

COLLEGE COMPOSITION



No. 2747

Name *Lowell Observatory*

Star Record Book Grade

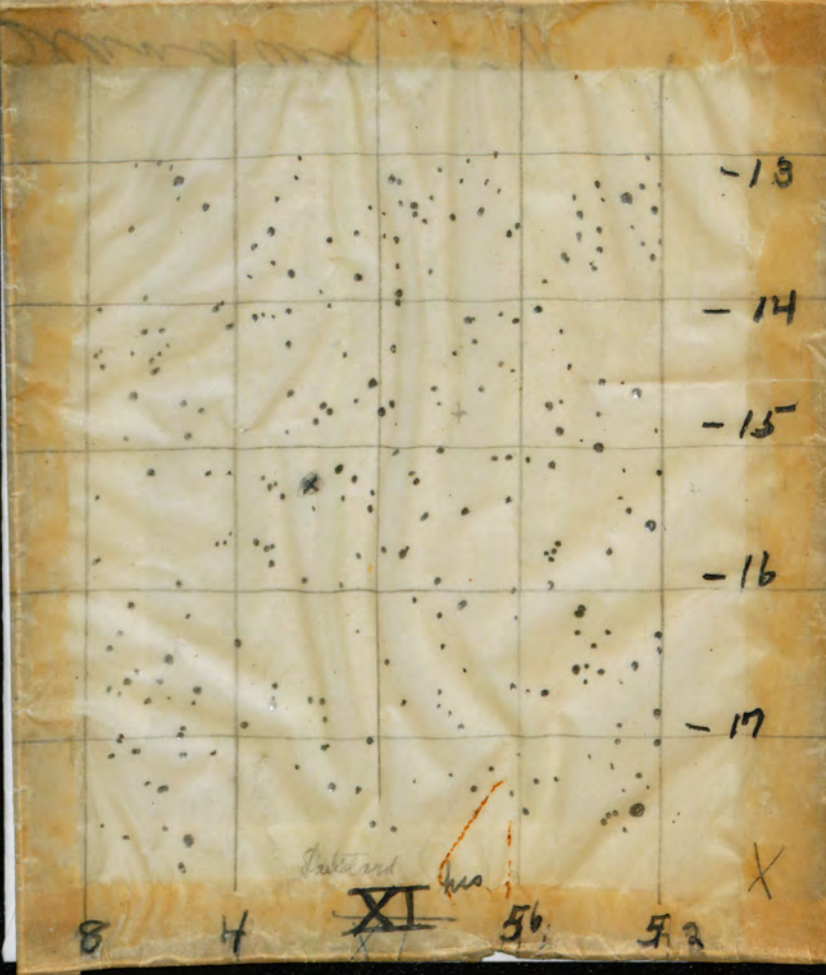
at Stand.
6^h = 11^h 30^m

Precessions.

R.A. - 3^h 36^m 1855-1930
Dec. - 53^o 15["]

~~Scott Davidson~~
~~Public Program~~
~~Book.~~

LOWELL OBSERVATORY
STAR RECORD BOOK
13" 1930-1931
FRONT OF BOOK



Standard Region
N.P. check this Region on chart.

1930 = 10^h 2^m 29^s

- 15° 19' 42"

1900 = 11^h 00^m - 15° 00'

~~1850 = 11^h 5^m 14.5^s~~
 10^h 57^m 45^s

~~- 15° 14' 30"~~
 - 14° 45' 30"

