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KG
11366
v.1033

CLXXXI

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12740 Star Measures 1

X

2
20.5
8.0

17830 – 16665
12320 24 12177 75
26 73
30 65
20.55.06 20.55.10

16510 y 16750
16134 32 7136 38
30 40
10 50
8.0378. 8.0388

–x y

3
24.8
21.9

17450 17270
9295 96 15420
97 20
50 70
24.8154 24.8150

16520 – y 16890
6918 16492
18 92
20 90
21.9602 21.9602

X y

4
29.3
11.4

16838 17076
16034 37 – 7868
40 68
38 76
29.0801 29.0792

16158 17838
172.02 05 16784 /8
08 84
58 38
11.8953 11.8946

y y X

1
97
167

16440 16810
14410 8810
10 10
40 10
16.2030 16.2000
12

18690 16340
12190 12830
90 30
90 40
9.6500 9.6490

X y

16087 16625
295 11654 53 11051
74 52 51
87 25
29.4434 29.4426

16310 17532
11856 57 11988 89
58 90
10 32
7.4453 7.4457

Moon

1
23
13.9

18706 17970
9850 16820 /8
54 16
52 70
13.8854 13.8849

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12740 Star Measures 1

1	17830	16665	16510	76750
20.5	12320	12177.5	16134.2	71364
8.0	26	13	30	40
	30	65	10	50
	205506	205510	80378	80328
2	17450	17270	16520	16890
24.8	9295	15420	6918	16492
21.4	97	20	18	92
	50	70	20	90
	248154	248150	219602	219612
3	16836	17076	16058	17838
29.3	16034	7868	7208	16784
11.4	46	68	68	84
	38	76	94	38
	290801	290776	118953	118946
4	16440	16810	18690	16340
9.1	14410	8810	12830	12830
6.2	10	10	30	30
	40	10	40	40
	162030	162000	96490	96490
5	16087	16625	16310	17532
13.2	11654	11051	11856	11985
	52	51	58	90
	87	25	10	32
	294934	294426	74453	74457

Moon

6	18706	17970
2.3	9750	16420
13.9	54	16
	52	70
	138459	132149

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12740 More Measures 2

2	16965	16863
228	90605	14772 73
44	50	74
	65	63
	22.79 10	22.79 10

3	16630	17460
220	16105 06	7980
15.	07	80
	30	60
	22.05 24	22.05 20

4	16054	16095
22	16330 32	15812
145	34	12
	21.97 22	95
		21.97 17

5	16834	17938
23.0	16470 68	8305 06
16	66	07
	34	38
	22.03 66	22.03 68

6	16036	16393
23	14173 74	82533 38
17.2	15	43
	36	93
	17.18 62	17.18 45

7	16447	16158
23.8	12715	9890
17.3	15	90
	47	58
	17.37 32	17.37 32

8	16932	10188
24.0	13318	9790 42
17.2	18	94
	32	88
	17.36 14	36 04

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12740 More Measures 2

2 16965 16863
228 90600 35 14772 73
15 50 74
65 63
22.19.10 22.19.10

2 16630 17460
22.8 16105 06 7940
15.4 07 20
30 60
22.05.24 22.05.20

9 16054 16095
22.5 16330 32 15512
14.5 34 12
21.97.22 95
21.97.17

5 16834 17938
29.0 16470 68 13305 06
10.4 66 07
34 38
23.03.46 23.03.68

4 16036 16393
22.7 14173,4 82333
17.8 75 83
36 93
17.18.62 17.18.46

2 16447 16154
24.8 12715 9890
17.3 15 90
47 58
17.37.32 17.37.32

2 16932 10158
29.0 13318 97 70
17.2 14 94
32 8
17.36.14 26 04

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12740 Lunar Etc 3

Date Apr. 3. 1917

Exp. L Stars	09	26		09	38	
" " Moon	09	31	36.2	09	31	36.4
Clock fast		14	5.6.3			
M. Sid. Time	09	16	40.0			
M. Long.	04	44	31.05	E.	-1h	01m
S. Sid. Time	14	01	11.05			
" " " MN.	0	44	58.70			
Interval	13	16	12.35			
Red		02	10.44			
S. M.T	13	14	01.91	13	23386	

Dram Naut. Almanac				R.A.		Dec
Moon	13	10	17	01.75	+6	40 10.3
Motion 1h				1.8276		- 12.361
" 14.03183				25.64		-02 53.4
Tabular Place		10	17	27.39	+6	37 -169

Moon's age 12d

Parallax	54	21.2
Semidia	14	50.2
R		890.2
Corr		11.2
Dec (4)		- 0.4
R		901.0
R		1.9314
a R		924
(1+a) R		1.8390
Q2		3.3819

Q34 = 12.3

-502.4
a = +24
-478.4

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Date Apr 3 1917

Exp & Stars	09	26		09	35	
" " Moon	09	31	36.2	09	31	364
Clock fast		14	56.3			
			[illegible]			
71 Sid. Time	09	16	40.0			
71 Long.	04	44	31.05			
h Sid Time	14	01	11.05			
" " MN	0	44	5.870			
Interval	13	16	1235			
Red		02	1044			
h M.T.	13	14	01.91	13	23386	

From Naut Almanac RA Dec

Moon 13	10	17	01.75	+6	40	10.3
Motion 1h			1.8276			-12361
" 14.03183			25.64		-02	53.4
Tabular Place	10	17	27.39	+6	37	+69

Moon's age 12d

G 34. = 12.3

-5° 02.4

a = +24

-478.4

Parallax	54	21.2
Semidia	14	50.2
R		890.2
Aug		11.2
Dr		-04
R		901.0
R		1.9314
aR		924
(1+a)R		1.8390
R2		33619

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Cafe no. 1423 aug. 8.5
checked

10 20 21.98
10 20 22.20 A.C.

22.09
+ 53.07

α 10. 21 15.16
A 10 17 12.65
+ 04 02.51
+ 242.50

2.384711
9.99835
0.89030

+ 7.7678
+ 20
29.76698
29.4430.
− .3268

05 04 44.0
AC 05 04 43.6 (5476 AC)

+ 05 04 43.8
− 05 09.3

S +04 59 34.5
D. 06 27 04.5
− 01 27 30.0
− 3251.1

3.72025n
1.05140n

89413
17806 −11.25064
7.7753 +0.00059
6.7495
7.4455
+ .6960

Cafe no. 1399 mg 8.7
10 09 29.82
29.90
2984
10 09 29.85
53.37
10 10 23.22
10 17 12.65
− 06 49.43
− 409.37
2.612122n
999748
1.11684n

−13.0869
− 54
S 8.9077
9.6495
+ .7418

06 14 46.1
46.3
45.3
+ 06 14 45.9
− 05 02.2
S 06 09 43.7
D 06 27 04.5
− 17 20.8
− 1040.8
3.01737n
0.34852n

4.0333
22337
8.3204

− 22311
+ .0209
15.7898
16.2015
+ .4117

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12740 Standard Coordinates 4

	Cape No. 1412 Aug 81		Cape No. 1418 Aug 63		Cape No. 1472 Aug 88	
C	10 15	30.43	10 17	46.51	10 20	08.95
g		30.48		46.57	"	08.99
ξ		30.43		46.52		08.99
m	10 15	30.45	10 17	46.53	10 20	08.98
Prec		53.12		53.39		53.17
α	10 16	23.57	10 18	39.92	10 21	02.15
A	10 17	12.65	10 17	12.65	10 17	12.65
α-A	-	49.08	+ 01	27.27	+ 03	49.50
Δm		- 49.08		+ 87.27	+	229.49
log		1.690900		1.940866		2.360876
log δ		9.999830		9.999678		9.999792
log S_0		0.196444		0.444488		0.865092
S_0		- 1.5719		+ 2.7853		+ 7.3438
S_1		- 5		+ 2		+ 18
S		20.4276		24.7874		29.3456
X		20.5508		24.8152		29.0796
X-S		+ .1232		+ .0278		- .2660
C	+ 05 09	01.0	07 03	00.9	+ 05 41	03.0
g		01.9		01.2		03.6
ξ		01.4		01.1		03.0
m	+ 05 09	01.4	+ 07 03	01.1	+ 05 41	03.2
Prec	- 05	06.2	- 05	09.2	- 05	09.2
δ	+ 05 03	55.2	+ 06 57	51.9	+ 05 35	54.0
Δ	+ 06 27	04.5	+ 06 27	04.5	+ 06 27	04.5
δ-Δ	- 01 23	09.3	+ 30	47.4	- 51	10.5
Δm		- 4909.3		+ 1847.4		- 3070.7
log		3.698113		3.266556		3.487249
log S_0		1.029928		0.597711		0.818397
log tan δ	8.9476		9.0869		8.9913	
S_0^2	0.3929		0.8898		1.7318	
log η	6.3939		7.0301		7.7765	
η_0	-10.6975		+ 3.9601		- 6.5825	
η	+ 0.0002		+ .0011		+ .0060	
η	7.3027		21.9612		11.4235	
y	8.0383		21.9602		11.8950	
y-η	+ .7356		- .0010		+ .4715	

did not use.

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12740 Standard Coordinates 4

	Cape No 1412 mg 81	Cape No 1418 mg 63	Cape No 1422 mg 88
C	10 15 30.43	10 17 46.51	10 20 08.95
g	3048	46.57	08.99
ξ	3043	46.52	08.99
m	10 15 30.45	10 17 46.53	10 20 08.98
Prec	53.12	53.39	5317
α	10 16 23.57	10 18 39.92	10 21 02.15
A	10 17 12.65	10 17 12.65	10 17 12.65
α-A	- 49.08	+ 01 27.27	+ 03 49.50
Sm	- 49.08	+ 87.27	+ 229.49
log	1.690900	1.940886	2.360976
log cos δ	9.999830	9.999678	9.999792
log S₀	0.196444	0.449688	0.860592
S₀	- 1.5719	+ 2.7853	+ 7.3438
S	- 5	+ 2	+ 18
S	20.4276	24.7814	29.3456
X	20.5508	24.8152	29.0796
X-S	+ .1232	+ .0278	- .2660
C	+05 09 01.0	07 03 00.9	05 41 03.0
g	01.9	01.2	03.6
ξ	01.4	01.1	03.0
m	+05 09 01.4	07 03 01.1	+05 41 03.2
Prec	105 - 05 06.2	- 05 09.2	- 05 09.2
δ	+05 03 55.2	5	+05 35 54.0
ε	+06 27 09.5	+06 27 09.5	+06 27 09.5
δ	- 01 23 09.3	+ 30 47.4	- - 51 10.5
Lat	- 49.03	+ 1847.4	- - 3070.9
log	3.698133	3.266556	3.487244
log r₀	1.029288	0.597711	0.815539
log log δ	89476	90664	89913
log δ²	03929	08898	17318
log r.	63939	70301	77765
r₀	-10.6975	+3.96011	-6.5825
r₁	+ 0.0002	+ .0010	+ .0060
r	7.30027	21.9612	11.4235
y	8.03883	21.9602	11.8950
y-r	+ .7356	- .0010	+ .4715

