (attempt	43m	-3°45'	12-12	41mE	6:42-7:04=22m	13 inch	Iso Medium 8x10	D-28	4m	70°	fair	3	W	N	K.A.N.	good plate. Missed Uranus by 6° dec.
	N-20	Neptune	10h31m	+10°3'	12-12	2h7mE	15:15-15:36=21m	13 inch	Iso Medium 8x10	D-28	4m	70°	fair	2	W	N	K.A.N.	good - 3 exposures. 12.5 - 5, -2
14"x14"	N-21.	Comet Region	12h15m	-15°	12-13	3h45mW	6:45-7:10=25m	Ross	Iso Instant 14x14.	D-28	4m	70°	fair	2	E		K.A.N.	fogged - nothing.
	N-22.	Uranus Region	45m	+3°	12-13	0°	7:15-7:42=27m	13 inch	Iso Medium 8x10	D-28	4m	70°	good	2	W	N	K.A.N.	good plate
	N-23	Eros Region	9h45m	+38°	12-13	2h45E	13:37-14:37=1hr	13 inch.	Iso Medium 8x10	D-28	4m	70°	good	2	W	N	K.A.N.	good plate.
	N-24	Comet Region.	12h15m	-15°	12-13	3h45mW	6:45-7:10=25m	Xenar	Iso Medium 8x10	D-28	4m	70°	fair	2	E		K.A.N.	fogged - split + out of focus.
	N-25	Comet Region	21h25m	-23°	12-15	3hW	6:55-7:20=25m	Xenar	Iso Medium 8x10	D-28	4m	70°	good	2	E		K.A.N.	good plate
14"x14"	N-26	comet Region	21h35m	-22°	12-15	3hW	6:55-7:20=25m	Ross	Iso Instant 14x14	D-28	4m	70°	good	2	E		K.A.N.	good plate.
	N-27	Polaris	1h45m	+89°15'	12-15		8:30-18:00=9½hrs	Xenar	Iso Inst. 8x10	D-28	4m	70°	fair	2	E		K.A.N.	good - camera stood still.
	N-28																	
	N-29																	
	N-30.	Comet Region	20h45m	-21°50'	11-18	3:30W	6:25-6:55=30m	Xenar	Iso Medium 8x10	D-28	4m	65°	good	1	E		K.A.N.	good plate
14"x14"	N-31	Comet Region	20h42m	-21°50'	12-18	3:30W	6:25-6:55=30m	Ross	Eastman 40 14"x14"	D-28	4m	70°	good	1	E		K.A.N.	good plate.
	N-32.	Pleiades	3h15m	+24°	12-18	52mW	11:00-11:15=15m	13 inch	Iso Instant 8x10	D-28	4m	70°	fair	0	W	N	K.A.N.	good.
	N-33.	Hyades	4h30m	+16°	12-18	36mW	11:25-11:40=15m	13 inch	Iso Instant 8x10	D-25	4m	70°	fair	0	W	N	K.A.N.	good.
	N-34	Praesepe	8h35m	+20°15'	12-18	3hE	12:00-12:15=15m	13 inch	Iso Instant 8x10	D-28	4m	68°	fair	1.	W	N	K.A.N.	good.
	N-35	E. Orionis	5h30m	-1°35'	12-22	1h50mE	9:40-10:00=20m	Xenar	Iso Instant 8x10	D-28	4m	68°	good	0	E		K.A.N.	good (for Moulton)
14"x14"	N-36.	E. Orionis	5h30m	-1°30'	12-22	1h50mE	9:40-10:10=30m	Ross	Eastman 40 14x14	D-28	4m	68°	good	0	E		K.A.N.	good. fogged.
	N-37	Hyadeas	4h35m	+16°	12-22	20mW	10:45-11:05=20m	Xenar	Iso Instant 8x10	D-28	4m	70°	good	0	E		K.A.N.	good (for Moulton)

	Negative Number	Region: Guide Star	R.A.	Dec.	Date 1930	H.A. at end of Exposure	Exposure time	Camera, telescope, or aperature	Emulsion of Plate	Development: Kind	Time	Temp.	Seeing: Transp.	Stead.	Position of telescope on Axis	Position of writing on Plate	Observer	Remarks:-
14"x14"	N-38	Hyades	4h20m	+16°	12-22	20m W	10:45-11:05=20m	Ross	Iso Instant 14x14	D-28	4m	70°	good	0	E	E	KAN.	good foggy
14"x14"	N-39	? Leonis	10h2m	+18°	12-22	10m E	15:55-16:15=20m	Ross	Iso Instant 14x14	D-28	4m	70°	good	0	E	E	KAN	good foggy.
	N-40	? Leonis	11h7m	+18°	12-22	10m E	16:15-16:35=20m	Xenar	Iso Instant 8x10	D-28	4m	70°	good	0	E		KAN	good (for Moulton)
14"x14"	N-41	? Ursa Majoris	7h16m	+57°30'	12-22	1h E	17:12-17:32=20m	Ross	Iso Instant 14x14	D-28	4m	70°	good	0	E	E	KAN.	good foggy.
	N-42	? Ursa Majoris	7h16m	+57°30'	12-22	1h E	17:12-17:32=20m	Xenar	Iso Instant 8x10	D-28	4m	70°	good	0	E		KAN.	good (for Moulton.)
	N-43	ζ Orionis	5h35m	-2°	12-29	40m E	10:32-10:47=15m	Xenar	Iso Instant 8x10	D-28	4m	68°	good	1	E	E	KAN	good. Aperature half closed.
14"x14"	N-44.	ζ. Orionis	5h35m	-2°	12-29	40m E	10:32-10:47=15m	Ross.	Iso Instant 14x14	D-28	4m	68°	good	1	E	E	KAN.	good.
	N-45.	Pleiades	3h46m	+24°	12:30	50m W	8:50-9:05=15m	13 inch	Iso Instant 8x10	D-28	4m	68°	good	2	W	N	KAN.	good - Spectra plate.
	N-46	{ Rigel	5h8m	-8°			9:50-10:10=20m											
		Betelgeuse	5h48m	+7°	12:30	0h 5m W	10:35-10:55=20m	13 inch	Iso Instant 8x10	D-28	4m	68°	good	2	W	N	KAN.	good Spectra Plate.
	N-47																	
	N-48																	
	N-49																	
					1931													
	N-50	{ Aldebaran	4h29m	+16°	1-4	15m E	7:55-8:35=40m	13 inch	Iso Instant 8x10	D-28	4m	68°	good	1.	W.	N.	KAN.	good - Spectra Plate.
		Procyon	7h35m	+5°30'	1-4	2h30m E	8:40-9:20=40m	13 inch										
	N-51.	Orion Belt.	5h36m	-1°30'	1-4.	45m W	9:45-10:15=30m	13 inch	Iso Instant 8x10	D-28	4m	68°	good	1	W	N	KAN	good - Spectra plate.
	N 52.	{ Pollux	7h39m	+28°30'	1-5	2h45 E	9:45-10:25=40m	13 inch	Iso Instant 8x10	D-28	4m	68°	fair	0	W	N	KAN	good - Spectra plate.
		Castor	7h38m	+32m	1-5	1h40 E	10:30-11:10=40m	13 inch										
	N-53	{ δ Geminorum	7h12m	+22°30'	1-5	25m E	11:45-12:25=40m	13 inch	Iso Instant 8x10	D-28	4m	70°	fair	0	W	N	KAN	good - Spectra plate.
		γ Geminorum	6h30m	+17°	1-5	42m W	12:32-12:52=20m	13 inch										
	N-54	Comet Region	21h37½m	-16°30'	1-7	3h45W	6:38-6:58=20m	Xenar	Iso Presto 8x10	D-28	4m	68°	fair	1	E	E	KAN	good but faint
14"x14"	N-55	Comet Region	21h37½m	-16°30'	1-7.	3h45W	6:38-6:58=20m	Ross	Iso Instant 14x14	D-28	4m	68°	fair	1	E	E	KAN.	good - foggy & defective.
	N-56	{ Deneb (α Cygni)	20h40m	+45°	1-7	5h20m W	7:12-7:27=15m	13 inch	Iso medium 8x10	D-28	4m	68°	fair	2	W	N	KAN	good - Spectra plate
		γ Cygni	20h20m	+40°	1-7	6h W	7:30-8:00=30m	13 inch										
	N-57	{ γ Cassiopeia	50m	60°40'	1-7	2h45m W	8:35-9:05=30m	13 inch	Iso Instant 8x10	D-28	4m	68°	fair	2	W	N	KAN.	foggy Images are [illegible] - spectra plate.
		α Persei	3h17m	+49°	1-7	1h5m W	9:18-9:48=30m	13 inch										
	N-58	{ Capella	5h9m	+45°56'	1-7	5m E	10:10-10:30=20m	13 inch	Iso Instant 8x10	D-28	4m	68°	fair	2	W	N	KAN	foggy - good - Spectra plate.
		Betelgeuse	5h48m	+7°	1-7	15m E	10:36-11:06=30m	13 inch										
	N-59.	Orion Nebulae	5h36m	-6°	1-7	1h12W	11:35-12:15=40m	13 inch	Hammer U.R. Press 8x10	D-28	4m	68°	fair	2	W	N	KAN	foggy on one side - good spectra plate.
	N-60	Andromeda nebula	41m	+41°	1-13	3h35m W	8:14-8:59=45m	13 inch	Iso Medium 8"x10"	D-28	4m	65°	poor	4	W.	N	KAN.	good but faint.
	N-61	Andromeda Nebula	41m	+41°	1-13	3h32m	8:14-8:59=45m	Cogshall	Iso Presto 8x10	D-28	4m	65°	poor	4	W	N	KAN.	fair - partly cut off by dome.
6½"x8½"	N-62	Perseus Clusters	2h15m	+56°45'	1-12	5m E	7:03-7:13=10m	13 inch	Iso Med 6½x8½	D-28	4m	68°	good	2	W	N	KAN.	good. made [illegible] in middle.
	N-63	Andromeda Nebula	41m	+41°	1-12	3h16m W	8:08-8:53=45m	13 inch	Iso slow 8x10	D-28	4m	68°	good	2	W	N	KAN	good but faint.
	N-64	Andromeda Nebula	41m	+41°	1-12	3h16W	8:08-8:53=45m	Cogshall	Iso Presto 8x10	D-28	4m	68°	good	2	W	N	KAN	good - broken across middle.
	N-65	Andromeda Nebula	41m	+41°	1-14	4h W	7:43-9:33=1h50m	13 inch	Iso Presto 8x10	D-26	4m	68°	fair	3	W	N	KAN.	extra good plate.
	N-66	Andromeda Nebula	41m	+41°	1-14	4h W	7:43-9:33=1h50m	cogshall	Iso Presto 8x10	D-26	4m	68°	fair	3.	W	N	KAN.	good plate.
14"x14"	N-67.	15 Monocerotis	6h38m	+10°	1-15	50m W	10:10-10:35=35m	Ross-	Iso Instant 14x14	D-28.	4m	67°	fair	2.	E	E	KAN.	foggy plate.

	Negative Number	Region: Guide Star	R.A.	Dec.	Date 1931	H.A. at end of exposure	Exposure time	Camera or aperture	Emulsion of plate	Development: Kind	Time	Temp.	Seeing: Trans.	Stead.	Position of telescope on axis	Position of writing on plate	Observer	Remarks
	N-68.	g Persei	+3h45m	+32.5°	1-16	25mW	7:08-8:58 = 1h50m.	13 inch	Isopresto 8x10	D-28	4m	65°	fair	3	W	N	K.A.N.	
	N-69.	g Persei	3h45m	+32.5°	1-16	25mW	7:08-8:58 = 1h50m.	Coggshall.	Iso Presto 8x10	D-28	4m	65°	fair	3	W	N	KAN	
14"x14"	N-70	Focal test.	—	—	1-16	—	—	Ross.	Seed 30 14"x14"	D-28	4m	65°	fair	3	E	E	KAN.	9 images - good plate.
14"x14"	N-71	Focal test	—	—	1-16	—	— .	Ross	Seed 30 14"x14"	D-28	4m	68°	fair	2	E	E	KAN.	good plate.
14"x14"	N-72	G Argo	8hrs	-39°	1-17	7mW	11:45-12:45 = 1hr	Ross	Imperial 14"x14"	Hauff-Metal	23m	68°	good	2	E	E	KAN.	good plate.
	N-73	G Argo	8hrs	-39°	1-17	7mW	11:45-13:45 = 1hr	Xenar	Imperial 8"x10"	Hauff-Metal	25m	68°	good	2	E	E	KAN	good plate.
	N-74	G Argo	8hrs	-39°	1-19	80mW	11:25-13:43 = 2h18m	Xenar	Imperial 8"x10"	Hauff-Metal	25m	68°	good	1	E	E	KAN.	good plate.
	N-75	G Argo	8hrs	-39°	1-22.	90mW	11:07-13:49 = 2h42m	Xenar	Press Rapid 8"x10"	Hauff-Metal	25m	68°	fair	2	E	E	KAN	good but fogged
14"x14" 2 on 1	N-76.	G Argo.	8hrs	-39°	1-19	80mW	11:25-13:43 = 2h18m	Ross	Imperial 14"x14"	Hauff-Metal	25m	65°	good	1	E	E	KAN	Both on the same
	~~N-77.~~	~~Eros (Sextans)~~	~~10h20m~~	~~-3°~~	and 1-22	90mW	11:07-13:49 = 2h42m	Ross.	Imperial 14"x14"	Hauff-Metal	25m	65°	fair	2	E	E	KAN.	plate - exposed two nights. ~~Terrible rotation of field.~~
12"x15"	N-77.	Eros (Sextans)	10h20m	-3°	1-27	0hr	12:25-14:20 = 1h55m	13 inch	Iso Presto 12"x15"	D-28	4m	68°	fair	2	W	N.	K.A.N.	50 exposures for brightness.
~~12"x15"~~	N-78.	Eros region	10h24m	-6°24'	1-28	20mW	14:15-14:45 = 30m	13 inch	Iso Presto ~~12"x15"~~	D-28	4m	68°	fair	1	W	N	KAN.	~~25~~ exposures - good.
12"x15"	N-79.	Eros region	10h24m	-6°24'	1-28	2h50mW	16:15-17:15 = 2hrs	13 inch	Iso Presto 12"x15"	D-28	4m	70°	fair	1	W	N	KAN.	24 exposures - 4 min each
	N-80.	Eros region	10h20m	-11°57'	2-7	2h30mE	10:50-11:17 = 27m	13 inch	Eastman 40 8"x10"	D-28	4m	69°	~~poor~~	3	W	N	KAN	good plate.
12"x15"	N-81	Orion region			2-9	2h36mW	9:20-11:20 = 2hrs	13 inch	Isopresto 12"x15"	D-28	4m	69°	V poor	3	W	N	KAN.	very woolly images
	N-82.	Orion region			2-9	2h36mW	9:30-11:20 = 2hrs	Coggshall.	Isopresto 8"x10"	D-28	4m	69°	V poor	3	W	N	KAN.	woolly images.
	N-83.	Eros region	10h5m	-14°20'	2-10	1h20mE	11:20-11:45 = 25m	13 inch	Iso Instant 8"x10"	D-28	4m	68°	good	3	W	N	KAN.	good plate.
	N-84	Aldebaran (Focal test)	3h30m		2-18	2h20mW	9:30-9:45 = 15m	Ross.	Hammer Slow 8"x10"	D-28	4m	64	fair	3	E	E	KAN	foggy edges
	N-85	Aldebaran (Focal test)	3h38m		2-18	2h30mW	9:30-9:45 = 15m.	Xenar	Hammer Slow 8"x10"	D-28	4m	64	fair	3	E	E	KAN	foggy edges - broken corner.
	N-86	Eros region	9h53m	-19°57'	2-18	10mW	10:35-12:35 = 2hrs	Kenar	Press Rapid 8"x10"	D-28	4m	64	fair	3	E	E	KAN	good plate - " "
14"x14"	N-87.	Eros Region	9h53m	-19°57'	2-18	10mW	10:35-12:35 = 2hrs	Ross	Press Rapid 14"x14"	D-28	4m	64	fair	3	E	E	KAN	shift of images.
14"x14"	N-88	Eros Region	9h50m	-22°2'	2-20	2h35mW	13:36-15:51 = 2hrs	Ross	Press Rapid 14"x14"	D-28	4m	64	fair	1	E	E	KAN.	good plate - pause in
	N-89	Eros Region	9h50m	-21°2'	2-20	2h35mW	13:36-15:51 = 2hrs	Xenar.	Press Rapid 8"x10"	D-28	4m	64	fair	1	E	E	KAN	exposure caused break of trail - X.P. double images.
14"x14"	N-90.	δ Geminorum	7h13m	+22°	2-22	2h30mW	11:55-13:05 = 1h10m	Ross	Press Rapid 14"x14"	D-28	4m	68	good	3	E	E	KAN.	good plate but trailed images.
	N-91	δ Geminorum	7h13m	+22°	2-22	2h30mW	11:53-13:05 = 1h10m	Xenar.	Press Rapid 8"x10"	D-28	4m	68	good	3	E	E	KAN.	trailed images due to clock stopping.
14"x14"	N-92.	Eros Region.	9h47m	-22°26'	2-23	2h15mW	12:20-14:20 = 2hrs	Ross	Press Rapid 14"x14"	D-28	4m	68.	good	4	E	E	KAN.	clock motion caused slant to images - 20 on plate.
14"x14"	N-93	Eros Region.	4h45m	-23°	2-24	2h10mW	12:02-14:02 = 2hrs	Ross	Press Rapid 14"x14"	D-28	4m	68	good	0	E	E	KAN	good plate. - 16 images.
14"x14"	N-94	K. ~~Puppis~~ Canis Major	6h45m	-33°	3-7	2h5mW	8:20-10:20 = 2hrs	Ross	Press Rapid 14"x14"	Hauff-Metal	10m	68°	good	0	E	E	KAN.	good plate.
					3-8	2h33mW	7:43-10:43 = 3hrs						good	4.	E			
	N-95	K. ~~Puppis~~ Canis major.	6h45m	-33°	3-7	2h5mW	8:20-10:20 = 2hrs	Xenar	Eastman 40 8"x10"	Hauff-Metal	10m	68°	good	0	E	E	KAN.	Double images due to shift of plate holder
					3-8	2h33mW	7:43-10:43 = 3hrs						good	4	E			in camera.
14"x14"	N-96	i Auriga	4h45m	+32°20'	3-9	4h30mW	8:30-10:30 = 2hrs	Ross	Imperial 14"x14"	Hauff-Metal	5m (~~10~~)	68°	fair	4	E	E	KAN.	fog rings around stars.
					3-10	4h20mW	8:53-10:23 = 1½hr						poor	3	E			foggy plate - cracked.
	N-97	i Auriga	4h45m	+32°20'	3-9	4h30mW	8:38-10:38 = 2hrs	Xenar	Eastman 40 8"x10"	Hauff-Metal	10m	68°	fair	4	E	E	KAN.	foggy plate with haze
	N-98	i Auriga	4h45m	+32°20'	3-10	4h30mW	8:53-10:23 = 1½hr	Xenar.	Eastman 40 8"x10"	Hauff-Metal	10m	68°	poor	3	E	E	KAN.	haze on plate.
14"x14"	N-99	i Auriga	4h45m	+32°20'	3-14	3:55W	7:50-9:40 = 1h50m	Ross	Imperial 14"x14"	Hauff-Metal	10m	68°	fair	1	E	E	KAN.	
	N-100	i Auriga	4h45m	+32°20'	3-14	3:55W	7:50-9:40 = 1h50m	Xenar	Eastman 40. 8"x10"	Hauff-Metal	10m	68°	fair	1	E	E	KAN.	