21 75 63.8

23

15

20 ~~51~~ 58.8

NEGATIVE No.	REGION.			DATE	H.A. at end of Exposure	EXPOSURE TIME.	CAMERA TELESCOPE APERTURE.	EMULSION of PLATE.	SEEING.		DEVELOPER.			TELESCOPE ON SIDE of POLARIS AXIS is: W or E.	WRITING ON END of PLATE is: N or S end.	OBSERVER	REMARKS.
	Guide Star.	R.A.	Dec.						1930	1930	1930	1930	1930				
N-1	Polaris	1 ^h 54 ^m	+89° 15'	11-11	2 ^h 47 ^m E	7:05 - 8:05 = 1 hr	13 inch	Imperial	good	3	D-28	4m	68°	W		K.F.N.	stained by developer.
N-2	Polaris	"	"	"	1 ^h 15 ^m E	8:37 - 9:37 = 1 hr.	13 inch.	"	good	3	D-28	4m	68°	W.		K.F.N.	ROTATION of field.
N-3.	Perseus Cluster	2 ^h 15 ^m	+36° 45'	11-11	13 ^m W	10:15 - 10:40 = 25 ^m	13 inch	Isotimed.	good	3	D-28	4m	65°	W	N.	K.F.N.	Very good.
N-4	Polaris	1 ^h 54 ^m	+89° 15'	11-12	2 ^h 40 ^m E	7:00 - 8:00 = 1 hr.	13 inch	Imperial	good	4	D-28	4m	65°	W	N	K.F.N.	good - field rotation.
N-5	Perseus Cluster	2 ^h 15 ^m	+56° 45'	11-12	20 ^m W	10:30 - 11:30 = 1 hr	13 inch	Isotimed.	good	4	D-28	4m	65°	W	N	K.F.N.	Very good.
N-6				11-25		6:55 - 7:25 = 30 ^m	13 inch	Eastman 40	good	3	D-28	4m	65°	W		K.F.N.	12 x 15 plate. cracked - only focus reduced.
N-7				11-25		6:25 - 7:25 = 30 ^m	Copshell 5 inch	Isotimed.	good	3	D-28	4m	65°	W		K.F.N.	dark - fair.
N-8	Guide for Eros.	9 ^h 0 ^m 0 ^s	+45° 00'	11-26	2:50 E	1:16 - 2:16 = 1 hr. A.M.	13 inch	Isotimed.	good	3	D-28	4m	65°	W	N	K.F.N.	good plate. Eros shown in 5 images.
N-9	Y Cygni	20 ^h 20 ^m	+40°	11-30	3:15 W	7:00 - 7:25 = 25 ^m	13 inch	Isotimed.	good	2	D-28	4m	65°	W	N	K.F.N.	good plate.
N-10	Y Cassiopeia		+60° 40'	11-30	2 ^h 5 ^m E	8:00 - 8:20 = 20 ^m	13 inch	"	"	1	D-28	4m	65°	W	N	K.F.N.	good plate.
N-11	Andromeda	3 ^h 30 ^m	+41°	11-30	1:23 W	9:30 - 9:55 = 25 ^m	13 inch	"	"	1	D-28	4m	65°	W	N	K.F.N.	good plate.
N-12.	Placidus	3 ^h 15 ^m	+24°	11-30	10 ^m E	10:55 - 11:25 = 30 ^m	13 inch	"	"	1	D-28	4m	65°	W	N	K.F.N.	two exposures. 8.5m and 4m. 20' apart. good plate
N-13	Y Cygni	20 ^h 20 ^m	+40°	12			13 inch	Isotimed.	fair	1	D-28	2 ^m	65°	W	N	K.F.N.	mottled due to uneven development + fogged.
N-14	Y Cygni	20 ^h 20 ^m	+40°	12			Copshell	Isotimed.	fair	1	D-28	2 ^m	65°	W	N	K.F.N.	fogged + mottled
N-15	Orionis					11:30 - 11:45 = 15 ^m	13 inch	Isotimed.	fair	1	D-28	2 ^m	65°	W	N	K.F.N.	fogged - good
N-16	Perseus Cluster	2 ^h 15 ^m	56° 45'	12-9		9:05 - 9:25 = 20 ^m	13 inch	Isotimed.	fair	1	"	4	68	W	N	K.F.N.	good, with blisters.
N-17	"	2 ^h 15 ^m	57° 15'	12-9		10:42 - 11:10	13 inch	Isotimed.	fair	2	"	4	68	W	N	K.F.N.	good plate - exposures too close.
N-18	Orionis		+5° 5'	12-10	1:30 E	10:55 - 11:17 = 22 ^m	15 inch	Isotimed.	fair	2	"	4	68	W	N	K.F.N.	good plate - 2 exps
N-19	Uranus	4 ^h 5 ^m	-3° 45'	12-12	4 ^h 1 ^m E	6:42 - 7:04	13 inch	Isotimed.	fair	3	"	4	70	W	N	K.F.N.	good but missing Uranus

