Photographs of the
MOON
with the 40-inch

At the request of Prof. Ebert of
München
~~Berlin~~ for photos of the full moon some preliminary experiments were made on Mar. 27 1910. The solar plate holder was adapted to the liner work by removing both ends and taking out the solar slide. A lunar slide with wide opening was inserted and the exposures were made by passing this by hand in front of the plate.

The focus was determined in three ways 1- by measurement and comparison with the parallax plateholder. 2- by visual observations on the ground-glass 3- by star trails (after the plates of this date were exposed)

The results reduced to +15.0 C are

1 - 174.4 new scale, colors filter.

2 - 168.7

3 - 172. ± seeing rather poor and settings not carried far enough.

Adopt the following

Temp.	Setting.	Revised Oct. 1 1910 Trails
+20°	174	175
+15°	173.	174
+10	172.	173
+5°	171.	172
0		171
−5°		170

Note. To balance the instrument with the lunar plate holder on remove both tail pieces and fill all rods full of weight.

A

Water 32 oz
Sod. Sul. dry 1 oz
Hydrochinon 1⅓ oz
Sulphuric acid 30 drops

B

Water 32 oz
Sod. Carbonate dry 1 oz.
Potassium Carbonate 4 oz
Potassium Bromide 120 grains

At 70° F should develop in about 6 min. but may be continued for 10 or 12 min.
Use 1A + 1B + 1 Water.

With 40-inch telescope

No. Series M	Date	C.S.T.	Hour ang.	Exposure time	Telesc.	Slit width	Focus	Temp. C	Exposed by Observer	Developer	Quality	Date of Full Moon	Before(+) or after(−) Full	Moon's Age
	1910													
M-1	3/27	11h 59m 0s		.5s	VV	9mm	169	16.5°	Slocum Sullivan	Rodmel				
2	"	12 40 0		.5	"	"	"	"	"	Hydrochinon				
3	"	12 54 0		1.0	"	"	"	"	"	"				
4	"	13 0 30		.5	"	"	"	"	"	"				
5	"	13 23 0		1.0	"	"	"	"	"	"				
6	"	13 31		.5	"	"	"	"	"	"				
7	8/20	12 18	9m E	<.5	"	"	174	23	"					
8	"	12 46	16m W	.4	"	"	"	"	Slo					
9	"	13 7	37 W	1.0	"	"	"	"	"					
10	"	13 12	43m W	.25	"	"	"	"	Sull					
11	"	13 31	1h 1m	.25	"	"	"	"	"					
12	"	13 38	1 10	<.25	"	"	"	"	"					
	1911													
13	Oct 7	11 33	0h 15m E	1.s	W	"	173.3	11°	Slocum Sull	"	over exposed	Moon full Oct 7 1911 CST 7d 16.2hrs = 7d 10.2hrs		
14	"	11 58	10 W	"	"	"			"	"	best of this date			
15	"	12 6	17	.8	"	"			"	"	unevenly exposed	Moon's age Oct 7 12hrs = 15.7d hours		
16	"	12 12	23	.5	"	"			"	"	second best	= 1.8hrs after full		
17	"	12 16	30	.4	"	"			"					

Moon full Mar 25 8h 20.7m GMT

Moon's age Mar 27 13hrs = 16.8d

= 1d 22hrs after full

Best of this date. Try even shorter exposure

Between flying clouds.

" Best of this date

" Full Aug 20 7h 14.1m (1907)