	Negative number	Region: Guide star	R. A.	Dec.	Date 1931.	H. A. at end of exposure	Exposure time	Camera or aperature	Emulsion of plate		Development: Kind	Time	Temp.	Seeing: Trans.	Stead.	Position of exposure on axis	Position of writing on plate	Observer	Remarks
14"x14"	N-101	i Auriga	4h40m	+32°20'	3-15	4:40W	8:30-10:00=1½ hrs	Ross	Imperial	14"x14"	Hauff-Metol	10 m	68°	fair	3	E	E	K.A.H.	Good plate except
					3-17	4:35W	8:25-9:55=1½ hrs							fair	3				for water splashes
					3-20	4:40W	8:00-10:00=2 hrs							good	3				on emulsion.
					3-21	4:03W	8:10-9:15=1h5m							fair	3				
	N-102	i Auriga	4h40m	+32°20'	3-15	4:40W	8:30-10:00=1½ hrs	Xenar.	Eastman 40	8"x10"	Hauff-Metol	10 m	68°	fair	3	E	E	K.A.H.	Broken corners and
					3-17	4:35W	8:25-9:55=1½ hrs							fair	3				thinly - out of focus.
					3-20	4:40W	8:00-10:00=2 hrs							good	3				
					3-21	4:03W	8:10-9:15=1h5m							fair	3				
	N-103	Quick moving object	11h40m	+5°1'	3-23	51mE	10:38-11:16=38m	13 inch	Iso-Presto	8"x10"	D-28	4m	67°	good	3	W	N	K.A.H.	double images.
	N-104	Quick moving object	11h40m	+5°1'	3-23	1h24mW	13:31-13:39=8m	13 inch	Iso-Presto	8"x10"	D-28	4m	67°	good	3	W	N	K.A.H.	good plate.
	N-105	Quick moving object	11h40m	+5°1'	3-23	1h44mW	13:51-13:59=8m	13 inch	Iso-Presto	8"x10"	D-28.	4m	67°	good	3	W	N	K.A.H.	good plate.
12"x15"	N-106	P Virgo.	12h36m	+11°	6-18	3h10mW	9:45-10:25=40m	13 inch	Iso Presto 248831A5RS	12"x15"	D-28	2m	70°	good	2	W		K.A.H.	natural fog all over.
	N-107	Comet Ryves.	8h4m	+22°46'	8-15	6h30mE	16:12-16:17=5m	13 inch	Iso Medium	8"x10"	D-28	5m	68°	*	*	W	N	K.A.H.	no comet. refraction streaks.
14"x17"	N-108	" "	8h36m	+18°10'	8-18	6h36mE	16:26-16:36=10m.	13 inch	Super High Speed	14"x17"	Wallace Hydro.	10 m	65°	*	*	EW	N	K.A.H.	Comet found - " "
	N-109	" "	9h0m	+20°	8-19	6h30E	16:30-16:45=15m	13 inch	Eastman 40	8"x10"	D-28.	4 m	66°	*	*	EW	N	K.A.H.	comet off edge of plate.
14"x17"	N-110	Comet Neujmin	4h9m	+33°50'	8-20	2h51mE	13:50-15:50=2h	13 inch	Imperial	14"x17"	Wallace Hydro.	10m	66°	good	3	EW	N.	K.A.H.	good plate.
	N-111	Trifid Nebula.	17h57m	-23°	9-3	3h24mW	9:08-10:58=1h50m	13 inch	Iso Presto	8"x10"	D-28	4m	67°	good	3	EW	N.	K.A.H.	plate spoiled by [illegible] Eslide.
	N-112	21 Sagittarius.	18h23m	-20°10'	9-3	3h47mW	11:19-11:39=20m	13 inch	Iso Medium	8"x10"	D-28	4m	67°	good	3	EW	N.	H.G.	" " " "
	N-112	"	"	"	"		11:40-11:45=5m												Double images on 112
					1932														
# 12"x15"	N-114	Coma Virgo	12h35m	+11°15'	3-29	48mW	11:45-13:15	13 inch	Iso Presto	12x15	D-28	4m	66°	fair	2-3	W	N	K.A.H.	Shifted plate + exposed 6 min more.
12"x15"	N-115	Φ Auriga	5h20m	+34°	3-30	4h50mW	8:30-10:00	13 inch	" "	" "	" "	"	67°	good	2-3	W	N	K.A.H.	" " " "
12"x15"	N-116	α Leo Minor	9h15m	+35°	3-30	3h5mW	10:45-12:15	13 inch	" "	" "	" "	"	"	"	"	"	"	"	" " " "
12"x15"	N-117	λ Gemini	7h15m	+17°	3-31	3h55mW	8:30-10:00	"	" "	" "	" "	"	"	"	"	"	"	"	" " " "
12"x15"	N-118	93 Leonis	11h36m	+21°	3-31	1h15W	11:40-13:10	"	" "	" "	" "	"	"	"	"	"	"	"	" " " "
12"x15"	N-119	Reinmuth Object	13h36m	+9°49'	4-28	1hE	10:05-10:35	13 inch	" "	" "	" "	4m	68°	fair	1-2.	W	N	K.H.	Broken comet not found
12"x15"	N-120	Ring Nebula in Lyra.	19h0m	+32°40'	5-24	2hE	12:08-13:08	13 inch	" "	" "	" "	2m	68°	good	2-3	W	N	K.H.	good plate.
"	N-121	Rho Ophiucus	16h18m	-23°	6-9	1hW	11:35-12:40=1 hr (5m out)	13 inch	" "	" "	Wallace Hydro	9m	66°	"	"	"	"	"	good plate
14"x17"	N-122				6-15		17 min.	"	Hammer Press	14"x17"	"	10m	66°	"	"	"	"	H.H.	Moon fogged
14"x17"	N-123	comet discovered at Lowell. near a Serpentis.	15h32m		6-15		45 m	"	"		"	5m	66°	"	"	"	"	"	and no
14"x17"	N-124		15h10m (20)	+7°30'	6-16		30 m	"	"		"	10m	66°	"	"	"	"	"	comet
14"x17"	N-125				6-16		30 m	"	"		"	10m	68°	"	"	"	"	"	
14"x17"	N-126				6-17		30 m	"	"		"	10m	66°	"	"	"	"	"	
14"x17"	N-127.																		
12"x15"	N-128.	δ Serpentis			6-19		9:35-10:05	13 inch	"		"	10m	68°	"	"	"	"	"	Clear plate - Comet.
					6-21			" "	Iso Presto		"	"	"	"	"	"	"	"	Comet found for position.

Continued on page 50.

Note!! Seeing = Steadiness only scale this page only 10 poorest 0-1 Best

P = sent to [illegible]

	Negative Number	Region: Guide Star	R.A.	Dec. observed	Date 1931	H.A. at end of exposure	Exposure time	Camera or aperature	Emulsion of plate	Development: Kind	Time	Temp	Seeing: Trans.	Stead.	Position of telescope on axis	Position of writing on plate	Observer (Henry Giclas)	Remarks
8 x 10	G2	r Lyrae	18h56m20s	+32°35.6'	9-20		10:02 – 10:43	13"	Iso Presto	D28	4 min	70-68	Good	3	W	N	H.G.	Grating over Objective
8 x 10	G3	α δ Delphinus	20h38m	+15°40'	9-21	1h25W	9:25 – 10:25	13"	Ext. Hyper Press	D28	4 min	70-68.3	Good	4	W	N	H.G.	" " "
"	G3b	α δ Delphinus	20h37m	+15°40'	9-22		9:15 – 9:25	13"	Iso Inst.	D28	4 min	65-69.3	Good	3	W		H.G.	
"	G4 P	α Delphinus	20h35'	+14°20'	9-22	5h15mW	10:45 – 12:15	13"	Hyper Press	Ross Metol	6 min	68-67½	Good	4	W	N	H.G.	Grating over Objective
"	G5	α Delphinus	20h36m	+15°10'	10-2	4h4mW	2m without grating 10m with grating	13"	Iso Presto	Ross Metol	5 min	66°-65½	Fair	3	W	N	H.G.	Grating on part time
"	G6	Delphinus	20h54m	14°53'	10-2	1h36W	10:29 – 11:09	13"	Hyper Press	Ross Metol	6 min	66°+	Poor	3	W	N	H.G.	Grating over Obj
12 x 15	G7	α Delphinus	20h36m	+15°10'	10-3	1h30W	8:40 – 9:40	13"	Iso Presto	Ross Metol	6 min	66°+-	Fair	3	W	N	H.G.	Grating Over Obj.
" "	G8	η Taurus	3h43m22s	+23°55'	10-5	2h5E	12:40 – 1:10	13"	Iso Presto	Ross Metol	5½ min	65++	Good	4	W	N	H.G	" " "
" "	G9	η Taurus	3h43m22s	+24°20'	10-7	0h10E	2:20 – 3:00A	13"	" "	" "	5 min	66°+	Good	4	W	N	H.G	Broke Plate in Holder " "
" "	G10	η Taurus	3h43m22s	+24°20'	10-7	1h02W	3:30 – 4:10A	13"	" "	" "	5 min	65+	Good	4	W	N	H.G.	Less Shimming of Plate " " "
" "	G11	Taurus	3h43m10s	+24°30'	10-9	0h06W	2:25 – 3:10A	13"	" "	" "	6 min	65°	Good	3	W	N	H.G.	" " "
" "	G12	6 mag. Lyrae	18h51m	+32°32'	10-13	3h22W	9:07 – 9:27	13"	" "	" "	6 min	67½-66	Fair	~~3~~4	W	N	H.G.	No image light deviated 22°40' [illegible] Prism over Obj.
" "	G13	Pliades	3h43m22.[illegible]	24°30'	10-16	4h40E	9:30 – 9:50	13"	" "	" "	6 min	68-67	Fair	3-2	W	N	H.G.	Prism Over Obj.
" "	G14	Pliades	3h43m[illegible]	24°55'	10-17	4h22mE	9:15 – 10:05	13"	" "	" "	6 min	68	Poor	1-[illegible]	W	N	H.G.	Floating Cloud Banks. Prism over Obj.
8 x 10	G15	Pliades	3h43m22	24°30	10-23	2h16mE	11:32½ – 11:52½	13"	" "	" "	"	68-67	Fair	3-2	W	N	H.G.	Prism over Obj. moon fog.
" " "	G16	Pliades	3h43m22	24°30	10-23	3h41mE	9:45 – 10:25	13"	" "	" "	"	68	Fair	3-4	W	N	H.G.	Prism. some floating clouds.
" "	G17	Pliades	3h43 22	24°30'	10-31	4h28mE	8:50 – 9:05	13"	Hyper Press	" "	"	69	Fair	3-4	W	N	H.G.	Prism
" "	G18	Pliades	3h43 22	24°30'	10-31	3h47E	9:23½ – 9:43½	13"	Old Iso Presto	" "	"	68	Poor	4	W	N	H.G.	Prism Plate test
" "	G19	Pliades	3h43 22	24°30'	11-1	4h35E	7:50 – 8:40	13"	Hyper Press	" "	"	70	Good	3	W	N	H.G.	Prism
" "	G20	Pliades	3h43m22s	24°30'	11-1	3h41E	9:20 – 9:50	13"	Iso Presto	" "	"	70	Good	3	W	N	H.G.	
" "	G21	Obj: Messier 33	1h30m	+29°40'	11-3	1h05E	7:32½ – 10:06	13"	Iso Presto	" "	8 min	70°	Fair	3+-4	W	N	H.G.	
" "	G22	Obj: Andromeda Neb. Messier 31	0h40m31s	+40°31'	11-4	0h52W	8:20 – 10:20	13"	" "	" "	8 min	68+	Fair	3-2	W	N	H.G.	
12 x 15	G23	Obj Andromeda Neb M31	0h44m38s	+41°03'	11-6	0h56E	8:15 – 9:15	13"	" "	" "	"	68	Fair	3	W	N	H.G.	(plate washed)
" " "	G24	η Taurus Pliades	3h45m0	+24°15'	11-14	2h43E	9:23 – 9:53	13"	" "	" "	7 min	70++	Poor	4-5	W	N	H.G.	grating over Obj.
10 x 12	G25 P	"	3h45m30s	+24°10'	11-16	2h45E	8:32 – 9:17	13"	" "	" "	6 min	65+	Fair	4-5	W	N	H.G.	grating (good plate trails long
" "	G26 P	Delphini region	20h35'30"	+15°48'	11-19	3h55E	8:05 – 9:10	13"	Harvard Ultra Rapid	" "	8 min	68°	Fair	5	W	N	H.G.	grating good plate
" "	G27 P	α Tauri (Aldebaran)	4h31 54	+16°45'	11-28	3h48E	7:48 – 8:48	13"	H. Ultra Rapid	" "	"	69½	"	6+-5	W	N	H	" drift in dec.
" "	G28 P	8 mag star	4h24m	+16°30'	11-30	3h25E	7:45 – 8:45	13"	" "	" "	"	72°	"	6-6.5	W	N	H	poor ~~seen~~ steadiness high winds " grating 0 4
" "	G29	β Delphini	20h34m20s	14°40	12-1	4h9mW	7:40 – 8:30	13"	" "	" "	"	65°	Poor	9-11	W	N	H	
12 x 15	G30	α Persei	3h19 28.4	+49 57.5	12-2	See	special instructions 15 images	13"	~~[illegible]~~ Isopresto	" "	6 min	70°	Fair	8-7	W	N	H	grating very poorest steadiness 1° apart 4 exp of 2 min (See instructions
10 x 12	G31	α Cygni	20h39m4.6	+45°22	12-4		"	13"	Iso presto	" "	6 min	70°	good	5-6	W	N	H	
"	G32	"	20h39 4.6	+45 22	12-5		" 12m	13"	H Ultra Rapid	" "	8 min	70½	fair	8-7	W	N	H	See Special Instructions
"	G33	"	20h39m4.6	+45 22	12-6		" 7 images	13"	"	" "	"	71°	[illegible]	8	W	N	H	(see above)
"	G34 P	α Lyrae	18h34m36s	+38°45'	12-7	6h11W	End 8:21 7 images	13"	"	" "	"	71½	good	3-4	W	N	H	See special inst.
12 x 15	G35 P	α Lyrae	18h34 3C	+39 03	12-14	6h40mW	17 images	13"	Imperial	" "	"	68½	Fair	5-6	W	N	H	very good plate
"	~~G36~~	α Lyrae	18h34[illegible]	+39[illegible]	12-15	6:30W	61 images	13"	Imperial Cell off	Focus	[illegible]	67	Fair	8-9	W	N	H	grating grating Plate fogged

	Negative Number	Region Guide Star	R.A.	Observed δ	Date 1931	H.A. End of Exp	Exposure Time	Camera or Instrument	Type of Plate	Development Kind	Development Time	Development Temp	Seeing Trans	Seeing Stead.	Pos. of tele. on axes	Writing on Plate	Observer	Remarks
12×15	G37 P	α Lyrae	18h34 36	+39°03' 3	12-16	5h45W	11 images of 3 minutes each	13"	Iso Presto	Ross Metol	8 min	70°	Good	4-2	W	N	H	grating (see spec. inst.
10×12	G38a	Jupiter	9h40 48	+15°5 47	12-16	2h36E	Exp three images 1-3-10 min	13"	Iso Presto	" "	"	68½°	good	0 to -1	W	No writing	H	
10×12	G38b	Jupiter	9 40 48	+15 05 47	12-16	2h36mE	3 images Exp 1-3-10 min	Cogshall	Iso Prestro	" "	"	68+°	good	0 to -1	W		H	
"	G39	Jupiter	9 40 43	+15°06'2	12-17	0h15½E	3 exp. 20 sec min 3 min	,13"	Iso Medium Em 12819	" "	"	68	Fair	5-6	W	N	H	
"	G40	Jupiter	9 40 37	+15°07 58	12-18	4h10½E	Exp 5, 10, 20, 40, 80, 160, 320 sec	13"	Iso Med. Em 12819	" "	"	70	Good	2-3	W	N	H	
"	G41	Jupiter	9 40 36	+15 08	12-19	0h48½W	Exp 3, 6, 12, 24, 48, 96, 192 sec	13"	Iso Med Em 12819	" "	"	69½	very Good	6-7	W	N	H	
"	G42	ε Persei	3h54 33	+35°52 3	12-19	1h41E	30 sec, 3 min 18 min.	13"	" " "	" "	"	67	Good	2-1	W	N	H	
"	G43	η Tauri	3 43 27	+24°14'	12-19	0h19 40E	30 sec 3 min 18 min	13"	" " "	" "	"	67	Good	0-1	W	N	H	
"	G45	ν Orionis	5h21 30	+6°37 30	1932 1-1	1h12mE	5 min 31 min	13"	" Presto	" "	6 min	70°	Poor	2	W	N	H	
10×12	G44	Jupiter	9h37 59	+15°23 49	1-2-32	2h22E	3, 6, 12, 24, 48, 96, 192 sec	13"	" " "	" "	"	65°	Good	5-6	W	N	H	
" "	G46	δ Orionis	5h28 33	D-0°0'0"	1-7-	0h25W	6 min, 37 min	13"	Iso Presto vah. Em: 2834312	" "	"	68°	Good	0,Ø1	W	N	H	
" "	G47	ν Orionis	5h21 30	+6°37	1-16	2h39W	12:25 - 12:48 20 min	13"	" "	Wallace Hydro	5 min	68°	Fair to Good	2+	W	N	H	
14×17	G48	α Can. Maj. (Sirius)	6h42 10	-16°17'22	1-16	1h47W	12:54 - 1:14 20 min	13"	Ultra Rapid	Ross Metol	8 min	70°	Good	2,3	W	N	H	
10×12	G49	η Geminorm	6 10 47	+22°51 50	1-17	3h32W	1:15 - 2:05 20	13"	Iso Presto 12-14-31	Wallace Hydro	7 min	68°	Good	3+	W	N	H	
" "	G50	9 mag star	6h35m	+8°54'	1-18	0h34W	11:26 - 11:46 20 min	13"	" " "	" "	5 min	70°	Good	3	W	N	H	Moon age 10.5d.
14×17	G51	8 mag. in M41	6h42 26	-20°26'	1-18	0h32.5E	10:30 - 10:50 20 min	13"	H Ultra Rapid	Ross Metol	5 min	70°	Good	3-	W	N	H	
10×12	G52	η Geminorm	6h10 47	+22°51 50	1-29	0h51 40E	8:52 - 9:12	13"	Iso Presto	" "	8 min	65°	Fair	2,4	W	N	H	
10×12	G53	Jupiter	9h26 59.6	+16°22'49"	1-29	2h45E	3 sec, 6 .... ×2 ..... 192 sec	13"	" Medium	" "	"	"	Fair	2++	W	N	H	
12×15	G54	ρ Canis Maj. Near M41	6h42 26	-20°26'	1-29	0h44 30E	9:26 - 9:56 30 min	13"	Iso Presto	" "	"	68°	Poor to Fair	0,1	W	N	H	shifting clouds + haze 10 min of Exp then haze
10×12	G55	105 Tauri	5h10 47	+22°51 49	2-5	4h19W	2 min, 12½ min	13"	Iso Presto	" "	"	64°	Poor	0	W	N	H	
" "	G56	Jupiter	9h23 31.4	+16°40 59	2-5	0h47 30W	3 sec ×2 ..... 192 sec	13"	Iso Medium	" "	"	64°	Fair	4	W	N	H	
" "	G57	Jupiter	9h23 31.8	+16°40 5	2- [illegible]	0h55E	9:54 3 sec ×2 ..... 192 sec	13"	" "	" "	"	68°	Fair	4	W		H	
" "	G58	Jupiter	9h14 14	+17°4 12	2-22	3h42E	3", 6", 12", 24", 48" 96"	13"	" "	" "	6 min	70°	Fair	3	W	1?	H	day after full moon.
" "	G59	η Gemmorum	6h10 47.4	+22°50	2-23	0h8½W	20", 50", 2'5", 5'12" 13"	13"	Iso Presto	" "	8 min	65°	Good	3,4	W	N	H	
" "	G60	η Gemmorum	6h10 47.4	+22°44'	2-24	0h16¾W	(at 8:38) 2m, 12½ min	13"	Iso Presto	" "	8 min	70°	Good to Fair	6	W	N	H	
" "	G61	6 mag. Auriga at	5h11m 55s	+34°37'	2-24	2h30'W	(9:54) 9:18 - 9:48, 30 m + 3 min exp	13"	" "	" "	6½ min	69°	Good to Fair	5++	W	N	H	
" "	G62	5 mag Gemmorum	6h6m	+26°00	2-25	0h30⅔W	20", 50" 2'5" 5'12" 13"	13"	" "	" "	7 min	64°	Good	1	W	N	H	
" "	G63	8 mag. double star	6h30	+39°00'	2-25	0h07½W	20', 50", 2'5", 5'12" 13"	13"	" "	" "	6 min	65°	Fair to Good	0	W	N	H	
" "	G64	Jupiter	9 14	+17°44	2-25	0h43E	6", 12", 24", 48" 96" 192"	13"	Iso Medium	" "	8 min	66°	Fair to Good	0,1	W	N	H	
14×17	G65a	near 40 Camelopardus	6h09'	+60°0'30	2-26		15m guide 2h45m trail	13"	H. Ultra Rapid	" "	8 min	68°	Good	0,2	W	N	H	Trail Plate
10×12	G65b	near 40 Camelopardus	6h09'	+60°0'30"	2-26		15 minutes guide 2h45 trail	Cogshall	" " "	" "	8 min	66°	Good	0,2	W	N	H	Trail Plate
" "	G66	double star Auriga	6h29 30'	+38°59'	3-2	0h03mE	8:12 20", 50", 2'5", 5'12" 13m	13"	Iso Presto	" "	8 min	68°	Good	1,2	W	N	H	
" "	G67b	6 mag. Camelopardus	5h30'	+75°22'	3-4	1h38mW	guide 10 min trail 7:50 - 11:35	Cogshall	A. Ultra Rapid	" "	6 min	68°	Fair	0,2	W	N	H	Trail Plate
14×17	G67a	"	5h30'	+75°22'	3-4	1h38mW	7:50 - 11:35	13"	" " "	" "	6 min	68°	"	0,2	W	N	H	Trail Plate
12×15	G68	Monoceros 15 SV	6h35'	+10°19'	3-5	2h07W	10:16 8:45 - 9:00 shift 9:00 - 10:15	13"	Iso Presto	" "	5 min	68°	Good	1,3	W	N	H	