NEG. NO.	Region			Date 1930	N. P. at end of Exposure	Exposure Time	Telescope or camera aperture.	Emulsion Plate	Seeing			Developer			Position of Telescope	Position of Plate	Developer	Remarks
	Const. Star	R. A.	Dec.						Transp	Steel	Kind	Time	Temp.					
N-20	Neptune	10 ^h 31 ^m	+10° 3'	12-12	2 ^h 7 ^m E	15:15-15:36=21 ^m	13 inch	Isodimed	fair	2.	12-28	4/10	70°	W	N	1/100	fair plate. 3 exposures of 10.5, 15, and 20.	
N-21	Comet Region	12 ^h 15 ^m	-15°	12-13	3 ^h 45 ^m W	6:45-7:10=25 ^m	Ross	Isodimed	fair	2	10-28	4/10	70	E	W	1/100	foggy with two finer objects.	
N-22	"	"	"	"	"	"	Xeiner	Isodimed	"	"	"	"	"	E	W	1/100	foggy, split and opt. of focus.	
N-23	Crux Region	4 ^h 45 ^m	+38°	12-13	2:15 E	13:37-14:19=1 ^h	13 inch	Isodimed	good	2	"	"	"	W	N	1/100	good plate.	
N-22	Uranus	4 ^h 0 ^m	+3°	12-13	" M.	7:15-7:42	13 inch	Isodimed	"	"	"	"	"	"	"	"	"	
N-25		21 ^h 25 ^m	-22°	12-15		6:55-7:20	Xenar	Isodimed	"	2	"	"	"	W	"	"	"	
N-27	Polaris			12-15		8:30-10:00	Xenar	Isodimed	fair	2	"	"	"	E	W	"	"	
N-26		21 ^h 25 ^m	-25°	12-17														
N-30	Comet Region	20 ^h 45 ^m	-21° 50'	12-18	3:30 W	6:25-6:55=30 ^m	Xeiner	Isodimed.	good	1	"	4	65	E	W	1/100	good plate.	
N-31	"	20 ^h 45 ^m	-21° 50'	12-18	3:30 W	6:25-6:55	Ross	E. 40	"	1	"	4	70	E	W	1/100	good	
N-32	Pleadies			12-18	5 ^h 2 ^m W	11:05-11:15	13 inch	Isodimed	fair	0	"	4	70	W	N	1/100	good	
N-33	Hyades			12-18	3 ^h 6 ^m W	11:25-11:40	13 inch	Isodimed	fair	0	"	4	70	W	N	1/100	good	
N-34	Procyon	8 ^h 35 ^m	+20° 15'	12-18	3 ^h E	12:00-12:15	13 inch	Isodimed	fair	1.	"	4	70	W	N	1/100	good.	
N-35	E. Orionis			12-22	1 ^h 50 ^m E	9:40-10:00=20 ^m	Xeiner	Isodimed	good	0	"	"	"	"	"	"	"	
N-36	E. Orionis			12-22	1 ^h 50 ^m E	"	Ross	E. 40	good	0	"	"	"	"	"	"	"	

N-39	Hyades	12-22	30 ^m W	10:45-11:05	Xeiner
N-38	"	"	"	"	Ross
N-39	? Leonis	12-22	10 ^m E	15:55-16:15	Ross
N-40	? Leonis	12-22	10 ^m W	16:15-16:35	Xeiner
N-41	? Ursa Majoris	12-22	1 ^h E	17:12-17:32	Ross
N-42	"	12-22	1 ^h E	"	Xeiner
N-43	? Orionis	12-29	40 ^m NE	10:32-10:47	Xeiner
N-44	"	12-29	40 ^m E	"	Ross
N-45	Placidus	12-30	25 ^m W	8:20-9:05	13 inch
N-46	Rigel Betelgeuse	12-30	5 ^m W	9:50-10:10 10:35-10:55	13 inch

1931

N-50	Alkeraan	1-4	15 ^m E	8:55-8:35	13 inch
N-51	Piscyon	1-4	2 ^h 30 E	8:40-9:20	13 inch
N-51	Orion Belt	1-4	45 ^m W	9:45-10:20	13 inch
N-52	Phlux	1-5	2 ^h 45 E	10:30-11:10	13 inch
N-53	Castor	1-5	4 ^h 40 ^m E	11:45-12:25	"
N-53	Geminorum	1-5	25 ^m E	12:32-12:52	"
N-54	Comet Region	1-7	3 ^h 45 ^m W	6:36-6:58	Xeiner
N-55	"	1-7	"	"	Ross
N-56	Geneb.		5 ^h 20 ^m W	7:02-7:27	13"
N-56	γ Cygnus			7:30-8:00	13"

Is. Inst.	good	0
Is. —	"	0
Is. —	good	0
Is. Inst.	good	0
Is. Inst.	good	0
Is. Inst.	"	0
Is. Inst.	"	1
Is. Inst.	"	1
Is. Inst.	"	1
Is. Inst.	"	1

Is. Inst.	fair	d
"	"	"
"	"	"
"	"	"
"	"	"
"	"	"
"	"	"
Is. Inst.	fair	1
Is. Inst.	"	1
Is. Inst.		