" Age Aug 20 13hrs = 16.0d

" 11.8hrs after full

With 40-inch telescope

No.	Date	C.S.T.	Hour ang.	Exposure time	Telesc.	Slit width	Focus	Temp. C	Exposed by Observer	Exposed by Developer	Quality	Date of Full Moon	Before(+) or after(−) Full	Moon's Age
	1911			sec										
M-18	Oct 7	$13^h 14^m$	$1^h 28^m$ W	.5	W	9mm.	173.3	10°	Slevin & Sull.					
19	" "	18	1 32 W	.25	"									
20	Dec 5	$11^h 0^m 4^s$		3/4	"	"	171.0	+.3	Slevin & Sull	"Lantern slide"	g			
21	"	4 40		1	"				"	Hydrogen: 1A+1B+1 H_2	g	Moon full Dec 5	$14^h 51.9^m$	G.M.T.
22	"	9 8		1	"				"		g ✓		$8^h 51.9^m$	C.S.T.
23	"	13 29		1/2	"				"			1911		
24	"	16 59		1 1/4	"				"		g	Moon's age Dec 5	11.2^h	C.S.T = 15.3 days.
25	"	21 36		1/2	"				"		thin			2.3 hrs after full
	1912										f			
26	Mar 3	$13^h 2^m 43^s$	$\pm 0^h 0^m$ W	1	"	"	169.5	−8.5°	2	"	f	Moon full Mar. 2	$22^h 41.9^m$	G.M.T.
27	"	6 18	13	3/4	"				"		g	1912	$16^h 41.9^m$	C.S.T.
28	"	$11^m 14^s$	17	1 1/4	"				"		g	Moon's age Mar. 3,	$13^h 2$	C.S.T. = ~~14.85~~ 15.1 days ✓
29	"	16 23	22	1	"				"		g			= 20.5 hrs after full ✓
30	"	22 17	28	3/4	"				"		g ✓			
		(adds +40s)												
31	June 29	$12^h 44^m 10^s$	$0^h 8^m$ W	1 1/4	"	"	175.2	+2°	"		fp	clouds & thick haze. Moon very red. Exposures made		
32	"	12 51 18	15	1 1/4							fp	between clouds. Watch 40s fast.		
33	"	12 56 5	20	1 1/2							weak	Underexposed.		
34	"	13 3 13	27	1 1/2							t			

under exposed

With 40-inch telescope

No.	Date	C.S.T.	Hour angle	Exposure time	Telesc.	Slit width	Focus	Temp. C	Exposed by: Observer	Exposed by: Recorder	Quality	Date of Full Moon	Before(+) or after(−) Full	Moon's Age
	1912	subt 40s												
M-35	June 29	13 50 32	1h 14m W	4s	W	90mm	175.2	+20.0	Slocum & Sull.	Hydrogen Contrast	-g			
36		56 10	1 20	4s						"	-g			
37		14 2 6	1 26	4s						Hydrogen lantern	-g.			
38	July 28	12 35 50	0 25 W	3	W	90mm.	175.6	+23.0	"	"	f. dense	July 28	−2h 6.6	14.d 8
39	"	12 50 8	0 39	3½						"	f thin	16h 28.m 2 G.M.T.	− 2 20.9	
40	"	12 55 18	0 44	4						"	"	10h 28.m 2 C.S.T.	− 2 26.1	
41	"	13 0 20	0 50	4½						"	"		− 2 31.1	
42	"	13 5 5	0 54	4						"	"		− 2 35.9	
43	"	13 9 43	0 59	3						"	"		− 2 40.5	

beat of this date.

watch 1.m 0 fast July 28

Eclipse Photographs July 14, 1916

44	1916 July 14	9h 25m 4	E 2.35	1s	W	90mm	17	26°	Lee Sullivan Yowell	Elon Parallax Devel.				
45	" "	9 35 27	E 2.25	1s										
46	" "	9 40 4	E 2.20	1s						"				
x47	"	9 52 34	E 2.08	½s						"				
x48	"	10 10 12	E 1.50	2s						"				
49	"	10 14 52	E 1.46	1s						"				
50	"	10 18 55	E 1.42	2½s						"				

Series taken principally to show changes in Theophilus.

With 40-inch telescope

No.	Date	C.S.T.	Hour ang.	Exposure time	Telesc.	Slit width	Focus	Temp. C	Exposed by Observer	Remarks	Quality	Date of Full Moon	Before (+) or after (−) Full	Moon's Age
16/	1916													
M-														
51	14 July	10 45 58	E 1:16	2s	W	90mm	17.6		Lee Sullivan Yowell					
52	"	11 5 42	E 0.56	2s					"					
53	"	11 26 27	E 0:35	1s					"					
54	"	11 31 6	E 0:30	2s					"					
55	"	11 50 53	E 0:10	1s					"					
56x	"	11 55 27	E 0:05	2½s					"		v.g.			
57	"	12 7 3	W 0:07	1s				22.6	"					
	1919													
58	June 8	8 33	summer time	1s		Wafted			Pettit		g		+	10d
59	"	8 40		1s		"			"		f		+	"

See next page

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With 40-inch telescope

No.	Exposure	Telesc.	Slit width	Focus	Temp.	Observer	Reduction	Quality	Date of Full Moon	Before (+) or after (−) Full	Moon's Age

Lunar Photographs, made with the 40" and parallax camera.

□ = diaphragm before plate, close to parallax filter.