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S_0	η_0	ΔS	$-.3.9S$	$+5'\eta$	$+4$
-13.09	-2.23	-54	$+51$	$=-3-1$	$=-4$
-1.57	-10.70	$-5'$	$+6$	$=+1-5'$	$=-4$
$+2.78$	$+3.96$	$+3$	-11	$=-8+2$	$=-6$
$+7.77$	$+6.75'$	$+23$	-30	$=-7+3$	$=-4$
$+1.79$	-2.80		-7	-1	$=-4$ $=-0.01$

$\Delta\eta$	-2.3η	$-.2S$	$+2$
$-8+5'$	$=-3$	$+3$	$=+0$
$-30+25'$	$=-5'$	$+0$	$=-5'$
$+3-9$	$=-6$	-0	$=-6$
$+18-16$	$=+2$	-1	$=+1$
$+6$		-0	$=+8$ $=+0.4$

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12740

5

Plate Centre + Constants

24.81522 · 21.96022 + 10 18 39.92 + 06 57 51.9
22 18 − 1 27.27 − 30 47.4
− 2.81522 − 3.96022
31s 466.5
− 87.27122

Plate Centre { A = 1h 0 17 12.65
D + 6 27 04.5

X-S +500X −85.3 y + 2.4 X −10878
+7418 + 4825 = 12243 −1382 = 10861 +23 = 10884
+1232 +10275 = 11507 −686 = 10821 +49 = 10870
+0278 +12408 = 12686 −1874 = 10812 +60 = 10872
−3268 +14721 = 11453 −635 = 10818 +70 = 10888
23.81214 + 11906 −1325 +57 = 23.78851

y-η +500y +79.7X +4.8y −13059
+4117 + 8101 = 12218 + 769 = 12987 +78 − 13067
+7356 + 4019 = 11375 +1638 = 13013 +38 − 13051
−0010 +10980 = 10970 +1478 = 12448 +105 − 13053
+6960 +37231 = 10683 +2347 = 13030 +36 − 13066
15.5332 +7767 +1898 +74 = 15.2015

Table a = +0.4 b = −2.4 a+b = +2.8 b+a = +1.0
−502.4 −504.8 + 2.4 = +5.6
−502.8 −502.4 − 0.4 +4.6

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12740

5

Plate Centers + Constants

24 81 52 | 21 96 62 | 10 18 39 92 + 06 57 51.9
22 | 18 | − 1 27.27 − 30 47.4
28152 | −39602
315 | 4665
87.2712

Plate Centers { A 70 17 12.65
D + 6 27 04.5

X − 5 + 500Y | −85.3 Y | + 2.4 X − 10478
+.7418 + 4825 = 12243 − 1382 = 11461 + 23 = 10478
+1232 + 10275 = 11507 − 686 = 10821 + 49 = 10871
+1278 + 12408 = 12686 − 574 = 11912 + 60 = 10471
−3268 + 14721 = 11453 − 635 = 10818 + 70 = 10888
8121 + 11916 | −1325 | + 57 = 23.78

Y − 7 + 5.0 X | + 19.7 X | + 48 Y − 13059
117 + 81024 = 12248 + 764 = 12487 + 74 = 13056
356 + 40145 = 11375 + 1638 = 12913 + 37 = 13051
010 + 10984 = 10970 + 1478 = 12948 + 105 = 13053
9630 + 87231 = 10688 + 2347 = 13030 + 36 = 13066
5332 + 7767 | + 1848 | + 74 = 15.2012

Table a = +0.4 | l = −24 | c − l = +2.8 | b + d = +1.0
− 5024 | − 5048 | + 24 | + 5.8

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12740 Moon Centr

		Δx			O − C
1	23.0000	−0.8110 +2	0.6575	3.3803	− 16
2	22.7910	−1.0200 +1	1.0402	3.3970	+ 151
3	22.0522	−1.7588 +0	3.0934	3.3797	− 22
4	21.9720	−1.8390 +0	3.3819	3.3819	0
5	22.0367	−1.7743 −0	3.1481	3.3644	− 175
6	23.0000	−0.8110 −2	0.6575	3.3820	+ 1
7	23.8110	−0.0000 −3	0.0000	3.3800	− 19
8	24.0000	+0.1890 −3	0.0356	3.3706	− 113
				3.3819	

		Δy		arc
1	13.8851	−1.6499 −2	2.7228	206″
2	14.0000	−1.5350 −2	2.3568	214″
3	15.0000	−0.5350 −1	0.2863	253″
4	15.5350	−0.0000 −0	0.0000	270″
5	16.0000	+0.4650 +1	0.2163	285″
6	17.1854	+1.6504 +2	2.7245	334″
7	17.3732	+1.8382 +3	3.3800	360″
8	17.3609	1.8259 +3	3.3350	6″
				Range 160″

Approx. Center

X = 23 Y = 13.8851
17.1854
31.0705
y_0 15.5352
y_{mer} 17.3732
R 1.8380
Corr R 1.8390
y_{mm} 21.9720

Moon Centr { x_0 23.8110
y_0 15.5350

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12740 Moon Center

	Δ1				O-C
1	23.00000	-0.81110	+2	0.65575	33803	-16
2	22.71910	-1.02000	+1	10402	33970	+151
3	22.05522	-1.15888	+0	30934	33797	-22
4	21.47320	-1.83900	+0	33819	33819	0
5	22.03667	-1.17743	-0	31481	33644	-175
6	23.00000	-0.81110	-2	06575	33820	+1
7	23.81110	-0.00000	-3	01000	33810	-19
8	24.00000	+0.18900	-3	0.03556	33706	-113
					33819	

	Δ7			
1	13.85751	-1.64999	-2	2.72258
2	14.00000	-1.93350	-2	2.35568
3	15.00000	-0.53350	-1	02863
4	15.53000	0.00000	-0	00000
5	16.00000	+0.46650	+1	0.21663
6	17.18554	+1.65304	+2	2.72245
7	17.37332	+1.83982	+3	3.36000
8	17.36074	1.82359	+3	3.33350

arc
206
214
253
270
285
334
360
6
Range 160

Appart Center

X = 23 7 = 13.85751
17.16554
31.01705
y_0 15.53352
y_{max} 17.37332
R 1.83980
Corr R 1.83990
V max 21.97720

Moon Center { X_0 23.81110
Y_0 15.53350

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1	+ 1.33	+ 12.9	+ 26.4
2	+ 1.56	− 153.8	− 231.0
3	+ 0.93	+ 38.7	+ 11.7
4	+ 0.00	0.0	00.0
5	− 0.81	+ 310.2	− 80.5
6	− 1.33	− 0.8	+ 1.6
7	− 0.00	+ 00	− 35.0
8	+ 0.36	− 21.5	− 2060.
	+ .418	+ 3618	+ 39.7
	− 2.14	− 1761	− 5525
	+ 204	+ 185.7	− 512.8

	a	b	c	Col. d − c
	+ 22	− 15	− 30	− 89
a = − 21	+ 28	− 14	− 23	+ 93
	+ 43	− 5	+ 1	− 3
b = + 9	+ 50	− 0	+ 13	+ 53
	+ 48	+ 4	+ 15	− 106
c = − 37	+ 22	+ 15	0	+ 80
	+ 0	+ 17	− 20	+ 29
	+ 5	+ 16	− 16	− 66

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12740 Conditional Equations:

								O − C
1	− 0.81	− 1.65	= − 16	− 18	+ 61	= + 43		− 5.9
2	− 1.02	− 1.53	= + 151	− 22	+ 57	= + 35		+ 11.6
3	− 1.76	− 0.53	= − 22	− 38	+ 20	= − 18		− 4
4	− 1.84	− 0.00	= 0	− 40	+ 0	= − 40		+ 4.0
5	− 1.77	+ 0.46	= − 175	− 38	− 4.6	= − 54		− 12.1
6	− 0.81	+ 1.65	= + 1	− 18	− 6.1	= − 79		+ 8.0
7	− 0.00	+ 1.54	= − 19	− 0	− 6.8	= − 68		+ 4.9
8	+ 0.19	+ 1.82	= − 113	+ 4	− 6.7	= − 63		− 5.0
						+ 285	− 234	
							arc 63	

+ 12.01 + 2.04 = + 1857 − 8.20

+ 2.04 + 1502 = − 5128 + 2.06

− ( ) − 0.35 = − 315 + 1.39 + 0.24

+ 14.67 = − 5443 Δ_1 = − 37.1

+ 12.01 = + 185.7 + 75.7 = + 261.4 a = + 21.7

− 0.72

arc 160 R = 1.84

$\frac{P}{n}$ = .22 ✓ − 2Rc = − 1.84

$\frac{\Sigma v}{n}$ = + 6.4 ✓ Δh = − 0.44 Δ S = − 0.2

$\frac{+6.4}{.22}$ = + 290" ✓ Δ a = + 1.33 Δ a = + 0.04

Δ R = + 0.4 ✓

Corr. + 0.5 −

Δ R = − 0.1

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12740 Conditional Equations.

1	−0.81	−1.65	= −16	−18	+61	= +43	−59		
2	−1.02	−1.53	= +151	−22	+57	= +35	+116		
3	−1.76	−0.53	= −22	−38	+20	= −18	−4		
4	−1.84	−0.00	= 0	−40	+0	= −48	+40		
5	−1.77	+0.46	= −175	−38	−46	= −84	−121		
6	−0.61	+1.65	= +1	−18	−61	= −79	+50		
7	−0.00	+1.54	= −19	−0	−68	= −68	+49		
8	+0.19	+1.52	= −113	+4	−67	= −63	−50		
							+285 −234		
							ave 65		

+12.01 + 2.04 = +185.7 − 8.20

+ 2.04 +15.02 = −12.8 + 2.06

− ( ) − 0.35 = −31.5 + 1.39 + 0.24

+14.67 = −54.3 h = −37.1

+12.01 = +185.7 + 75.7 = +261.4 a = +21.7

− 0.72

ave 160 R = 1.84

$\frac{1}{n}$ .22 −2Rc = −1.84

$\frac{\Sigma v}{n}$ = +64 Δh = −0.44 Δs = −0.2

$\frac{+64}{.22}$ = +290 Δa = +1.33 $\Delta \lambda$ = +0.09

ΔR = +0.9

Corr = +0.5

ΔR = −0.1

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12740 Moon's Mean Position 8

X_0 23 8 1 1 0
+ 1 1
23.8121

Y_0 15.5350
− 18
15.5332

From Plate Constants.