→ 16° 30' 21' 37.5"

no	Region	P.F.	Dec.	H. Q	Imp	Camera	date	Lens	Shots	Dev		Plat	
										Kind	Time	Temp	emulsion
IV-71	Forest		+16 1/2°	20°W	12:32-12:47	Ross	1-16	good	1	Kind			Seeds 30.
-72	E° Malaya	8h 30m	-30°	7mW	11:45-12:45	Ross	1-17	good	2	Ross	25 68	Imp	14x14
-73	E° Malaya	8h 30m	-30°	7mW	11:45-12:45	Xenar	1-17	good	2	Ross	25 68	Imp	8x10
-74	E° Malaya	8h 30m	-30°	80°W	11:25-12:43	Xenar	1-19	good	1	Ross	25 68	Imp	8x10
-75	E° Malaya	8h 30m	-30°	90°W	11:07-12:49	Xenar	1-22	fair	2	Ross	25 68	Press plat	8x10
-76	E° Malaya	8h 30m	-30°	80°W	11:25-12:43	Ross	1-19	good	1	Ross	25 65	Imp	14x14
				90°W	11:07-12:49	Ross	1-22	fair	2				
N-77	Eros Region (Sextan)	10h 20m	-30	0°	12:25-14:20	13 inch	1-27	fair	2	D-28	4 1/2 68	Des prints	12"x15"
N-78	Eros Region	10h 54m	-0 24	23°W	14:15-15:45-30	13 inch	1-28	fair	1	D-28	4 1/2 68	Des prints	12"x15"
N-79	"	10h 34m	-0 24	23°W	15:15-17:15-30	13 inch	1-28	fair	1			Des prints	12"x15"
N-80	Eros "	10h 20m	-1 37	23°E	10:50-11:17	13 inch	2-7	poor	3	D-28	4 1/2 68	Eros prints	8x10 - good
N-81	Orion			23°W	9:20-11:20	13 inch	2-9	fair	4	D-28	4 1/2 69	Des prints	15x12" fair
N-82	Orion			23°W	9:30-11:30	Corgel	2-9	fair	4	D-28	4 1/2 69	" "	8x10 fair
N-83	Eros (Sextan)	10h 5m	-1 40	20°W	11:20-11:45	13 inch	2-10	fair	3			Des prints	8x10
N-84	Coma	10h 10m	-8 30	14 50°W	6:30-7:00	Ross	2-11	fair	2			Eastman 46	8x10
N-85	"	"	"	"	"	Xenar	"	"	2			Des prints	8x10
N-84	1 alabum Juno	3h 30m	0 2 2/3	24°W	9:30-9:45	Ross			3			Des prints	8x10
N-85	Forest			"	"	Xenar	2-18	fu	3			"	"
N-86	Eros	9h 53m	-1 54	16°W	10:30-12:30	Ross		fair	2			Press Plat	14x14" tacked
N-87						Ross			-1			" "	8x10

No	Region	RA	Sec	Date	H.A. at end	Time	Camera	Date	Trans	Steal	Dev	Kind	Time	Exp.	Notes
88	Eros Region	9 ^h 50 ^m	21 ^o	2-28	1:20	10:10-11:10	Ross	2-28	good	1	D-28	4	bb		break in trail of Eros.
89	"	"	"	"	2:35	11:35-12:25	Xenar	"	"	1	D-28	4	bb		pause of 25 min will cause
						3:24 15:51									
N-90	Jeminoum	7 ^h 13 ^m	+22 ^o	2-22	3:30	11:55-12:10	Ross	2-22	good	3	D-28	4	bb		H. Press. Sept. motion to Duro. good
N-91	Jeminoum	7 ^h 13 ^m	+25 ^o	2-32	10:10	"	Xenar	2-22	good	3	D-28	4	bb		H. Press. ditto - good.
						3:24									
N-92	Eros Region	9 ^h 47 ^m	-22 ^o	2-23	2:15	12:20-14:20	Ross	H. Press	good	3	D-28	4	bb		20 images - 6 min each.
N-93	Eros Region	9 ^h 45 ^m	-23 ^o	2-24	2:12	12:02-14:02	Ross	H. Press	good	0					
N-94	Campbell	6 ^h 45 ^m	-33 ^o	3-7	6:03	8:53-2 ^h -2 ^h	Ross	H. Press	good	5	Half Metal				corr of 28 min. to be added.
N-95	Jeminoum	"	"	"	5:05	"	Xenar	E. 48	"	1	"				"
N-94	campbell	"	"	"	3-8	2:32W	Ross	"	good	4	"				corr of 1 hr 1 hr 23 min to be added.
N-96	Perseus	4:45	+33 ^o	3-9	4:50	8:50-10:50	Ross	any	good	4					
		4:45	+35 ^o	3-10	4:50	7:38-9:08-1:50		any	fair	3					