No. Series M	Nr.	Date 1946	C.S.T.	U.T.	hour angle	δ	Iris	temper.	focus	sky	filter	plate	development	exp. time	remarks.	object
60	2	Aug. 3	21h	3h			40"	29°	105	thick haze	parallax f.	superortho press.	D 11	3s	fogged	FQ
61	3	" 4	20h30m	2.30	2h35m W	+14°	18"	27	"	clear	f	"	" 4m	2s	overexp.	"
62	4	" 4	20 44	2.44	2.50	"	6"	"	"	"	f	"	" "	"	underexp.	"
63	5	" 5	11	17	—	—	6"		"	"	f + stepfilters	"	" "	"	right	curtain
64	6	" 21	3 35	9.35	3.24 E	+22	15	18	103	"	f	"	" "	"	"	LQ
65	7	" "	"	"	"	"	"		"	"	f	"	" 4"	3		"
66	8	" "	4 08	10.08	2.52	"	12		"	"	f	"	" "	"		"
67	9	" "	"	"	"	"	9		"	"	f	"	" "	"		"
68	10	" "	4 20	10.20	2.41	"	6		"	"	f	"	" "	"		"
69	11	" "	4 22	10.22	2.39	"	12		"	"	f	"	" "	"		"
70	12	" "	15	21.	~~1.46~~ "	~~+14~~ "	9			blue	f	"	" "	"		curtain
71	13	" "	"	"	~~2~~ "	"	12				f	"	" "	4		"
72	14	" "	"	"	"	"	18				f	"	" "	"		"
73	15	" 22	3.17	9.17	4.42	+24	15	12	102.5	clear	f □	"	" "	3		LQ
74	16	" "	3.18	9.18	4.40	"	15		"	between clouds	f □	"	" "	"		"
75	17	" "	3.38	9.38	4.20	"	7.5		"	"	f □	"	" "	"		"
76	18	" "	3.42	9.42	4.16	"	15		"	"	f	"	" "	"		"
77	19	" "	3.45	9.45	4.13	"	10.5		"	"	f	"	" "	"		"
78	20	" "	14.50	20.50	—		12		"	blue	f	"	" "	"		curtain
79	21	" "	14.30	20.30	—		10.5		"	"	f	"	" "	"		"
80	22	Sept. 12	23.04	5.04	1.34 E	−6°	6		"	clear	f	"	" "	2	tube sensitom. 20s	FM
81	23	" "	23.06	5.06	1.32	−6°	9		"	"	f	"	" "	2	"	"
82	24	" "	23.25	5.25	1.14	"	9		"	"	f □	"	① D11 + ① H_2O.	2		"
83	25	" "	23.26	5.26	1.13	"	6		"	"	f □	"	D 11	2		"
84	26	" "	0.34	6.34	0.06	−5°	"	11	"	"	f □	"	" 2 "	1	tube sensitometer 40s	"
85	27	" "	0.38	6.38	0.02 E	"	"		"	"	f □	"	" "	1	"	"
86	28	" "	1.02	7.02	0.21 W	"	"		"	"	f	"	" "	1	"	"
87	29	" "	1.03	7.03	0.22	"	"		"	"	f	"	" "	2	"	"
88	30	" "	1.30	7.30	0.49	"	"	11	"	"	f	"	" "	1	"	"