	Negative Number	Region: Guide Star	RA	Obs D	Date 1932	H.A.	Exposure time	Instrument	Type of Plate	Developement: Kind	Time	Temp.	SKY: Stead.	Trans	Pos. of telsc axis	Writing on plate	Observer	Remarks
8x10	669	λ Orionis	5^h31^m	+10°12'	3-7	1^h10 W	8", 20", 50", 2'5", 5'12" (8:02) fend.	13"	Iso Presto	Ross Metol	6 min	68°	5	Good	W	N	H	
12x15	670	Monoceros 15 5v	6^h35	+10°17'	3-7	3^h09^m W	9:08 - 11:08	13" + Cogs.	Iso Presto	" "	5 min	68°	5,3	Good	W	N	H	
8x10	671	Jupiter + Moons.					6" 12" 24" 48" 96"	13"	Iso Medium	" "	6 min	70°	3	Good	W	N	H	
12x15	672	10 mag. in N. Virgo	$12^h26^m0^s$	+12°30'	7-3	4^h33 W	9:20 to 10:36	13" & Co.	Iso Presto	" "	" "	64°	2,1	Good	W	N	H	plate fogged considerable because of age mostly.

No.	Object	Date	MST (exposure)	Plate center	Plate	Instrument	Position of telescope	Position of Object
HJ-1	UX UMa.	July 9, 1948	22:39:00 - 22:48:00	$\alpha = 13^h 33.^m0$; $\delta = +52° 08'$ (1948)	103a-0	18"	East	$\alpha = 13^h 31^m$; $\delta = +52° 39'$ (1900)
HJ-2	UX UMa.	July 11, 1948	Multiple exposure — see Plate.	$\alpha = 13^h 33.^m0$; $\delta = +52° 08'$ (1948)	103a-0	13"	East	$\alpha = 13^h 31^m$; $\delta = +52° 39'$ (1900)

Plates by R.D. Schaldach on 13" Cooke.

Do Not Use Sign of W.E. to Time i.e. + Means Watch fast H.Y.

Apply W.E. to Obs. Time with sign opposite to that given herein (See original Obs. Notes) H.Y.

Neg. No.	Region: Guide Star	α	δ	Date 1949	H.A. at end of expos.	Exposure (old astr. day)	Watch Error	Instrument	Plate	Development: Kind	Time	Temp.	Seeing: Trans.	Stead.	Position of Telescope	Writ. on Plate	Observer	Remarks
S-1 (2818)	M.P. opposition.	17h54.5	-23°52'	June 20	19m W	11:42:00-12:42:00	+16 at 11:00; +8 at 1:13	13"	14x17 Cram. 8x10 Cram.	D-19	4m	68°	Good	—	W	N	R.D.S.	5" & 13" plates.
S-2 (2819)	"	17h54.5	-23°52'	June 22	1h07 W	12:22:00-13:22:00	+62 at 11:52; +54 at 1:46	13".5"	14x17 Cram 8x10 Cram	D-19	4m	68°	Good	—	W	N	R.D.S.	5" & 13" plates.
S-3 (2820)	"	17h54.5	-23°52'	June 24	19.5m W	11:27:00-12:27:00	+39 at 11:00; +30 at 12:55	13"	14x17 Cram	"	"	"	"	—	"	"	"	13" only.
S-4	M.P. opposition	20h03	-11°43'	July 16	1h00 E	11:18:00-11:48:00	+30 at 10:20; +21 at 12:10	13"&5	14x17 Cram 8x10 Cram	"	"	"	"	—	"	"	"	5" & 13"
S-5	"	"	"	July 17	25m E.	11:20:00-12:20:00	+21 at 9:35; +9 at 12:45	"	"	"	"	"	"	—	"	"	"	" Broken plate.
S-6	9th Mag. Star	16h15	-15°00	July 17	1h32 W	10:00:00-10:30:00	+21 at 9:35; +9 at 12:45	13"	8x10 Cram.	"	"	"	"		"	S	"	13" only
S-7	"	"	"	July 17	2h12 W	10:40:00-11:10:00	"	"	"	"	"	"	"		"	N	"	"
S-8	M.P. Opposition	20h03	-11°43'	July 24	0h09m E	11:00:00-12:00:00	-1 at 10:30; -9 at 12:46	"	14x17 Cram.	"	"	"	"		"	"	"	"
S-9	"	"	"	July 25	02m W	11:15:00-12:15:00	-61 at 9:31; -69 at 12:45	"	"	"	"	"	"		"	"	"	"
S-10	..	18h05	-28°25'	July 25	46m W	10:32:00-11:02:00	"	"	8x10 Cram	"	"	"	"		"	"	"	"
S-11	Lagoon & Trifid Nebulae.	17h59.6	-23°47'	July 26	1h04 W	9:40:00-11:10:00	-16 s at 9:00; -29 s at 11:47	"	"	"	"	"	"		"	"	"	" Slight chug in Dec. Double im.
S-12		19h47m	+10°30'	July 26	23m E	11:25:00-11:30:00	"	"	4x5 East 103 aO.	"	"	"	"		"	"	"	Field for H.6.
—																		
XS-1	9th Mag Star.	19h00	+0°32'	July 27	1h16m E	9:43:00-9:48:00	-1m 14s at 9:10; -1m 19s at 11:50	"	4x5 East. 103 aO.	"	"	"	"		"	"	"	Experiments with plane parrallel plates in front of objective. XS-1, 9" C.A. No Disc; XS-2, 9" C.A. Disc #2; XS-3, 9" C.A. Disc #1.
XS-2	"	"	"	"	—	10:02:00-10:07:00	"	"	"	"	"	"	"		"	"	"	
XS-3	"	"	"	"	37m E.	10:22:00-10:27:00	"	"	"	"	"	"	"		"	"	"	
—																		
S-13	Nova Suspect	19h53m	-8°04'	July 28	2h24m E.	9:15:00-9:30:00	+34 s at 8:30; +30 s at 9:40	"	"	"	"	"	"		"	"	"	Nova Suspect.
S-14	M.P. Opposition	20h03	-11°43'	July 28	19m E.	10:45:00-11:45:00	+30 s at 9:40; +29 s at 12:00	"	14x17 Cram	"	"	"	"		"	"	"	Asteroid region. 13" only.
S-15	Nova Suspect.	19h53m	-8°04'	July 29	12m W	11:30:00-12:30:00	-32 s at 11:10; -35 s at 12:13	"	4x5 East. 103 aO	"	"	"	"		"	"	"	Nova Susp. Not Found.
S-16	M.P. Opposition	22h68	-11°10'	Aug. 17	34m E	11:15:00-12:15:00	[illegible]47 s at 10:40; -48 s at 12:48	13"&5"	14x17 Cram 8x10 Cram	"	"	"	"		"	"	"	Double Im's. Plate moved in holder
S-17	"	"	"	Aug. 19	26m E	11:17:00-12:17:00	+1m 4s at 10:35; +1m 3s at 12:40	"	"	"	"	"	"		"	"	"	M.P. Opposition.
S-18	"	"	"	Aug. 23	9m E	11:15:00-12:15:00	-1m 4s at 10:53; -1m 8s at 12:30	13"	14x17 Cram	"	"	"	"		"	"	"	"
S-19	"	"	"	Aug. 25	0m	11:20:00-12:20:00	+1m 29s at 10:35; +1m 25s at 12:30	"	"	"	"	"	"		"	"	"	"
S-20	"	0h00m	-0°38'	Sept 19	31m W	12:00:00-13:00:00	-43s at 11:10; -40s at 13:40	"	"	"	"	"	"		"	"	"	Discovery plate Comet 1949-E.
S-21	M.P. Field	3h20m	+11°50'	Sept 19	2h31m E	13:10:00-13:20:00	"	"	8x10 Cram	"	"	"	"		"	"	"	Field for H.6.
S-22	M.P. Opposition	23h58m	-0°38'	Sept 20	30m E	10:50:00-11:50:00	-53 at 10:25; -51 at 12:10	"	14x17 Cram	"	"	"	"		"	"	"	M.P. Opposition.
S-23	M.P. Field. "	3h20m	+11°50'	Sept 21	2h51m E	12:35:00-12:45:00	-1m 5s at 11:35; -59s at 13:00	"	8x10 Cram	"	"	"	"		"	"	"	Field for H.6.
S-24	M.P. Opposition.	2h00m	+12°32'	Oct 24	17m E	10:58:00-11:58:00	+33s at 10:20; +29s at 12:25	"	14x17 East. 103 aO	"	"	"	"		"	"	"	M.P. Opposition
S-25	"	"	"	Oct 26	34m E	10:28:00-11:28:00	-13 s at 10:05; -18 s at 11:50	"	"	"	"	"	"		"	"	"	"
S-26	"	"	"	Oct 28	2h28m W	13:20:00-14:20:00	-2m 1s at 12:15; -2m 13s at 14:40	"	"	"	"	"	"		E	S	"	"
S-27		19h06m	-21°10'	Nov. 13	3h41m W	7:22:00-7:42:00	-32s at 6:45; -38s at 8:00	"	"	"	"	"	"		E	S	"	Search for double M.P. Not found.
S-28		23h50m	+2°55'	Dec. 13	2h52m W	9:05:00-9:40:00	+2m 22s at 8:05; +2m 17s at 10:00	"	4x5 East. 103 aO	"	"	"	"		E	S	"	Search for Rheinmuths Trojans —Not Found—
S-29		23h50m	+2°55'	Dec. 14	1h52m W	8:01:00-8:36:00	+1m 40s at 7:30; +1m 37s at 8:50.	"	"	"	"	"	"		E	S	"	

PLATES BY R. D. SCHALDACH. (CONTINUED.)

	NEG. No.	REGION. GUIDE STAR	α	δ	DATE 1950	H.A. AT END OF EXPOSURE	EXPOSURE (OLD ASTR. DAY)	WATCH ERROR.	INSTRUMENT	PLATE	DEVELOPMENT KIND	DEVELOPMENT TIME	DEVELOPMENT TEMP	SEEING TRANS	SEEING STEAD	POSITION OF TELESCOPE	WRITING ON PLATE	OBSERVER	REMARKS.
	S-30	METIS FIELD.	2h 52m	+19° 02	DEC 22 (1949)	2h 39m W	11:34:00 - 11:54:00	1m 12s + AT 10:45 1m 14s + AT 12:12	13"	8x10 EAST 103aO	D-19	4m	68°	GOOD		E	S	R.D.S.	FIELD FOR H.G.
	S-31	METIS FIELD.	2h 12m	+12° 10'	JAN 5	1h 09m W	8:39:00 - 8:49:00	16s + AT 8:12 15s + AT 8:55	13"	8x10 EAST 103aO	"	"	"	"		"	"	"	FIELD FOR H.G.
	S-32	URANUS FIELD	6h 06m	+23° 10'	JAN 17	24m W	10:50:00 - 11:10:00	29s - AT 10:15 33s - AT 12:26	13"	4x5 CRAMER HI-SPEED	"	"	"	"		W	N	"	" " "
	S-33		9h 02m	-10° 05'	JAN 17	1h 37m E	11:39:00 - 12:09:00	28s - AT 10:15 33s - AT 12:25	13"	8x10 EAST. 103aO	"	"	"	"		"	"	"	RANDOM SEARCH.
	S-34	METIS FIELD	2h 38m	+11° 30'	JAN 20	1h 42m W	8:15:00 - 8:45:00	1m 30s - AT 8:00 1m 27s - AT 8:58	13"	14x17 EAST. 103aO	"	"	"	"		E	S	"	FIELD FOR H.G.
	S-35	NOVA FIELD.	19h 33m	+53° 02'	JAN 28	—	17:07:00 - 17:12:00	6s - AT 4:10 8s - AT 6:20	13"	4x5 EAST 103aO	"	"	"	"		W	N.	"	WRONG REGION THRU' MISTAKE. (SHOULD HAVE BEEN 22h 48m - NO NOVA FOUND
	S-36	POLE	19h 33m	+90°	"	—	17:29:00 - 17:29:00		13"	"	"	"	"	"		"	"	"	
	S-37	NOVA FIELD	"	+53° 02'	"	—	17:13:00 - 17:48:00	"	13"	"	"	"	"	"		"	"	"	
	S-38	POLE	"	+90°	"	5h 28m E 6:03	17:56:00 - 18:01:00	"	13"	"	"	"	"	"		"	"	"	
	S-39	NOVA FIELD.	22h 48m	+53° 02'	FEB 9.	5h 40m W AT 8:00	7:15:00 - 7:47:00	-12s AT 4:10 -13s AT 8:10	13"	"	"	"	"	"		E	S	"	NOVA FIELD.
	S-40	POLE	"	+90°	"	"	7:57:00 - 7:59:00	"	13"	"	"	"	"	"		"	"	"	
		DATE = 1951																	
	S-41	273 ATROPIS	10h 26m	+10° 17'	MAR 10	16m E	11:12:00 - 11:32:00	+5m 54s	13"	4x5 EAST. 103aO	D-19	4m	68°	GOOD		W.	N.	R.D.S.	ATROPIS FIELD.
	S-42	273 ATROPIS	"	"	"	21m W	11:49:00 - 12:09:00	"	13"	"	"	"	"	"		"	"	"	"
	S-43	603 TIMANDRA	11h 36m	-0° 10'	MAR. 13	40m W	13:05:00 - 13:25:00	+6m 4s AT 12:30 +6m 5s AT 2:40	13"	"	"	"	"	"		"	"	"	TIMANDRA FIELD
	S-44	603 TIMANDRA	"	"	"	1h 11m W	13:36:00 - 13:56:00	"	13"	"	"	"	"	"		"	"	"	"
	S-45	603 TIMANDRA	"	"	"	1h 25m W	14:05:00 - 14:10:00	"	13"	"	"	"	"	"		"	"	"	"
	S-46	POLE.	S	+90°	"	S	14:27:00 - 14:32:00	"	13"	"	"	"	"	"		S	S	"	POLAR SEQUENCE.
	S-47	273 ATROPIS	10h 12m	+14° 16'	MAR 28	32m E	9:41:00 - 9:51:00	6m 38s FAST	13"	"	"	"	"	"		W.	N.	"	ATROPIS FIELD
	S-48	273 ATROPIS	"	"	"	5m E	10:08:02 - 10:18:05	"	13"	"	"	"	"	"		"	"	"	"
	S-49	603 TIMANDRA	11h 16.5m	-0° 57'	"	38m E	10:40:00 - 10:50:00	"	13"	"	"	"	"	"		"	"	"	TIMANDRA FIELD
	S-50	603 TIMANDRA.	"	"	"	12m E	11:00:00 - 11:10:00	"	13"	"	"	"	"	"		"	"	"	"
	S-51	POLE	S	+90°	"	S	11:27:00 - 11:37:00	"	13"	"	"	"	"	"		S	S	"	POLAR SEQUENCE.
X	S-52	POLE	S	+90°	APRIL 2	S	11:07:00 - 11:08:00	6m 53s FAST	13"	"	VON "2" S-35	9m	72°	"		S	S	"	EXPERIMENTS ON VON "2" DEVELOP. - FIRST CLASS FLOP.
X	S-53	POLE	S	+90°	"	S	11:15:00 - 11:20:00	"	13"	"	"	"	"	"		S	S	"	
X	S-54	POLE	S	+90°	"	S	11:26:00 - 11:31:00	"	13"	"	D-19	4m	68°	"		S	S	"	
X	S-55	POLE	S	+90°	"	S	11:37:00 - 12:02:00	"	13"	"	"	"	"	"		S	S	"	
	S-56	1516-1938 BG	13h 33.1	+6° 54'	APRIL 9	54m E	11:49:00 - 11:54:00	7m 10s FAST	13"	"	"	"	"	"		W.	N.	"	1516-1938 BG.
	S-57	1516-1938 BG	"	"	"	34m E	12:04:00 - 12:14:00	"	13"	"	"	"	"	"		"	"	"	"
	S-58	METIS FIELD	13h 20m	-1° 00'	"	10m E	12:25:00 - 12:35:00	"	13"	8x10 EAST 103aO	"	"	"	"		"	"	"	FIELD FOR H.G.
	S-59	M.P. FIELD	12h 31m	-5° 00'	APR. 10	27m W	11:58:00 - 12:18:00	7m 12s FAST	13"	"	"	"	"	"		"	"	"	1497-1938 SB, 902 PROBITAS 1536-1989 RC
	S-60	M.P. FIELD.	"	"	"	59m W	12:30:00 - 12:50:00	"	13"	"	"	"	"	"		"	"	"	"
	S-61	CURIOUS OBJECT	12h 26m	-6° 15'	APR. 13	2m E	11:21:00 - 11:33:00	7m 15.5s FAST	13"	4x5 EAST. 103aO	"	"	"	"		"	"	"	SOME MOONLIGHT.
	S-62	CURIOUS OBJECT	"	"	"	19m W	11:42:00 - 11:54:00	"	13"	"	"	"	"	"		"	"	"	

PLATES BY R. D. SCHALDACH (CONTINUED.)