23.7881
22.
+1.7881

15.2012
18
−2.7988

log S_0 0.252394
Cos δ_0 9.997555
8.507249
Sin $\alpha - A$ 1.747604

log tan δ 9.02777
ξ^2 0.50484
7.05343
log η_1 6.55859

$\alpha - A$ + 55.92

η_1 + 0.0004
η_0 − 2.7992
0.447203
log η_0 7.331155

A 10 17 12.65

α_0 10 18 08.57

log tan $\delta - D$ 3.115888

Red + 02.79

$\delta - D$ − 1305.8
− 21 45.8

α' 10 18 11.36

D + 6 27 04.5

δ_0 + 6 05 18.7

Red − 15.7

δ' + 6 05 03.0

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12740 Moons Mean Position 8

Y_0 23 8 1 1 0
+ 1 1
23.8121

η_0 15 5 3 5 0
- 1 8
15 5 3 3 2

Gram Plate Constants.

23.7881
22
+1.7881

15 2 0 1 2
18
-2.7988

log S_0 0.25 2 3 9
log S_0 9 9 9 7 5 5
8 5 0 7 2 4
$\alpha - A$ 1.7 4 7 6 0

log tan δ 9 0 2 7 7
ξ^2 0.5 0 4 8
7.0 5 3 4
log η_0 6 5 8 5 9

$\alpha - A$ + 55.42

η_1 + 0.0 0 0 4
η_0 - 2.7 9 9 2
0.4 4 7 0 3 ~

A 10 1 7 12.65

log η_0 1.3 3 1 1 5
log tan $i \cdot E$ 3.1 1 5 8 8 ~

α_0 10 1 8 08.57

Red + 02.79

$\delta - B$ - 1 3 0 5 8
- 2 1 4 5.8

α' 10 1 8 11.36

B + 6 2 7 0 4.5

δ_0 + 6 0 5 1 8.7

Red - 1 5.1

δ' + 6 0 5 0 3.0

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(1) 10 15 26.911
23938
+ 2973

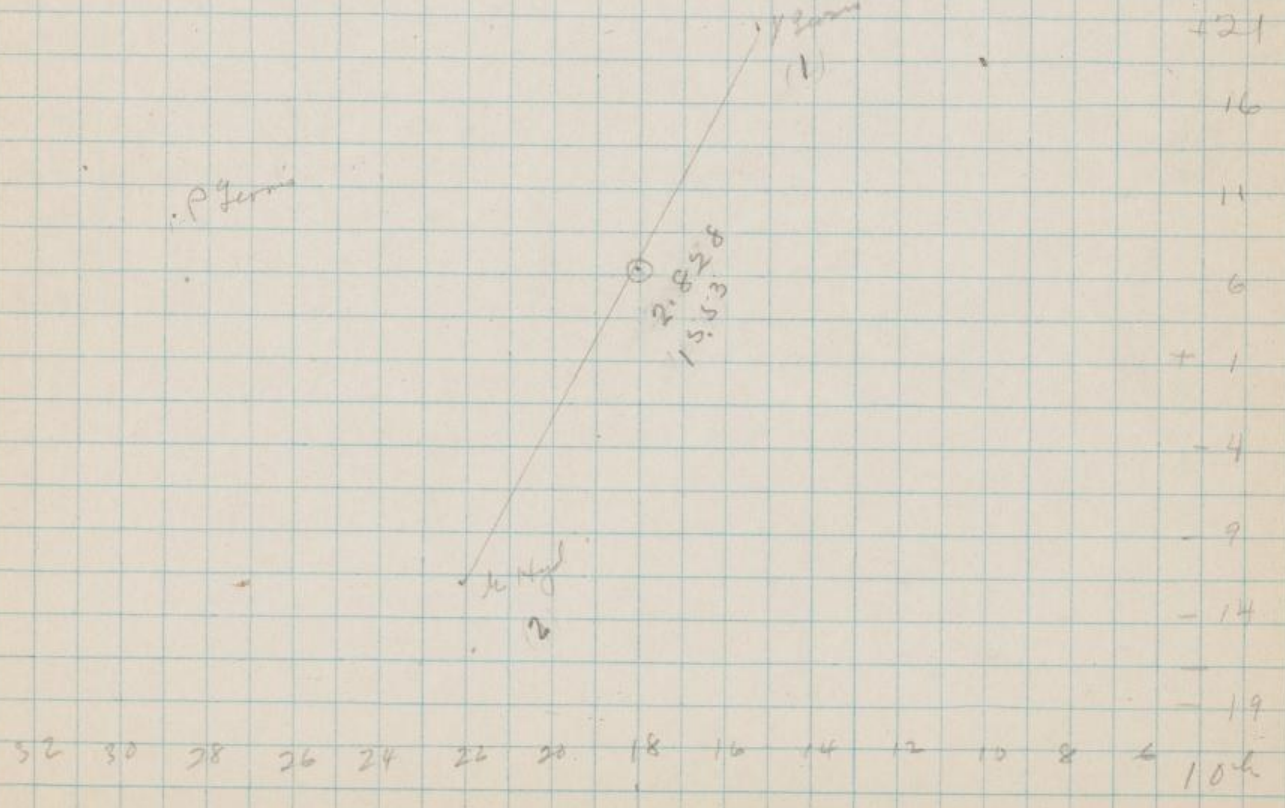
+20 15 30.55
42.71
−12.16

V 10 22 07.163
04.536
+2.627

−16 25 03.85
24 43.67
20.18

2.973
2.627
346

−20.18
−12.16
8.02



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12740 Reduction ☆ Apparent Place. 9

H + α	03	18.2	49° 33′
H	17	0.1	
α_0	10	18.1	
Θ	23	0.2	
Θ + α_0	9	18.3	139° 34.5′

δ_0 + 6° 05.3

log cos δ_0	9.9975
log i	0.8983 n
log (i)	0.8958 n
log sin d	9.0253
" cos H + α_0	9.8121
" h	1.2758
" sin H + α_0	9.8814
" sec δ_0	0.0025
	8.8239

log cos Θ + α_0	9.8815 n
" log q	1.0778
" sin Θ + α_0	9.8120
" tan δ_0	9.0277
	8.8239

log (q)′	0.9593 n
(q)	8.7414

q	+1.767
q	+0.055
h	+0.963
Red	+2.785

log (h)′	0.1132
(h)	9.9836

q′	−9.105
h′	+1.298
i′	−7.867
Red	−15.674

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12740 Reduction to Apparent Place. 9

H + α	03	18.2	49° 33′
H	17	0.1	
α₀	10	18.1	
G	23	0.2	
G + X₀	9	18.3	139° 34′.5

log cos G + X₀	9 8 8 1 5 n
log q	1.0 7 7 8
Sin (G + X₀	9 8 1 2 0
Tan δ₀	9.0 2 7 7
	8 8 2 3 7

log (q)	0.9 5 9 3 n
(q)	8 7 4 1 4

q	+1.7 6 7
q	+0.0 5 5
k	+0.9 6 3
Red	+2.7 8 5

δ₀	+ 6° 05′.3
log cos δ₀	9 9 9 7 5
log i	0.8 9 8 3 n
log (i)	0.8 9 5 8 n
log sin dδ	9.1 2 5 3
" log H + X₀	9.8 1 2 1
" k	1.2 7 5 8
" Sin 14 + X₀	9.8 8 1 4
" Sec δ₀	0.0 0 2 5
	8.8 2 3 9

log (k)	0.1 1 3 2
(k)	9 9 8 3 6

q	− 9.1 0 5
k	+ 1 2 9 8
i	− 7 8 6 1
Red	−15.6 7 4

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12740 Lunar Parallax 10

α'	10	18	11.36	Π	54	21.2	
Θ	09	16	40.00				
$\Theta-\alpha'$	-1	01	31.36			9.869913	
=	-15°	22'	50.40	log Sin Π		8.198944	
$\frac{1}{2}\alpha-\alpha'$	-	5	22.10	Sin $\Theta-\alpha'$		9.423633	
$\Theta-\alpha'$ - "	-15	17	28.30	Sec $\frac{1}{2}\delta$		0.000290	
				" Sin $\alpha-\alpha'$		7.494600	

			9.957727				
log cos $\frac{1}{2}(\alpha-\alpha')$			0.000000	$\alpha-\alpha'$	-10	44.21	
Sec $(\Theta-\alpha')-\frac{1}{2}(\alpha-\alpha')$			0.001565				
log Tan γ			9.957292	=		-42.95	
γ	43	12	53.1				
δ'	6	05	03.0				
$\gamma-\delta'$	37	07	50.1				

			9.826400				
log Sin Π			8.198944				
Sin $\gamma-\delta'$			9.780777				
Cosec χ			0.164488				
Sin $\delta-\delta'$			7.970529				
$\delta-\delta'$		32	07.6	α	10	17	28.41
δ	+6	37	10.6				
Eph δ	+6	37	16.9	Eph α	10	17	27.39
O-C			-6.3	O-C			+1.02
Corr.			+0.3	Corr.			-0.01
Fin Cel.-Ref.			0.0	α	10	17	28.40
δ	+6	37	10.9	O-C			1.01
O-C			-6.0				

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12741 Lunar Parallax 10

α'	10	18	11.36	π	54	21.2
Θ	09	16	40.0			
$\Theta - \alpha'$	-1	01	31.36			9.86913
	$= -15^\circ$	22'	50.40	log Sin π		8.19894
$\frac{1}{2}(\alpha + \alpha')$	+	5°	22.10	Sin $\Theta - \alpha'$		9.42363
$\Theta - \alpha' - " - 15$		17	28.30	Sec $\frac{1}{2}\delta$		0.00290
				Sin $\alpha \cdot \gamma$		1.49460 m
			9.95727			
log Cos $\frac{1}{2}(\alpha - \alpha')$			0.00000	$\alpha \cdot \gamma'$	-10	44.21
Sec $(\Theta - \alpha') - \frac{1}{2}\alpha\alpha'$			0.00165			
log Tan γ			9.97292		=	$-42^s.95$
γ	43	12	53.1			
δ'	+6	05	03.0			
$\gamma - \delta'$	37	07	50.1			
			9.82640			
log Sin π			8.19894			
Cos $\gamma - \delta'$			9.78077			
Cosec γ			0.16448			
Sin $\delta \cdot \delta'$			1.97059			
$\delta - \delta'$		32	07.6	α	10	17 28.41
δ	+6	37	10.6			
Sph δ	+6	37	16.9	Sph α	10	17 27.39
O - C			-6.3	O - C		+1.02
Curv			+0.3	Curv		-0.01
Sun Cel-Ref			00	α	10	17 28.40
δ	-6	37	10.9	O - C		1.01
O - C			-6.0			