6:20
1:53
7:43

6:53 6:57
1:27
8:00

6:00
1:15
7:15
6:20 0 3:3

86

NO	Region	RA	Dec	Date	H.A. of end.	Time	Camera	Plate	Lens	Steel	Dev.	Remarks	
												13:07	13:45
N-97	Persia	4:46	+33	3-9	4:30 ^W	8:30-10:30	Xenar	E 40	good	4	Half metal	Shows foggy map	13:45 25
N-98	Persia	4:45	+33	3-10	4:20 ^W	8:53-10:53	Xenar	E 40	fair	3	" "	" "	13:29 24 13:54
N-99	Persia	4:48	+33	3-14	3:55 ^W	7:50-9:40	Ross	Imp	fair	1	Half metal	" "	11:19 40:55 124 5:10
N-100	Persia	"	"	"	"	"	Xenar	E 40	"	1	" "	" "	
N-101	Persia	4:41	+33	3-15	4:21 ^W	8:30-10:00	Ross	Imp	fair	3			
					4:48 ^W	8:25-9:53	Ross	Imp	fair	3			8'4 32
					4:40 ^W	8:00-10:00	"	"	good	5			752 0
					4:03	8:10-9:15	"	"	fair	5			2379 3246 212 ^m 32 ^s 21 ^m 33
N-102	Quinga						Xenar	E. 40	8x18				44' 5 2040 3.86 ^m 19010 ^m
N-103	?	11h 40 ^m	5 ^h 1 ^m	3-23	5 ^h 1 ^m E	10:38-11:16	13 inch	Super 8	good	5			
N-104	"	11 40	5 ^h 2 ^m	3-23	11 ^h 34 ^m W	13:31-13:39	"	"	"	4			
N-105	"	11 40	5 ^h 9 ^m	3-23	11 ^h 42 ^m W	13:51-13:59	"	"	"	5			
N-107	Comet Ryves	8 4	+22 ^h	8-15	7:30 ^E	16:12-16:17	13 inch	Dev Med			D-28	68-5, (no comet)	
N-108	"	8h 36 ^m	+19 ^h	8-18	6:36 ^E	16:50-17:00						(Time - 24 min fast)	
N-110	Comet Neujmin	4h 9 ^m	+33 ^h	8-20	2:15 ^E	13:50-15:50							
N-109	Comet Ryves	9h 8 ^m	+20 ^h	8-19	6:30 ^E	16:30-16:45							
	Comet Ryves	9h 50 ^m	+19 ^h	8-20									Comet found. - only tail

12.20
9:15
3:05

N-111 *Jupit Uteba.* 17h 57^m -23° 9-3. 31.
N-112. 18h 23^m -20° 10'

3:24W 9:08 to 10:58, = 1h 50^m Gord - 3.
3:47W 11:19 - 11:39
11:40 - 11:45 " "

N-113 6 Coma 12^h 19^m, + 15° 15' 1432
35^m 50^s 1328

DesPinto (12v15") 10:00 - 11:00 and

N-114 Coma " " 03 29

12x15 11:45 - 13:15 - 13:15 - 13:21 fair - 2
4^m at 66°

N-115 φ Aurigae 5h 50^m + 34° 03 30

15x15 8:50 - 10:00 - 10:00 - 10:00 good 3 4h 50^m W 4^m 67°

N-116 α Leo Minor 9:15^(b) - + 35° 03 30

15x15 10:45 - 12:15 12:16 - 12:22 3h 05^m W, good 4. 4^m 62°

neg no	Region	P.A.	Dec	Time	HA at End	date	Kind of plate	Camera	Seeing	trans	Development		Position of plate	Position of plate on plate	Barium	Remarks
											Time	Temp				
						1932										
N-114	Hydra	12h 35m	+11° 15'	11:45-13:15	48 W	0329	12x15" Iso Prints	13"	2	fair	D28	4m 66°	W	N	KN.	6 min exposure added with image shifted.
N-115	Orion	5h 50m	+34°	8:30-10:00	4h 50m W	0330	12x15" Iso Prints	13"	3	good	D28	4m 67°	W	N	KN.	6 min exp added - plate shifted.
N-116	Andromeda	9h 15m	+35°	10:45-12:15	3h 05m W	0330	12x15" Iso Prints	13"	3	good	D28	4 67	W	N	KN.	6 min shifted exp.
N-117	Lemini	7h 15m	+17°	8:30-11:00	3h 55m W	0331	Iso Prints	15"	2	"			W	N	KN.	6 min added exp - shifted.
N-118	93 Leonis	11h 36m	+21°	11:40-13:10	1h 55m W	0331	Iso Prints	13"	3	"			W	N	KN.	" " " "
N-119	Trifid Neb.	1756	-22° 6'	15:18-16:48		0415	"	"	1-2	"	"	3m 68°	"	"	"	Moon at first

ny 20.

Region

P.A.

Sec.