	NEG No.	REGION. GUIDE STAR OR OBJECT.	α	δ	DATE 1951	H.A. AT END OF EXPOSURE	EXPOSURE (OLD AST. DAY)	WATCH ERROR.	INSTRUMENT	PLATE	DEVELOPMENT. KIND	TIME	TEMP.	SEEING TRANS	STEAD.	POSITION OF TEL.	WRIT. ON PLATE	OBSERVER	REMARKS.
+	S-63	M.P. REGION.	19h 40m	-24° 42'	MAY 2	28m W	12:35:00 - 12:55:00	13.5s FAST	13"	14×17 EAST. 103aO	D-19	4m	68°	GOOD	GOOD	W	N	R.D.S.	
+	S-64	M.P. REGION.	"	"	MAY 6	23m W	12:15:00 - 12:35:00	20.5s FAST	13"	14×17 EAST. 103aO	"	"	"	"	FAIR	"	"	"	
	S-65	9 METIS	13h 01m	-0° 30'	MAY 7	1h 46m W	11:58:00 - 12:13:00	22s FAST	13"	8×10 EAST. 103aO	"	"	"	"	GOOD.	E	S	"	FIELD FOR H.G.
+	S-66	M.P. REGION.	19h 40m	-24° 42'	MAY 7	38m W	12:24:00 - 12:44:00	"	13"	14×17 EAST 103aO	"	"	"	"	"	E	S	"	
+	S-67	POLE.	S	+90°	MAY 7	S	12:53:00 - 13:13:00	"	13"	4×5 EAST 103aO	"	"	"	"	"	S	S	"	NORTH POLAR SEQUENCE
+	S-68	M.P. REGION	19h 40m	-24° 42'	MAY 10	52m W	11:54:00 - 12:46:00	23.5s FAST	13"	14×17 EAST 103aO	"	"	"	"	"	E	S	"	
	S-69	M.P. REGION.	"	"	MAY 10	1h 27m W	12:51:00 - 13:21:00	"	13"	"	"	"	"	"	"	"	"	"	
	S-70	9 METIS	12h 49m	+0° 30'	MAY 11	1h 13m E	8:35:00 - 8:45:00	0.6s FAST.	13"	8×10 EAST 103aO	"	"	"	"	"	W.	N.	"	FIELD FOR H.G.
	S-71	JUNO.	16h 11m	-3° 12'	MAY 25	23m W	12:27:00 - 12:42:00	8m 6s SLOW	13"	4×5 EAST. 103aO	"	"	"	"	"	"	"	"	FIELD FOR H.G.
	S-72	1095 TULIPA	19h 19m	-17° 55'	JUNE 29	1h 35 E	11:38:00 - 11:59:00	36s FAST	13"	8×10 EAST 103aO	"	"	"	"	"	"	"	"	M.P. FIELD.
	S-73	1095 TULIPA	"	"	JUNE 25	1h 49 E	11:22:00 - 11:43:00	41s FAST	13"	"	"	"	"	"	"	"	"	"	M.P. FIELD.
	S-74	JUNO	15h 13m	-3° 0'	JULY 6	1h 48 W	10:53:00 - 11:03:00	12s SLOW	13"	4×5 EAST 103aO	"	"	"	"	"	E	S	"	FIELD FOR H.G.

Kent De Groff. Comet 1965f Ikeya-Seki

1	Ikeya-Seki Comet	1965 Oct 27	5:28 - 5:36 AM MST.	Portrait Lens F8, 13" fl.	8X10	103aO	UFG, Fs	6 min	68		Kent DeGroff	Turned over to obs. on 12/31/68 upon seperation of employment at Planetary Center Entered by, H Giles
2	"	Oct 28	5:25 - 5:40 "	"	"	"	"	"	"		"	
3	"	Nov. 1	5:09 - 5:29 MST.	"	"	"	"	"	"		"	
4	"	Nov. 2	5:05 - 5:25 AM "	"	"	"	"	"	"		"	

Plates by Osterberg

Neg. #	Region: Guide Star	α	δ	Date 1950	H.A. at end of expo	Exposure	Watch Error
#1	Saturn (M.P.)	11h10m	+7°40′	Mar. 10		12h10m ?- 12h55m ?	+10s @ 10:10 - ?
#2	x Leonis (M.P.)	11h03m	+7°36′	Mar. 16		12h05m00s-12h50m00s	-85 @ 11:10 P.m.
CZO-3	x Leonis (M.P.)	11h03m	+7°36′	Mar. 20	36m W	11h30m00s-12h10m00s	-135 @ 1:11 a.m.
O-4	#28301	20h18m	-6°28	Mar. 28	3h10m E	16h25m00s-17h10m00s	-10s @ 12:30
O-5	#28301	20h18m	-6°28	Mar. 29	3h08m E	16h08m00s-17h08m00s	+95 @ 15:40 a.m.
O-6	Uranus Field	6h32m	+23°30′		2h40m W	9h33m00s-9h43m00s	-85 @ 15:15 a.m.
O-7	Astraea 5	11h44m	+8°30′	Apr. 12	15m E	10h19m00s-10h29m00s	+105 @ 15:40 a.m.
O-8	" "	"	"	"	58m W	11h35m00s-11h45m00s	+155 @ 17:30 a.m.
O-9	" "	11h46m	+8°31′	Apr. 13	16m E	10h18m00s-10h28m??s	1m2 @ 7:40 28a f. @ 9:05
O-10	Herculina 532	12h07m	+26°50′	"	19m W	11h12m35s-11h22m35s	+19a @ 9:55
O-11	Comet d'Arrest	21h10m	-4°30′	Apr. 14	3h02 E	4h05m00s - 5h00m00s	+18a @ 10:22
O-12	532 Herculina	12h07m	+8°31	Apr. 14	~~3h~~	10h17m00s-10h27m00s	+17a @ 11:29
O-13	Comet d'Arrest	21h30.5m	-3°35′	Apr. 19	3h40m E	3h55m00s - 4h27m00s	+16a @ 11:57
O-14	" "	"	"	Apr. 20	3h49m E	3h50m00s - 4h23m00s	-28a @ 10:00
O-15	1948 WE	13h57m	- 3°20′	May 16	4m E	9h47m00s - 10h42m00s	-30a @ 11:40
O-16	Pallas	15h13m	+25°52′	"	56m E	10h56m - 11h06m	-28a @ 10:00
O-17	Beehive Cluster			May 18		9h10m - 9h21m	-30a @ 11:40
O-18	1948 WE	13h57m	-3°20′	May 18	8m E	9h36m - 10h31m	+18a @ 4:15
O-19	1948 WE	13h52m	-2°40′	June 4	1h15m W	9h42m - 10h42m	+17a @ 5:21
O-20	Variable star?	14h00m	-6°55′	"	1h47m W	10h56m - 11h21m	-14a @ 9:40
O-21	1948 WE	13h52m	-2°40′	June 5	58m W	9:21 - 10:21	-15a @ 10:48
O-22	Variable star?	14h00m	-6°55′	"	1h25m W	10:31 - 10:56	-5a @ 3:15
O-23	Comet Minkowski	17h39m	+10°40′	"	1h15m E	11:31 - 11:56	-7a @ 4:49
O-24	Asteroid #39 Laetitia	22h424m	-8°45		1h12m W	2:56 - 3:11	+12a @ 3:20
O-25	~~#~~ 4 Vesta						+10½a @ 4:35
O-26	#4 Vesta						+7a @ 9:10
O-27	1949 MP	3h28m.0	+10°45′	Dec. 4	20m W	10:52 - 11:22	-13a @ 11:23
O-28	1949 MP	"	"	"	2h08m W	12:35 - 1:05	"
O-29	1949 MP	3h27.4m	+10°20′	Dec. 9	55m E	9:16 - 9:46	-8a @ 8:50
O-30	"	"	"	"	35m W	10:55 - 11:25	-19a @ 10:45
1951 O-31	Orion neb.	5h35.5	-2°35′	Dec. 12	6m E	12:01 - 12:31	"
O-32	Comet Pajdusakova 1951 A	20h42m	+18°00′	1951 Feb. 7		5:55:00 - 6:05:00	+16a @ 8:50
O-33	" " 1951 B	"	"	"		6:08:05 - 6:10:05	+12a @ 11:53
O-34	Comet Avand-Rugemer	7h27.5m	+26°03	Feb 9		10:09:00 - 10:21:00	"
O-35	" "	"	"	"		10:24:00 - 10:28:05	+36a @ 8:55
							+32a @ 12:10
							"
							"
							-28a @ 10:00
							-30a @ 11:40
							-28a @ 10:00
							-30a @ 11:40
							+18a @ 4:15
							+17a @ 5:21
							-14a @ 9:40
							-15a @ 10:48
							-5a @ 3:15
							-7a @ 4:49
							+12a @ 3:20
							+10½a @ 4:35
							+7a @ 9:10
							-13a @ 11:23
							"
							-8a @ 8:50
							-19a @ 10:45
							"
							+16a @ 8:50
							+12a @ 11:53
							"
							+36a @ 8:55
							+32a @ 12:10
							"
							"
							+3a @ 8:35
							+52 @ 11:45
							"
							+2a @ 11:25
							+4a @ 12:55
							+15a @ 5:05
							+15a @ 6:30
							" "
							-1m18a @ 9:30
							-1m16a @ 10:40
							"

Telescope	Plate	Development: Kind	Time	Temp.	Seeing	Trans.	Position of Telescope	Writing on Plate	Observer	Remarks
13"	14x17 103a0	D-19	4m	68°	3	Good	E	N	CZO	high winds
13"	" "	"	"	"	4-5	Fair	E	N	CZO	Some smoke or cirrus
13"	14x17 103a0	"	"	"	4-5	Good	E to W	N	CZO	
13"	14x17 "	"	"	"	3-4	Good	E	N	CZO	Comet d'Arrest
13	" "	"	"	"	2-3	Poor	E	N	CZO	Haze + Cirrus
13"	8x10 "	"	"	"		Good	W	N	CZO	Plate wet in refrig.
13	4x5 "	"	"	"	5	"	E	S	CZO	many defects
"	" "	"	"	"	5	"	W	N	CZO	" " " "
"	8x10 "	"	"	"	4	"	E	S	CZO	" " " "
"	" "	"	"	"	"	"	W	N	CZO	" " " "
"	14x17 "	"	"	"	"	"	E	N	CZO	Too much morning light.
"	8x10 "	"	"	"	"	"	W	N	CZO	Good
"	14x17 "	"	"	"	"	"	E	N	CZO	Some haze
"	" "	"	"	"	"	"	E	N	CZO	shutter closed momentarily at about 4:18
"	8x10 "	"	"	"	"	"	E	N	CZO	ok
"	4x5 "	"	"	"	"	"	E	N	CZO	ok
"	4x5 "	"	"	"	"	"	W	N	CZO	defective plate
"	8x10 "	"	"	"	"	"	E	N	CZO	ok
"	8x10 "	"	"	"	"	"	W	N	CZO	ok
"	4x5 "	"	"	"	"	"	W	N	CZO	ok
"	8x10 "	"	"	"	"	"	W	N	CZO	ok
"	4x5 "	"	"	"	"	"	W	N	CZO	ok
"	14x17 "	"	"	"	"	"	E	N	CZO	not found
"		"	"	"					CZO	ok
"		"	"	"					CZO	ok
"		"	"	"					CZO	ok
"	4x5 "	"	"	"	"	Poor	Good	W S	CZO	seeing too poor
"	" "	"	"	"	"	"	"	W N	CZO	" " "
"	8x10 "	"	"	"	"	Fair	"	E N	CZO	blinked with O-30
"	" "	"	"	"	"	"	"	W S	CZO	" " O-29
"	" "	"	"	"	"	~~Good~~	~~Good~~	E		CZO 1951
"	4x5 "	"	"	"	"	"	"	E N	CZO	Comet about 7.8m
"	4x5 "	"	"	"	"	"	E	N	CZO	"
"	" "	"	"	"	"	"		S	CZO	Comet about 11m
"	" "	"	"	"	"	"		S	CZO	"

Region

Reg #	Guide Star	α	δ	Date 1951	H.A. at end of exp.	Exposure	Watch Error
0-36	Vesta - field	$3^h\ 15^m$	$+14^\circ\ 00'$	Feb 28	$2^h 40^m$ W	7:39 - 7:49	+15s {at 7:10 at 8:10

Development

Telescope	Plate	Kind	Time	Temp.	Seeing	Trans.	Position of Telescope	Writing on Plate	Remarks
13"	~~5X10~~ ~~10X10~~	1030G	4	68	good	good	W	N	Vesta found.

PAGES 32-49 ARE BLANK

Size	Neg No.	Region. Guide Star.	α	δ	Date of year 1932	Hour Angle at end of Exposure	Exposure Time	Camera or Telescope Aperature.	Kind of Plate.	Seeing Transp-	Seeing Stead-	Development Kind	Development Time	Development Temp.	Telescope on {East / West} side of axis. Writing on {North / South} end of plate.		Observer	Remarks.
12"x15"	CI-51	β Cygni	19h30m	+27°	Aug 28	1h40m W	10:05 - 11:05 = 1 hr.	13 inch	Iso Presto	good	2 - 4	Wallace Hyde	10m	74-66°	W	N	K.A.M.	broken corners.
12"x15"	CI-52	Scutum Cloud.	18h45m	-6°	Aug 30	58m W	8:30 - 9:30 = 1 hr.	13 inch	Iso Presto	fair	2 - 4	"	10m	74-66°	W	N	"	good plate.
12"x15"	CI-53	β Cygni	19h30m	+27°	Aug 31.	1h47m W	10:00 - 11:00 = 1 hr	13 inch	Iso Presto	good	1 - 4	"	10m	74-66°	W	N.	K.A.M.	good plate.
12"x15"	CI-54	ξ Aquilae	18h55m	+14°20'	Sept 6	3h W	10:50 - 11:20 = ½ hr.	13 inch	Iso Presto	good	0 - 2	Wallace Hyde	10m	74-66°	W	N.	K.A.M.	elongated images due to telescope moving. Only half hour exposure.
	CI-55	Orion region.	—	—	Nov	—	1 hr	13 inch	" "	-	"	"	"	70-70°	W	N	K.A.M.	
	CI-56	Pleiades	—	—	Nov 23	30m E	12:20 - 12:35 (12:06 - 12:36)	13 inch	" "	"	2 - 4	"	"		"	"	"	Badly fogged - useless (Iso good, not off)
	CI-57	Orion region	—	—	" "	1h30m E	12:48 - 13:01 (13:02 - 13:04)	" "	" "	"	"	"	"		"	"	"	Broken plate before developed.
	CI-58	Pleiades	3h45m	+24°30'	Nov 28	2h30m E	8:47 - 9:02 — 9:03 - 9:05	13 inch	Iso Presto	good	4 - 3	Wallace Hyde	10m	72°-68°	W	N	K.A.M.	~~Badly blistered~~. good plate
	CI-59	Orion	5h30m	-2°30'	Nov 28	10m E	11:17 - 13:17 = 2 hrs	13 inch	Iso Presto (backed)	good	1 - 3	Wallace Hyde	15m	72°-68°	W	N	K.A.M.	good plate.
	CI-60	15 Monocerus.	6h30m	+10°	Nov 28	1h30m W	14:00 - 16:00 = 2 hrs	13 inch	Iso Presto (backed)	good	1 - 3	Wallace Hyde	10m	72-68°	W	N	K.A.M.	badly blistered.
Ross Plates.					1933.													
8"x10"	R-1	4th mag	18h6m	-28.7	June 18	1h40m W	11:20 - 14:20 = 3 hrs	Xenar F4.5	Eastman "50"	good-fair	1 - 2	Hauff	5m	68-65	E	S	K.A.M.	good plate.
"	R-2	4th mag.	18h38m	-9.2	" 19	1h30m W	11:45 - 14:45 = 3 hrs	" "	" "	good-fair	1 - 3	"	"	66-66	E	S	K.A.M.	" "
"	R-3	5th Mag.	19h15m	+11°.5	" 21	1h10m W	11:50 - 14:50 = 3 hrs	" "	" "	good-fair	1 - 3	"	"	"	"	"	"	" "
"	R-4	3rd mag	19h29m	+28°.0	" 22	1h40m W	12:30 - 15:30 = 3 hrs	" "	" "	"	2 - 4	"	"	"	"	"	"	" "
"	R-5	3rd Mag	19h45m	+45°.0	" 23	1h30m W	12:25 - 15:25 = 3 hrs	" "	" "	"	"	"	"	"	"	"	"	" "
"	R-6	" "	22h10m	+58°.0	" 24	50m E	12:35 - 15:35 = 3 hrs	" "	" "	"	2+3	"	"	"	"	"	"	" "
14"x17"	N-149	Planet 1933 HH	1h17m	+6°0'	June 30	3h25m E	14:46 - 15:36 = 50m	13 inch	Hammer Press	fair-poor	—	Wallace	10m	66°-66	W	N	K.A.M.	good plate - planet found.
	N-150	Cygni																
	N-151		18h38m	-9°.2	May 30	—	12:20 - 15:20 = 3 hrs	Xenar 4.5	Eastman 40	good	1 - 3	Hauff	5m	68-68	E	N	Kam	out of focus
12"x15"	N-152		21h8m	+43°0'	July 20	45m W	14:00 - 14:15 = 15 min	13 inch	Imperial	fair-poor	1 - 3.	Wallace	10m	68-68	W	N	Kam.	OK.
" "	N-153		20h42m	+31°	July 20	1h35m W	14:30 - 14:45 = 15 min	13 inch	Imperial	poor	1 - 3				W	N	Kam.	OK.
" "	N-154	Scutum Cloud	18 41	-7 0	July 21	1h35m W	10:40 - 12:40 = 2 hrs	" "	"	good	1 - 4	Hauff	5 min	66°-66°	W	N	Kam & FKE	good plate.
8"x10"	N-155	γ Cygni			July 22	1h35m W	12:20 - 14:25 = 2h5m	Xenar 4.5	Imperial	good	2 - 5	Hauff	5 min	66-66	E	S	K.A.M.	good plate.
8"x10"	N-156	same as R-1	18h6m	-28.7	Aug 12	1h30m W	8:37 - 10:43 = 2 hrs	" "	"	~	~	"	"	68-68	E	S	"	" " 5 min exp.
12 x 15	CI-61	α=19h25m, δ=+10°	19h25	+10°	Aug 12	35m E	9:20 - 9:46 (5 min time exp)	13"	Iso - Presto	good	4 - 5	Hauff	5 min	66°-66	W	N	F.K.E.	20 min. total exposure
8 x 10	"	" " "	"	"	"	"	"	5"	" "	"	"	"	"	66°-66°	W	N	F.K.E.	
12"x13"	N-157	CI-62	20h42m	+31°	Sept 15	1h W	8:32 - 10:32 = 2 hrs	13"	Iso Presto	good	4 - 5	D-11	4 min	70-66	W	N	K.A.M.	
12"x15"	N-158	CI-63	" "	"	"	"	10:55 - 11:10 = 15m	"	"	"	"	"	"	"	"	"	"	
N-159	12x15	CI-64	21h0m	+43°	Sept 16	1h15m W	8:50 - 10:50 = 2 hrs	13"	Iso Presto	good	4-5	D-11	4 min	70-66	W	N	K.A.M.	
12"x15"	N-160	CI-65	19h25m	+8°40'	Sept 18	1h45m W	7:45 - 9:45 = 2 hrs	13"	Iso Presto	Good	2-3	D-11	4 m	70-66	W	N	K.A.M.	