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12741 Star Measures 11

1	17200		16282		16750		16870
9.6	11880	75	11630	24	13086	91	10520
163	11870		18		96		30
	00		82		50		70
	9.53255		9.53432		16.36591		16.36555
					70		
2	17590		18588		17230		16380
304	13030		13156		14928	27	8660
87	34	32	56		26		60
	90		88		30		80
	20.45558		20.45688		9.23103		8.23320
3	18512		17128		16014		17484
24.6	11637	40	14006		14378	75	9104
22.2	43		06		72		06
	12		28		14		84
	24.68772		24.68778		22.16389		22.16221
4	16099		16458		16298		16056
39.2	14343		8215	16	10418	15	11930
14	43		17		12		30
	99		58		98		56
	29.17556		29.17558		11.58883		11.58874
5	16613		16765		16265		17132
	13093	90	10300	95	9706	05	13680
	87		90		04		76
	13		65		65		32
	29 35 23		35 30		7.65560		7.65546

y Moon

1	17300	16393	
23	75 06	09 16173	
139	12	73	
	00	83	
	13.97701	13.97781	

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12741

Star Measures

11

	17200		16282		16750		16870
1918	11880	75	11630	24	13086	91	10520
163	11870		R8		96		30
	00		82		50		70
	9.53.25		9.53.94		16359		16.36.55
2	17590		18588		17230		16380
209	13030		13156		14928	27	8660
X7	34	32	56		26		60
	90		88		30		80
	20.45.58		20.45.68		8.23.03		8.23.20
3	18512		17128		16014		1748
246	11637	40	14006		14378	75	910
222	43		06		72		0
	12		28		14		8
	24.68.72		24.68.78		22.16.39		22.16.2
4	16099		16458		16298		1605
092	14343		8215	16	10418	15	1193
114	43		17		12		3
	99		58		98		5
	29.17.56		29.17.58		11.58.83		11.58.7
5	16613		16765		16265		17132
	13093	90	10300	95	9706	05	13680
	87		90		04		76
	13		65		65		32
	29.35.23		35.30		27.65.60		7.65.46

y

1	17200		16393	
13	75.06	04	16173	
139	12		73	
	00		83	
	139791		139781	

Mean

y

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12741 Moon

2 16848 16048
22.4 13095 96 9788
15' 97 88
48 48
22.37 52 22.37 40

3 16858 16030
22.3 13530 35' 9347
15.4 40 47
58 30
22.33 23 22.33 17

4 16500 16028
22.5' 12110 15' 10408 09
16.0 20 10
22.43 85' 28
22.43 81

5 16352 16852
23 8172 15020
16.8 72 24 22
52 52
16.81 80 16.81 70

6 16652 16490
23.3 14010 12 9130
17.0 14 30
52 90
23.26 40 23.26 40

7 16892 16716
24. 14730 8968
17.2 30 68
92 06
17.22 62 17.22 60

8 16210 17420
24.2 13850 19780 75'
17.2 54 70
10 10
17.23 58 17.23 63'

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12741 Moon

2	16848	16047
22	13095	9758
15	97	58
	48	48
	22.37.32	22.37.40

	16858	16030
3	13530 35	9347
9	40	47
	58	30
	22.33.28	22.33.17

	16500	16024
15	12110 15	10417
0	20	10
	22.43.85	28
		22.43.81

	16352	16852
	8172	15020
8	72	24 22
	52	52
	168180	168170

	16552	16490
3	14010 12	9130
0	14	30
	52	90
	23.26.40	23.06.40

	16892	16716
7.	14730	8968
2	30	64
	92	06
	172262	172260

	17420
	19780 75
	70
	10
	17.23.65

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1917phhc.proj.20

12741 Times Etc.

Date Apr. 3 1917

Exp to Stars	9	39		9	5-1"	
" " Moon	9	45	06.0"	9	45	06.2"
Clock fast		14	56.3"			
H. Sid Time	9	30	09.80"			
" Long.	4	44	31.05"			
G. Sid. T.	14	14	40.85"	Θ =	$-0^h 47^m$	
" " " M.N.	0	44	58.70"			
Lutetia	13	29	42.15"			
Red		02	12.65"			
G. M.T	13	27	29.50"	$13^h 45' 82"$		

From Naut. Alman.		R.A.		Dec	
Moon 13"	10	17	01.75"	+6 40	10.3"
Motion 1"			1.8276"		-12.365"
" 27.4917			50.24"	-05	39.9"
Tabular Place	10	17	51.99"	+6 34	30.4"

Moons Age 12d

934" = 12.4"

a = -500.2
+24.
-476.2

Parallax	54	21.4"
Semi-diam	14	50.2"
R		890.2"
Aug		11.4"
Sin 4		-0.4"
R		901.2"
R		1.9318"
1 & R		-921"
(1+a)R		1.8397"
R2		3.3845"

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12741 Times Etc.

Date Apr 3 1917

Exp to Stars	9	39		9	5-1"	
" Moon	9	45	06.0	9	45	06.2
Clock fast		14	56.3			
H Sid Time	9	30	09.80			
" Long	4	44	31.05			
G Sid Time	14	14	40.85			
" " M.N.	10	44	58.70			
Interval	13	29	42.15			
Red		02	12.65			
G M.T	13	27	29.50	13	45	82

From Meut Alman	R A			Dec		
Moon 13h	10	17	01.75	+6	40	10.3
Motion 1h			1.8276			-12.36.
" 27.4917			50.24		-05	39.9
Tabular Place	10	17	51.99	+6	34	30.4

Means Age 12d

9 34" = 12.4

α = -500.2
+24.
-476.2

Parallax	54	21.4
Semi-diam	14	50.2
R		550.2
aug		11.4
2R.4		-0.7
R		401.2
R		1931.8
1&R		-921
(1+q)R		1.8397
R2		3.3845

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12741 Plate Constants. 14

X−ξ	+500Y	−5Y.3y	+0.2X−10045
+6257	+4767	= 11024−970	= 10054+2 = 10056
+0287	+10228	= 10515−488	= 10027+4 = 10031
−0999	+12344	= 11345−1314	= 10031+5 = 10036
−4172	+14676	10504−454	10050+6 = 10056
24.1715	+12.087	−913	+5 = 24.2849

y−η	+5.54X	+4.7y	−14.59
+5754	+8183	= 13942+528	= 14470+77 = 14547
+9285	+4116	= 13401+1133	= 14534+39 = 14573
+2018	+11082	= 13100+1367	= 14466+104 = 14570
+9058	+3828	= 12886+1626	= 14512+36 = 14548
15.3970	+7698	+1339	+72 = 14.8520

Table a = +0.5 b = −1.5 c−e = +2.0 f+d. +0.7

Am.	500.2	−504.7	+4.5 = +3.9
	−500.7	−503.2	+2.5 +3.2

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12741

Plate Constants.

X-ξ	+5.00 Y	−5.83 y	+ 0.2X − 10048
4257 + 4767	=	11024 − 970	= 10054 + 2.0.10057
0257 + 10228	=	10515 − 464	= 10027 + 4 = 10031
04499 + 12344	=	11345 − 1314	= 10031 + 5 = 10036
16999 +	=		
41726 + 14676		10504 − 454	10050 + 6 = 10056
14.1715 + 12087		− 913	+ 5 = 242849

η − η	+5.54 X	+4.74 y − 1455
5754 + 8183	= 13942 + 528	= 14470 + 77 − 14547
4.55 + 4116	= 13401 + 1133	= 1455 34 + 39 = 14573
2018 + 11483	= 13100 + 1367	= 14466 + 104. 1457
	=	
9058 + 3825	= 12886 + 1626	= 14512 + 36 = 14548
5.3970 + 7.698	+ 1339	+ 72 = 148520

Latlis a = + 0.5″ c = − 1.5 G · c = + 20 h + d. + 0.7
Ath. 5002 − 5041 + 4.5 = + 3.9

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12741

Moon Centa

15

		Δx			O−C	
1	23.00000	−1.1710	+1	1.3710	3.33863	+18
2	22.37460	−1.7964	+0	3.2270	3.33854	+9
3	23.33200	−1.8390	−0	3.3819	3.33819	−26
4	22.43463	−1.7347	−0	3.00955	3.37220	−125
5	23.00000	−1.1710	−1	1.3714	3.33870	+25
6	23.26400	−0.9070	−1	0.82288	3.33899	+54
7	24.00000	−0.1710	−1	0.0292	3.37122	−123
8	24.17100	0.00000	−1	0.00000	3.33793	−52

Com R^2 3.33845

		Δy			arc	
1	13.97866	−1.4194	−2	2.01553	220°	
2	15.00000	−0.3980	−0	0.15844	258°	
3	15.39800	0.00000	+0	0.00000	270°	
4	16.00000	+0.6020	+1	0.3625	289°	
5	16.81755	+1.4195	+2	2.01556	320°	
6	17.00000	+1.6020	+2	2.56711	331°	
7	17.22261	+1.8281	+3	3.33430	355°	
8	17.23600	+1.8380	+3	3.37793	360°	

Range = 140°

Approx. Centa

x = 23. y = 13.97866
16.81755
30.79621
y_0 15.39800

y max 17.23600
R 1.83800
Com R 1.83797
x min 22.33820

Moon Centa $\begin{cases} x_0 & 24.17100 \\ y_0 & 15.39800 \end{cases}$

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2741 Moon Centre 15"

		Δx			O-C
1	23 0 0 0 0	-1 1 7 1 0 +1	1.3 7 1 0	33"8 6 3	+ 1 8
2	22 3 7 4 6	-1 7 9 6 4 +0	3 2 2 7 0	33 8 5 4	+ 9
3	22 3 3 2 0	-1 8 3 9 0 -0	3 3 8 1 9	33 8 1 9	- 2 6
4	22 4 3 6 3	-1 7 3 4 7 -0	3.0 0 9 5"	33 7 2 0	- 1 2 5
5	23 0 0 0 0	-1 1 7 1 0 -1	1 3 7 1 4	33 8 7 0	+ 2 5
6	23 2 6 4 0	-0 9 0 7 0 -1	0 8 2 2 8"	33 8 9 9	+ 5 4
7	24 0 0 0 0	-0 1 7 1 0 -1	0 0 2 9 2	33 7 2 2	- 1 2 3
8	24 1 7 1 0	0 0 0 0 0 -1	0 0 0 0 0	33 7 9 3	- 5" 2
			Corr R	33 8 4 5"	