Epo
Lime

Alt. of top

Date

Kind
of
Plants

Camera

Seeing

Season

Development
type
Time

Position of top
or side

Position of writing
on top

Other

Remarks

Pluto. May 13 - 1931

1. 9:19 - 9:56 - E 40 Trans stop
fin fin

2. 9:31 - 9:43 - E 40 " wdy images
5h 14m W at 9:41

Plates date for May 13, 1931.

10:32

Observations of May 14, 1931

I Standard Region

① Plate - E.40 9:10 - 9:13

② Plate - E.40 9:16 - 9:19

II Eros superimposed on above plate, - 9:34 - 9:37

III Eros

③ Plate; E.40 - 9:48 - 9:43

Film. 1 - 9:44 - 9:51

2, 9:53 - 9:56

3, 9:58 - 10:01

4, 10:05 - 10:06 (marked in pencil)

II Standard region superposed on above film - 10:11 1/2 - 10:14 1/2

V Standard Region 5, 10:18 - 10:21 (marked in Pencil)

6, 10:21¹⁰ - 10:24¹⁰

VI Eros superposed on above film - 10:29 - 10:32

VII Eros 7, 10:34 - 10:37

8, 10:39 - 10:42

9, 10:45 - 10:48

10, 10:49 - 10:52

11, 10:54 - 10:57 ← 3h 3^m W at 10:57

VIII Standard region superposed on above film - 11:02 1/2 - 11:05 1/2 ←

3h 5^m W at 11:06

(Plates are dated May 2, 1931.)

IX Standard Region

④ Plate E.40 N: 11:14 1/2 - 11:17 1/2

X Eros superposed on above: 11:22 - 11:25

XI Eros

⑤ Plate E.40 11:27 - 11:30

telescope hit platform so exposure is uncertain. 3h 7^m at 11:31

Eros - May 13, 1931

1. Plate - E 40 10:05 - 10:08

Eros and Standard Region (superimposed)

1. Plate - E. 40 10:10 $\frac{1}{2}$ - 10:13 $\frac{1}{2}$ ^{Standard Region} 3418^m W at 10114
10:25 - 10:28 SR.

Trans. in steel. Varies, sometimes wobbly.

Standard Region

Film:

1. 10:34 - 10:37

2. 10:38 - 10:41

Eros superimposed on Standard Region No 2.

10:45 - 10:48 (marked with pencil.)

Eros —

3. 10:51 - 10:54

4. 10:56 - 10:59

5. 11:01 - 11:04

6. 11:06 - 11:09

Images better on
Standard than on
Eros.

7. 11:11 - 11:14 Eros 3419^m W at 11:15

Standard Region Superimposed on Eros

Standard Region 11:23 - 11:26 SR.
Standard Region 11:26^s - 11:29^s (marked with pencil)

Plate E. 40 Standard Region

11:34 - 11:37

3433^m W at 11:38

Eros
superimposed

11:40 - 11:43

3448^m W at 11:43

Tree cut in mirror lens

Sav.

Observations of May 8, 1971.

1. Plate - Eastward 40.

Standard Region.

10:21 - 10:26

2h 3^m W at 10:27
3

2. Plate Eastward 40.

Eros Region.

10:39 - 10:44

2h 40^m W at 10:45

3. Eros:

1. 10:55 - 11:00

2. 11:01 - 11:06 and

(Standard Region superimposed on Eros Region)

4. Standard Region:

B. 11:13 - 11:18.

4. 11:20¹/₂ - 11:25¹/₂ (marked in pencil)

5. Eros:

5. 11:32 - 11:37

6. 11:38 - 11:43

(Images very diffused)

7. 11:44 - 11:51

3h 42^m at 11:52

Plate - E.40 - on Standard Region. May 6 1931.
 9:48 to 9:50 1^h 19^m W at 9:51

Plate E:40 Eros Region.
 10:14 - 10:16 2^h 8^m W @ 10:17

Film: —

Eros

1. 10:26 - 10:28
2. 10:29 - 10:31
3. 10:34 - 10:36
4. 10:39 - 10:41 } Eros + S.R. Superimposed
- (S.R.) 10:50 - 10:52 }

Standard Region.

5. 10:52 $\frac{1}{2}$ - 10:54 $\frac{1}{2}$
6. 10:55 - 10:56
- 7 - Blank.
- 8 - 10:59 - 10:59 } Eros Superimposed
- (Eros) 11:06 - 11:08 } on Standard Region.

Have Sykes fix switch
 for elevator chair.