Negative No.	Region: Guide Star	α	δ	Date 1933	Hour angle	Exposure time	Camera or telescope	Plate	Seeing: Transp	Seeing: Steady	Development: Kind	Development: Time	Development: Temp	Telescope on {E W} side of pier	Writing on {N S} end of plate	obs.	Remarks
N-161		18h 35m	-6° 51'	Sept 19	2h 40m W	7:50-9:50=2hrs	13 inch	Iso Presto	good	2-3	D-11	4m	70-66	W	N	KAH.	
N-164	γ Cass	0.8h	+60°	Nov 7	1h 35m E	7:25-9:25=2hrs	Xenar	Imperial	good	0-2	Ross	4m	70-66	E	W	KAH	long images
N-162	"	0.8h	+60°	Oct 21		12:30-14:00=1½hrs	Xenar	"	"	0-2	"	"	"	"	"	"	" "
N-163	"	"	"	Oct 24		12:50-14:25=1h 35m	Xenar	"	"	"	"	"	"	"	"	"	
N-165	"	"	"	Nov 8	0	8:30-10:35=2h 5m	"	"	"	3-4	"	"	"	"	"	"	
N-166	"	"	"	Nov 10	2h [illegible] W	9:45-12:15=2½h	"	Eastman 50	"	"	"	"	"	"	"	"	
N-167	"	"	"	Nov 12		8:00-10:00=2hrs	"	Imperial	"	"	"	"	"	"	"	"	
N-168	γ Cygni			Nov 17		7:40-9:20=1½hrs	"	"	"	"	"	"	"	"	"	"	Jumps of telescope may cause long images
N-168	γ Cass	0.8h	+60°	Nov 15		8:30-10:30=2h	"	"	"	"	"	"	"	"	"	"	
N-170	Pleiades			Nov 20	30m W	9:40-13:40=4hrs	"	"	"	2-4	"	"	"	"	"	"	
N-171	Rigel			Nov 23		11:45-12:45	"	~~[illegible]~~	fair	2-4	"	"	"	"	E	"	haze halted a 4 hr exposure
N-172	~~[illegible]~~	7h 6m	-18°	Nov 25	45m W	14:15-15:45	"	Imperial	fair	1-3	"	"	"	"	W	"	
N-173	Pleiades	"		Nov 17	"	11:42-13:42	"	Imperial	good	2-3	"	"	"	"	W	ABC	
N-174	γ Cass	0.8h	+60°	Nov 11		7:35-8:05	"	"	"	2-3	"	"	"	"	W		
N-175	" "	"	"	"		14:05-14:50	"	"	poor	1-3	"	"	"	"	W		
N-176		22h 10m	+58°	Nov 16		8:00-10:00	"	"	good	1-3	"	"	"	"	"	"	

PAGES 54 - 61 ARE BLANK

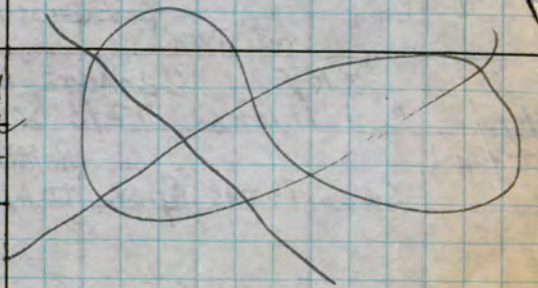
Plates by Stableford

	Neg. no.	Region: Guide Star	Region: R.A.	Region: Dec.	Date 1952	H. A.	Exposure O.A.D.	Watch error
Companion plate to 2890. H.D.	CVS 1a	du Toit Comet suspect region	$13^h04.9^m$	-6°30'	June 16	3^h25^m	10:44:46 - 11:14:44	6s fast 8:32
	CVS 1b	du Toit Comet region 9m star	$13^h44.5^m$	-9°32'	June 17	1^h26^m W	9:16:00 - 9:53:00	16s fast 11:32
	CVS 2	du Toit Comet search 9m star	13^h52^m	-9°19'	June 24	1^h44^m W	9:11:00 - 9:51:00	24.5s fast
	CVS 3	du Toit Comet search 9m star	13^h52^m	-9°19'	June 25	2^h05^m W	9:26:00 - 10:03:00 10:05:00 - 10:08:00	36s fast
	CVS 4	du Toit Comet search 8m star	14^h22^m	-11°28'	July 21	2^h54^m W	9:02:00 - 9:42:00	39s fast
	CVS 5	du Toit Comet search 8m star	14^h22^m	-11°28'	July 25	4^h03^m W	9:55:00 - 10:35:00	34s fast
	CVS 6	du Toit Comet search 9m star (open cluster)	14^h21^m	-12°45'	Aug 10	3^h47^m W	8:46:00 - 9:16:00	7s fast
CVS 7 Starts 1953 plates	CVS 7	β Virginis	11^h48^m	+2°02'	May 30	1^h32^m W	8:45:00 - 9:15:00	18s fast
	CVS 8	42 Capricorni	21^h38^m	-11°22'	June 20	0^h33^m E	3:25:00 - 3:40:00	14s fast 12s slow

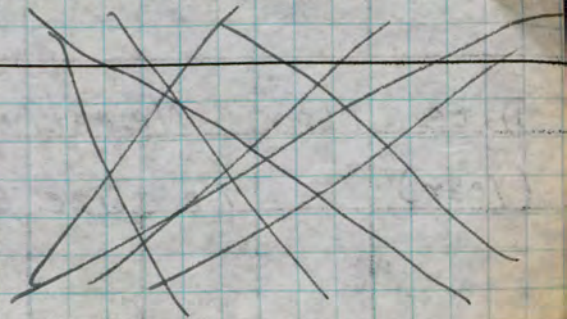
Instrument	Plate brand and size	Position of telescope	Development: Kind	Development: Time	Development: Temp.	Seeing: Trans.	Seeing: Stead.	Writing on plate	Observer	Remarks
13"	103a0 4x5	W	D-19	4m	67°	Good	3	N	CVS	
13"	103a0 14x17	W	D-19	4m	68°	Light Clouds	3-4	N	CVS	Scattered cirrus - caused exposure to be 3m short.
13"	103a0 4x5	W	D-19	4m	67°	Good	4	N	CVS	
13"	103a0 4x5	W	D-19	4m	67°	Poor	2-3	N	CVS	Scattered cumulus - Stopped exp. while passing over
13"	103a0 14x17	W	D-19	4m	68°	Good	3	N	CVS	
13"	103a0 14x17	W	D-19	4m	68°	Fair	2	N	CVS	Scattered clouds on horizon - Some towards end.
13"	103a0 14x17	W	D-19	4m	69°	Good	2	N	CVS	
13"	103a0 14x17	W	D-19	4m	68°F	Good	2	N	C.V.S.	Proper motion star Ross 128 for Johnson. Thin cirrus.
13"	103a0 14x17	W	D-19	4m	68°F	Good	2-3	N	C.V.S.	Proper motion star Wolf 922. for Johnson.

PAGES 64-69 ARE BLANK

Date (Year)	obser.	Negative No.	Negative Size	Negative Emul.	Region Guide Star	α	δ	Mountain Standard Time	Watch ~~Error~~ Error



Exp	H.A. at End	Sky Conditions See.	Trans.	Camera or Telescope Aper.	Relative to Axis	Writing on Plate	Development Kind	Time	Temp.	Remarks.



Watch Correction Applied (Noon to Noon)

Date (1953)	Observer	Negative No.	Negative Size	Negative Emulsion	Region Guide Star	Region α	Region δ	Mountain Standard Time	Expos.
Nov. 12/13	C7K	K 1	8X10	103a-O	Messier 31 see Finder Field in observing Book	$0^h42.^m0$	+41°12'	9:20:59.7–9:50:59.5	$29.^m58.^s8$
"	"	K 2	14X17	"	"	$1^h45.^m8$	+37°46'	10:56:59.2–11:36:58.9	$29.^m59.^s7$
"	"	K 3	8X10	"	"	$4^h35.^m0$	+12°30'	12:17:58.7–12:37:58.5	$19.^m59.^s8$
"	"	K 4	14X17	"	"	$2^h00.^m0$	+12°29'	13:02:58.4–13:42:58.2	$39.^m59.^s8$
"	"	K 5	8X10	"	"	$4^h35.^m0$	+12°30'	14:10:58.0–14:30:57.8	$19.^m59.^s8$
Nov. 15/16	C.F.K	K 6	14X17	103a-O	"	$2^h00.^m0$	+12°29'	14:07:57.8–14:47:57.5	$39.^m59.^s7$
"	"	K 7	"	"	"	$1^h45.^m8$	+37°46'	15:06:58.8–15:46:58.7	$39.^m59.^s9$
Nov. 29/30	C.F.K	K 8	14X17	103a-O	"	$2^h00.^m0$	+12°32'	10:42:58.7–11:23:58.4	$39.^m59.^s7$
"	"	K 9	"	"	"	$1^h45.^m8$	+37°46'	11:35:58.6–12:15:58.4	$39.^m59.^s8$
Dec. 29/30	C.F.K	K 10	14X17	103a-O	"	$2^h00.^m0$	+12°32'	8:45:00–9:25:00	$40.^m00^s$
"	"	K 11	"	"	"	$1^h45.^m8$	+37°46'	9^h40:00–10:20:00	$40.^m00^s$

Hour Angle at End	Camera or Telescope Aper.	Camera or Telescope Relative to Axis	Sky Conditions Seeing	Sky Conditions Transp.	Writing on Plate	Development Kind	Development Time	Development Temp.	Remarks
0^h09^m W	13"	W	3	3	N	D-19	4^m	68°F	Watch Corr. Applied
$0^h51.^m7$ W	"	"	2-3	3	"	"	"	"	" " " , Proper Motion
0^h55^m E	"	"	2-3	3	"	"	"	"	Search for E Brooks – didn't find.
2^h43^m W	"	"	2-3	3	"	"	"	"	Watch Corr. applied – Proper Motion Field.
1^h03^m W	"	"	2	3	"	"	"	"	" " " " Search for E Brooks – in vain
4^h04^m W	13"	W	2	3	N	D-19	4^m	68°F	Proper Motion Field
5^h15^m W	"	"	2	3	"	"	"	"	Watch Corr. applied
1^h31^m W	13"	W	2	3	N	D-19	4^m	68°F	Proper Motion
2^h37^m W	"	"	1-2	3	"	"	"	"	
1^h30^m W	13"	W	1-2	3	N	D-19	4^m	68°F	
2^h43^m W	"	"	1-2	3	"	"	"	"	

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Neg. No.	Region: Guide Star	Region: α	Region: δ	Date of year	Hour Angle at end	Exposure Time	Camera or Telescope. Aperture	Kind of Plate	Seeing: Transp-	Seeing: Stead-	Development: Kind	Development: Time	Telescope Writing {EAST/WEST} of Axis {NORTH/SOUTH} of Plate: Temp			OBS.	Remarks
8 x 10	E-1 α Cygni + N.A. Neb.	20h 39m	+45° 2'	1933 July 22	1h W	12:07 - 3:07	Cogshall 5"	Imperial	Fair +	3-4	Hauff	5 min	68°-65	W	N	F.K.E	
12 x 15	E-2 "	"	"	"	"	" - "	13"	"	"	"	"	"	"	"	"	"	
12 x 15	E-3 γ Cygni			July 25	50m E	11:15 - 11:45	13"	Ilf-Process	Fair -	3-4	"	"	"	"	"	"	

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Plate #	Size	Subject	Date	Kind	Development			
					Kind	Time	Temp	
LA 1	3¼ x 4¼	α Orionis	Nov 5, 1938	Iso Presto	Ross - Metol	7'		Type Ma
LA 2	3¼ x 4¼	χ Cygni	Nov. 16, 1938	Iso Presto	Ross - Metol	7		χ Cygni at minimum
LA 3	3¼ x 4¼	χ Cygni	Nov. 17, 1938	Iso Presto	Ross - Metol	7		"
LA 4	3¼ x 4¼	ρ Persei	Nov. 18, 1938	Iso Presto	Ross - Metol	7		Type M1b
LA 5	3¼ x 4¼	W Cygni	Nov. 19, 1938	Iso Presto	Ross - Metol	7		Type M1c
LA 6	3¼ x 4¼	γ Andromedae	Nov 21, 1938	Iso Presto	Ross - Metol	7		
LA 7	3¼ x 4¼	Solar Spectrum	Feb 7, 1939	Iso Presto	Ross - Metol	7		
LA 8	3¼ x 4¼	Solar Spectrum	Feb 13, 1939	Iso Presto	Ross - Metol	7		Wedge in Front of Slit
LA 9	3¼ x 4¼	Solar Spectrum	Feb 13, 1939	Iso Presto	D-72 Full Strength	2		
LA 10	2¼ x 3¼	Plate Test	Mar 17, 1939	Iso Presto	D-72 2:1	100"		
LA 11	2¼ x 3¼	Plate Test	Mar 18, 1939	Iso Presto	Ross - Metol	7½'	62°F	For Comparison
LA 12	2¼ x 3¼	Plate Test	Mar 18, 1939	Iso Presto	Ross - Metol	7½		
LA 13	3¼ x 4	Optical Wedge	Feb., 1939	Lantern Slide	D-72	—		Calibrated
LA 14	2¼ x 3¼	Plate Test	Mar. 21, 1939	Iso Presto	Ross Metol	7½	62°F	Exposures
LA 15	2¼ x 3¼	Plate Test	Mar. 22, 1939	Iso Presto	Ross Metol	7½	62°F	Noted on
LA 16	2¼ x 3¼	Plate Test	Mar. 22, 1939	Iso Presto	Ross Metol	7½	62°F	Envelopes
LA 17	2¼ x 3¼	Plate Test	Mar. 22, 1939	Iso Presto	Ross Metol	7½	62°F	
LA 18	2¼ x 3¼	Plate Test	Mar. 22, 1939	Iso Presto	Ross Metol	7½	62°F	
LA 19	3¼ x 4	Moon	Apr. 4 1939	Hammer Medium Lantern	D-72	—	—	Best Exposure ½" at F 20
LA 20	3¼ X4	Moon	Apr. 5 1939	Hammer Medium L.	D-72	—	—	Best Exposure 1" at F 38
LA 21	3¼ X 4	Moon	Apr 24 1939	Hammer Medium L.	D-72	—	—	Best Exposure 2" at F 31
LA 22	3¼ X 4	Moon Earthlit	Apr 24 1939	Hammer Medium L.	D-72	—	—	Exposure 1'
LA 23	3¼ x 4	Moon	Apr 26, 1939	Eastman Lantern Slide	D-72	—	—	Exposure 2"

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pholosla

type	color index
K_0	1.0
K_2	1.1
K_5	1.2
Ma	1.35 – 1.4

List of Interesting Red Stars

Number	R. A. 1930	Declination	Photometric Approximate Magnitude	Plate Number	Spectral Type	REMARKS	E/F	Color Index
1 9	0h 40m.5	+37° 45′	9.7	L5				~~1.2~~
2 11	0h 51m.1	+37° 49′	10.0	L5				1.2
3 12	0h 53m.7	+38° 28′	10.2	L5				1.2
4 13	0h 56m.1	+37° 2′	10.3	L5				1.1
5 14	0h 59m.8	+38° 44′	10.0	L5		variable ?		1.4
6 82	20h 17m.6	+36° 32′	10.3	L1				2.4
7 83	20h 18m.0	+37° 15′	10.0	L1				2.7
8 87	20h 23m.1	+37° 52′	10.5	L1				2.8
9 88	20h 23m.9	+38° 30′	10.3	L1				2.5
10 90	20h 25m.2	+39° 39′	10.0	L1		very interesting		2.5
11 62	19h 26m.0	+45° 52′	9.2	L2				3.1
12 68	19h 54m.0	+43° 59′	9.2	L2	Nb	variable H.D. # 189256		2.7
13 78	20h 9m.8	+38° 26′	var.	L1	Pec.	variable H.D. # 192443		2.9
14 94	20h 35m.0	+41° 29′	10.3	L1				2.6
15 76	20h 7m.6	+36° 32′	9.3	L1				2.5
16 80	20h 14m.8	+37° 9′	var.	L1	Nb	variable HD. # 193,368		1.8
17 79	20h 14m.5	+37° 19′	9.5	L1(L4)				1.2
18 75	20h 5m.7	+39° 57′	10.3	L1(L4)				1.8 (1.9)
19 93	20h 33m.2	+38° 17′	9.3	L1				1.9 (2.0)
20 91	20h 26m.7	+38° 12′	9.8	L1				2.2
21 66	19h 41m.9	+43° 58′	9.0	L2				1.6
22 64	19h 34m.1	+43° 9′	8.8	L2				1.3
23 63	19h 27m.2	+45° 57′	var	L2	Mb	variable HD. # 184,008		1.5
24 65	19h 40m.8	+48° 32′	var	L2	Md	variable H.D. # 186,686		–
25 70	19h 57m.0	+41° 54′	9.3	L2				–
26 69	19h 56m.6	+40° 58′	9.5	L2				1.4
27 71	19h 58m.1	+42° 01′	9.5	L2				1.2
28 72	19h 58m.4	+41° 53′	9.5	L2				1.3
29 73	19h 58m.7	+41° 52′	9.5	L2				1.4
30 74	19h 58m.6	+42° 53′	9.7	L2				1.3
31 67	19h 44m.6	+42° 43′	8.7	L2				1.4
32 8	0h 39m.5	+37° 53′	10.2	L15				1.3
33 26	3h 49m.4	+30° 22′	9.8	L11				1.4
34 25	3h 42m.0	+31° 28′	9.7	L11				1.3
35 28	4h 0.9m.	+33° 25′	9.5	L11				1.3
36 27	4h 0.7m	+33° 10′	9.6	L11				1.4
								1.6