		Δy			Anc
1	17. 9 7 8 6	-1.4 1 9 4 -2	2 0 1 5" 3		2 2 0
2	15. 0 0 0 0	-0.3 9 8 0 -0	0 1 5 8 4		2 5 8
3	15. 3 9 8 0	0 0 0 0 0 +0	0 0 0 0 0		2 7 0
4	16 0 0 0 0	+0.6 0 2 0 +1	0 3 6 2 5"		2 8 9
5	16. 8 1 7 5"	+1.4 1 9 5 +2	2 0 1 5" 6		3 2 0
6	17. 0 0 0 0	+1 6 0 2 0 +2	2 5" 6 7 1		3 3 1
7	17. 2 2 6 1	+1 8 2 8 1 +3	3 3 4 3 0		3 5"-5"
8	17. 2 3 6 0	+1 8 3 8 0 +3	3. 3 7 9 3		3 6 0

Range: 1+1°

Approx Centre

X = 23 y = 17. 9 7 8 6
16. 8 1 7 5"
30 7 9 6 1
y_0 15. 3 9 8 0

y max 17. 2 3 6 0
R 1. 8 3 8 0
Corr R 1 8 3 9 7
X min 22. 3 3 2 0

Moon Centre $\begin{cases} x_0 \; 24.1710 \\ y_0 \; 15.3980 \end{cases}$

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1	+1.66	−21.1	−25.6
2	+0.72	−16.2	−3.6
3	+0.00	+47.8	+0.0
4	−1.03	+216.2	−75.0
5	−1.66	−29.2	+35.5
6	−1.45	−49.2	+86.5
7	−0.31	+20.9	−225.0
8	−0.00	+0.0	−95.8
	+2.38	+2849.	+1220
	−4.45	−115.7	−425.0
	−2.07	+169.2	−303.0

	a	b	c	Col 0 − c
a − 22	+26	−17	−28	−28
	+40	−5	−2	+16
b + 12	+41	−0	+4	−4
	+38	+7	+8	−89
c − 37	+26	+17	+6	+71
	+20	+19	+2	+98
	+4	+22	−11	−95
	+0	+22	−15	−29

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12741 Conditional Equations. 16

						O-C
1	−1.17	−1.42	= +18	−11	+29 = +18	0
2	−1.80	−0.40	= + 4	−17	+ 8 = − 9	+ 18
3	−1.84	−0.00	= −26	−18	+ 0 = −18	− 8
4	−1.73	+0.60	= −125	−16	−12 = −28	− 97
5	−1.17	+1.42	= + 25	−11	−29 = −40	+ 65
6	−0.91	+1.60	= + 54	− 9	−33 = −42	+ 96
7	−0.17	+1.83	= −123	− 2	−37 = −39	− 84
8	−0.00	+1.84	= − 52	− 0	−38 = −38	− 14
						+179 −203
						or 48

+13.31 − 2.07 = +169.2 −8.79

− 2.07 +13.84 = − 303.0 +5.74

+ ( ). − 0.32 = + 26.4 −1.36

+ 0.32Δ

+13.52 = − 276.6 +4.38 Δ = − 20.4

+13.31 = +169.2 − 42.3 = + 126.9 a = + 9.5

− 0.61

arc 140° R = 1.84

$\frac{P}{n}$ = .10 v − 2 Rc = − 1.84

$\frac{\Sigma v}{n}$ = − 3 v Δk = − 0.59 Δs = − 0.3

$\frac{-3}{.10}$ = −30 v Δa = + 1.12 Δα = + 0.04

ΔR = − 0.4 v

corr (4) + 0.5

True ΔR = − 0.9

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12741 Conditional Equations. 16

						O-C
1	−1.17	−1.42	= +18	− 11	+ 29	= + 18
2	−1.80	−0.40	= + 4	− 17	+ 8	= − 9 + 1
3	−1.84	−0.00	= − 26	− 18	+ 0	= − 18 −
4	−1.73	+0.60	= −125	− 16	− 12	= − 28 − 9
5	−1.17	+1.42	= + 25	− 11	− 29	= − 40 + 6
6	−0.98	+1.60	= + 54	− 9	− 33	= − 42 + 9
7	−0.17	+1.83	= −123	− 2	− 37	= − 39 − 8
8	−0.00	+1.84	= − 52	− 0	− 38	= − 38 − 1
						+ 179 −20
						w 48

+1331 − 207 = +1692 −879

− 207 +1384 = −33030 +5.74

+ ( ) − 0.32 = + 26.4 − 136

+ 0.32Δ

+13.52 = − 2766 +4.38 h = − 20.4

+1331 = +169.2 − 42.3 = +126.9 a = + 9.5

− 0.61

arc 140°

$\frac{P}{n}$ = .10

$\frac{\Sigma v}{n}$ = − 3

$\frac{-3}{.10}$ = −30

ΔR = − 0.4

R = 1.84

−2 Rc = −1.84

Δh = − 0.59 Δδ = − 0.3

Δa = + 1.12 Δx = + 0.04

Corr'n + 0.5

Time ΔR = − 0.9

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12741 Moon's Mean Position 17

X_0 24.1710 ✓
+ 5
24.1715

Y_0 15.3980 ✓
−10
15.3970

From Plate Constants

24.2849 ✓
22.
+2.2849 ✓

14.8520 ✓
18.
−3.1480 ✓

log S_0 0.358871 ✓
cos δ_0 9.999758 ✓
8.507241
Sin α − A 1.854035 ✓
α − A + 01 11.46 ✓
A 10 17 12.65
α_0 10 18 24.11 ✓
Red + 2.79 ✓
α' 10 18 26.90 ✓

log tan δ 9.0240 ✓
S_0 2 07177 ✓
7.05534
log n_1 6.79511 ✓
n_1 +0.00006 ✓
n_0 −3.1486 ✓
log n_0 0.498111 ✓
7.331115
log tan δ 83.166966 ✓
δ − D −1468.8 ✓
−24 28.8 ✓
D +6 27 04.5
δ_0 +6 02 35.7 ✓
Red −15.7
δ' +6 02 20.0 ✓

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12741 Means Mean Position 17

X_0 24.1710
+ 5"
24.1715

Y_0 15" 39" 80
− 10
15. 39. 70

From Plate Constants

24 22849
12.
+ 2.28 49

14. 85" 20
18
− 31480

log S_0 0.35" 88 7
cos i_0 9 9 9 7 5 8
8 5 0 7 2 4
Δm $\lambda - A$ 1.85" 40.5"

log $\tan i$ 9.0240
S_2 0.7177
7.15" 34
log n_1 6.79" 51

n_1 +0.0006
n_1 −3.1486

$\lambda - A$ + 01 11.46

A 10 17 12 65"

X_0 10 18 24.11

log n_0 0.49811 m
7.33115"
log $\tan i$ ±3.16696 m

Red + 2.79

X' 10 18 26.90

S_0 +1468.8"
− 24 28.8
δ +6 27 04.5"

S_0 +6 02 35.7

Red −15.7

S' +6 02 21.0

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12741 Red. to Apparent Place 18

$H+\alpha_0$	3	18.5	49°	37.5′	δ_0	6° 02.6
H	17	0.1				
α_0	10	18.4			Cos δ_0	9.9976
α	23	00.2			log i	0.8982n
$\alpha+\alpha_0$	9	18.6	139°	39′	log(1)	0.8958n

Cos $\alpha+\alpha_0$	9.8820n
q	1.0778
Sin $\alpha+\alpha_0$	9.8112
Tan δ_0	9.0247
	8.8239

log q'	0.9600n
q	8.7376

q	+ 1.767
q	+ 0.055
R	+ 0964
Red	+ 2.786

log Sin δ_0	9.0225
Cos $H+\alpha_0$	9.8114
h	1.2760
Sin $H+\alpha_0$	9.8820
Sec δ_0	0.0024
	8.8239

log l'	0.1099
l	9.9843

q'	− 9.121
l'	+ 1.288
i	− 7.867
Red	− 15.700

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12741 Red. to Apparent Place 18

$H+\alpha_0$	3	18.5s	49°	37.5′	δ_0	6° 02.6′
H	17	01				
γ_1	10	18.4				
ζ	23	00.2				
$\zeta+\gamma_0$	9	18.6	139°	39′		

$\log \cos \delta_0$		9 9 9 7 6	
$\log i$		0 8 9 8 2 n	
$\log (1)$		0 8 9 5 8 n	
$\log \sin \delta_0$		9 1 2 2 5	
$\cos H+\alpha_0$		9 8 1 1 4	
h		1 2 7 6 0	
$\sin H+\alpha_0$		9 8 8 2 0	
$\sec \delta_0$		0 0 0 2 4	
		8 8 2 3 9	

$\log \sin (\zeta+\gamma_0)$		9 8 8 2 0 n	
q		1 0 7 7 4	
$\sin \zeta+\gamma_0$		9 8 1 1 2	
$\tan \delta_1$		9 0 2 4 7 n	
		8 8 2 3 9	

$\log q'$		0 9 6 0 0 n	
q		8 7 3 7 6	
f	+	1 7 6 7	
q	+	0 0 5 5	
l	+	0 9 6 4	
Red	+	2 7 8 6	

$\log l'$		0 1 0 9 9	
l		9 9 8 9 3	
q'	−	9 1 2 1	
h'	+	1 2 8 8	
i	−	7 8 6 7	
Red	−	1 5 7 0 0	

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12741 Lunar Parallax. 19

α'	10	18	26.90	
θ	9	30	09.80	
$\theta - \alpha'$	−	48'	17.10	
=	−12°	4	16.50	
$\frac{1}{2}\alpha - \alpha'$		4	13.95	
$\theta^2 - \alpha' - \frac{1}{2}\alpha - \alpha'$	12°	0	02.55	

π	"	54	21.4	
			9.866413	
log sin π			8.198896	
sin $\theta - \alpha'$			9.320417	
" sec δ'			0.000286	
sin $(\alpha - \alpha')$			7.391136	n

		9.995727		
log sin $\frac{1}{2}(\alpha - \alpha')$		0.000000		
sec $(\theta - \alpha') - \frac{1}{2}(\alpha - \alpha')$		0.000960		
log tan γ		9.996687		
γ	42°	49	00.0	
δ'	6°	02	20.0	
$\gamma - \delta'$	36	46	40.0	

		9.826400		
log sin π		8.198896		
sin $\gamma - \delta'$		9.777222		
cosec γ		0.167711		
sin $\delta - \delta'$		7.970291		
$\delta - \delta'$		+32	06.3	
δ	+6	34	26.3	
Eph δ	+6	34	30.4	
O − C			−4.1	
Corr.			+0.3	
Fund. Ref.			0.0	
δ	+6	34	26.6	
O − C			−3.8	

$\Delta\alpha'$	−	8'	27.91	
=			−33.86	
α	10	17	53.04	
Eph α	10	17	51.99	
O − C			+1.05	
Corr.			−0.01	
α'	10	17	53.03	
O − C			+1.04	

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12741 Lunar Parallax. 19

α'	10	18	26.90
Θ	9	30	09 80
$\Theta - \alpha'$		48'	17.10
φ	-12°	4	16.50
$\frac{1}{2}(x + x')$		4	13.95
$\Theta - x - \frac{1}{2}(x + x')$	12°	0	02.55

	9.995727
$\log \cos \frac{1}{2}(x - x')$	0.000000
$\sec \Theta - x' - \frac{1}{2}(x + x')$	0.000960
$\log \tan y'$	9.996687

y	42°	49'	00.0
δ'	6°	02	20.0
$y - \delta'$	36	46	40.0

	9.826400
$\log \sin \pi$	8.194896
$\sin y - \delta'$	9.771723
$\operatorname{cosec} x$	0.161771
$\sin \delta - \delta'$	7.970029

$\delta - \delta'$		32	06.3
δ	+6	34	26.3
$\operatorname{sph} \delta$	+6	34	30.4
O - C			-4.1
Corr			+0.3
Final Red.			00
δ	+6	34	26.6
O - C			-2.5

π		54	21.4

	9.869413
$\log \sin \pi$	8.194896
$\sin 4 - x'$	9.320417
$\sec \delta'$	0.002816
$\sin (x - x')$	7.391136

$x - x'$		27.91	
=		-33.76	

α	10	17	53.04
$\operatorname{sph} x$	10	17	51.98
O - C			+1.05
Corr.			-0.01
α	10	17	53.03
O - C			+1.04

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12774 Star Measures.