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With 40-inch telescope

No.	Date 1946	C.S.T. Hours	Exposure time	Telesc. Slit width	Focus	Temp. C	Effected by Observer	Declination	Quality	Date of Full Moon	Before(+) or after(−) Full	Moon's Age	
89	31 Sept. 12	1.31	7.31	0h50m W −5°	6"	11°	102.5	clear	f envelope	superorthoscopic	D 11.	4m	1s tube sensitom. 40s FM.
90	32 " 12	16.02	21.02	— —	10.5		"	Blue	f + steps	"	"	"	2 " " curtains
91	33 " 12	16 06	21.06	— —	11.5		"	"	f + steps	"	"	"	2 " "
92	34 " 13	23 27	5.27	1h55m E +0°5	6	10°	101.2	clear	f	"	"	"	1 tube sensit. 20s and 40s FM+2d
93	35 " "	23 31	5.31	1.51 "	6		"		f	"	"	"	" " "
94	36 " "	23 39	5.39	1.44 "	6		"	slight veil	f	"	"	"	" " "
95	37 " "	23 42	5.42	1.40 "	6		"	clear	f	"	"	"	" " "
96	38 " "	0 11	6.11	1.11 +1°	9		"		f	"	"	"	" " "
97	39 " "	0 18	6.18	1.04 "	9		"		f	"	"	"	" " "
98	40 " "	0 24	6.24	"	6		"		f + □	"	"	"	" " "
99	41 " "	1 35	7.35	0.11 W "	12		"		f + □	"	"	"	" " "
100	42 " "	2 28	8.38	1.13 +1°,4	12		"	sleeping room	f + □	"	"	"	" " "
101	43 " "	2 39	8.39	1.14 "	6		"	"	f + □	"	"	"	3 " curtains
[discarded]	44 " 16	14 38	—	—	16.5	25°	102		f + steps	"	"	"	2 " "
102	45 " "	14 40	—	—	9		"		f "	"	"	"	2 " "
103	46 " "	15 20	—	—	16.5		"		f "	"	"	"	2 " "
104	47 " "	15 26	—	—	16.5		"		f "	"	"	"	2 " LQ
105	48 " 17	1 48	7.48	3.02 E +21°	24	20°	103		f	"	"	"	2 " "
106	49 " "	1 51	7.51	2.59 E "	18		"		f	"	"	"	2 " "
107	50 " "	2 00	8.00	2.55 "	12		"	clear	f	"	"	"	" " "
108	51 " "	2 28	8.28	2.25 "	12		"	"	f □	"	"	"	" " "
109	52 " "	2 32	8.32	2.21 "	18		"	"	f □	"	"	"	" " "
110	53 " "	2 35	8.35	2.18 "	27		"	"	f □	"	"	"	" " "
111	54 " "	3 01	9.01	1.54 "	21		"	"	f □	"	"	"	" " "
112	55 " "	3 05	9.05	1.50 "	12		"	"	f □	"	"	"	" " "
113	56 " "	14 00	—	— —	12		"	"	f	"	"	"	" " "
114	57 " "	"	—	— —	18		"		f	"	"	"	" " "
115	58 " "	"	—	— —	24		"		f	"	"	"	" " LQ+1d
X 116	59 " 18	2 50	8.50	3.04 E +24°	24	18°	102.7	clear, aurora.	f	"	"	"	" " "
117	60 " "	2 53	8.53	3.01 "	15		"		f	"	"	"	" " "
X 118	61 " "	2 56	8.56	2.58 "	10.5		"		f	"	"	"	" " "
119	62 " "	3 25	9.25	2.28 "	15		"		f □	"	"	"	" " "
120	63 " "	3 28	9.28	2.25 "	24		"		f □	"	"	"	" " "
121	64 " "	3 31	9.31	2.22 "	30		"		f □	"	"	"	" " "
122	65 " "	3 49	9.49	2.06 "	18		"		f □	"	"	"	" " "
123	66 " "	3 52	9.52	2.03 "	12		"		f □	"	"	"	" " "

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With 40-inch telescope

No.	Date 1911	C.S.T.	Hour ang.	Exposure time	Telesc.	Slit width	Focus	Temp. C	Observer	Recorder	Quality	Date of Full Moon	Before(+) or after(−) Full	Moon's Age
		1946												
124	67	Sept. 18	3h55	9h55	2.00 E	+24°4′	9	18°	103,0		f □	superortho press	D 11	4m	2s	tube sensit. 20s and 40s	Lq+1d
125	68	" 19	2.54	8.54	3.58	+25°19′	21	20°	"		f	"	"	"	"		Lq+2d
126	69	" "	2.57	8.57	3.55	"	12	"	"		f	"	"	"	"		"
127	70	" "	3.00	9.00	3.52	"	7/5	"	"		f	"	"	"	"		"
128	71	" "	3.14	9.14	3.39	"	12	"	"		f □□	"	"	"	"		"
129	72	" "	3.17	9.17	3.36	"	18	"	"		f □□	"	"	"	"		"
130	73	" "	3.20	9.20	3.33	"	27	"	"		f □□	"	"	"	"		"
131	74	" "	3.25?	9.25	3.18?	"	23/5	"	"		f □□	"	"	"	"		"
132	75	" "	3.49	9.49	3.04	+25°0′	7/5	"	"		f □	"	"	"	"		"

Tube photometer transmits:

89,1	72.4	61.7	43.7	30,2	19,5	13,5
1.00	1.78	2.57	3,67	5,25	6.31	8,13

With 40-inch telescope

No.	Date	C.S.T. Hour and	Exposure time	Telescope	Slit width	Focus	Temp C	Exposed by	Quality	Date of Full Moon	Before (+) or after (−) Full	Moon's Age
M-133												
The following plates added October 2015												
M-201	1963 30 Dec	2:01	30 min before eclipse					R. Shild				
202	"	2:07	25 min befn eclipse					R. Shild				

With 40-inch telescope

No.	Date	C.S.T.	Hour ang.	Exposure time	Telesc.	Slit width	Focus	Temp. C	Exposed by	Observer	Remarks	Quality	Date of Full Moon	Before (+) or after (−) Full	Moon's Age
22															