List of Interesting Red Stars

Number	R. A. 1900	Declination 1900	Approximate Magnitude	Plate Number	E/F′	Color Index	Remarks
37 50	6h 24m.3	+6° 25′	10.0	L12		1.6	1.4
38 52	6h 25m.8	+10° 2′	10.5	L12		1.3	
39 55	6h 30m.7	+7° 11′	10.5	L12		1.3	
40 56	6h 31m.4	+8° 3′	10.3	L12		1.5	
41 57	6h 32m.6	+6° 47′	10.5	L12		1.6	
42 58	6h 37m.8	+6° 54′	9.9	L12		1.3	
43 60	6h 43m.8	+6° 30′	10.2	L12		1.5	Double
44 51	6h 24m.4	+6° 59′	9.8	L12(13)		1.0	1.0
45 53	6h 26m.0	+7° 3′	9.9	L12(13)		1.4	1.3
46 61	6h 43m.8	+12° 15′	9.8	L12		1.5	
47 46	6h 17m.1	+3° 29′	9.8	L13		2.0	
48 59	6h 39m.5	+3° 27′	10.5	L13		3.4	Very Interesting
49 6	0h 30m.3	62° 12′	9.3	L17		1.5	
50 4	0h 23m.7	62° 36′	10.5	L17		1.5	
51 3	0h 18m.6	61° 47′	9.8	L17		1.4	
52 2	0h 17m.1	58° 39′	10.8	L17(18)		2.2	2.2
53 1	0h 13m.1	60° 17′	9.5	L17		1.3	
54 101	23h 46m.6	61° 42′	9.5	L17		1.3	
55 100	23h 46m.1	61° 49′	9.7	L17		1.8	
56 99	23h 45m.9	61° 52′	9.7	L17		1.4	Double
57 95	23h 39m.3	61° 11′	8.5	L17		1.6	Variable? not in H.D. Double
58 96	23h 41.5	+57° 8′	10.3	L17		1.3	
59 97	23h 44.5	+60° 22′	10.0	L17		1.2	
60 98	23h 45m.1	+60° 32′	10.0	L17		1.6	Double
61 102	23h 47m.3	+60° 24′	10.0	L17		1.4	
left out 62	0h 17.8	+55° 14′	var	L17(18)		Md	H.D. # 1845
63 5	0h 25m.9	+59° 42′	9.5	L17(18)		1.2	1.2
64 10	0h 45m.4	+59° 16′	9.9	L18		1.2	
65 7	0h 35m.8	+58° 51′	9.7	L18		1.1	
66 15	2h 28m.9	+58° 45′	10.0	L16		1.2	
67 16	2h 32m.4	+59° 10′	10.3	L16		1.6	
68 17	2h 35m.2	+59° 48′	10.8	L16		1.5	
69 18	2h 41.2	+59° 49′	10.8	L16		1.6	
70 19	2h 42.3	+62° 2′	10.2	L16		1.7	
71 22	2h 52.8	+59° 36′	10.2	L16		1.5	
72 23	2h 59.6	+60° 9′	10.0	L16		1.9	
73 24	3h 1m.1	+57° 42′	11.0	L16		2.3	

List of Interesting Red Stars

Number	R. A. 1900	Declination 1900	Approximate Magnitude	Plate No.	Color Index	Remarks
74 20	2h 43.4	+56° 36′	9.5	L16	1.3	
75 21	2h 44.6	+56° 37′	9.7	L16	1.6	
76 29	5h 0m.8	+32° 46′	9.5	L19	1.4	
77 30	5h 1.5	+33° 26′	9.5	L19	1.6	
78 31	5h 1m.9	+37° 31′	9.3	L19	1.4	
79 32	5h 12m.5	+35° 40′	var	L19(21)	1.6 (2.3)	very interesting variable; not listed brighter - yellower
80 34	5h 15m.3	+32° 24′	var	L19(21)	1.7 (1.7)	variable H.D. # 34842
81 35	5h 23.8	+33° 19′	10.2	L19(21)	1.3 (1.4)	
82 38	5h 26m.1	+36° 45′	9.5	L19(21)	1.3 (1.4)	
83 37	5h 25.9	+33° 4′	10.2	L19(21)	1.0 (1.2)	
84 33	5h 12.7	+33° 52′	10.2	L19(21)	1.1 (1.2)	
85 36	5h 25.5	+32° 9′	10.0	L19(21)	1.3 (1.3)	
86 77	20h 8m.4	+42° 6′	11.0	L4	2.7	
87 81	20h 15.4	+42° 20′	10.8	L4	2.8	
88 84	20h 18m.6	+40° 35′	11.0	L4	3.1	very faint
89 85	20h 21.4	+40° 36′	11.0	L4	3.3	very faint
90 89	20h 24m.9	+41° 36′	11.3	L4	3.3	very faint
91 92	20h 28m.9	+41° 0′	10.8	L4	1.9	
92 86	20h 22m.0	+39° 41′	9.3	L4(1)	1.9 (2.0)	
93 39	6h 9m.7	+24° 44′	11.0	L23	1.7	
94 42	6h 12.8	+19° 38′	11.0	L23	1.8	
95 41	6h 12m.4	+25° 28′	10.5	L23	1.3	
96 40	6h 12m.2	+23° 52′	10.0	L23	1.1	
97 45	6h 17m.0	+21° 12′	10.3	L23	1.4	
98 47	6h 17.8	+25° 5′	10.5	L23	2.0	
99 48	6h 18m.8	+22° 44′	10.8	L23	1.4	
100 49	6h 20m.3	+19° 6′	10.5	L23	2.6	Double very interesting
101 54	6h 29m.7	+18° 48′	10.3	L23	1.1	
102 44	6h 16m.7	+22° 54′	10.7	L23	1.4	
103 43	6h 13.3	+23° 31′	10.8	L23	1.5	

Temperature of A0 star = 11,200° C
Size of smallest extra focal image =

$$T = \frac{7200}{I + .64}$$

T = temperature
I = color index

Type	Color index	
G0	.6	H.D. Classification
G5	.8	
K0	1.0	
K5	1.2	
M0	1.4	

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Lewis Larmore

Negative Number	REGION			Date 1938	H.A. at end of exposure	Exposure Time		Exposure
	Guide Star	R. A.	Dec.			Beginning M.S.T.	End M.S.T.	
✓ L 1 -	γ Cygni	20h 20m	40° 8'	Oct. 17	w1h 57m	7:48:42 PM	8:48:42 P.M.	1h
✓ L 2 -	δ Cygni	19h 43m	40° 30'	Oct. 18	w1h 55m	7:10:00 PM	8:10:00 PM	1h
L 3 -	γ Cygni	20h 20m	40° 8'	Oct. 20	w5h 40m	10:53 PM	12:53 AM	1h
✓ L 4 -	γ Cygni	20h 20m	40° 8'	Oct. 27	w4h 10m	7:30 PM	10:30 P.M.	3h
L 5 -	γ Andromedae	0h 46m	40° 40'	Oct. 28	w2h 38m	10:46 PM	1:16 AM	2h 30'
L 6 -	γ Andromedae	0h 46m	40° 40'	Nov. 21	w0h 00m	8:23 PM	9:08 P.M.	30'
L 7	Cephei	21h 36m	57° 00'	Nov. 22	w3h 35m	7:23 P.M.	9:23 P.M.	2h
L 8	Cephei	21h 36m	57° 00'	Nov. 22	w3h 35m	7:23 P.M.	9:23 P.M.	2h
L 9 -	σ Orionis	5h 35m	- 2° 40'	Nov. 22-23	w0h 40'	11:35 PM	2:35 AM.	3h
L 10 -	σ Orionis	5h 35m	- 2° 40'	Nov. 22-23	w0h 40'	11:35 P.M.	2:35 A.M.	3h
✓ L 11 -	Ω Persei	3h 50m	+31° 50'	Dec. 12	E2h 44'	7:09 PM	8:09 PM	1h
✓ L 12 -	15 Monocerotis	6h 35m	+10° 0'	Jan. 10, 1939	E1h 14m	8:22 PM	9:52 PM	1h 30'
✓ L 13 -	12 Monocerotis	6h 26m	+ 5° 0'	Jan. 11	E2h 12m	8:20 PM	9:20 PM	1h
L 14 -	12 Monocerotis	6h 26m	+ 5° 0'	Jan. 11	E0h 15m	10:17 PM	11:17 PM	1h
✓ L 15 -	γ Andromedae	0h 46m	+40° 40'	Jan. 12	W4h 31m	9:15 PM	10:15 PM	1h
✓ L 16 -	Cassiopeiae	2h 47m	+60° 10'	Jan. 14	W2h 53m	8:58 PM	10:28 PM	2h
✓ L 17 -	β Cassiopeiae	0h 5m	+58° 30'	Jan. 18	W4h 12m	7:21 PM	8:51 PM	1h 30'
✓ L 18 -	α Cassiopeiae	0h 35m	+56° 10'	Jan. 18	W5h 53m	9:32 PM	11:02 PM	1h 30'
L 19 -	φ Aurigae	5h 22m	+35° 0'	Jan. 19	E0h 39m	7:25 PM	8:55 PM	1h 30'
L 20 -	ξ Persei	3h 55m	+35° 40'	Jan. 24	W 4h 55m	12:03 AM	1:03 AM	1h
✓ L 21 -	φ Aurigae	5h 20m	+34° 50'	Feb. 23	W 5h 10m	10:41 PM	12:41 AM	2h
L 22	96 Leonis	11h 10m	+15° 50'	April 18	W4h 17m	12:16 AM	1:46 AM	1½
L 23	μ Geminorum	6h 18m	+ 22° 40'	April 19	W4h 55m	8:22 PM	9:52 PM	1h 30m
L 24	16 Comæ B.	12h 24m	+27° 10'	April 20	W4h 0m	12:59 AM	2:59 AM	2h
L 25	52 Leonis	10h 47m	+14° 30'	April 21	W2h 16m	9:27 PM	11:27 PM	2h
L 26	υ Scorpii	16h 7m	-19° 25'	May 8	E1h 21m	11:02 PM	12:02 AM	1h
L 27	α Scorpii	16h 26m	-26° 18'	May 9	E1h 4m	11:10 PM	12:40 AM	1h 30'
L 28	π Scorpii	15h 55.2	-25° 50'	May 10	E0h 24.3	11:16 PM	12:46 AM	1h 30'
L 29	υ Scorpii	16h 7m	- 19° 25'	May 11	E1h 34m	10:45 PM	11:45 PM	1h

Instrument or Aperture	PLATE	DEVELOPMENT			SEEING		Position of Telescope	Observer	Writing on Plate	REMARKS
		KIND	TIME	TEMP.	TRANS.	STEAD.				
13" refr.	Cramer Iso Presto	Ross Metol	7m		Good	Good	W	L.L.	N	Unequal background fog
13" refr.	Cramer Iso Presto	Ross Metol	7m		Fair	Fair-	W	L.L.	N	
13" refr.	Cramer Iso Med	Ross Metol	7m		Poor	Poor -	W	L.L.	N	Light leak on one corner
13" refr.	Cramer Iso Presto	Ross Metol	7m		Good	Good	W	L.L.	N	Plate was backed
13" refr.	Cramer Iso Presto	Ross Metol	7m		Good	Good	W	L.L.	N	Andromeda Nebula developer was too old
13" refr.	Cramer Iso Presto	Ross Metol	7m		Good	Good	M+E	L.L.	N	
13" refr.	Cramer Iso Presto	Ross Metol	7m		Good	Good	W	L.L.	N	
5" refr.	Cramer Iso Presto	Ross Metol	7m		Good	Good	W	L.L.	N	
13" refr.	Cramer Iso Med	Ross Metol	7m		Fair	Poor	E	L.L.	N	Light leak due to break in box
5" refr.	Cramer Iso Presto	Ross Metol	7m		Fair	Poor	E	L.L.	N	
13" refr.	Cramer Iso Presto	Ross Metol	7m		Fair	Fair	W	L.L.	N	
13" refr.	Cramer Iso Presto	Ross Metol	7m		Poor	Poor	W	L.L.	N	
13" refr	Cramer Iso Presto	Ross Metol	7m		Fair	Fair	W	L.L.	N	} For Comparison
13" refr	Hammer Ultra Rapid?	Ross Metol	7m		Fair	Fair+	W	L.L.	N	
13" refr	Cramer Iso Presto	Ross Metol	7m		Poor	Fair+	E	L.L.	N	
13" refr	Cramer Iso Presto	Ross Metol	8m		Fair	Fair+	E	L.L.	N	
13" refr	Cramer Iso Presto	Ross Metol	8m		Fair-	Fair	E	L.L.	N	
13" refr	Cramer Iso Presto	Ross Metol	8m		Fair -	Fair	E	L.L.	N	
13" refr	Cramer Iso Presto	Ross Metol	7m	62°F	Fair	Good	W	L.L.	N	
13" refr	Cramer Iso Presto	Ross Metol	7½m		Poor	Poor	E	L.L.	N	
13" refr	Cramer Iso Presto	Ross Metol	7m	62°F	Fair	Good	E	L.L.	N	
13" refr	Cramer Iso Presto	Ross Metol	7½m		Poor	Poor	E	L.L.	N	
13" refr.	Cramer Iso Presto	Ross Metol	7½m		Fair	Fair	E	L.L.	N	
13" refr	Cramer Iso Presto	Ross Metol	7½m		Fair	Good	E	L.L.	N	
13" refr	Cramer Iso Presto	Ross Metol	7½m		Good	Very Good	E	L.L.	N	
13" refr	Cramer Iso Presto	Ross Metol	7½m		Poor	Poor	W	L.L.	N	
13" refr	Cramer Iso Presto	Ross Metol	7½m		Poor	Poor	W	L.L.	N	
13" refr	Cramer Iso Presto	Ross Metol	7½m		Fair	Fair	W	L.L.	N	
13" refr	Hammer Ultra Rapid	Ross Metol	7½m		Poor	Fair	W	L.L.	N	Compare to L 26

PAGES 162-169 ARE BLANK

Plate #

	G_5		K_0		K_2		K_5		M_3	
	Focal	Extra Focal	Focal	Extra	Focal	Extra	Focal	Extra	Focal	Extra
L1	.248mm	1.55			.245mm	1.93	.220	1.52	.213mm	1.25
					.242	1.55	.233	2.12	.198	.80
									.208 (203)	1.05
									.180	.70

Red Star #

	Focal	Extra	
6	.126	.65	
7	.126	.92	
8	.133	.70	
9	.143	.65	
10	.158	1.00	
13	.162	1.87	11.4
14	.113	.45	

Plate Number	Diameter of Focal Image millimeters	Density of Extra Focal Image	E+B / F	Color Index H.D.
L 1	.23	1.40	14.7	1.1
Fog = 1.14	.28	1.70	13.2	.8
Image = .036	.16	1.92	24.5	2.6
13	.18	1.00	14.7	1.8
15	.20	.55	12.8	1.4
	.16	.55	15.9	1.4
	.21	1.00	14.2	1.2
	.24	1.35	13.9	1.2
	.20	1.45	17.2	1.4
	.27	1.25	12.0	1.2
	.27	2.12	15.2	1.2
	.21	.63	12.5	1.35
	.22	1.00	13.6	1.1
6	.11	.75	25.0	2.7
12	.19	1.55	18.7	2.1
16	.21	.92	13.9	1.2
17	.18	1.00	16.7	1.8
7	.11	.85	25.8	2.8
	.27	.85	10.4	.1
	.30	1.00	10.0	0
9	.11	.55	23.2	2.5
	.29	.92	10.1	.1
8	.11	.50	22.7	2.5
20	.16	.58	16.1	1.6
10	.10	1.00	30.0	3.1
	.29	1.00	10.3	.1
14	.11	.55	23.2	2.5
19	.18	1.55	19.7	2.2
18	.14	.40	17.1	1.9
	.27	1.55	13.1	.8
	.33	2.30	13.0	.43
92	.198	1.75	18.9	2.0
			15.3	1.4
			13.8	1.2
			14.1	1.1
			13.1	.8
			10.3	.1
			10.0	0

Plate Number	Diameter of Focal Image millimeters	Density of Extra Focal Image	E+B / F	Color Index H.D.
L 2 11	.09	1.55	39.5	2.7
Fog = .54 12	.08	1.55	44.3	2.9
Image = .035 21	.20	1.60	18.0	1.3
22	.16	1.40	21.2	1.5
23	—	—	too bright	bright
24	—	—	too bright	bright
25	.15	1.05	20.3	1.4
26	.15	.75	18.3	1.2
27	.14	.75	19.6	1.3
28	.13	.75	21.2	1.4
29	.14	.70	19.3	1.3
* 30	.14	.80	20.0	1.4
31	.18	1.40	18.9	1.3
	.25	.65	10.6	.1
	.18	1.45	19.1	1.1
	.18	1.55	19.7	1.2
	.19	1.45	18.1	1.0
	.17	1.25	19.1	1.1
	.18	1.35	18.6	1.2
	.22	1.15	14.3	.4
	.18	1.93	21.7	1.4
	.18	1.25	18.0	1.0
	.18	1.75	20.8	1.4
	.18	1.45	19.1	1.2
	.25	.90	11.6	.5
	.23	1.65	15.9	.8
	.24	.75	11.5	.3
	.18	1.35	18.6	1.4
	.27	1.55	13.1	.3
	.16	.55	15.9	1.0
*	.23	.55	11.1	.3

Plate Number	Diameter of Focal Image millimeters	Density of Extra Focal Image	E+B / F	Color Index H.D.
L 15 1	.20	.75	13.8	1.2
Fog = .39 2	.20	.70	13.5	1.2
Image = .039 3	.18	.40	13.3	1.1
4	.18	.40	13.3	1.1
5	.19	.75	14.5	1.4
32	.16	.30	14.4	1.4
	.26	1.08	11.8	.5
	.23	.75	12.0	.8
	.29	1.25	11.2	.4
	.19	.70	14.2	1.4
	.26	1.60	13.8	1.1
	.27	.85	10.5	.3
	.28	1.00	10.7	.3
	.24	.70	11.2	.1
	.17	.70	15.9	1.1
	.24	.92	12.1	.8
	.18	.85	15.8	1.4
	.27	1.65	13.5	.4
	.25	1.35	13.4	.1 ?
	.25	.85	11.4	0.0
	.20	.85	14.3	.8
	.21	.92	13.9	.8
	.23	.75	12.0	.3
	~~.20~~	~~1.45~~	~~17.3~~	~~1.0~~
L 5 1	.18	.92	16.2	
Fog = 1.02 2	.15	.70	17.9	
3	.15	.75	18.4	
4	.15	.85	19.0	
5	.14	1.08	22.0	
32	.14	.62	18.7	

Plate Number	Diameter Focal Image millimeters	Density Extra Focal Image	E+C / F	Color Index H.D.
L 11 33	.14.4	.35	16.3	1.3
34	.14.1	.40	17.0	1.4
35	.15.0	.62	17.4	1.4
36	.13.7	.55	18.6	1.6
Image = .039	.22.3	1.35	15.0	1.0
	.27.1	.70	9.9	.0
	.23.3	.65	11.4	.8
	.25.2	.80	11.1	.5
	.28.8	.92	10.1	.0
	.25.2	.65	10.4	.1
	.27.0	.92	10.8	.3
	.27.0	2.12	15.3	1.2
	.28.8	2.60	15.9	1.2
L 12 37	.151	.90	19.2	1.6
38	.140	.44	17.4	1.3
39	.137	.33	17.0	1.3
40	.129	.35	18.3	1.5
41	.120	.28	19.0	1.6
42	.176	1.00	17.0	1.3
43	.137	.50	18.3	1.5
44	.176	.92	16.6	1.0
45	.169	1.00	17.8	1.4
46	.166	1.08	18.6	1.5
	.216	1.75	17.4	1.0
	.252	1.55	14.1	.1
	.252	1.55	14.1	.1
	.233	1.65	15.7	1.0
	.233	1.80	16.3	1.2
	.252	.92	11.6	.6

Plate #	Diameter of Focal Image millimeters	Density E.F. image	E+C / F	Color Index H.D.
L 13				
37	1.40	.33	17.5	1.8
~~42~~	~~1.73~~	~~.52~~	~~14.6~~	~~.8~~
44	1.69	.57	15.2	1.0
45	1.51	.62	17.3	1.3
47	1.22	.92	23.9	2.0
48	.46	.24	54.4	3.4
	2.52	1.35	13.3	.4
	2.16	1.60	16.7	1.0
	2.52	.85	11.3	.1
	2.16	1.27	15.1	1.0
	2.70	1.27	12.1	.1
	2.70	1.18	11.8	.1
L 17				
49	1.62	1.45	21.1	1.5
50	1.15	.48	21.5	1.5
51	1.62	1.35	20.7	1.4
52	.072	.35	32.7	2.2
53	1.80	1.50	19.5	1.3
54	1.73	1.37	19.5	1.3
55	1.55	.85	24.8	1.8
56	1.47	.95	20.1	1.4
57	1.73	1.84	22.2	1.6
58	1.37	.60	19.0	1.3
59	1.44	.70	18.7	1.2
60	1.19	.70	22.7	1.6
61	1.26	.60	20.6	1.4
~~62~~	~~2.16~~	~~.70~~		
63	1.73	1.18	18.4	1.2
	2.16	1.75	1.74	1.0
	2.34	2.03	17.3	1.0
	2.88	1.45	1.20	.1
	3.07	1.18	1.14	0
	~~2.34~~	~~1.65~~	~~1.55~~	~~1.4~~ ?