1	19010	16366		17737		17632	
15.7	11251	49	14138	14590		10778	
5.3	47		40	90		80	79
	10		66	37		32	
	15.7761		15.7773	5.3147		5.3147	
3	18347	16360		19240		16822	
18.8	10342	41	14380	12953	55'	13096	01
23.7	40		70	57		06	
	47		60	40		22	
	18.8006		18.8015	23.6285		23.6279	
2	16165		18742	17558		16312	
33.0	15820		9383	14343		9518	13
14.3	20		83	43		08	
	65		42	58		12	
	33.0645		33.0641	14.3215		14.3201	

Moon

1	1-			17704		16217	
5.3				8462	60	15463	
13.9				58		63	
				04		17	
				13.9244		13.9246	
2	16040		16436				
22.1	14750	55'	77394	36			
15.0	60		38				
	40		36				
	22.1285		22.1300				
3	16646		16415'				
22.0	16212		68504	9			
15.5'	12		48				
	46		15'				
	22.0434		22.0434				

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12774 Star Measures.

1	19010	16366	17737	17632
15.7	11251 49	14138 39	14590	10778 79
53	47	40	90	80
	10	66	37	32
	15.7761	15.7773	5.3147	5.3147

3	18347	16360	19240	16822
188	10322 41	14350 75	12453 55	13096 01
237	40	70	57	06
	47	60	40	22
	18.8006	18.8015	23625	23679

2	16165	18742	17558	16312
330	15520	9383	14343	9518 13
143	20	83	43	08
	65	42	58	12
	33.0645	33.0641	14.3215	14.3201

Moon

	1-		17704	16217
5			84623 60	15463
			54	63
			04	17
			13.9244	13.9246

	16040	16436	
1	14750 55	77443 36	
0	60	38	
	40	36	
	22.1283	22.1300	

	16646	16415	
1	16212	68500 49	
1-	12	48	
	46	15	
	22.0434	22.0934	

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Moon

4	16842	16396	
22	15778	7445	49
16.0	78	55	
	42	96	
	22.1064	22.1053	
5	16904	16353	
32.8	9376	13876	77
17.	76	78	
	04	53	
	22.7528	22.7524	
6		16240	16954
23		14586	84 8612
17.2		82	12
		40	54
		17.1656	17.1658
7		17533	16992
23.7		13543	10970 72
17.4		43	74
		33	92
		17.3990	17.3980
8		16545	16998
24		12575 72	10960 65
17.3		69	70
		45	98
		17.3973	17.3967

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Moon

1

	16842	16346
2	15778	74455 49
6.0	78	55
	42	96
	22.10.64	22.10.53

5

	16904	16353
228	9376	13876 77
17	76	18
	04	53
	22.75.28	22.75.24

6

23	16240	16954
172	14586 44	8612
	82	12
	40	54
	17.16.56	17.10.58

7

23.1	17533	16942
174	13543	10970 72
	43	74
	33	92
	17.39.90	17.39.80

	16545	16948
	12575 72	10960 65
	69	70
	45	98
	17.39.73	17.39.67

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12774 Times Etc.

Date Apr 4. 1917

Exp. & Stars	11	21			11	33	
" " Moon	11	27	27.0		11	27	27.2
Clock fast		14	58.0				
M. Sid. Time	11	12	29.1				
" Long	04	44	31.05				
G. Sid Time	15	57	00 15				
" " M.N.	0	48	55.26				
Interval	15	08	04.89				
Red		02	28.77				
G. M.T.	15	05	36.12		15	09	33.7

$\Theta = +0^h\ 8^m$

From Nautl. Almanac.

	R.A.			Dec.		
Moon 15h	11	04	28.74	+01	10	38.1
Motion 1m			1.8289		−	12.911
" 57.602			10.24		01	12.3
Tabular Place	11	04	38.98	+01	09	25.8

Moon age 13d

Parallax 54 40.22

Semidiam 14 55.4

R 895.4

Aug 10.8

Dr 3 −.05

R 905.7

R 1941.4

aR 992.7

(1+a)R 1848.7

R² 3417.7

934" = 11.8

a = 501.4

+24

477.4

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12774 Times Etc

Date Apr 4. 1917

Exp 1 Stars	11	33			11	33	
" Moon	11	27	27.0		11	27	27.2
Clock fast		14	58.0				
71 Sid Time	11	12	29.1				
1. Young	04	44	31.05		$\Theta = +0^h\ 8^m$		
5 Sid Time	15	57	00 15				
" " M.N	0	48	55.26				
Interval	15	08	04.89				
Red		02	28.17				
5 M T	15	05	36.12		15. 09 33.7		

From Mount Almanac		RA			Dec.		
Moon 15h	11	04	28.74		+01	10	38.1
Motion 1m			1.8289			-	12.911
" 5.602			10.24			01	12.3
Tabular Place	11	04	38.98		+01	09	25.8

934" - 11.6

a -501.4
+24
477.4

Moon's Age

Parallax	54	40.22
Semidiam	14	55.4
R		895.4
Arg		108
Dr.		-.05
R		905.7
R		1941.4
a R		1927
(1+a)R		.8487
R2		34177

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S	η
-6.46	-13.59
-3.19	+5.63
+11.73	-4.23
+2.11	-2.89

ΔS	-3.8S	-1.1η	-3
-37	+24 =	-13 + 15 =	+2
-3	+12 =	+9 - 6 =	+3
+43	-45 =	-2 + 5 =	+3
	-8	+3 =	-8 = -0.03

Δη	-4η	-1.1S	+13
-74	+54 = -20	+7 =	-13
+6	-22 = -16	+3 =	-13
-17	+17 = 0	-13 =	-13
	+11	-2 =	+22 = +1.1

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12774 Standard Coordinates 24

	Cafe No. 1502 mg 6.8		Cafe No. 1506 mg 8		Cafe No. 1522 mg 5.3	
C	10 59	12.45	11 00	54.12	11 08	38.44
4		12.44 A.G.	11 00	54.19		38.42
8		12.49	11 00	54.17		38.42
m	10 59	12.46	11 00	54.14	11 08	38.43
Prec		52.13		52.40		52.23
a	11 00	04.61	11 01	46.54	11 09	30.66
A	11 03	25.71	11 03	25.71	11 03	25.71
α-A	- 03	21.10	- 01	39.17	+ 06	04.95
Sin		- 201.09		- 99.17	+	364.91
log	2.303388n		1.996388n		2.562188	
log cos δ	9.999955		9.999982		9.999999	
log S_0	0.810357n		0.503444n		1.069419	
S_0	- 6465.0		- 3.1874		+11.7330	
S_1	- 37		- 0003		+ 43	
S	15.5313		18.8123		33.7373	
X	15.7767		18.8010		33.0643	
X-S	+ .2454		- 0113		- .6730	
C	- 0 44	21.0	+ 01 45	03.6	+ 0 28	28.6
4		20.5	+ 01 45	04.0		28.8
8		21.0				28.7
m	- 0 44	20.8	+ 01 45	03.8	+ 0 28	28.7
Prec	- 05	29.0	- 05	29.7	- 05	32.2
S	- 0 49	49.8	+ 01 39	34.1	+ 0 22	56.5
D	+ 0 55	48.6	+ 0 55	48.6	+ 0 55	48.6
S-D	- 1 45	38.4	+ 43	45.5	- 32	52.1
tan	- 6340.4		+ 26256		- 1972.2	
log	3.802128n		3.419233		3.294955n	
n_0	1.133272		0.753038		0.626107n	
log $\frac{\cos\delta}{S_0^2}$	8.16128n		8.45319		7.82444	
S_0^2	1.62111		1.00699		1.41811	
n_1	6.83357n		6.51222		6.29599	
n_0	-13.59116		+5.62847		-4.22777	
η_1	- 0007		+ 0003		+ 0.0002	
η	4.4077		23.6287		13.7725	
η_1	5.3147		23.6282		14.3208	
$\eta_1 \eta$	+ 9070		- 0005		+ 5483	

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12774 Standard Coordinates 24

	Cape No. 1502 mg 6.8		Cape No. 1506 mg 8		Cape No. 1522 mg 5.3	
C	10 59	12 45	11 00 54 12	11 08		3844
4		12 44	AC 11 00 54 19			3842
ε		12 49	11 00 54 14			3842
m	10 59	12 46	11 00 54 14	11 05		3843
Prec		52.15	52.40			52.23
a	11 00	04 61	11 01	46 54	11 09	3066
A	11 03	25.71	11 03	25.71	11 03	25.71
α-a	- 03	21.10	- 01	39.17	+ 06	0496
Sm		- 201.09		- 99.17	+	364.98
log	2.230338n		1.999638n		2.562158	
log ε S	9.999995		9.999982		9.999999	
log S_0	0.810577n		0.503442n		1.869411	
S_0	- 6465.0		- 3187.4		+11733.0	
S_1	- 3.7		- .0003		.43	
S	15.5313		18.8123		33.7373	
X	15.7767		18.8010		33.6643	
X-S	+ 2454		- 0113		- .6730	
C	- 0 44	21.01	+ 01 45	03.6	+ 0 28	28.6
4		20.5	+ 01 45	04.0		288
ε		21.10				287
m	- 0 44	20.8	+ 01 45	03.8	+ 0 28	28.7
Prec	- 05	27.0	- 05	29.7	+ 0 - 08	322
S	- 0 49	49.8	+ 01 39	34.1	+ 0 22	56.5
Φ	+ 0 55	48.6	+ 0 55	48.6	+ 0 55	48.1
D-Φ	- 1 45	38.4	+ 43	45 55	- 32	52
tan	- 6340.4		+ 2625.6		- 1972.2	
log	3.802127n		3.419233		3.294933n	
n_0	1.133272		0.755038		0.626107n	
log ε	8.16127n		8.45519		7.82444	
S_0^2	1.62111		1.00699		1.41481	
n_1	6.83577n		6.51222		6.29559	
n_0	-13.59167		+5.62847		-4.22277	
n_1	- .0077		+ .0003		+ 0.0002	
n	4.40771		23.62871		13.77125	
y	5.31477		23.62872		14.32208	
y-n	+ .90706		- .00001		+ .54883	