Eros

9. 11:08 $\frac{1}{2}$ - 11:00 $\frac{1}{2}$
10. 11:11 - 11:12
11. Blank.
12. 11:15 - 11:17
13. 11:18 - 11:19
14. 11:20 - 11:22 few seconds extra
15. 11:23 - 11:24
16. 11:25 - 11:27
17. 11:27¹⁰ - 11:28^{10s}
18. 11:30 - 11:31
19. 11:35 - 11:37
20. 11:37 $\frac{1}{2}$ - 11:38 $\frac{1}{2}$
21. 11:40 - 11:42
22. 11:42 $\frac{1}{2}$ - 11:43 $\frac{1}{2}$
23. ~~11:45~~ Blank
24. 11:45 - 11:47
25. 11:48 - 11:49
26. 11:49⁸ - 11:51⁸
- 12:01 - 12:03

27. - 12:03 $\frac{1}{2}$ - 12:05 $\frac{1}{2}$
 28. 12:05 $\frac{3}{4}$ - 12:06 $\frac{3}{4}$
 29. 12:07 - 12:08

3^h 43^m at 11:52^m
 Superimposed (S.R. + Eros)

2^h 37^m at 12:09

Standard Region (192 - 150)

- No. Time
- 1 10^h 27^m - 28^m
 - 2 29 - 30
 - 3

April 21 1930

Standard Region (April 21, 1930)

- 1. 9:32 - 9:33
- 2. 9:33½ - 9:35½
- 3 9:36 - 9:37
- 4. 9:37½ - 9:38½

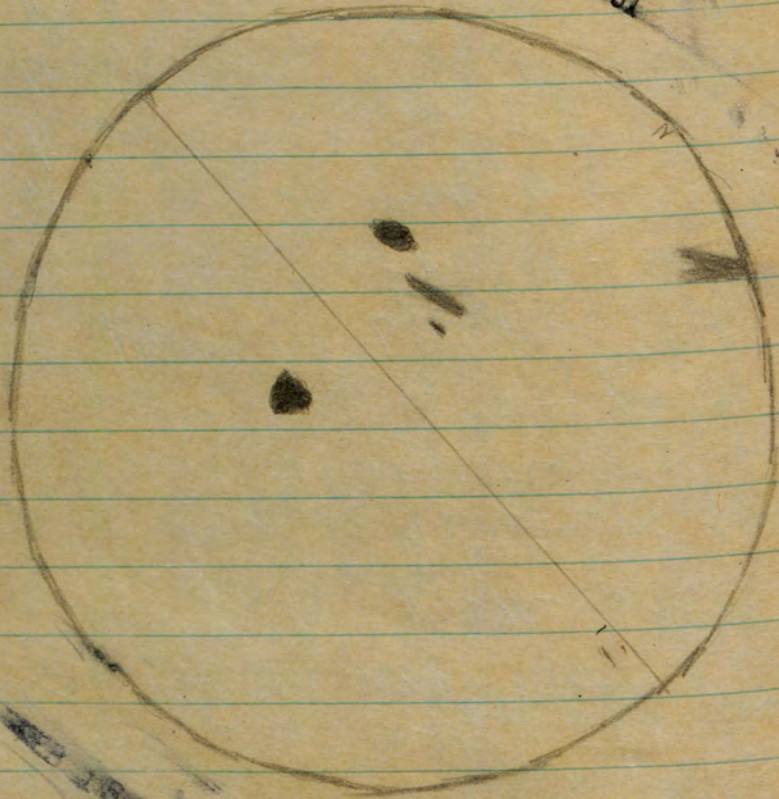
(No 4 in a double exposure. Standard Region and Eros region superimposed)

- 4 - 9:55 - 9:56
- 5 9:56½ - 9:57½
- 6. 10:01 - 10:02
- 7 10:04 - 10:05
- 8 10:07 - 10:08
- 9. 10:10 - 10:11.
- 10. 10:13 - 10:14
- 11. 10:16 - 10:17
- 12 10:19^{5s} - 10:20^{5s}

don't second exp.
also short exposure off side
H. # = 3k 29^m West
at 12:09.

- 13 - 10:52 - 10:23
- 14 - 10:25 - 10:26
- 15 10:28 - 10:29 (double exp.)
- 16 10:31 - 10:32.
- 17 10:34 - 10:35
- 18 10:37 - 10:38
- 19 10:40 - 10:41
- 20. 10:43 - 10:44
- 21 10:46 - 10:47
- 22 10:49 - 10:50
- 23 10:52 - 10:53
- 24 10:55 - 10:56
- 25 10:58 - 10:59
- 26^{SR} 11:01 - 11:02 + 11:12 - 11:13
- 27^{SR} 11:14 - 11:15
- 28^{SR} 11:19 - 11:20 + 11:28 - 11:29
- 29 11:30½ - 11:31½
- 30 11:34½ - 11:35½
- 31. 11:37 - 11:38
- 32. 11:40 - 11:41
- 33 10:43 - 10:44
- 34 10:46 - 10:47
- 35 10:49 - 10:50 (double exp.)
- 36 10:52 - 11:53
- 37 10:55 - 11:56
- 38 10:58 - 11:59
- 39 12:01 - 12:02
- 40. 12:04 - 12:05
- 41. 12:07 - 12:08