Plate #	Diameter of Focal Image millimeters	Density E.F. image	E+C / F	Color Index H.D.
L 18 52	.68	.13	31.4	2.2
~~62~~	~~1.73~~	~~.60~~	~~15.0~~	~~.7~~
63	1.73	1.18	18.3	1.2
64	1.51	.85	18.9	1.2
65	1.62	.85	17.6	1.1
	gradient same as L 17			
L 16 66	.151	.62	17.4	1.2
67	.119	.57	21.4	1.6
68	.122	.45	20.1	1.5
69	.115	.40	20.8	1.6
70	.122	.70	22.2	1.7
71	.126	.55	20.3	1.5
72	.144	1.45	23.9	1.9
73	.072	.15	29.9	2.3
74	.127	.40	18.9	1.3
75	.105	.25	21.5	1.6
	.260	1.35	12.9	0
	.253	2.30	17.0	1.0
	.307	1.80	12.4	0
	.270	.92	10.9	0
	.253	1.70	14.4	1.0
	.280	2.50	16.1	1.0
	.288	1.35	11.6	0
L 4 * 10	.101	1.08	30.5 30	3.1
- 14	.108	.57	23.8 23.2	2.5
- ~~21~~				
86	.096	.52	26.2	2.7
87	.115	.92	27.8	2.8
88	.072	.25	31.3	3.1
89	.072	.52	35.1	3.3
90	.075	.73	36.3	3.3
91	.162	1.00	18.5	1.9
- 17	.162	1.04	18.8 16.7	1.8
- 18	.133	.75	20.6 18.1	1.9
92	.180	1.35	18.5	1.9

Plate #	Diameter of Focal Image	Density E F Image	E+C / F	Color Index H.D.
L 19 *				
76	.162	1.45	21.3	1.4
77	.151	1.55	23.5	1.6
78	.169	1.65	21.6	1.4
var 79	.126	1.10	23.6	1.6
var 80	.162	2.13	25.5	1.7
81	.137	.85	20.8	~~1.3~~
82	.180	1.70	20.6	1.3
83	.137	.55	18.6	1.0
84	.162	1.10	19.1	1.1
85	.133	.73	20.8	1.3
	.252	.85	11.3	0
	.288	1.65	12.6	0
	.180	1.60	20.0	1.2
	.216	2.02	18.6	1.0
	.216	2.20	19.4	1.1
	.209	.52	12.1	.1
L 21 * 79	.101	1.04	30.0	2.3
var 80	.162	1.70	22.8	1.7
81	.151	1.04	20.1	1.4
82	.180	1.65	20.3	1.4
83	.137	.60	19.0	1.2
84	.151	.85	18.9	1.2
85	.122	.28	18.7	1.3
	.252	1.00	11.9	0
	.270	1.45	12.7	0
	.198	1.70	187	1.2
	.216	1.60	16.6	1.0
	.216	1.85	17.8	1.1

Plate #	Diameter of Focal Image	Density E.F.	E+C / F	175 Color Index H.D.
L 23				
93	.090	.38	26.4	1.7
94	.079	.24	28.4	1.8
95	.115	.52	21.9	1.3
96	.151	1.00	19.8	1.6
97	.137	.92	22.3	1.4
98	.072	.37	33.4	2.0
99	.108	.46	22.7	1.4
100	.053	.40	45.7	2.6
101	.126	.33	18.5	1.1
102	.101	.33	23.1	1.4
103	.101	.37	23.6	1.5
	.181	2.03	22.2	1.2
	.269	.88	10.6	0
	.288	1.55	12.3	0
	.253	1.13	12.3	0
	.177	1.93	21.6	1.4
	.271	.85	10.5	0

PAGES 176-185 ARE BLANK

°K Temperature	$Z_1 = 37720/T$, $\lambda_1 = 3800$, Z_I	$Z_2 = 29260/T$, $\lambda_2 = 4900$, Z_2	$Z_3 = 24010/T$, $\lambda_3 = 5950$, Z_3	Z_1^2	Z_2^2	Z_3^2	Z_1^3	Z_2^3	Z_3^3	e^{+Z_1}	e^{-Z_2}	e^{+Z_3}
11,200	3.37	2.61	2.15									
9,700	3.89	3.02	2.48									
8,600	4.39	3.40	2.80									
7,700	4.90	3.80	3.13									
6,900	5.47	4.24	3.49									
6300	5.99	4.64	3.83									
5800	6.51	5.05	4.16									
5400	6.99	5.42	4.46									
5000	7.54	5.85	4.82									
4650	8.11	6.29	5.18									
4400	8.57	6.65	5.48									
4150	9.09	7.05	5.81									
3900	9.68	7.50	6.18	82.63	49.70	33.76	751.10	350.40	195.11	8800	1150	333
3700	10.20	7.91	6.51									
3500	10.78	8.37	6.88									
3350	11.26	8.73	7.19									
3200	11.79	9.14	7.53									
3070	12.28	9.53	7.85									
2940	12.83	9.95	8.19									
2820	13.38	10.37	8.54	16x4.80	99.03	67.07	2117.00	985.07	549.35	22000 X 17	21,000	3,600
2720	13.87	10.76	8.86									
2620	14.41	11.16	9.20									
2530	14.92	11.56	9.52									
2440	15.46	11.98	9.87									
2360	15.98	12.39	10.22									
2280	16.53	12.83	10.57	255.80	153.70	104.40	4090.00	1904.00	1068.00	22000 X 395	22000 X 11	22000 X 1,25
2220	17.00	13.18	10.86									
2150	17.53	13.61	11.22									
2080	18.12	14.06	11.59									
2030	18.58	14.41	11.88									
1980	19.05	14.77	12.18	380.20	218.3	148.5	7585.00	3220.00	1810.00	22000 X 8500	22000 X 115	22000 X 8.85

$e^{10} = 22{,}000$

Diameter of smallest blue image = .036 m.m.
Diameter of extra focal yellow image = .55 m.m.

If pinhole = .5 mm $\frac{.036}{.500} = \frac{4}{x}$, $x = \frac{2}{.036} = 55.5$ inches

$\frac{10.5}{4.5} = 2.33$ cm in diameter — my camera lens.

Pinhole = 16.2 scale = .58 m m in diameter

$\frac{x}{.58} = \frac{10.5}{.036}$, $x = \frac{10.5 \times .58}{.036} = 169$ cm. distance from camera to pinhole $= 66.5$ inches

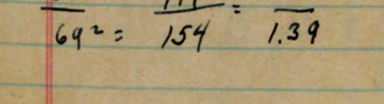


Plate is 11.2 cm behind lens when obj. dist. = 169 cm.

$\frac{.65}{x} = \frac{2 \times 3.3}{11 \times 2. + x}$, $2.33x - .65x = .65 \times 11 \times 2.$

$2.65x = 72.7$

$x = 3.22$ m m

$\frac{1}{x} + \frac{1}{115.2} = \frac{1}{105}$, $115.2 \times 105 + 105x = 115.2x$

$10.2x = 115.2 \times 105$

$x = 119$ cm

$112 \times 105 + 105x = 112x$

$7x = 112 \times 105$

$x = 169$

Distance to cause extra focal image = 119 cm.

$\frac{.65}{x} = \frac{23.3}{11 \times 2.}$, $x = \frac{.65 \times 11 \times 2.}{23.3} = 3.12$ (2.64) rack lens back

$\frac{55^2}{69^2} = \frac{111}{154} = \frac{1}{1.39}$

References

Exposure Ratio Method
Handbuch der astro-Physik Band V p 393
Ap. J. 56 p 97 — 1922

R. D. + S Vol II p 617
Black Body Curves — J O.S.A. Feb 1929 p 93
Fog Theory of Dew p 143
Hardy + Perrin
Measurement of Radiant Energy — Forsyth p 253

I	T (degrees K)	Blue 3800 to 4900 ångstroms	Yellow from 4900 to 5950	mm above base line	Blue energy 3800 to 4900	Yellow energy 4900 to 5950	λm: $\lambda_m = \frac{2883.6}{T}$ μ (ångstroms)
0	11,200						
.1	9,700	75	96				
.2	8,600	18.0	16.5	0			2574
.3	7,700	17.8	16.7	1			2976
.4	6,900	17.5	16.7	2	✓		3356
.5	6,300	17.1	16.7	3			4164
.6	5,800	16.9	16.5	4			4564
.7	5,400	16.4	16.3	5			4956
.8	5,000	16.2	16.2	6			5320
.9	4,650	15.7	16.1	7			5747
x1.0	4,400	15.1	13.0	8			6180
1.1	4,150	14.0	12.0	9			6534
1.2	3,900	13.0	10.6	10			6920
1.3	3,700	11.8	9.4	11			7390
1.4	3,500	10.1	8.4	12			
1.5	3,350	7.5	6.8	13			
1.6	3,200	2.0	5.6	14			
1.7	3,070	0.0	4.0	15			
1.8	2,940	0.0	2.0	16			
1.9	2,820	209.1	203.5	17			
2.0	2,720			18			
2.1	2,620	1.027	1.000				
2.2	2,530						
2.3	2,440						
2.4	2,360						
2.5	2,280						
2.6	2,220						
2.7	2,150						
2.8	2,080						
2.9	2,030						
3.0	1,980						

Relative sensitivity of Cramer Iso-Presto Plates

T	λm: $\lambda_m = \frac{2883.6}{T}$ μ	% of total energy up to 3800	% of total energy up to 4900	% of total energy up to 5950	% total E 3800-4900 Blue	% total E 4900-5950 Yellow	Y/B	
11,200	2574 Ång.	55%	72%	82%	17	10	.588	.0
9,700	2972	44%	67%	72%	17	11	.646	? .1
8,600	3353	35	53	66	18	13	.723	.2
7,700	3747	27	45	59	18	14	.777	.3
6,900	4182	21	38	52	17	14	.823	.4
6,300	4578	16	31.0	45	15	14	.934	.5
5,800	4973	12	24.5	39	12.5	14.5	1.160 ?	.6
5,400	5337	8.5	20	33.5	11.5	13.5	1.17	.7
5,000	5767	5.8	16.5	28	10.7	11.5	1.08 ?	.8
4,650	6200	4	12.5	23	8.5	10.5	1.27	.9
4,400	6554	2.8	10	19.5	7.2	9.5	1.29?	1.0
4,150	6940	1.85	7.2	16.5	5.35	9.3	1.72	1.1
3,900	7396	1.30	5.5	13.0	4.2	7.5	1.78	1.2
3,700	7790	1.0	4.3	11.0	3.3	6.7	2.03	1.3
3,500	8240	.65	3.0	8.1	2.35	5.1	2.17	1.4
3,350	8604	.57	2.5	7.2	1.93	4.7	2.43	1.5
3,200	9010	.40	1.75	5.5	1.35	3.75	2.78	1.6
3,070	9390	.31	1.30	4.3	.99	3.0	3.03	1.7
2,940	9800	.25	1.0	3.5	.75	2.5	3.33	1.8
2,820	10,220	.19	.86	2.9	st. l. .69	2.04	3.06	1.9
2,720	10,600			2.3	.43	1.43	3.32	
2,620	11,000	.14	.57	2.0				
2,530	11,380							
2,440	11,820					.78		
2,360	12,220		.32	1.1				
2,280	12,640							
2,220	12,980			.61				
2,150	13,410							
2,080	13,850							
2,030	14,200			.35	.087	.24	2.76	
1,980.	14,560	.023	.11					
	10,000	.20	.88	3.00	.68	.212	3.123 ~~3.05~~	

°K Temperature	Z_1 $\lambda_1 = 3800$ $Z_1 = 2650T$	Z_2 $\lambda_2 = 4900$ $Z_2 = 3420$	Z_3 $\lambda_3 = 5950$ $Z_3 = 4150T$	Z_1^2	Z_2^2	Z_3^2	Z_1^3	Z_2^3	Z_3^3	e^{-Z_1}	e^{-Z_2}	e^{-Z_3}
11,200	297×10^5	383×10^5	465×10^5									
9,700	257×10^5	332×10^5	403×10^5									
8,600	228	294	357									
7,700	204	263	320									
6,900	183	236	286	416×10^{12}	692×10^{12}	1024×10^{12}	$\times 10^{20}$	$\times 10^{20}$	327.7×10^{20}			
6,300	167	215	261									
5,800	154	198	241									
5,400	143	184.5	224									
5,000	132.5	171	207									
4,650	123.3	159	193									
4,400	116.7	150.3	183									
4,150	110	142	172									
3,900	103.3	133.3	162									
3,700	98.0	126.5	153.5									
3,500°	92.7	119.7	145.2									
3,350	88.7	114.6	139.									
3,200	84.8	109.4	132.8									
3,070	81.3	105.0	127.4	66.1×10^{12}	110×10^{12}	162×10^{12}	5.374×10^{20}	11.56×10^{20}	20.7×10^{20}			
2,940	77.9	100.6	122.									
2,820	74.7	96.5	117									
2,720	72.1	93.0	112.8									
2,620	69.4	89.6	108.7									
2,530	67.0	86.5	105.0									
2,440	64.6	83.5	101.2									
2,360	62.5	80.7	97.9									
2,280	60.4	77.9	94.6									
2,220	58.8	75.9	92.1	34.6×10^{12}	57.6×10^{12}	84.8×10^{12}	2033×10^{20}	4.372×10^{20}	7.812×10^{20}			
2,150	57.0	73.5	89.2									
2,080	55.1	71.1	86.3									
2,030	53.8	69.4	84.2									
1980	52.5	67.7	82.2									

Exposure

	Diameter	Diameter	ave Diameter
LA11			
½	.094	.094	.094
1	.116	.116	.116
2	.144	.144	.144
4	.181	.181	.181
8	.205	.203	.204
16	.220	.225	.222
32	.245	.247	.246
64	.271	.278	.274

	Density	Density	Ave Density
LA12			image area = .65
½			
1	.55	.55	.55
2	1.05	1.10	1.07
4	2.03	1.93	1.98
8	2.90	2.75	2.83

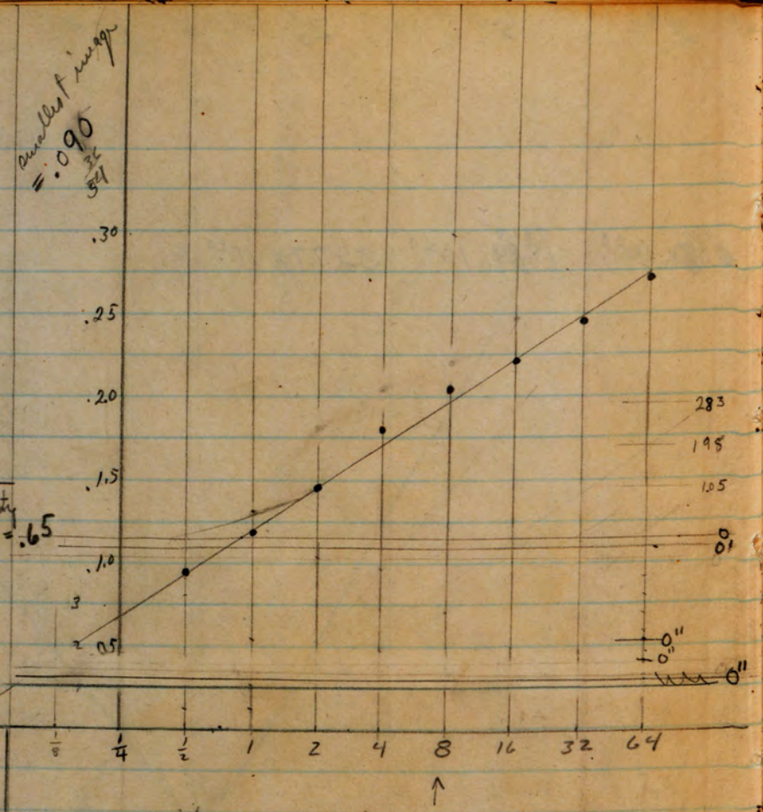
1/10 LA14	.109	smallest image = .10
1/5	.134	
½	.149	
1	.152	
2	.174	
4	.188	
8	.211	
16	.225	
32	.253	
½	1.25	.40 dia
1	1.75	
2	2.30	
4		
8		