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12774 Plate Center + Constants 25

18.8010 28.6282 11 01 46.54 +01 39 341
22. 18. +01 39.17 - 43 45.5
+3.1990 -5.6282
31 466.5
+99.17 -2625.5

Plate Center { A = 11h 03m 25.71
δ = +0° 55' 48.6

X-S +500X : +57.3y + 1.4X - 11668
+2454+7888=10342+304=10646+22=10668
-0113+9401=9288+1354=10642+26=10668
-6736.+16532=9802+820=10622+46=10668
23.8944+11947 +890 +33=24.1146

Y-η +500y -554X +4.7y-10879
74870+2657=11727-873=10854+25=10879
-0005+11814=11809-1042=10767+111=10878
+5483+7160=12643-1831=10812+67=10879
15.5475+7774 -1324 +73=15.1119

Tables a=+0.4 a-=-2.2 a-c=+2.6 A+d=0.0
-501.4 -504.7 +3.3 -1.9
-501.8 -502.5 +0.7 -1.9

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12774 Plate Center + Constants. 25

8.8010	25.6282	11	01	46.54	+01	39	341
2.	1		+01	39.17	-	43	45.5
3.4990	-5.6282						
31	466.5						
99.17	-2625.5						

Plate Center { A = 11h 03m 25.71
δ = +60° 55' 48.6

X-S +5.00X +57.5Y +1.41 -11668
+2454+7888=10342+304=10646+22=11668
-0113+9401=9288+1354=11642+26=10668
-6730.+165.32=9802+820-10622+46=10668
23.9944+11947 +860 +33=24.1146

Y-η +5.00Y -55.4X +4.7Y-1087.
14070+2657=11727-873=11854+25=10879
-0005.+11814=11809-1042=10767+111=10878
+5483+7160=12643-1531=10812+67 10879
15.5475+7774 -1329 +78=15.1119

Tables a=+0.4 e=-2.2 a-e=+2.6 b+d=0.0
-501.4 -504.7 +3.3 -1.9

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12774 Moon Center 26

		Δx			O-C
1	23.0000	−0.8930	0.	0.7974	3.4244 + 67
2	22.1292	−1.7638		3.1110	3.4081 − 96
3	22.0434	−1.8496		3.4210	3.4210 + 33
4	22.1058	−1.7872		3.1941	3.4014 − 163
5	22.7526	−1.1404		1.3005	3.4187 + 7
6	23.0000	−0.8930		0.7974	3.4250 + 73
7	23.8930	−0.0000		0.0000	3.4369 + 192
8	24.0000	+0.1070		0.0114	3.4361 + 184
					3.4177

		Δy		arc
1	13.9245	−1.6205 − 3	2.6270	209′
2	15.0000	−0.5450 − 1	0.2971	253′
3	(15.5451	0.0000 − 0	0.0000	270′
4	16.0000	+0.4550 + 1	0.2073	284′
5	17.0000	+1.4550 + 3	2.1179	322′
6	17.1657	+1.6207 + 3	2.6276	331
7	17.3985	+1.8535 + 4	3.4369	360′
8	17.3952	+1.8502 + 4	3.4247	4′
				Range 155

Approx Center

y = 23 η = 13.9245
17.1657
31.0902
η₀ 15.5451

y max 17.3970
R = 1.8519 Corr R 1.8487
x max 22.0434

x₀ = 23.8930

x₀ 23.8930
Moon Center
η₀ 15.5450

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12774 Moon Centre 26

	Δx		Δy		O-C	
1	23.0000	-0.8930	0.	0.7974	34244	+67
2	22.1292	-1.7638	3.1110		34061	-96
3	22.0434	-1.8496	3.4210		34210	+88
4	22.1058	-1.7872	3.1941		34014	-163
5	22.7526	-1.1404	1.3005		34184	+7
6	23.0000	-0.8930	0.7974		34250	+73
7	23.8930	-0.0000	0.0000		34369	+192
8	24.0000	+0.1070	0.0114		34361	+184
					34177	

	Δx		Δy		arc
1	13.9245	-1.6205	-3	2.6270	209
2	15.1000	-0.5450	-1	0.2971	283
3	15.5450	0.0000	0	0.0000	270
4	16.0000	+0.4550	+1	0.2073	284
5	17.0000	+1.4550	+3	2.1179	322
6	17.1657	+1.6217	+3	2.6276	331
7	17.3965	+1.8533	+4	3.4369	360
8	17.3952	+1.8502	+4	3.4247	4
					Range 155

Approx Centre

X = 23 y = 13.9245
17.1657
31.0902
y_0 15.5451

y_{max} 17.3970
R = 1.8519 Corr R 1.8487
x_{max} 22.0434

x_0 23.8930

Moon Centre x_0 23.8930
y_0 15.5450

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Formation of Normals

1	+1.44	−59.7	−108.6
2	+0.95	+168.8	+51.8
3	+0.00	−61.2	−0.0
4	−0.81	+292.0	−73.4
5	−1.66	−7.9	+16.0
6	−1.41	−65.0	+118.1
7	−0.00	−0.0	+355.0
8	+0.24	+2.2	+34.0
	+2.63	+4810	+8759
	−3.88	−1938	−1830
	+1.25	+287.2	+6939

	a	b	c	cor. 0−c
a = −42	+37	−31	−60	+112
	+74	−10	−2	−22
b = +19	+78	−0	+12	+96
	+75	+9	+18	−117
e = −66	+48	+28	+10	−24
	+37	+31	+2	+20
	+0	+35	−31	+70
	−3	+35	−36	+54

much better.

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12774 Conditional Equations. 27

					O-C
1	−0.89	−1.62	= +67	−25 − 80 = −105	+17.2
2	−1.76	−0.54	= −96	−49 − 27 = −76	−20
3	−1.85	−0.00	= +33.	−51 − 0 = −51	+84
4	−1.79	+0.45	= −163	−50 + 22 = −28	−135
5	−1.14	+1.45	= +7	−31 + 72 = +41	−34
6	−0.89	+1.62	= +73	−25 + 80 = +55	+18
7	−0.00	+1.85	= +192	−0 + 91 = +91	+101
8	+0.11	+1.85	= +184	+3 + 91 = +94	+90
				+465 −189	

+12.63 −1.25 = +287.2 −8.21 or 82

− 1.25 +14.74 = +693.9 +5.06

+ ( ) −0.12 + 28.4

+0.29 Δ

+14.62 = +722.3 ℓ = +49.3 ℓ

+12.63 = +287.2 +61.8 = +349.0 a = +27.6 ℓ

−0.63 Δ

R = 1.85

arc 15.5

f_m = .19 ✓

$\frac{\Sigma r}{m}$ = +3.45 ✓

$\frac{+34.5}{.19}$ = +182 ✓

ΔR = +2.2 ✓

Corr (3) +0.9

True ΔR. +1.3

−2RC = −3.30

Δt = −0.96 Δδ = −0.5

Δa = +2.08 Δα = +0.07

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12774 Conditional Equations. 27

6-C

1	−0.69	−1.62	= +.67	−25″	−80″	= −105	+172
2	−1.76	−0.54	= −.96	−49	−27	= −76	−20
3	−1.85′	−0.00	= +.33	−51	−0	= −51	+84
4	−1.79	+0.45′	= +1.63	−50	+22	= −28	−135
5	−1.14	+1.45′	= +.07	−31	+72	= +41	−34
6	−0.69	+1.62	= +.73	−25′	+80	= +55	+18
7	−0.00	+1.65′	= +1.92	−0	+91	= +91	+101
8	+0.11	+1.65′	= +1.54	+3	+91	= +94	+90

+465″ −189

+12.63 −1.25′ = +287.2 −8.21 Cor 82

− 1.25′ +14.74 = +693.8 +5.06

+ (1 +0.12 + 28.4

+0.29 Δ

+14.62 = +722.3 b = +49.3 ℄

+12.63 = +287.2 +61.8 = +349.0 a = +27.6 ℄

−0.63 Δ

R = 1.65′

−2Rc = −330

Δt = −0.96 Δδ = −0.5″

Δn = +2.08 Δx = +0.07

Arc 15°5′

$\frac{f}{n}$ = .19

$\frac{\Sigma r}{n}$ = +34.5′

$\frac{+34.5}{.19}$ = +182

ΔR = +2.2

Corr.31 +09

True ΔR +1.3

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12774 Moon's Mean Position 28

Y_0 23.8930
+ 14
23.8944 ✓

4_0 15.5450
+ 25
15.5475 ✓

From Plate Constants.

24.1146 ✓
22
+ 21146 ✓

15.1119
18
−2.8881 ✓

log S_0 0.32523 ✓
85.0724
log tan δ_0 9.99998 ✓
log Sin α-A 1.81801 ✓

log tan δ 7.9689
log S_0^2 0.6505
7.0534
log n_1 5.6728

α-A 01 05.77 ✓

n_1 −2.8881
n_0 −2.8881

A 11 03 25.71 ✓

log n_0 0.46061 n
7.33115
log tan δ·D 3.12946 n ✓

α_0 11 04 31.48 ✓

Red 287

δ-D −1347.3 ✓
−22 27.3 ✓
D +0 55 48.6 ✓

α' 11 04 34 35.4 ✓

δ_0 +0 33 21.3 ✓

Red −18.3

δ' 0 33 03.0 ✓

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12774 Moon's Mean Position 28

X_0 23 8 9 30
+ 14
23.8944

Y_0 15.54.50
+ 25"
15.54 15"

From Plate Constants.