FEB 18 1931



FEB 18 1931

Useful Information

MULTIPLICATION TABLE

1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
5	10	15	20	25	30	35	40	45	50	55	60
6	12	18	24	30	36	42	48	54	60	66	72
7	14	21	28	35	42	49	56	63	70	77	84
8	16	24	32	40	48	56	64	72	80	88	96
9	18	27	36	45	54	63	72	81	90	99	108
10	20	30	40	50	60	70	80	90	100	110	120
11	22	33	44	55	66	77	88	99	110	121	132
12	24	36	48	60	72	84	96	108	120	132	144

Value of Foreign Money in Dollars, Cents and Mills, established by Act of Congress, March 3, 1873.

England, Pound Sterling (£)	\$4.86.65
Ireland " "	4.86.65
Scotland " "	4.86.65
12 pence (d)=1 shilling (s)	
20 shillings=1 pound	
France, Franc	19.3
Germany, Mark	23.8
Denmark, Crown	26.8
Sweden, Crown	26.8
Norway, Crown	26.8
Italy, Lira	19.3
Spain, Peseta	19.3
Holland, Florin	40.2
Mexico, Dollar	90.9
Brazil, Milreis	54.5
Canada, Dollar	1.00

The above values in United States currency fluctuate according to the current rates of exchange.

Measures of Volume Dry

2 pints	=1 qt. (67.2 cu. in.)
8 qts.	=1 peck
4 pecks	=1 bushel (1½ cu. ft.)
1 cord	=128 cu. ft.
1 perch	=24½ cu. ft.

Liquid

4 gills	=1 pint (16 fluid oz.)
2 pints	=1 quart
4 qts.	=1 gallon

Paper Measure

24 sheets	=1 quire
20 quires	=1 ream

Miscellaneous Measures

12 units	=1 dozen
12 doz.	=1 gross
12 gr.	=1 great gro.
20 units	=1 score
1 hand	=4 inches
1 fathom	=6 ft.
1 knot	=6086 ft.
3 knots	=1 league
1 bushel potatoes	= 60 lbs.
1 barrel flour	=196 lbs.
1 cu. ft. of water	=7.48 liquid gals. and weighs .625 lbs.
Diameter of circle x 3.1416	= circumference.
Diameter of circle squared x .7854	= area.
Atmospheric pressure is 14.7 lbs. per sq. in. at sea level.	
13½ cu. ft. of air weighs 1 lb.	

Circular Measures

60 seconds (")	=1 minute (')
60 minutes	=1 degree (°)
360 degrees	=1 circumference
A degree of the earth's surface on a meridian	=69.16 miles.

Metric System

1 centimeter	=0.3937 inches (. in.)
1 meter	=39.37 inches (3 ft. 3¾ in.)
1 kilometer	=0.62137 miles (¾ miles)
1 sq. meter	=1550 sq. in.
1 hectare	=2.471 acres
1 cu. meter	=35.314 cu. ft.
1 liter	=1.056 liq. qts.
1 hectoliter	=2 bushels and 3.35 pecks.
1 gram	=15.432 troy grains
1 kilogram	=2.2046 avoird. lbs.

Avoirdupois or Commercial Weights

16 drams (27.3½ grains)	=1 ounce
16 ounces	=1 lb.
100 lbs.	=1 cwt.
2000 lbs.	=1 ton
2200 lbs.	=1 long ton

Troy or Jewelers Weights

1 carat	=3.2 grains
M grains	=1 pennyweight (pwt.)
20 pwt.	=1 ounce (oz.)
12 oz.	=1 pound (lb.)

Apothecaries or Druggists Weights

20 grains (gr.)	=1 scruple (ʒ)
3 scruples	=1 dram (ʒ)
8 drams	=1 ounce
12 oz.	=1 pound

Measures of Length

12 inches	=1 foot
3 feet	=1 yard
16½ ft. (5½ yds.)	=1 rod
660 ft.	=1 furlong
320 rods (5280 ft.)	=1 mile

Measures of Surface

144 sq. in.	=1 sq. ft.
9 sq. ft.	=1 sq. yd.
30¼ sq. yds.	=1 sq. rod
4840 sq. rods.	=1 acre
640 acres	=1 sq. mile
An acre measures 208.71 ft. on each side.	
A sector of land is 1 sq. mile.	
A quarter section is 160 acres.	