$72^2 = 55^2 = \frac{515}{335} = 1.54$

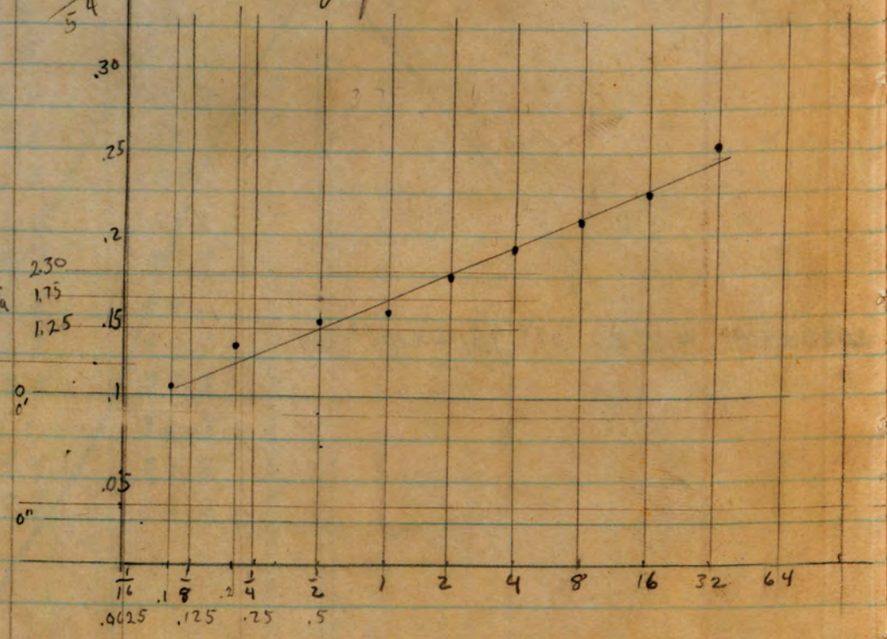
$\frac{23}{37} = \frac{7}{10}$ $\frac{19}{230} = \frac{2}{x}$

$\frac{230}{37} = 6$ $\frac{21}{253} = \frac{2}{x}$

$x = .95$



Density factor to be added = 1.95



Density factor to be added = 2.05

Average = 2.01

Plate	F Diameter	E Density	E/F
HG 123	.181	.85	4.7 15.8
	.210	1.30	6.4 15.9
NA Zyp	.230	1.70	7.4 16.1
LA 5	.181	.50	2.8 13.9
	.253	1.15	4.5 12.5
Star 4	.163	.50	3.1 15.4
	.217	1.15	5.3 14.7
LA 4 Mb	.163	.55	3.4 15.7
	.199	1.00	5.0 15.2
	.235	1.65	7.0 15.3
LA 1 Mc	~~.174~~	~~1.25~~	~~7.2 15.0~~
	.210	1.55	7.4 17.0
	.235	2.05	8.7 17.2
	.215	1.60	
	.162	.65	
	.053		
	.238	2.20	

$\frac{.85+x}{.181} = \frac{1.70+x}{.23}$

$.23x.55 + .230x = .181 \times 1.70 + .181x$

$.049x = .308 - .196$

$.049x = .112$

$x = 2.25$

$\frac{.50+x}{.181} = \frac{1.15+x}{.253}$, $.253 \times .5 + .253x = .181 \times 1.15 + .181x$

$.072x = .208 - .127 = .081$, $x = 1.13$

$.217 \times .5 + .217x = .163 \times 1.15 + .163x$

$.054x = .188 - .104 = .084 = 1.55$

$\frac{.55+x}{.163} = \frac{1.65+x}{.235}$ $.235 \times .55 + .235x = .163 \times 1.65 + .163x$

$.072x = .269 - .129 = .140$, $x = 1.95$

$\frac{1.25+x}{.174} = \frac{1.55+x}{.21}$, $.235 \times 1.25 + .235x = .205 \times .174 + .174x$

$.061x = .357 - .293 = .064$; $x = 1.05$

$\frac{D_1+x}{d_1} = \frac{D_2+x}{d_2}$

$D_1d_2 + d_2x = d_1D_2 + d_1x$

$(d_2 - d_1)x = d_1D_2 - D_1d_2$

$x = \frac{d_1D_2 - D_1d_2}{d_1 - d_2}$

Where D = Density
d = diameter

HG 123 $x = \frac{.162 \times 1.60 - .65 \times .215}{.053} = \frac{.26 - .14}{.053} = \frac{.12}{.053} = 2.27$

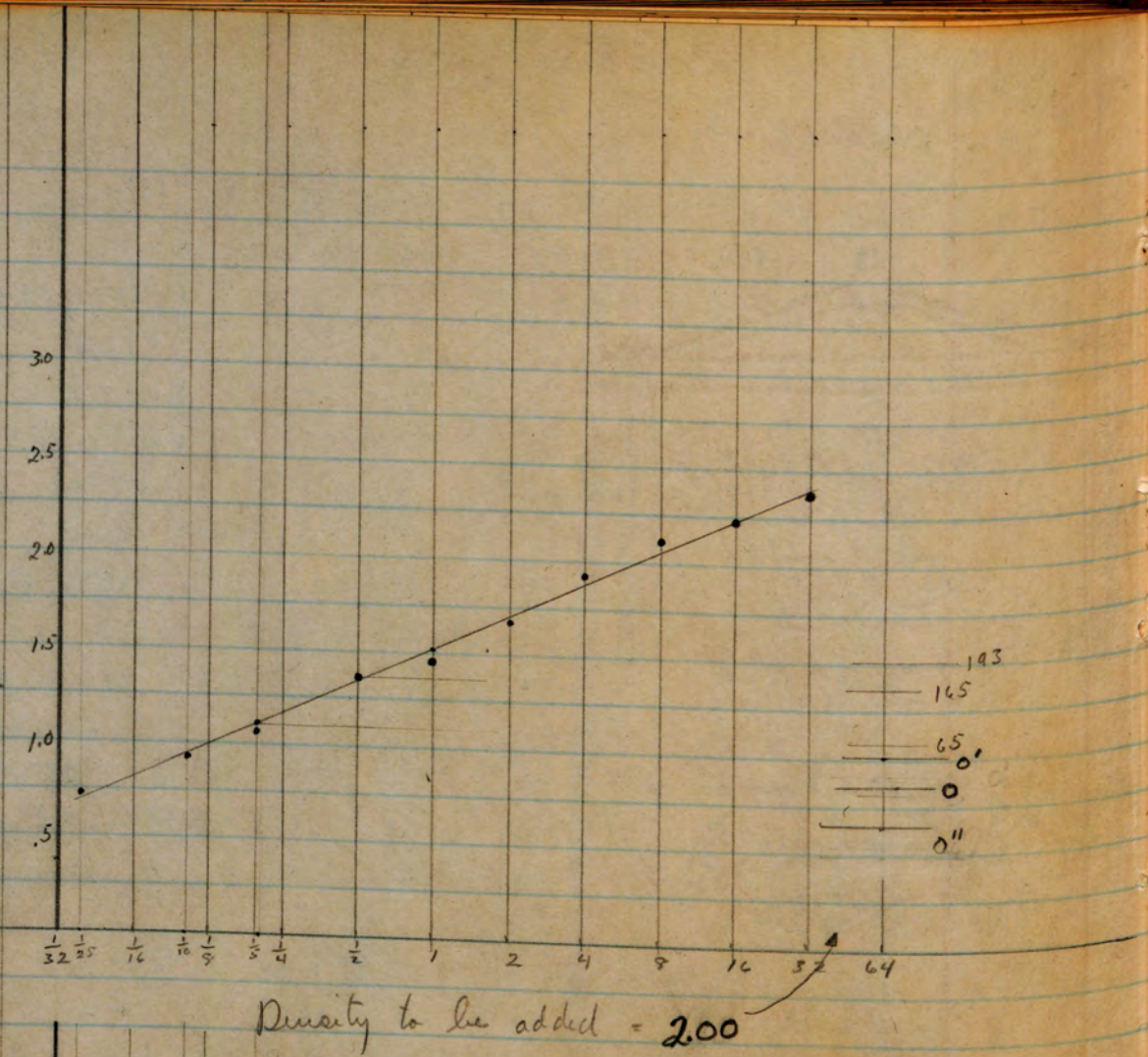
$x = \frac{.162 \times 2.2 - .65 \times .238}{.076} = \frac{.356 - .154}{.076} = \frac{.202}{.076} = 2.34$

LA1 $x = \frac{.210 \times 2.05 - .235 \times 1.55}{.025} = \frac{.429 - .363}{.025} = \frac{.066}{.025} = 2.57$

196

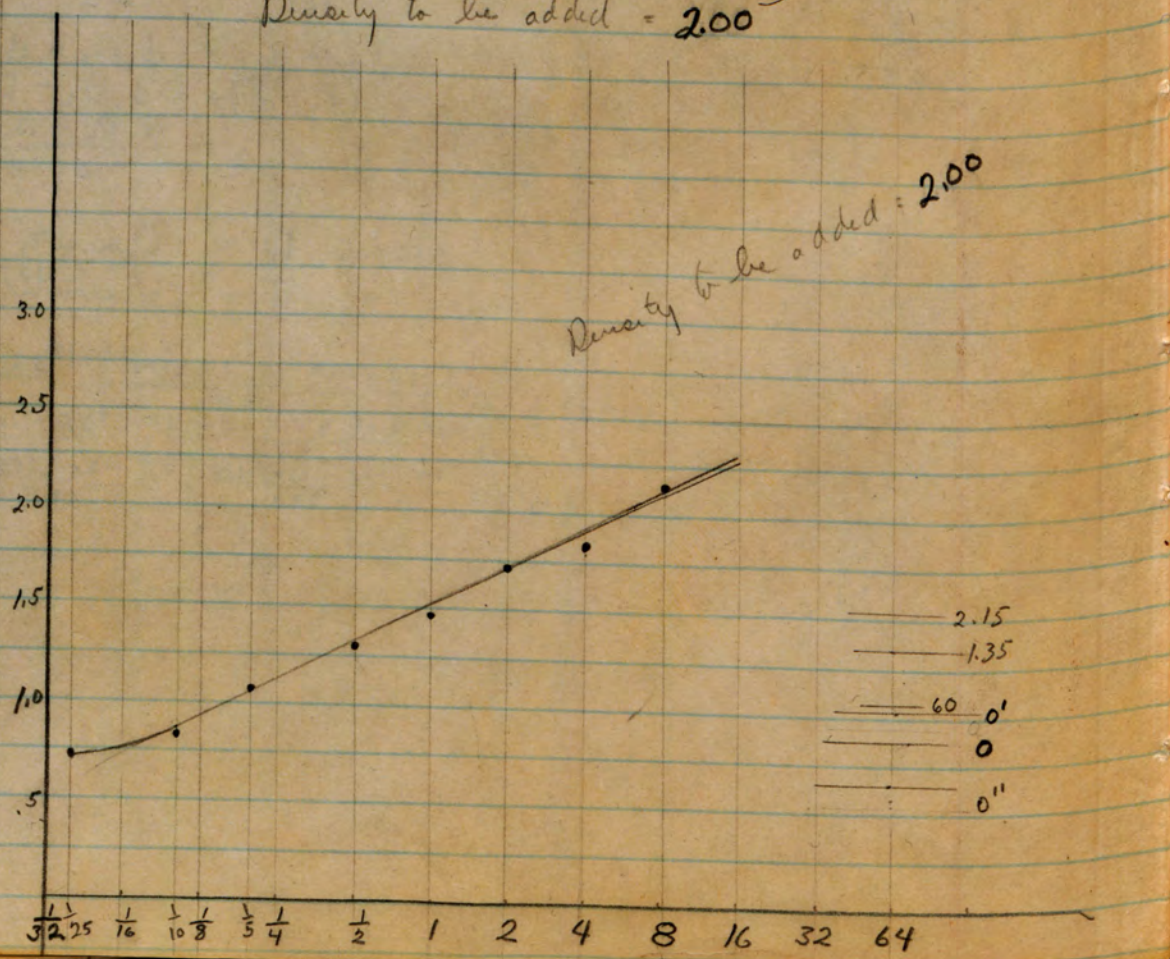
Exposure LA15	Diameter
1/50	073 } S
1/25	073 } S
1/10	091
1/5	.1.08
1/2	.137
1	.144
2	.170
4	.191
8	.217
16	.241
32	.263

Extra Focal	Density
1/5	.65
1/2	1.65
1	1.93.
	D=.435



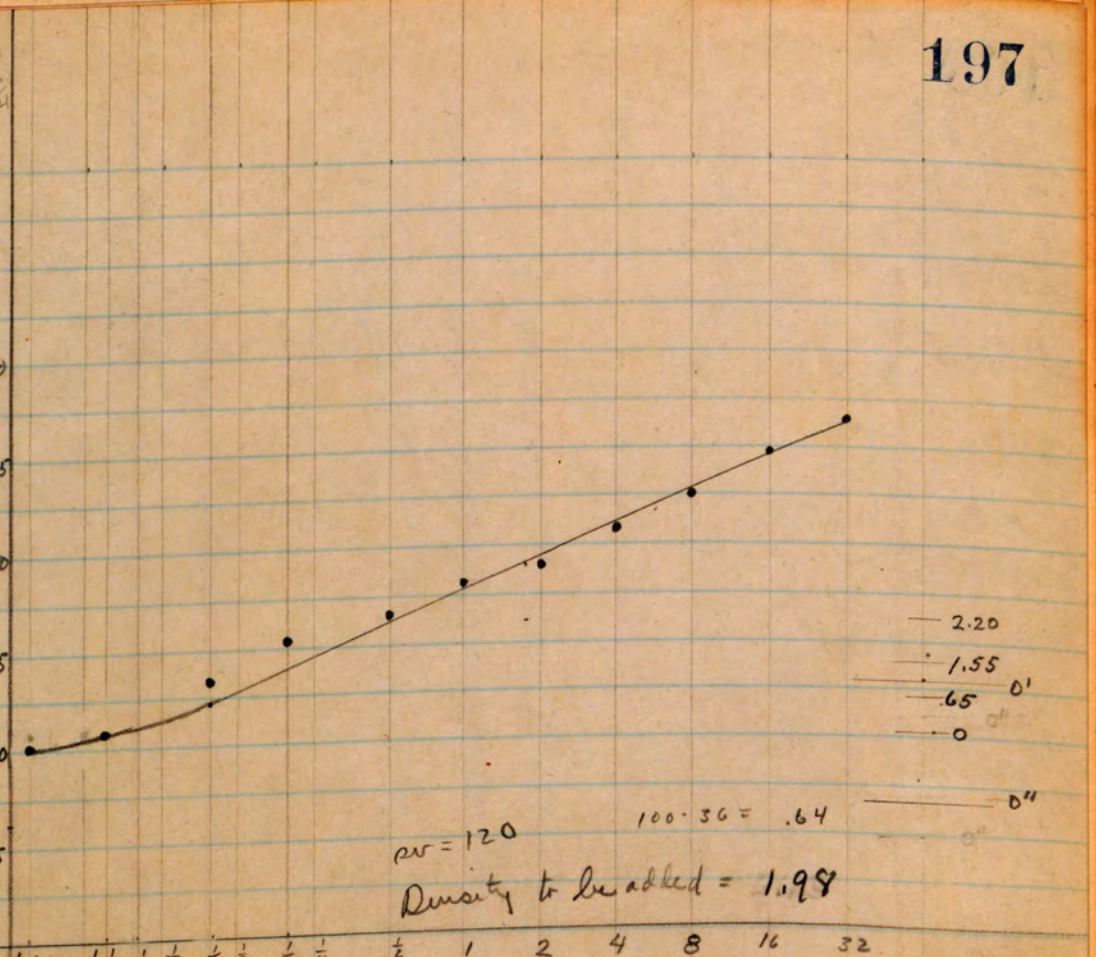
LA16

1/50	073
1/25	073
1/10	083
1/6	.1.08
1/2	.129
1	.144
2	.173
4	.183
8	.215
	D=.435
1/5	.60
1/2	1.35
1	2.15

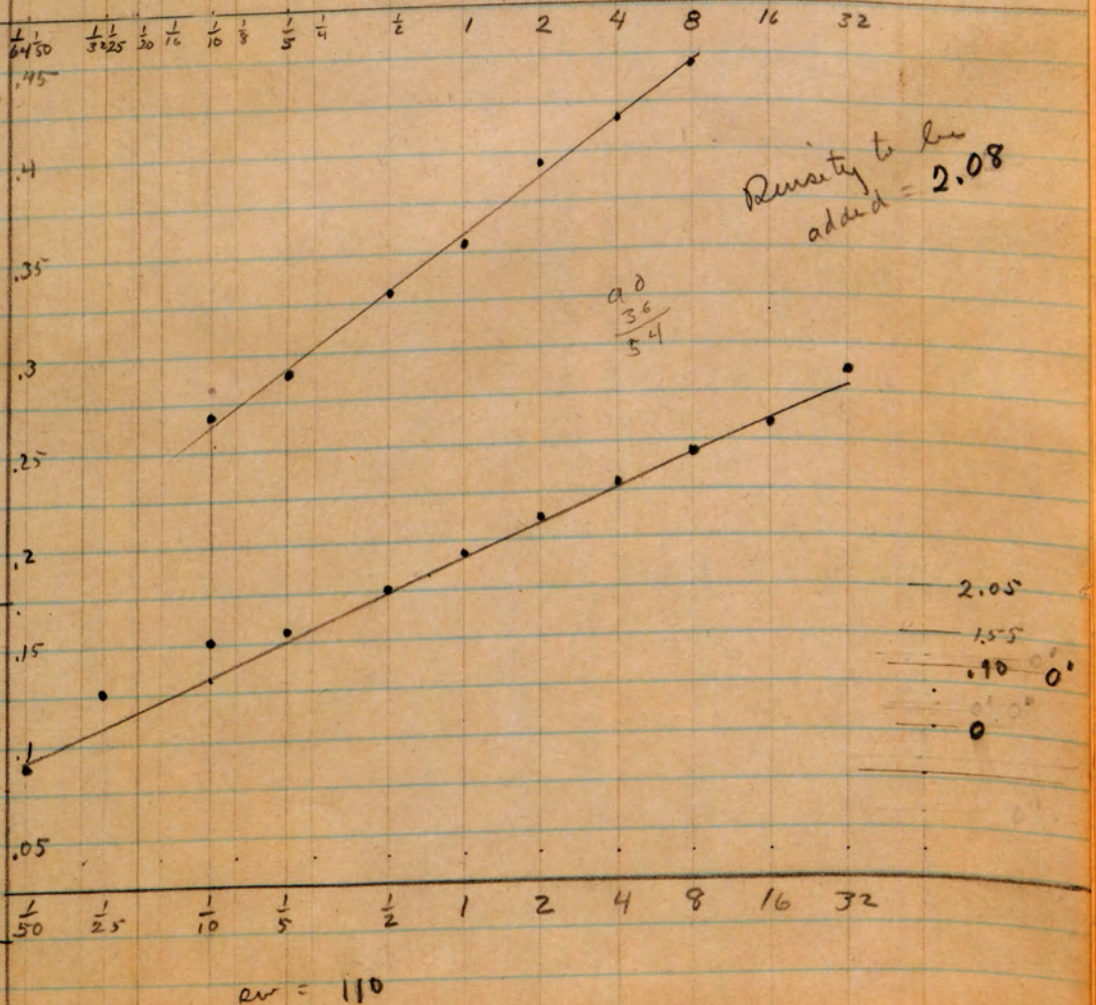


Exposure LA17	Diameter annulus
1/50	.101
1/25	.108
1/10	.135 128
1/5	.155 140
1/2	.166
1	.180
2	.188
4	.210
8	.225
16	.248
32	.267

Extra	Density
1/10	.65
1/5	1.55
1/2	2.20
Disc	.290



Exposure LA18	Diameter annulus
1/50	090 m
1/25	1.26
1/10	1.51
1/5	1.55
1/2	1.76
1	1.92
2	2.13
4	2.30
8	2.45
16	2.66
32	2.88
1/10	.90 .270
1/5	1.55 288
1/2	2.05 .330
1	.360
2	.395
4	.420
8	.447



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