24 1 1 46
22
+ 21146

15 1 1 19
18
- 28881

log S_0 0.32523
85"1724
log cos$_{10}$ 9999998
9 Sin x·A 1.81801

log τ_0 79689
log S_0^2 0.65035
70"34
log n_0 56728

x·D 01 05"77

n_0 - 28881
n_0 - 28881

A 11 03 25"71

log η_0 046061 n
7331 15"
log cos δ 3.129466 n

X_0 11 04 31 48

δ - 13473
- 22 27 3
δ + 0 55" 48.6

Red 2 87

x' 11 04 34 35"

S_0 + 0 33 21.3

Red -183

δ' 0 33 03 0

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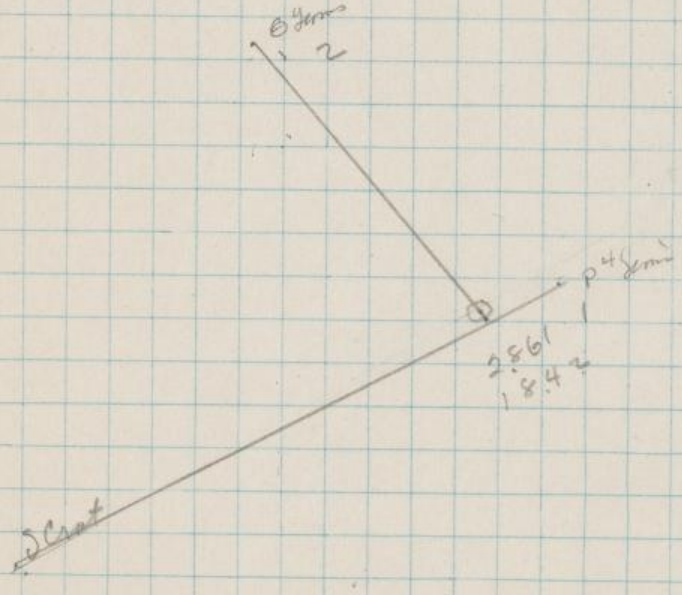
1) 11 02 43.113 +2 24 05.35
40.246 23.26
+ 2.867 - 17.91

2) 11 09 56.181 15 52 44 59
53.700 53 0.32
+3021 -15.73

3) 11 15 14.211 -14 20 05.63
11.376 - 19 45.19
+2.835 - 20.44

2.867
2.835
32

-17.91
-20.44
2.53



+15
+10
+5
.0
-5
-10
-15
-20

20 18 16 14 12 10 8 6 4 2 0 58 56 54

11 h

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12724 Reduction to Apparent Place 29

δ_0 +0° 33'.4

H+α	4	00.1	60°	01.5	
H	16	55 56.6			
α_0	11	04 53			
G	23	00.2			
$G+\alpha_0'$	10	04.7	151°	10.5	

log cos δ₀		9.99999	
" i		0.89624	
" (i)		0.89619	m
log cos $G+\alpha_0'$		9.94269	m
" g		1.07811	
" sin $G+\alpha_0'$		9.68320	
" tan δ'		7.98688	
		8.82397	
log g'		1.02079	m
" g		7.57920	
log sin δ₀		7.98688	
" cos H+α_0		9.69989	
" h		1.27633	
" " sin H+α_0		9.93376	
sec δ₀		0.00001	
		8.82397	
log h'		8.96020	
" h		0.03799	

g	+1.774
g_1	+0.004
g_2	+1.091
Red	+2.869

g'	−10.490
g_2'	+0.092
i	−7.873
Red.	−18.271

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12724 Reduction to Apparent Place 2:

δ_0 +0° 33' 4

H+x'	4	0 0 1	60°	01.5'	
H.	16	55 6		log cos δ_0	9.9999
α_0	11	04 5		" l	0.8962 n
G	33	00 2		" (l)	0.8961 n
G+x_0'	10	04 7	151°	10.5'	

log cos G+x_0'	9.9426 n	log sin δ_0	7.9868	
" g	10781	cos H+x_0	9.6989	
" sin G+x_0	9.6832	" l	12763	
" tan δ'	7.9866	" " sin H+x_0	9.9376	
	8.4234	sec δ_0	0.0004	
			8.4239	

log g' 1.0207 n
" f 7.5718

log l 8.9620
" f' 0.0379

f	+1.7734
f'	+0.0004
l	+1.0941
Red	+2.8679

g' -10.490
l' +0.092
f' -7.873
Red. -18.271

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12774

30

Lunar Parallax

α'	11	04	34.35	π	54	40.22
θ	11	12	29.10			
$\theta - \alpha'$	+	07	54.75			
=	01°	57	41.25			9.869113
$\frac{1}{2}\alpha - \alpha'$			41.89	log sin π		8.201466
$\theta - \alpha' = \frac{1}{2}\alpha - \alpha'$	01	57	59.36	" sin $\theta - \alpha'$		8.538040
				" sec $\frac{1}{2}\delta$		0.000009
				" sin $\alpha - \alpha'$		6.608726

	9.957277	
log cos $\frac{1}{2}\alpha - \alpha'$	0.000003	$\alpha - \alpha'$ + 183.78
" sec $\theta - \alpha' - \frac{1}{2}\alpha - \alpha'$	0.000026	
" tan γ	9.957756	= + 5.58

γ 42 12 18.4

δ' 0 33 03.0

$\gamma - \delta'$ 41 39 15.40

	9.826488	
log sin π	8.201466	
sin $\gamma - \delta'$	9.822599	
Corr γ	0.172774	
Sin $\delta - \delta'$	8.023222	

$\delta - \delta'$ + 36 16.0

δ	+01	09	19.0	α	11	04	39.93
Sph δ	+01	09	25.8	Sph α	11	04	38.98
O-C			-6.8	O-C			+0.95
Corr.			+0.9	Corr			-0.02
and Cord. Ref.			0.0	α	11	04	39.91
δ	+01	09	19.9	O-C			+0.93
O-C			-5.9				

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1 2 7 14

31

Lunar Parallax

α	11	04	34.35	π	54	40.22	
δ	11	12	29.10				
½ α		07	54.75				
=	01	58	41.25			9.99913	
½ x	01		41.89	log sin π		8.20146	
G − x = ½ δ − ½ α	01	57	59.36	log sin G − x		8.53704	
				sec δ		0.00009	
				sin x		6.60872	
		9.95727					
log tan ½ x sin x		0.00008		Δ α		+ 23.78	
sec G − x sec ½ x		0.00026					
tan y		9.95756			=	+ 5.598	
y	42	12	18.40				
δ′	0	33	03.00				
y − δ′	41	39	15.40				
		9.82640					
log sin π		8.20146					
sin y − δ′		9.82255					
cosec y		0.17277					
sin δ′		8.02322					
δ′		36	16.0				
δ	+01	09	19.0	α	11	04	39.93
½ δ	+01	09	25.8	½ α	11	04	38.88
Δ C			−68	D C			+0.95
Corr.			+0.9	Corr			−0.02
2nd Card Ref.			00		11	04	39.91
δ	+01	09	19.9	D C			+0.93
α − C			59				

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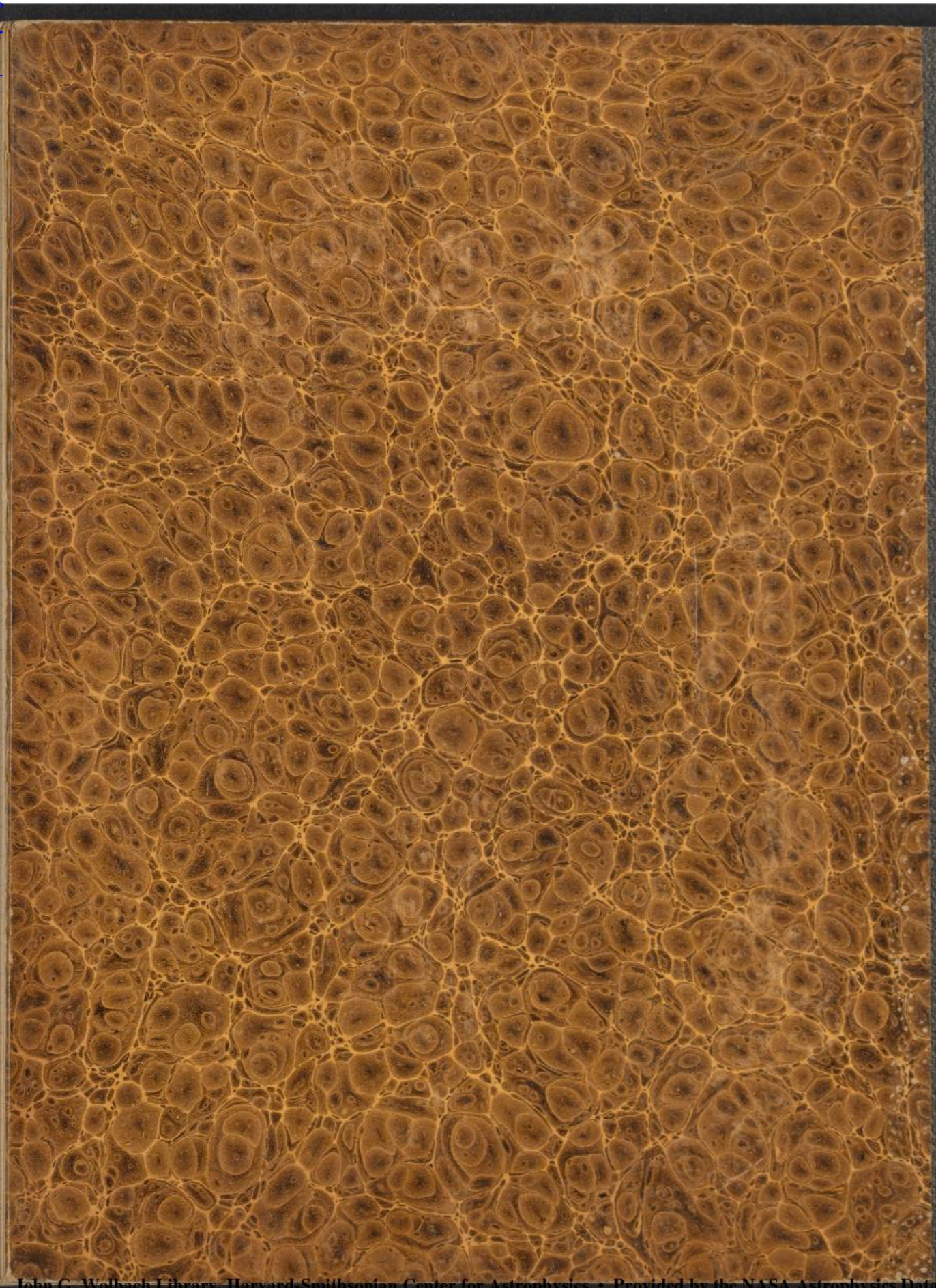
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